

**STATE OF ALASKA
ALASKA RETIREMENT MANAGEMENT BOARD**

ACTUARIAL COMMITTEE MEETING

March 16, 2022 – 1:00 p.m.

Call In (Audio Only): 1-907-202-7104

Code: 147 082 531#

- I. Call to Order**
- II. Roll Call**
- III. Public Meeting Notice**
- IV. A. Approval of Agenda
B. Approval of Minutes – December 1, 2021**
- V. Public / Member Participation, Communications and Appearances
(Three Minute Limit)**
- VI. Actuarial Update - BUCK (30-45 minutes)**
 - A. June 30, 2021 Valuation Results (PERS, TRS, PERS-DCR, TRS-DCR, JRS & NGNMRS)**
 - B. Discussion of Increase in March 2020 and March 2021 Prescription Incurred Claims & Underlying Reasons**
 - C. 2021 Valuation Projections (PERS/TRS)**
 - D. Sensitivity Analysis**
 - E. Valuation Timeline**
 - F. Draft June 30, 2021 Valuation Reports**
 - G. Actuarial Education**
 - 1. Explanation of the 25-year layered unfunded liability amortization methodology**
 - 2. Example showing the development of the FY22 Additional State Contribution of TRS**

David Kershner & Scott Young, Buck
- VII. Review of Valuation Results and Recommendations (30 minutes)**

Paul Wood & Bill Detweiler, Gabriel Roeder Smith & Company
- VIII. Assumptions for Experience Study (60 -90 minutes)**
 - Updated economic assumptions
 - Demographic assumptions

David Kershner & Scott Young, Buck
- IX. Update on RFP for Review Actuary Contract**

Pamela Leary, Director, Division of Treasury
- X. Review Committee Charter (per Charter)**
- XI. Future Meetings**
 - A. Calendar Review**
 - B. Agenda Items**
 - C. Requests / Follow-Ups**

XII. Public / Member Comments

XIII. Adjournment

State of Alaska
ALASKA RETIREMENT MANAGEMENT BOARD
ACTUARIAL COMMITTEE MEETING

Videoconference

MINUTES OF
December 1, 2021

Wednesday, December 1, 2021

ATTENDANCE

Committee Present: Allen Hippler, *Chair*
Lorne Bretz
Gayle Harbo
Robert Johnson
Commissioner Paula Vrana
Bob Williams
Dennis Moen
Donald Krohn

Committee Absent: Commissioner Lucinda Mahoney

ARM Board Trustees Present:

Investment Advisory Council Members Present:
Dr. William Jennings

Department of Revenue Staff Present:
Zachary Hanna, Chief Investment Officer
Pamela Leary, Director, Treasury Division
Brian Fechter, Deputy Commissioner
Shane Carson, State Investment Officer
Casey Colton, State Investment Officer
Victoria Djajalie, State Investment Officer
Sean Howard, State Investment Officer
Scott Jones, Head of Investment Operations, Performance & Analytics
Ryan Kauzlarich, Accountant V
Mark Moon, State Investment Officer
Michelle Prebula, State Investment Officer
Hunter Romberg, Investment Data Analyst
Stephen Sikes, State Investment Officer
Grant Ficek, Business Analyst
Alysia Jones, Board Liaison

Department of Administration Staff Present:

Ajay Desai, Director, Division of Retirement and Benefits
Kevin Puckett, Deputy Director, Division of Retirement and Benefits
Kevin Worley, Chief Financial Officer, Division of Retirement and Benefits
Traci Walther, Account V, Division of Retirement and Benefits
Emily Ricci, Health Care Policy Administrator, Division of Retirement and Benefits

ARMB Legal Counsel Present:

Benjamin Hofmeister, Assistant Attorney General, Department of Law

Others Present:

Steve Center, Callan
Paul Erlendson, Callan
David Kershner, Buck
Scott Young, Buck
Tonya Manning, Buck
Stuart Schulman, Buck
Paul Wood, Gabriel Roeder Smith
Bill Detweiler, Gabriel Roeder Smith

I. CALL TO ORDER

CHAIR ALLEN HIPPLER called the meeting of the ARM Board Actuarial Committee to order at 1:30 p.m.

II. ROLL CALL

MS. HARBO, MR. JOHNSON, COMMISSIONER VRANA, MR. MOEN, MR. WILLIAMS, and CHAIR HIPPLER were present at roll call.

MR. BRETZ joined the meeting at 1:36 p.m.

III. PUBLIC MEETING NOTICE

ALYSIA JONES confirmed that public meeting notice requirements had been met.

IV. A. APPROVAL OF AGENDA

MS. HARBO moved to approve the agenda. MR JOHNSON seconded the motion. The agenda was approved without objection.

B. Approval of Minutes: September 22, 2021

MS. HARBO moved to approve the minutes of the September 22, 2021 meeting. MR. WILLIAMS seconded the motion. The minutes were approved without objection.

V. PUBLIC/MEMBER PARTICIPATION, COMMUNICATIONS & APPEARANCES – None.

VI. ACTUARIAL CALENDAR REVIEW

MS. LEARY noted that on page 17 of the packet was the Actuarial Committee timeline and agenda deadlines. She explained it was intended to allow the Board to be prepared for the annual segue of actuarial tasks and deadlines for the coming year. She said they were open to suggestions, changes, additions or subtractions from it. She explained it was broken out in two components, one for the quarterly agenda items and one for contract and rate review deadlines. She said this was a subset of a calendar/timeline that MS. JONES would present to the full Board the following day.

MR. JOHNSON said he appreciated the preparation of the timeline and agenda items, that it was a good reminder of what they were doing and why.

MS. HARBO said she also appreciated the inclusion of the contracts, and their expiration and renewal dates. She said it was hard to keep track of them all.

VII. VALUATIONS AND ACTUARY REVIEW

A. Preliminary 2021 Valuation Results

CHAIR HIPPLER invited MR. KERSHNER and MR. YOUNG from Buck to speak.

MR. KERSHNER noted that it was good to see everyone in person again. He said that MS. MANNING and MR. SCHULMAN were attending telephonically.

MR. KERSHNER began his presentation on slide 18 with background information for those who were new to the Board. He explained that each year they perform the actuarial valuations of all the retirement systems with a snapshot measurement of a point in time, which was June 30, the end of the plan fiscal year. He said they measured the funded status of each plan, which was a comparison between the assets invested and the liabilities they determined and combined them to determine the funded status and contribution rates. He said every year they also evaluate what occurred during the year to assets and liabilities compared to what was expected to happen during the year based on assumptions used in the valuations. The current valuations formed the basis for setting FY2024 contribution rates.

MR. KERSHNER noted that it had been a good year for the plans from both an asset and a liability perspective. He said the market return was about 30 percent for both PERS and TRS. He explained that the full 30 percent was not recognized for the year because if it was, there would have been a significant drop in contribution rates. He said that if they had a year where the returns were bad, they would see the reverse, contribution rates would have gone up. They use a five-year asset smoothing to recognize the market gains and losses 20 percent per year, that way all the gains and losses would be fully recognized in the actuarial value.

MR. KERSHNER said that when they recognized 20 percent of the FY2021 market gain, and 20 percent of the previous four years of gains and losses, it resulted in an actuarial return of about 12 percent for year end 6/30/2021. He said the actuarial returns generated significant asset gains.

MR. KERSHNER said the liabilities expected were determined based on the 2020 liabilities which

they projected forward one year. He explained if everything occurred during the year according to what their assumptions predicted they would have an expected liability and that gets compared to the actual liability that is based on collected data. The liabilities for the year were less than expected. He said the chart on the slide showed the two biggest sources of the liability gains and losses on both pension and healthcare. He said the pension side for both PERS and TRS had the biggest gain with the PRPA (Post-Retirement Pension Adjustments) and COLA increases. He explained that PRPA's that would have gone into effect on 7/1/2021 were based on the calendar 2020 CPI increase, which was negative, so effectively zero. We had assumed those PRPA increases would go up with inflation, which was 2.5 percent. So, the difference between the expected 2.5 percent increase versus the actual zero percent gave rise to these large PRPA gains.

MR. KERSHNER said this year was the first in several where they had salary increase losses because the salary increases for the year were larger than expected for both PERS and TRS which resulted in salary losses in those years.

MR. YOUNG said on the healthcare side, the two biggest gains of the year were the per capita claims costs on the medical side. For the past two years had been on the prescription drug side. He said they were seeing some of the favorable experience on the medical side because of the move from Aetna to Optum, phasing in the more favorable contract and higher rebates.

MR. YOUNG explained that the percentages were under 4 percent. He said with PERS, they had a liability on the healthcare side of over \$7 billion, which 4 percent of that was \$280 million with a gain of about \$272 million.

MR. YOUNG said there were two plan changes for 2022, one was preventative benefits added for the pre-Medicare participants, which was a small cost increase. He said for the prescription drug benefits, a prior authorization program was being put in place for certain specialty medications, which was expected to decrease the overall cost.

MS. HARBO said she thought another reason was the increasing number of the DB retirees that fall under Medicare. That as population ages, there were more retirees under Medicare, which would make Medicare primary and Aetna secondary. She asked if the numbers of PERS and TRS DB participants on Medicare was over 70 percent; MR. YOUNG said it was getting close to that. He said 17,500 were pre-Medicare and about 47,500 were post-Medicare.

MS. HARBO said she thought another reason costs were going down was because those on Medicare were paying out-of-pocket for their Medicare expenses; MR. YOUNG said that was true but clarified that this gain was measured on the average cost per person and already accounts for the fact that there were different costs for Medicare and non-Medicare members.

MR. KERSHNER said PERS total pension gain was about \$162 million, which was 1 percent of the PERS pension liability. He said they evaluate not only the magnitude but also the sources of these costs every year. They can see a trend of gains or losses for one of the particular events like retirements or salaries and that is a signal that the assumption needs to be reevaluated. He said on the TRS side, the gain was a bit under \$50 million, about 0.6 percent of the total TRS pension liability. He said the healthcare side was about 5.5 percent of the healthcare liabilities. He said that the bottom-line result

was the funded ratios were higher this year than they thought and the contribution rates, as a result, are down versus last year.

MR. YOUNG noted that slide 7 provided more information on the gains on the retiree medical side of \$272 million for PERS and \$97 million for TRS. He said the main reason the medical side was carrying the lions share was because the costs were per person, and they were all made to be at age 65. He said the valuation assumed that every year the average cost per person would change by the trend assumption used to project costs into the future. He said for the FY2020 valuations, they had the assumption on the pre-Medicare side, that the medical costs were going to go up by 6.5 percent per person and 5.4 percent on the Medicare side.

He explained that the valuation assumes that every year the average cost per person would change by the trend assumption used to project costs into the future. He said they use the actual claims from the data warehouse and actual enrollment from Aetna to calculate a new average cost using the two most recent years of experience and weigh them equally and some other adjustments projecting into the valuation year. He said they come up with an average expected cost in the valuation year, which was the basis for projecting future costs. He said they calculate a gain or loss by looking at what the cost expected in the prior year projected forward was and compared that to what the new cost was based on the updated data and underwriting. He said for pre-Medicare, the expected cost was \$16,358 and the actual cost was \$15,708, so 4 percent lower than what was assumed. He said Medicare had slightly higher gains of 5 percent. He explained that Medicare Part B only had a couple of hundred people enrolled.

MR. YOUNG said that since Optum was fully phased in, the prescription drug side compared to last year, was 1.3 percent on pre-Medicare, 0.9 percent on the Medicare side.

MR. YOUNG noted that the EGWP side had a sizeable percentage gain because the EGWP subsidy estimate provided by Optum increased by 16 percent from 2021 to 2022. He said for the two years, the 2020 valuation assumed 8 percent and 7.5 percent, they had expected it to be 15 percent higher two years later. He said it was not too far off, that they were pretty close with a net liability gain of a little under 4 percent.

MR. YOUNG said that preventative benefits were being added for pre-Medicare members in 2022, and a prior authorization program for specialty medications would be implemented as well. He said he had worked with the Retiree Health Plan Advisory Board to come up with the estimates of how it would affect the funded status of the plan and contribution rates. He said they used estimates Segal had produced while working with Optum on the specialty medication approach. He said they provided additional costs for preventative benefits of \$3.35 million in 2022; he explained that meant no additional costs for members who currently use preventive benefits. He said there would be a cost savings for prior authorization estimated to be \$5 million for the pre-Medicare prescription drug side, \$4.7 million in savings on the Medicare side and a reduction in the EGWP of \$2 million. He said the total expected savings would be \$7.7 million in 2022 and offset that by the \$3.35 million cost, which would still be an expected savings of over \$3 million for 2022.

MR. YOUNG moved on to slide 9 which displayed the medical incurred claims on a monthly basis per member averaged over the past three fiscal years. He said that it was used to calculate the average

cost per person each month and they used that information to set the assumption for all future years. He explained that the chart on the left was for under-65 members and the chart on the right was for over-65 members. He noted that the pink line was for FY2020 when COVID hit. He said they excluded claims from March through June and replaced the numbers with what they expected they would have been during that time.

MR. YOUNG said that after looking at a number of different factors as to what adjustments they used, they ended up using a 4 percent load. They looked at the actual medical claims incurred during the prior fiscal year and increased them by 4 percent which was the estimate of what additional claims would have been if COVID had not caused people to avoid and defer care. He noted that some people were experiencing higher than expected costs, but the net effect was a decrease during the most recent 12 months. He said other clients had used a 2 to 7 percent adjustment and that they felt 4 percent was the best estimate.

MR. YOUNG said that slide 10 showed charts for the prescription drug plan's experience. He said the over-65 side showed where the better contract with Optum was initiated in December of 2019 and the cost went down. He noted that last year there was a spike in March possibly due to the impact of COVID and people rushed to refill their prescriptions with concerns of not being able to get to the pharmacy and some people switched from monthly to three-month mail-order.

MR. WILLIAMS asked if there was data for the spike in prescriptions due to COVID or if they could tell if there was some other issue that would have caused the spike; MR. YOUNG said they received aggregate monthly data rather than detailed individual data, so they were not able to determine the amount of prescriptions filled at that time or if the prescriptions were high-cost specialty medications. He said the data was available, but it was not data that they receive for valuations. He said they would have to investigate it if the Board wanted a clearer answer; MR. WILLIAMS said he was interested because it had jumped up; MR. YOUNG said the average monthly cost was \$400 per month per person.

CHAIR HIPPLER asked who would have that information and how would it be obtained; MR. YOUNG said he would check with Segal to see if they had access to that information from the data warehouse, otherwise he would see if he could get it from Optum.

MR. KERSHNER moved to slide 12 which included charts with actual and expected figures for 2020 and 2021 actual. He said they compare 6/30/21 actual versus 6/30/21 expected to get their gains and losses. He said slide 13 showed a chart of the market value and actuarial value of Pension and Healthcare for PERS. He said the striped bars were the market values, the solid bars were the actuarial values. He said the pension market value was \$9.469 billion and they expected that to increase to \$9.8 billion. He said the red striped bar, actual market value, jumped up to almost \$12 billion. He said the solid green line, the expected value, was a little over \$10 billion, the actual value was at almost \$10.5 billion showing a gain of \$396 million. He said if nothing else happened in the next four years, they would expect to recognize another 20 percent of the \$2.1 billion market gain in the following year and another 20 percent the year after.

MR. KERSHNER said on the right side of the chart showed the corresponding values on the healthcare assets. He said the market gain was \$1.7 billion and with smoothing, the actuarial value

of the assets was about \$338 million higher than expected.

MR. KERSHNER said slide 14 showed a comparison between the actuarial value of assets - the solid bars, and the liabilities - the striped bars. He said when they compared the striped red versus the striped green on the pension side, the difference between what they expected the liabilities to be versus what they were measured at showed a gain of \$162 million and a \$338 million actuarial value of asset gain. He said the healthcare side showed the liability gain of \$394 million and the asset gain of \$338 million.

MR. KERSHNER said that slide 15 showed the funded status. He said last year the PERS pension was funded at 63.6 percent with an expected increase to 64.6 percent due to funding a portion of the unfunded liability. He said the actual funded ratio for FY2021 was 67.9 percent funded on the pension side. He said on the healthcare side they were over 100 percent funded because they contribute the normal cost every year and the overfunded status was expected to continue to rise.

MR. KERSHNER said the left side of slide 16 showed the contribution rates as of 6/30/20 explaining that the contribution rates were determined as a percentage of total payroll and reflected the percentage of both the PERS DB and the PERS DCR payroll. He said the normal cost was shown in pink and was 3.1 percent for pension and 3.6 percent for healthcare. He said the blue bar was the amortization of the unfunded liability, shown as a percentage of payroll, and the gold bar was the total contribution rate.

MR. JOHNSON asked if they had a chart that showed what the combined funded status was of the funds together; MR. KERSHNER said he did not have a chart but did have the figures. He said for PERS the total funded ratio last year was 79.3 percent and was expected to be 80.3 percent, the actual was 85.5 percent. He said for TRS it was 86.6 a year ago and expected it to be 87.4 but was actually 92.5.

CHAIR HIPPLER asked what the combined numbers for TRS would be if they were to use fair market value numbers; MR. KERSHNER said it would be 105.4 percent. He said if they used market value for PERS it would be 97.4 percent.

MR. KERSHNER said slide 16 showed the contribution rates as of 6/30/21 were a bit lower. He said the normal cost was the cost of benefits accruing through the upcoming year, that as actives earned one more year of service, they earned an additional accrual of benefits. He said the normal cost was the cost of those benefit accruals. He said for pension it went from 3.1 percent to 2.8 percent. He said they expected the normal costs to decrease over time because the defined benefit plans were closed. He said there were no replacements for the actives that retire, and all new hires go into the DCR plans. He said normal costs decrease because of the different tiers of benefits, as the older tier becomes less prominent in the plan, the newer tier becomes more predominant. He explained that the normal cost rates were net of the member contribution rates. They are the employer normal cost rates.

MR. KERSHNER said the blue bars on the right reflect the amortization of the unfunded liabilities, which were less than they expected, and the unfunded liability amortization rate was lower. He said the total contribution rate for PERS last year was at 24.11, a year later it was just over 22.

MR. WILLIAMS asked if they had to look at PERS and TRS separately or if there was the ability to combine PERS and TRS to determine the rates; MR. KERSHNER said the contributions rates were determined separately based on the pension funded status and separately based on the healthcare funded status, that they were not combined for the purpose of determining contribution rates.

MR. JOHNSON said that he thought it was accurate to say that combining both yields a figure and that could be broken out into the two separate components, but the contractual and constitutional expectations of the beneficiaries were for a single contribution rate; MR. KERSHNER said they do look at the 22 percent and the 12.56 percent for TRS, that it was done on a global basis but determined separately by first determining the pension contribution rate and add the healthcare contribution rate to get a total. He said if they determined the contribution rates on an aggregate basis, they would get a completely different answer because they would be getting the benefit of the overfunded status of the healthcare trusts depressing the pension contribution rates.

MS. HARBO noted that most states do not provide healthcare and if they wanted to compare Alaska with Idaho or California, they would use the combined amount.

MR. KERSHNER said she was correct, that when comparing Alaska funded ratios versus other states, the other states were almost always pension only.

CHAIR HIPPLER asked if he understood correctly, that when they mention those rates, the assumption was that they were continuing to get the 7.38 percent throughout, that the costs estimated are all on track, and that's where they were coming up with those numbers; MR. KERSHNER responded affirmatively.

MR. KERSHNER said slide 18 showed the market and actuarial value of assets for TRS, that it had a similar story to PERS. He said the market gains on the pension side were \$1.2 billion and when smoothed out the gain recognized for the previous four years of gains was \$226 million. He said on the healthcare side it was a \$656 million market gain on the assets and after smoothing, \$127 million.

MR. KERSHNER said slide 19 compared the actuarial value of assets, that under each chart showed the liability gain and the actuarial value of asset gain that had been previously discussed. He said slide 20 showed the funded ratios, actual actuarial value of assets versus the actuarial accrued liability. He said that on the pension side, last year they were at 75 percent funded and expected it to be at 75.5 percent, but they were actually at 79 percent. He said healthcare was overfunded, that TRS funded ratio on a combined basis at 6/30/21 was 92.5 percent based on the actuarial value of assets.

MR. KERSHNER said this year was a roll-forward year for the JRS Plan and the National Guard Plan which meant they did not collect participant data. He said they would reflect the asset performance during the year but would project the 2020 liabilities one year forward to 6/30/21 as part of the roll-forward valuation. He said they would also complete the 30-year projections they do for PERS and TRS of assets, liabilities, and contributions. He said the draft valuation reports would be discussed at the next meeting in March.

B. Actuary Review

MR. WOOD said he would give brief update on the annual review of the test lives, the report, and the

results. He said that they had received most of the test lives, that they were also performing a concurrent replication audit. He said the audit added tremendous value to the process because Buck had provided the present value of benefits by every single individual in the valuation. He said they were able to compare apples to apples on every person they ran through the valuation. He said they had sent the supplemental list to Buck who was working on it, and they would deliver the results in March.

MR. WOOD said they had reviewed MR. YOUNG's work on the per capita claims cost development and sent it to their OPEB expert to have him review it and he was very impressed with the work MR. YOUNG did.

MR. WOOD said that he felt having the 4 percent load was important, he said they were erring on the side of caution by including that load, and he thought it was a reasonable approach.

CHAIR HIPPLER asked if there were any specific subjects that would be more appropriate for him to address today, as opposed to at the Board meeting; MR. WOOD said they would go through the scope and have the results by plan laid out. He was comfortable with the information that they have. He said it would be great when they come back in March to be able to say here's the differences on an individual basis.

MR. JOHNSON commented on GRS' abbreviated presentation to the committee meeting versus the presentation scheduled for the Board meeting saying that by and large the intent was to have committees do the deeper dives. He said that he had a discussion with CHAIR HIPPLER recommending that as Chair of the Board at that time to emphasize GRS' presentation to the Board as distinct from the committee, because in this instance there was a statutory requirement that spoke of delivery of the actuarial audit to the Board.

VIII. ECONOMIC ASSUMPTIONS FOR EXPERIENCE STUDY

MR. KERSHNER reminded the Board that the valuation was based on a set of assumptions, that were based on what they expect to happen to the assets, salaries, participants, who would retire early, what percentage of people were expected to leave employment, and what percentage of people were expected to continue to be alive.

MR. KERSHNER said they conduct experience studies every four years as required by the Alaska statutes. He said the purpose of the study was to evaluate what happened over the last four years and to try to project what they think would happen and adjust the assumptions based on what they had observed and what they expect to happen in the future. He noted that healthcare costs and trend rates were updated annually, but the underlying assumptions were analyzed every four years.

MR. KERSHNER said today's presentation would focus on economic assumptions and in March they would focus on demographic assumptions as to future retirement, withdrawal, et cetera. He said that for the experience study they look at more than the last four years, they also look at historical data. Then they do a deeper dive into the five different economic assumptions used in the valuation – the inflation rate, the investment return assumption, salary increases, the payroll growth rate, and the healthcare trend rates.

MR. KERSHNER said the current experience study covered July 2017 through June 2021, the assumptions the ARMB adopts would be effective beginning with the June 2022 valuations. He reminded the Board that setting assumptions was data driven with a lot of science involved, with a bit of art and judgment as well. He said there would never be, based on one set of data, the same analysis of different actuaries because judgment enters into everything they do. He explained they were governed by Actuarial Standards of Practice that required they opine the assumptions were their best estimate of reasonable long-term expectations, that there was not one correct answer for assumptions. He said there was always a range of reasonable, and it could be at the low end or at the high end of the range. He said an assumption was generally considered reasonable if it was not expected to develop a bias on either side.

MR. KERSHNER said they evaluated each assumption in terms of its materiality on the valuation, if the analysis was not going to impact the valuation results, they avoid doing that. He explained that disability rate did not have a lot of data to study and would generally not cause material impact on the valuation results. He said they look at and consider past experience, but do not set the future by looking at the past.

MR. KERSHNER said they look at the range of reasonableness as it relates specifically to the investment return assumption. They consider anything between the 65th and 35th percentiles. He said the 65th percentile of the investment return assumption was 7 percent, meaning 65 percent of the time they expected investment returns to be at 7 percent or lower. He said the 35th percentile would be at 6 percent and 35 percent of the time they expected the return to be at 6 percent or lower.

MR. KERSHNER explained that the cost effects shown at the end of his presentation were determined on the 6/30/20 valuations as that was the last valuation the ARMB had adopted. He said for the purposes of the cost effects, all of the demographic assumptions they used were kept constant under the current set and proposed set, that the only change was in the economic assumptions.

MR. JOHNSON asked if the Board had either explicitly or implicitly went along with a 65 to 35 percent range; MR. KERSHNER said that was their view of what the Board had dictated; MR. JOHNSON asked if it could be changed; MR. KERSHNER said there was no line in the sand that said they could not go above the 65th percentile, as long as it was not, in their view, unreasonable.

MR. WOOD explained that the standards had evolved over time, that they had discussed the best estimate range and it implied that with a range between the 25th and 75th percentile, there was a 50 percent chance of falling within that range. He said when the Actuarial Standard of Practice was updated, it tightened the range where it implied that it was the difference between the geometric mean and the arithmetic mean, with the arithmetic mean being a little higher, but there was no set standard, it came down to the professional judgment of the actuary.

MR. KERSHNER said slide 6 discussed the Actuarial Standard of Practice No. 51. He explained that it required the actuary to identify risks that were underlying the plan that could affect the future financial condition, funded ratios, and contribution rates. He said the experience study was a good tool to help mitigate risks because as they tweak and reevaluate their assumptions every four years to better estimate future experience and those modifications help reduce some of the risks.

MR. KERSHNER explained that one of the risk factors was longevity – predicting how long people would live. He said they update their mortality assumption every four years to a more current mortality table that reflected recently observed mortality experience which helped them to mitigate against longevity.

MR. KERSHNER said slide 8 showed the 10-year periods ending 2000, 2010, and 2020 as well as the 20-year period for inflation ending in 2020. He said the 20-year inflation rate for Urban Alaska/Anchorage was just over 2 percent for the 20-year period. He said slide 9 showed the historical market returns for PER/TRS/JRS/National Guard for the 20-year period. He said that once every four or five years, they had negative returns. He said for most of the years on the chart, the bars go above the assumed rate which was 8 percent until 2018 when it decreased to 7.38 percent. He said the allocation for the National Guard Plan was a little more conservative and had returns lower than expected.

MR. KERSHNER said slide 10 showed the average market returns of each plan for the last 5 to 25 years. He said for the last five years, those returns were considerably higher, primarily because of the high returns experience in 2021. He noted that looking at the last 25 years PERS, TRS and JRS were around 8 percent with the National Guard at 6.5 percent.

MR. KERSHNER said slides 11 and 12 showed the increases in average pay at each valuation year, which takes the number of the total pay divided by the number of actives, which gave the average pay. He said that the increases in average pay had been declining over time. He said there was a big spike in 2019 for PERS as that was the year the peace/fire group received large increases.

MS. HARBO commented that she thought the other reason salary increases had not been as large was due to the union's bargaining healthcare more than salary increases.

MR. KERSHNER said that was a fair observation adding that they believed another reason could be that a lot of the older teachers continue to work beyond retirement ages and longer service teachers generally do not receive high payments.

MS. HARBO noted that for the DCR plan, there may be people who worked for five years and then left the system, so new people coming in start at a lower salary. She also noted that the older teachers at the top of the salary schedule on the DB side often bargain that the last year they work was a bonus instead of a percentage increase.

MR. KERSHNER said that slide 12 showed the same information for the DCR plans and noted that the TRS DCR had not lagged as much as the TRS DB plan and that they did not see the same spike in 2018 for the PERS DCR that they had been shown on the prior slide.

MR. KERSHNER said slide 13 showed the growth in total payroll for PERS and that they had combined DB and DCR. He said the average pay increase for PERS DCR for 2018-2021 was 1.6 percent, which was less than assumed. He said they were currently assuming 2.75 percent. He said the consequence of total pay not going up had two effects. One was fewer contributions were coming into the systems payroll and because contribution rates were the dollar cost divided by total pay, and if total pay was not rising as fast, contribution rates would go up. He said the increases were more

pronounced for TRS DCR, shown on slide 14, with an average increase barely above zero for the four-year period of 2018-2021.

MS. HARBO said that the charts showed the number of actives had decreased significantly between 2010 to 2021 and noted that in 2021 there were only 8,917 active TRS people; MR. KERSHNER said that DB Plan population continued to decline and there were not as many new entrants coming into the DCR Plans to replace the exiting.

MR. KERSHNER said the inflation rate was an underlying component of each of the four other economic assumptions and needed to be consistent. He said the inflation rate also directly affected the liabilities, or the PRPA, because they are linked by statute. He said they were a percentage of the CPI increases for the calendar year up to a certain amount that directly affected liabilities for the PRPA benefits. He said the CPI increases had been relatively low in the past until the most recent year they just experienced. He said it had been the first year where the CPI spiked.

MR. KERSHNER said that the high inflation rates might continue for a couple years, but no one was predicting they would persist long term. He said that they were focused on the long-term benefits and were trying to set assumptions based on current conditions with an eye towards the long-term goals. He said the bottom half of slide 17 showed external forecasts, for Callan's January 2021 market outlook, the 10-year inflation forecast was 2 percent. He said the Philadelphia Reserve Bank published a survey of professional forecasters in May and the 10-year outlook was for 2.3 percent. He added that NASRA, which surveys U.S. public state retirement systems, in February their Issue Brief said in FY2010, the average inflation of all the state retirement systems was at about 3.5 percent and Alaska's assumption was 3.12 percent. He said in FY2019, the NASRA survey average inflation was down to 2.65 percent and Alaska's assumption was at 2.5 percent.

MR. KERSHNER explained that slide 18 showed the GEMS model which forecasts the expected inflation rates based on the first quarter of 2021 capital market assumptions. He said the 30-year rate was at 2.08 percent. He noted that the current assumption the ARMB adopted beginning with the 2018 valuations was 2.5 percent and that based on the data discussed as well as their GEMS modeling. He said they proposed lowering the inflation assumption between 2 and 2.25 percent would be a reasonable inflation assumption.

CHAIR HIPPLER asked if their inflation assumption changed real rates of return; MR. KERSHNER responded affirmatively.

MS. HARBO noted that when the Board changed the assumptions before, they had a 4.88 percent real rate of return and 3.12 for inflation and kept the real rate of return at 4.88 and lowered the inflation to 2.25 with the last experience study. MR. KERSHNER said that was correct.

CHAIR HIPPLER asked if inflation were to change this time, would it impact real rates of return; MR. KERSHNER said it would, that the real rate of return was the nominal return minus the inflation. He said the inflation was 2 percent and that produces a certain real rate of return, and if it was 2.25 percent, the real rate of return would be 25 basis points lower.

MR. KERSHNER said that of all the assumptions changing the investment return had the biggest

impact on liabilities, funded ratios, and contributions; MS. HARBO opined that investment return and mortality were the two highest.; MR. KERSHNER said that it depended on how big of a change mortality was.

MR. KERSHNER explained that the investment return assumption was what they expected the assets to earn every year, net of investment expenses. He said they use the return assumption to discount projected benefits to determine the present value of the liabilities. He said that was the reason investment return was so important to the valuation, the lower the investment return, the liabilities go up and vice versa.

MR. KERSHNER said there were several factors they considered when setting the investment return assumptions. They considered the plan's investment policy and asset allocation strategy, and the underlying capital market assumptions. He said the third quarter capital markets assumptions were going to be issued later in December. He said if they were to redo the analysis using up-to-date capital market assumptions, they would get a different answer.

MR. KERSHNER said they tend to focus on 30 years, that projected benefit payments for PERS that were currently at \$1.35 billion in benefit payments – pension and healthcare combined and was expected to peak at \$2.1 billion in 18 years. He noted that because the Defined Benefit plans were closed, as retirees drop off due to mortality and there were not many actives, it was expected to peak and then come down. He said they were projecting that in 30 years, they would have \$1.64 billion in benefits.

MR. KERSHNER said slide 21 showed the asset allocations and the target allocations the Board adopted in June 2021 and were reflected in the assumptions. He said slide 22 showed how the GEMS model spread the allocations across a wider variety of asset funds. He explained that GEMS was a random-generated outcome for both inflation and investment returns with thousands of potential outcomes used to develop the expected investment returns and percentiles.

CHAIR HIPPLER asked if the staff concurred with the breakout; MR. HANNA confirmed that they had worked together, and it mapped to their allocation.

MR. KERSHNER said slide 23 showed the two different approaches. He said Approach 1 showed that asset returns, and inflation rates would come close to historical norms, where Approach 2 had a lower risk premium on some of the equity investments so the rates would be about 50 to 100 basis points lower than Approach 1.

MR. KERSHNER said slide 25 discussed the results of the Building Block Method which used arithmetic returns versus geometric returns for the GEMS model. He said the difference was the geometric returns factor in the volatility of the asset classes and the correlation between the asset classes and the volatility of the overall portfolio would be impossible to model under the building block method. He said building block rates were higher than GEMS because the arithmetic returns under the building block were higher than under the GEMS geometric returns.

CHAIR HIPPLER asked if they were nominal rates of return or real rates of return; MR. KERSHNER said they were nominal rates of return of net of investment expenses; CHAIR HIPPLER asked what

they calculated first when running models, the nominal rate of return or the real rate of return and which number drives the other numbers; MR. KERSHNER said the nominal return, that they did not calculate the real rate of return and add inflation to get the nominal, they calculated the nominal return. He said the building block method does it the other way, it starts with the real rate of return and adds inflation.

MR. SCHULMAN commented that the model generated the nominal returns, and the expectation of inflation was generated concurrently. He said one could then subtract the two to get the real rate.

MR. KERSHNER said Option 2 was more conservative and the 30-year expected return, net of investment expenses before subtracting inflation was 6.1 percent or 75 basis points lower than Approach 1 versus Approach 2. For the National Guard, the expected 30-year return was 5.65 percent.

MR. WILLIAMS asked if the rates were lower because they were expecting them to fall within the next 10 years; MR. KERSHNER invited MR. SCHULMAN to respond.

MR. SCHULMAN explained there were a couple reasons why the rates were lower than they were four years ago and why the expected returns go up 10, 20, 30, years. He said they have lower interest rates than they had four years ago. He said if the interest rates revert to something closer to the norm, then interest rates would be expected to rise and the further they have to rise, the poorer the bonds would be over time because interest rates would rise by a larger amount and there would be capital losses. He said the bonds that were part of the portfolio would not do well the lower the starting interest rate was. He said the further out they go, the longer they had to amortize the losses. He also believed their expectations about equity risk premiums were more tempered and that there was more likelihood that the new normal would persist longer.

MR. KERSHNER said slide 27 was a summary of their proposed assumptions, noting that all proposed assumptions were shown in red throughout the presentation to help them stand out from the current assumptions. He said for PERS, TRS and JRS, the nominal return, net of investment expenses of 7.38 percent, less the inflation rate of 2.5 percent gave a real rate of return of 4.88 percent. He said they were proposing lowering the nominal rate of return to 7 percent and with a 2 percent inflation rate, the real rate of return would be 5 percent. He noted that if they added a 2.25 percent inflation rate, the real rate of return would be 4.75 percent.

MR. KERSHNER said the National Guard's return was at 7 percent and they were proposing to lower it to 5.75 percent, noting that the inflation rate did not factor in the National Guard liabilities which were not sensitive to inflation, that the benefits were fixed.

CHAIR HIPPLER asked if they had used the building block approach to come up with the numbers; MR. KERSHNER said it was more from the GEMS geometric returns than the building block; CHAIR HIPPLER asked if the Board was uncomfortable with the inflation number and left the inflation number alone or did not reduce it as much, would that reduce the rate of return; MR. KERSHNER said that was correct, assuming they used the 7 percent nominal.

MR. KERSHNER moved to slide 29 to discuss salary increases. He said they were proposing the

same salary increase rates for PERS DB and PERS DCR and different rates for TRS DB and TRS DCR because they saw significant differences between the two sets of plans.

MR. KERSHNER said because retirement benefits other than the National Guard Plan were a function of salary, either average three-year or five-years, or for JRS, the final year of pay and because they were trying to project benefits into the future, they had to project salary increases. Those projected salaries would be used to generate the projected benefits. He said they increased every active member's current pay in the data and projected it based on the salary increase assumption until they were expected to retire in order to determine the projected benefits. He said the increases included two components – the inflation rate component and the merit, productivity component.

MR. KERSHNER said slide 30 showed the PERS peace/fire group noting that the expected increase was 3 percent, the actual was 4.7 percent and based on their proposed rates, the average increase would be 4 percent. He said they were suggesting an increase of all the salary increase rates, that the actual increases for three of the four years were what they were currently assuming.

MR. KERSHNER said slide 31 showed the PERS non-peace/fire group and other group. He said two of the four years were below the expected rate. He said their proposed rates would lower the salary increase rates, partially due to the inflation assumption being lower. He said another reason was that their proposed assumption was currently 2.5 down to 2 percent.

MR. KERSHNER said slides 32 -35 showed the salary increases for TRS, PERS DCR, TRS DCR with similar charts and that they were suggested minor tweaks in the increase rates. He said slide 36 showed the current year-by-year service for PERS/PERS DCR peace/fire and others. He said all the proposed rates, shown in red, were higher than the current rates for peace/fire. The proposed rates for others were lower because the inflation rate was 50 basis points lower.

MR. WILLIAMS said it appeared that the assumption was that they wanted to drop inflation 50 basis points and increase salaries above what they currently were and also factor inflation into it, was that accurate; MR. KERSHNER said that was correct, but it was also based on experience. He said the peace/fire group had a higher increase than they expected in the four-year period. He said that even factoring in a lower inflation, the actual increases were still trying to fit salary increase rates to match the experience as best they could while reflecting the lower inflation; MR. WILLIAMS asked if it comes to a determination and inflation is held at 2.5 percent, how would that change the proposed numbers; MR. KERSHNER said they would all shift up to reflect the higher inflation.

MR. JOHNSON asked if the ARMB kept the 2.5 inflation but not agree with the proposals respective to the salary increase, how would they give the Board information that would allow them to choose among the various groupings; MR. KERSHNER said they would modify the proposed rates for the Board to consider; MR. JOHNSON asked how they would present the matrix of choices to the Board so they were not on a preordained path based upon the inflation assumption; MR. KERSHNER said the rates reflected a 2 percent inflation and that if the Board instructed them to, they would come back with a new set of rates for the Board to consider and evaluate.

MR. KERSHNER moved on to slide 37 which showed the proposed rates for TRS and TRS DCR. He said they were not suggesting any change for the first three service periods for TRS, it showed a

slight increase through year 16, then a slight decrease because of the lower inflation component. He said the ultimate rate was 25 basis points above inflation, based on 2 percent inflation, the ultimate rate would be 2.25. He said for TRS DCR the first 10 years showed rates slightly higher and then slightly lower for the next eight years.

MR. WILLIAMS asked if the Board decided to change the rates would that be like making a change in an Excel file where a number is changed, and the rest of the numbers fall into place; MR. KERSHNER said that it was basically like modifying a spreadsheet to come up with a different set of patterns.

CHAIR HIPPLER asked if the proposed 5.1 percent for TRS DCR was equivalent to the actual of the last four years; MR. KERSHNER said that was correct. CHAIR HIPPLER asked if he was proposing a nominal increase of 5.1 percent going forward; MR. KERSHNER said it was nominal except that it also reflected a lower inflation number. He explained that if they went to a 2.25 percent inflation rate and increased all the rates by 25 basis points, the proposed rates would be higher than 5.1 percent; CHAIR HIPPLER then asked if increases in the TRS and PERS members who have defined contributions, what would be their impact on anything based on the fact that they were not part of the Defined Benefit package; MR. KERSHNER said the impact of the salary increase rates for the DCR Plans would be much less significant than it was for the DB Plans because under DCR, the occupational death and disability benefits are determined based on payroll. He said when someone becomes disabled, they receive 40 or 60 percent of their pay, so the projected pay would then affect the projected disability benefits.

MR. KERSHNER said slide 39 showed the payroll growth rate. He said it was used to determine the amount of the amortization of the unfunded liability because the amortization was done on a level percentage of pay basis, so as payroll was projected to increase the amortization amounts would also increase.

MR. KERSHNER said current payroll growth rate assumption was 25 basis points above the inflation assumption – at 2.75. He said they were suggesting continuing with the 25 basis point relationship between payroll growth rate and inflation. He noted that based on a 2 percent inflation, the payroll growth rates were proposed to be 2.25 percent and with a 2.25 percent inflation, the payroll grow rate would be 2.5 percent. He said that up until the last experience study, the payroll growth rate was 50 basis points higher than the inflation rate which was 3.12 percent, and the payroll growth rate was 3.62 percent. He said they lowered that difference versus inflation from 50 basis points to 25 in the last experience study and were proposed maintaining that relationship.

MR. YOUNG said they have to assume a healthcare policy increase just as they have to assume salary increases every year. He said that they used the Getzen model to project the costs into the future. He said slide 42 showed the current assumption with a set of trend rates for medical benefits prior to 65 and another set for after 65 that had a different trend rate. He said pre-Medicare benefits had generally increased and were expected to increase higher than the Medicare benefits, and prescription drug benefits in EGWP were assumed to increase at slightly higher rates than in the short term, but then long-term, they were expected to increase at the same trend rate.

MR. YOUNG explained that the idea of the Getzen model was that it projected out costs over the

long term and had an assumption that, at a certain point, healthcare could not continue to grow above the normal GDP rate, so at some point the trend rates have to go down to be the same as the overall economic growth of the nation. He said they input the two key assumptions and inflation would drive it and the recommended rates would change if the inflation assumption was different. He said they added the two key assumptions and added that inflation would drive it and the recommended rates would change if the inflation assumption was different. He noted that the current assumptions used in the valuation were shown on slide 42.

MR. YOUNG said slide 43 showed two recent trend surveys related to the short-term, first-year expected increases. He said they were pretty close to the assumptions used by the Alaska plans. He then referred to slide 44 and said the initial trend rates vary from 5 percent up to almost 9 percent, within the range of what was assumed for Alaska. He said the most common trend rate was 4.5 percent, which was the current assumption for Alaska.

MR. YOUNG said slide 45 had a short discussion of the ultimate rate. He said there were two components to the ultimate rate, inflation and the real GDP growth, and the sum of the two was the nominal GDP growth – the current assumption was 4.5 percent. He said they were proposing keeping the real GDP growth the same, at 2 percent based on several sources of information, including the Federal Open Market Committee forecast and CBO's 10-year projection. He said they also looked at Callan's presentation from the June Board meeting where they were projecting 2 to 2.5 percent over the next 10 years and 3 percent over the long term.

MR. YOUNG said page 47 showed the current and proposed assumptions for healthcare trends assuming the inflation assumption had decreased from 2.5 to 2 percent. He said they changed the ultimate from 4.5 down to 4 and the rates prior to the ultimate were also smoothly written down to phase into the new ultimate rate on a uniform basis. He reiterated that this was theoretical, that they were not changing the 6/30/21 trend assumption.

MR. KERSHNER said the cost effects of the proposed economic assumptions were based on the most recent valuations adopted by the ARMB, June 30, 2020. He said slide 49 shows the cost effects in two steps to isolate, for informational purposes, the effect of just changing the investment return assumption using the latest assumption.

MR. KERSHNER said that by lowering the investment return assumption from 7.38 percent to 7 percent, the inflation assumption was still 2.5 percent. He noted the National Guard was different because they were only changing the investment return assumption. He said the first three columns were current as of 6/30/20, the middle three columns showed what they would look like if they had changed the investment return assumption and the last three columns were if they had changed all of the economic assumptions including the investment return assumption. He said they had bolded item 4, the funded ratio and item 7c, the contribution rate, to give a sense to what they believed stood out.

MR. KERSHNER said looking at the proposed investment return assumption, line 4 was currently at 79.3 percent total funded ratio and that would drop to 76.1 percent. He said the liabilities on line 1 would go up a little over 4 percent. He said that change would increase liabilities by a little over 4 percent and they dropped the funded ratio by 3 basis points, and the contribution rates would go up from 24.1 to 26.1.

MR. KERSHNER said they factor in all the assumption changes, including the lower inflation, all salary increased rates and the healthcare trend rates. He said they would drop it to 76.1 percent, changing the investment return but factoring in the other assumptions that help offset some of the investment return effect and they would be at 79.0, which was almost where they were at 6/30/20.

MR. KERSHNER said the contributions rates would be a little higher partly because the projected payroll would be lower because of the salary increase changes. He said with a lower payroll, the contribution rates go up. He said it was a similar story for TRS.

MR. KERSHNER said that with the sets of proposed assumptions which reflected 2 percent and a 7 percent investment return, the funded status and liabilities would basically remain unchanged from where they currently were. He noted that this was using 6-30-20 as their barometer and that the effects would be implemented at 6/30/22.

MR. WOOD asked if the Board were to stay on the 2.5 percent inflation assumption, would the results look similar to the middle column, the investment return only, or would it be very close to that change; MR. KERSHNER thought it would be a bit higher than the current column because of the salary increase rates; MR. WOOD said that he was asking about the middle column; MR. KERSHNER said it would be fairly close, a bit higher liabilities and lower funded ratio.

MR. WOOD commented that from their perspective, the GEMS model seemed to be putting out something that was much more reasonable than the last experience. He said they feel comfortable with a 7 percent nominal return. He added that he liked to think about risk on a balancing scale and that what MR. KERSHNER showed in the cost impact, was there was a bit of wash because they were taking risk out in the nominal rate of return but added back in risk with that lower inflation number. He said if they end up at a lower inflation point than 2.5 percent, they need to understand that it could put some risk through potential losses on their COLA going forward.

MR. HANNA said as to slide 24, he thought the time horizon mattered when looking at 10 versus 20 versus 30 years, the median values change quite a bit. He said the shorter-term rates were anchored in where interest rates were starting, and generally expectation was that you have rising rates and returns will get larger over time. He said as the plans become more mature, the time horizon shrinks and would become a more important decision for the ARMB plans than it was for a typical pension plan.

IX. REIVEW COMMITTEE CHARTER – None

X. FUTURE MEETINGS

CHAIR HIPPLER stated that as they had already reviewed the calendar review with MS. LEARY, for the interest of time he asked if any Trustees of staff members wanted something on the future agenda or had requests for follow up items, to e-mail to him and cc the Chairman.

- A. Calendar Review - None**
- B. Agenda Items - None**
- C. Requests/Follow-ups - None**

XI. PUBLIC/MEMBER COMMENTS – None.

XII. ADJOURNMENT

MS. HARBO moved to adjourn the meeting. MR. WILLIAMS seconded the motion. The motion passed without objection.

The meeting was adjourned at 4:15 p.m.

ATTEST:

Corporate Secretary

Note: An outside contractor recorded the meeting and prepared the summary minutes. For in-depth discussion and more presentation details, please refer to the recording of the meeting and presentation materials on file at the ARMB office.



State of Alaska Retirement Systems

Presentation to ARMB Actuarial Committee

June 30, 2021 Valuation Results – PERS and TRS (DB and DCR)

June 30, 2021 Roll-Forward Valuation Results – JRS and NGNMRS

June 30, 2021 Valuation Projections – PERS and TRS

Healthcare Sensitivities – PERS and TRS

March 16, 2022

Contents

| | Slide |
|---|-------|
| Purpose of the Valuations | 4 |
| 2021 Valuation Highlights (PERS and TRS) | |
| - Valuation Results | 6-8 |
| - COVID-19 Impact | 7-11 |
| 2021 Valuation Results | |
| - PERS | 13-19 |
| - TRS | 21-27 |
| - PERS DCR | 29-35 |
| - TRS DCR | 37-43 |
| - JRS (roll-forward valuation) | 45 |
| - NGNMRS (roll-forward valuation) | 47 |
| 2021 Valuation Liability Gains/(Losses) | |
| - PERS | 49 |
| - TRS | 50 |
| - PERS DCR | 51 |
| - TRS DCR | 52 |

| | Slide |
|-----------------------------------|-------|
| 2021 Valuation Projections | |
| - Background | 54-57 |
| - Projection Assumptions | 58 |
| - PERS | 60-64 |
| - TRS | 66-68 |
| Healthcare Sensitivities | |
| - Background | 70 |
| - PERS | 71 |
| - TRS | 72 |
| Actuarial Certification | 74 |

Purpose of the Valuations

Purpose of the 2021 Valuations

- Measure each plan's funded status as of June 30, 2021
- Compare *actual* FY21 experience (assets and liabilities) to *expected* experience based on the assumptions used in the 2020 valuations
- Provide the basis for FY24 contribution rates

2021 Valuation Highlights (PERS and TRS)

Highlights of 2021 Valuation Results (PERS and TRS)

- Asset performance
 - FY21 asset returns **exceeded** the 7.38% expected return
 - Market returns were approximately 30%
 - Due to 5-year asset smoothing, actuarial returns were approximately 12%
- Liability experience
 - Liabilities are **less** than expected. Overall liability gains/(losses) and the more significant gain/(loss) amounts are:

| Source | PERS | | TRS | |
|-----------------------------|----------------|-------------------|----------------|-------------------|
| | <u>Pension</u> | <u>Healthcare</u> | <u>Pension</u> | <u>Healthcare</u> |
| PRPA/COLA increases | \$155M | | \$82M | |
| Salary increases | \$(17)M | | \$(29)M | |
| Per capita claims cost | | \$272M | | \$97M |
| Plan changes | | \$62M | | \$22M |
| Overall gains/(losses) | \$161M | \$384M | \$56M | \$131M |
| - as % of 6/30/21 liability | 1.0% | 5.6% | 0.7% | 5.4% |

The result:

- Funded ratios are up
- Contribution rates are down

Highlights of 2021 Valuation Results (cont'd)

- Key reasons for the \$272M (PERS) and \$97M (TRS) per capita claims cost gains:
 - Medical costs are lower than projected (4% lower for Pre-Medicare / 5% lower for Medicare)
 - EGWP subsidy provided by Optum increased by 16% from \$1,003 for 2021 to \$1,168 for 2022

| | Medical | | | Prescription Drugs (Rx) | | |
|---|--------------|----------------------|----------------------|-------------------------|----------|---------|
| | Pre-Medicare | Medicare Parts A & B | Medicare Part B Only | Pre-Medicare | Medicare | EGWP |
| Fiscal 2022 valuation age 65 per capita cost | | | | | | |
| - Expected | 16,358 | 1,705 | 5,628 | 3,647 | 3,591 | (1,078) |
| - Actual | 15,708 | 1,619 | 5,341 | 3,695 | 3,560 | (1,168) |
| - Dollar (Gain) / Loss | (650) | (86) | (287) | 48 | (31) | (90) |
| - Percentage (Gain) / Loss | -4.0% | -5.0% | -5.1% | 1.3% | -0.9% | 8.3% |

Note: The actual per capita costs in this table are before reflecting the impact of plan changes shown on the next slide.

Highlights of 2021 Valuation Results (cont'd)

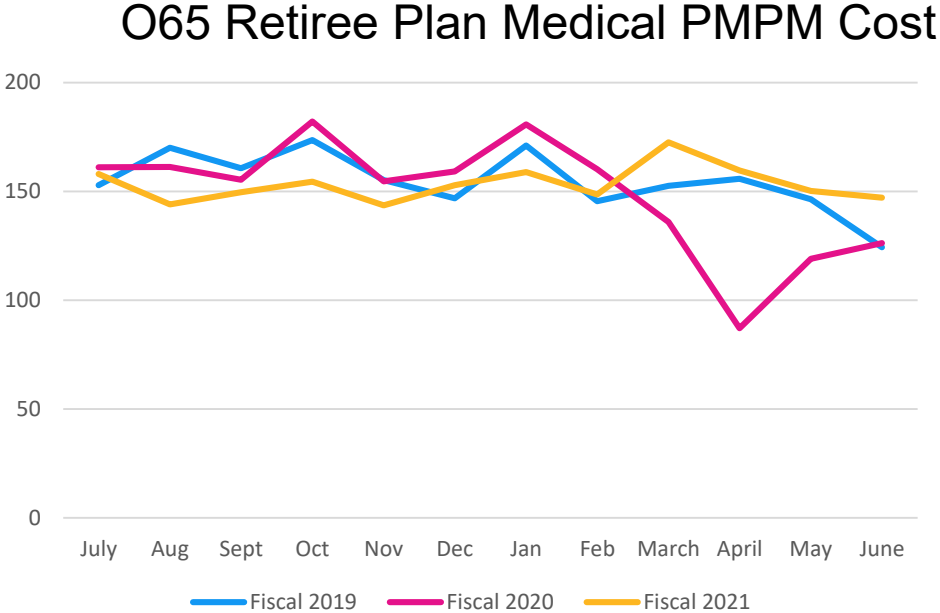
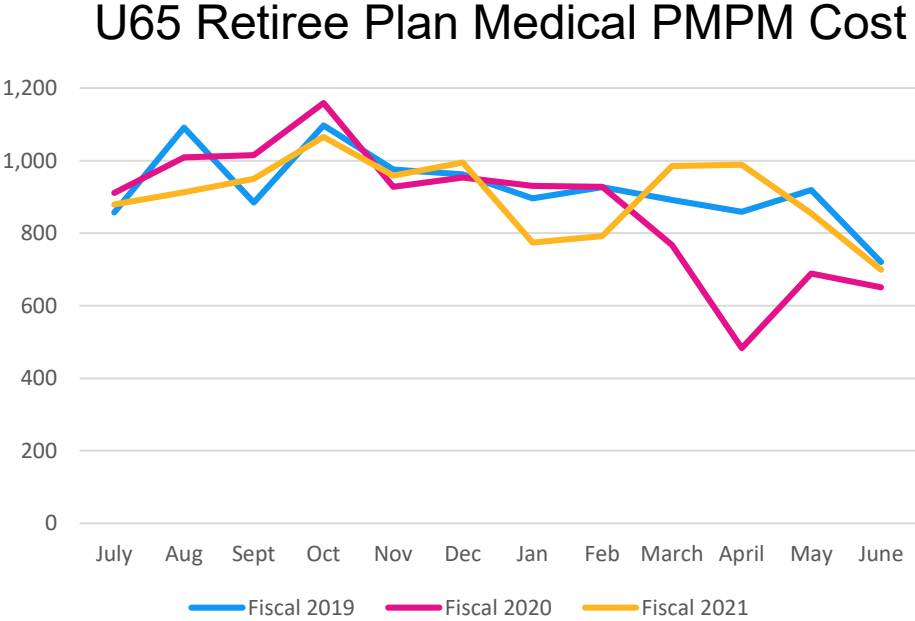
- Two healthcare plan changes will be effective January 1, 2022:
 - Preventive benefits are being added for pre-Medicare members
 - Prior authorization of certain specialty medications is being implemented
- The estimated impact of these changes was provided by Segal
- Adjustments to the 6/30/21 valuation per capita costs to reflect these plan changes are as follows:

| | Medical | | | Prescription Drugs (Rx) | | |
|---|--------------|----------------------|----------------------|-------------------------|----------|---------|
| | Pre-Medicare | Medicare Parts A & B | Medicare Part B Only | Pre-Medicare | Medicare | EGWP |
| Fiscal 2022 valuation age 65 per capita cost | | | | | | |
| - Prior to plan changes | 15,708 | 1,619 | 5,341 | 3,695 | 3,560 | (1,168) |
| - Impact of plan changes | 1.4% | 0.0% | 0.0% | -8.7% | -2.4% | -3.2% |
| - After plan changes | 15,926 | 1,619 | 5,341 | 3,375 | 3,474 | (1,131) |

Note: Figures in this table may differ due to rounding.

COVID-19 Impact – Medical Incurred Claims

Per Member Per Month (PMPM)

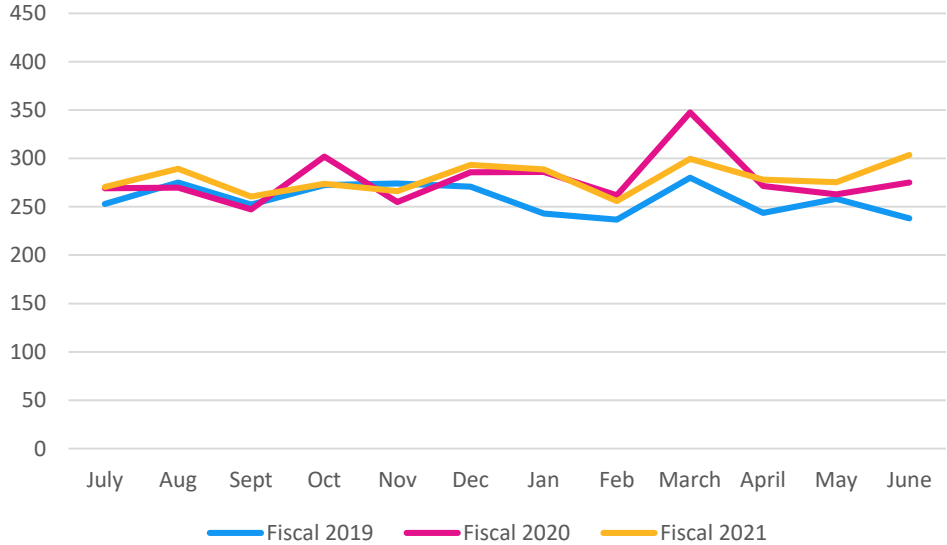


- Material decrease in PMPM cost during March – June of 2020 due to COVID-19
- Fiscal 2021 PMPM medical cost was lower than pre-COVID levels, so a 4% load was added to the Fiscal 2021 medical claims used in the per capita claims cost development to better reflect expected long-term costs

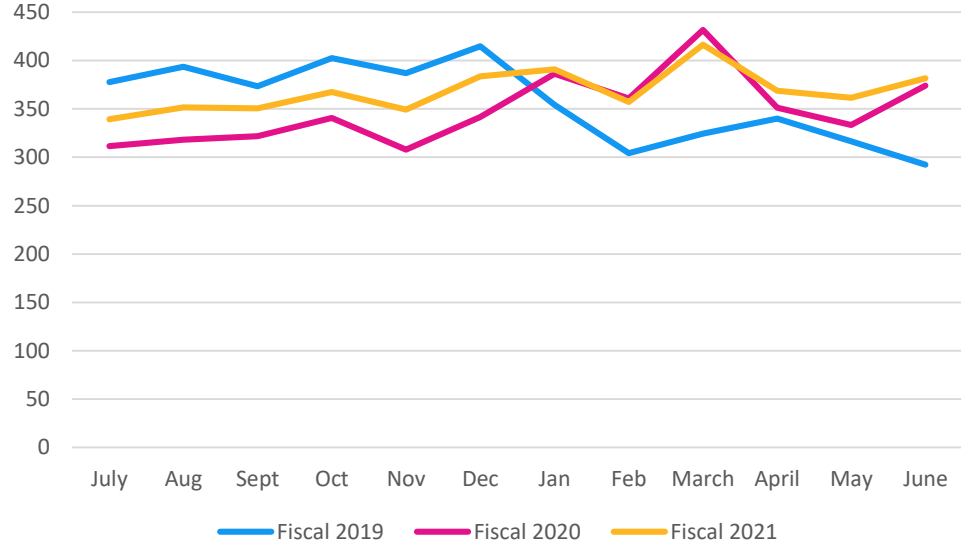
COVID-19 Impact – Rx Incurred Claims

Per Member Per Month (PMPM)

U65 Retiree Plan Rx PMPM Cost



O65 Retiree Plan Rx PMPM Cost



- Observed a spike in prescription drug claims in March 2020 (see next slide for details)
- Fiscal 2021 PMPM Rx cost not impacted by COVID like medical

Details on March 2020 Spike in Rx Claims

- Because of COVID-19, Alaska permitted early refill of medications and members also increased utilization of home delivery and Retail 90 prescriptions

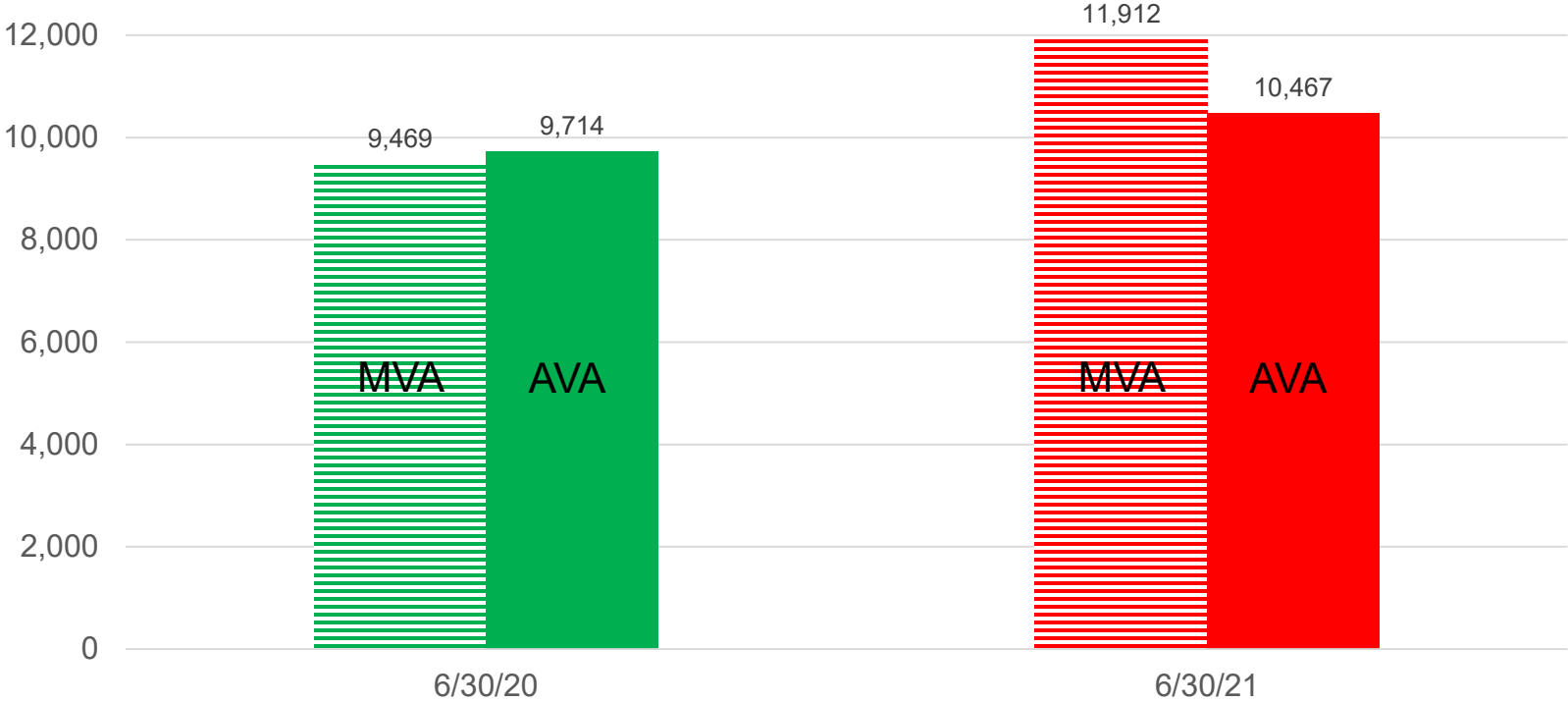
| | Non-EGWP | EGWP |
|--|----------|-------|
| From Optum's Q1 2020 report (Q1 2020 vs Q1 2019): | | |
| - Increase in overall plan paid PMPM trend | 11.2% | 21.9% |
| - Increase in Rx Count | 20.1% | 11.5% |
| - Increase in Rx Count due to COVID-19 (Refill Too Soon exception) | 3.0% | 3.5% |
| - Home delivery rate change (from 11.6% to 11.4% & 14.9% to 16.8%) | -0.2% | 1.9% |
| From Optum's Q1 2021 report (Q1 2021 vs Q1 2020): | | |
| - Home delivery rate change (from 11.4% to 11.5% & 16.8% to 18.3%) | 0.1% | 1.5% |
| - Retail 90 rate (from 34.7% to 34.8% & 35.2% to 35.6%) | 0.1% | 0.4% |

2021 Valuation Results - PERS

PERS: Assets – Pension

(\$millions)

MVA = Market Value of Assets
AVA = Actuarial Value of Assets



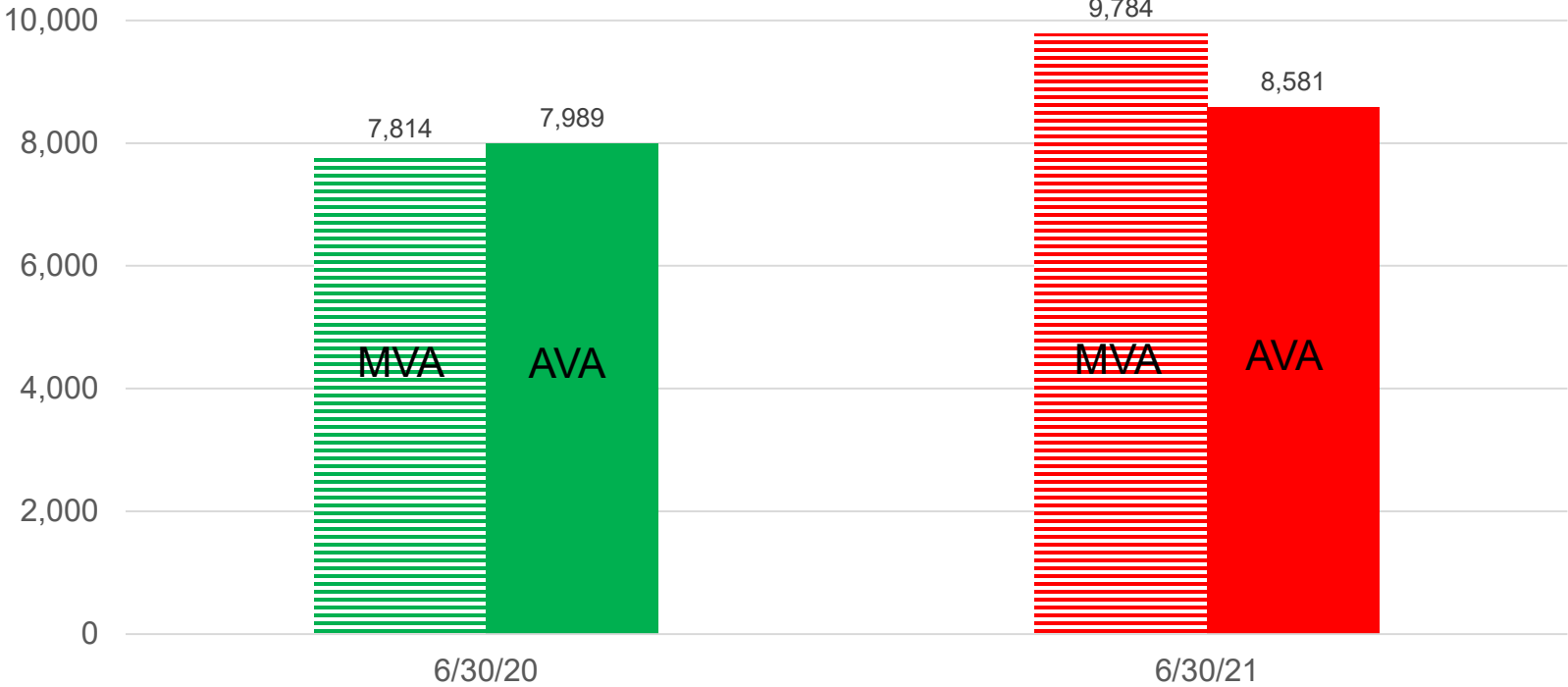
FY21 Asset Gains:

- MVA: \$2,104M
- AVA: \$396M

PERS: Assets – Healthcare

(\$millions)

MVA = Market Value of Assets
AVA = Actuarial Value of Assets



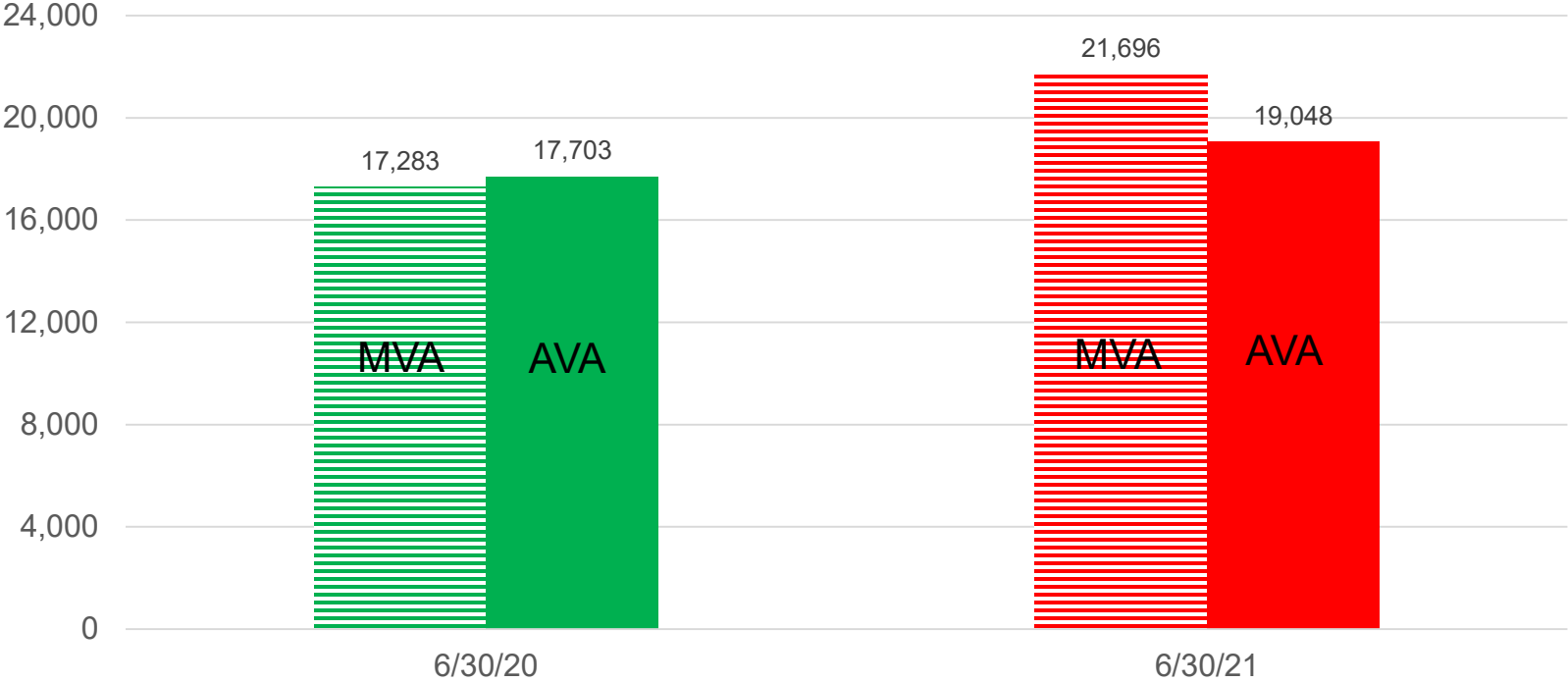
FY21 Asset Gains:

- MVA: \$1,730M
- AVA: \$338M

PERS: Assets – Total

(\$millions)

MVA = Market Value of Assets
AVA = Actuarial Value of Assets



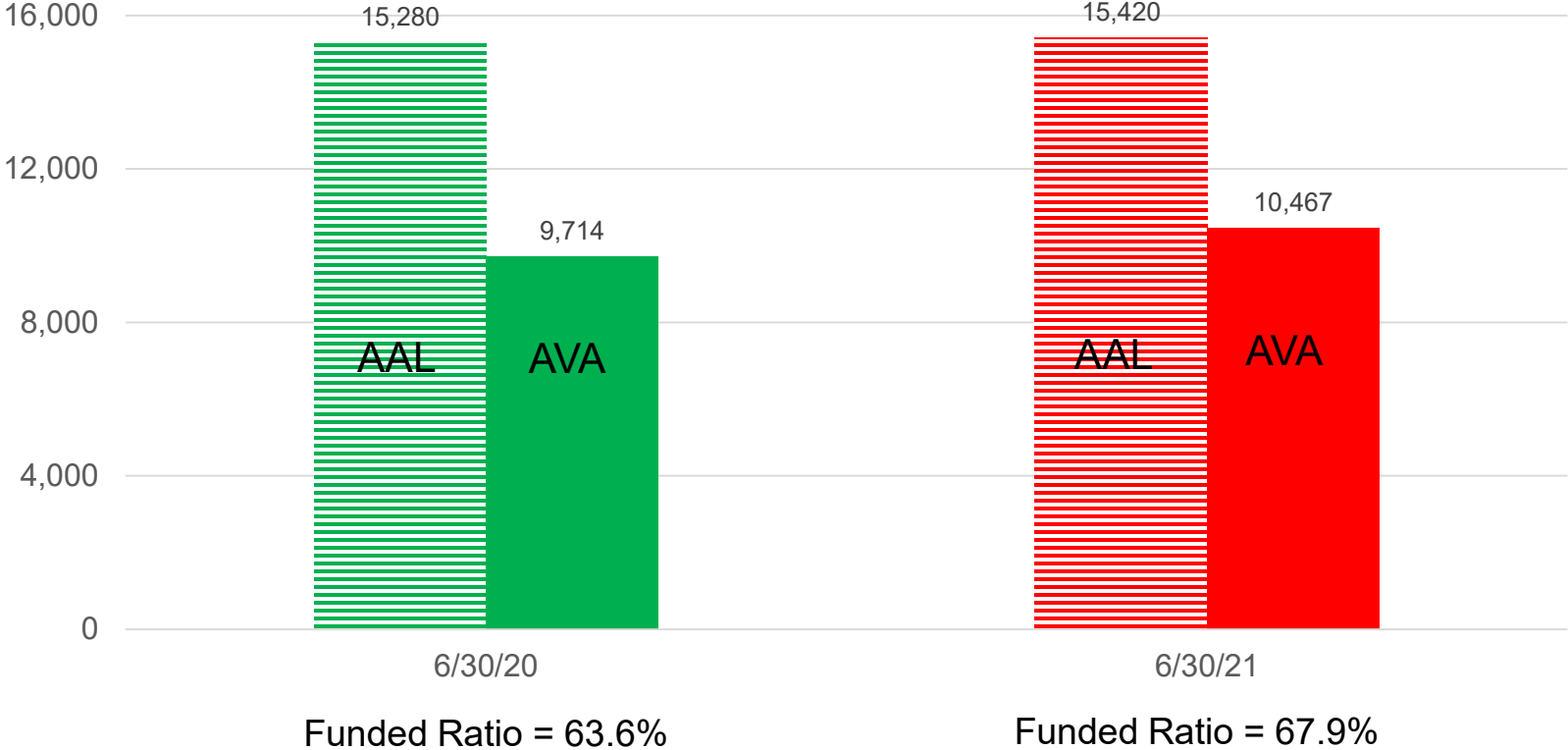
FY21 Asset Gains:

- MVA: \$3,834M
- AVA: \$734M

PERS: Assets vs Liabilities – Pension

(\$millions)

AAL = Actuarial Accrued Liability
AVA = Actuarial Value of Assets



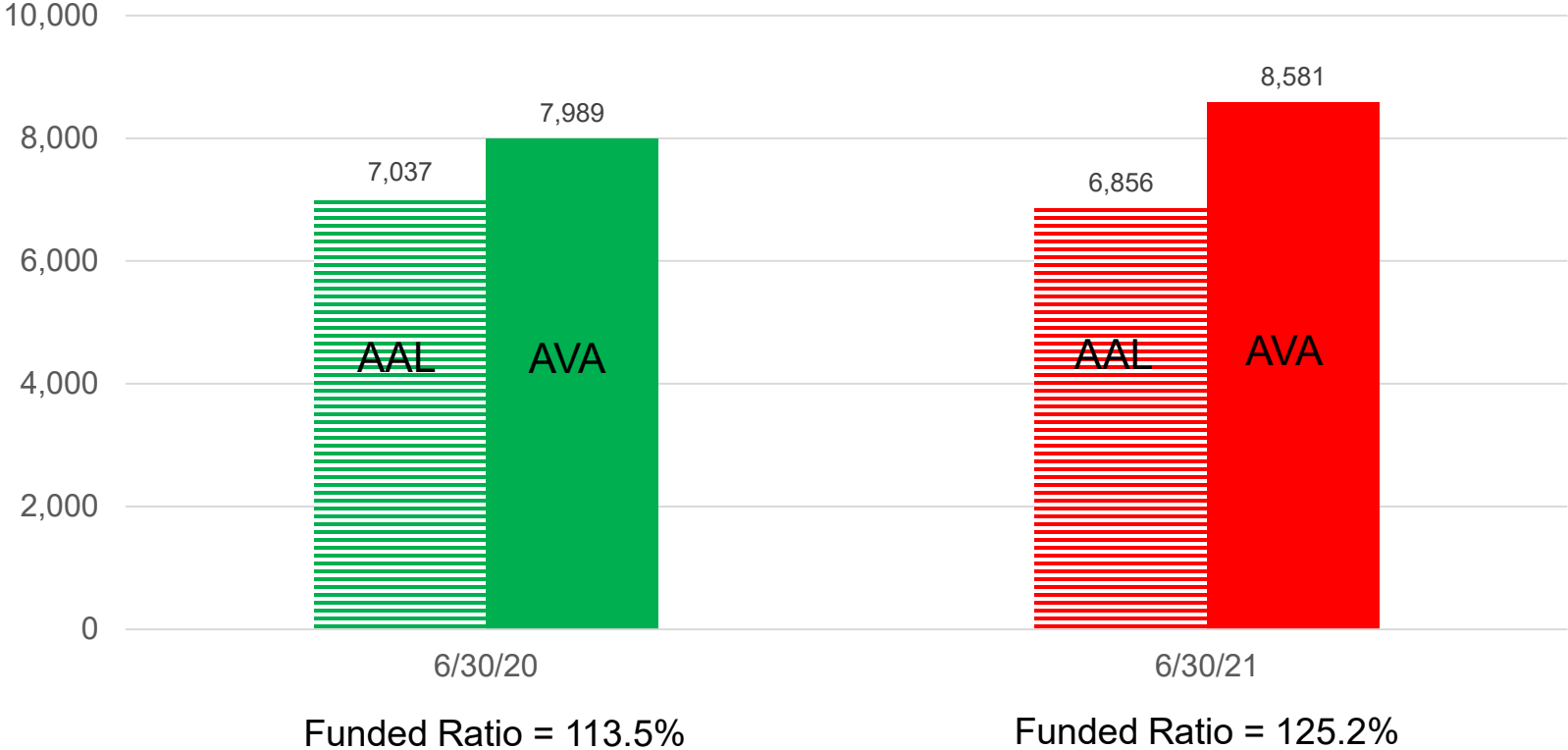
FY21 Gains:

- AAL: \$161M
- AVA: \$396M

PERS: Assets vs Liabilities – Healthcare

(\$millions)

AAL = Actuarial Accrued Liability
AVA = Actuarial Value of Assets



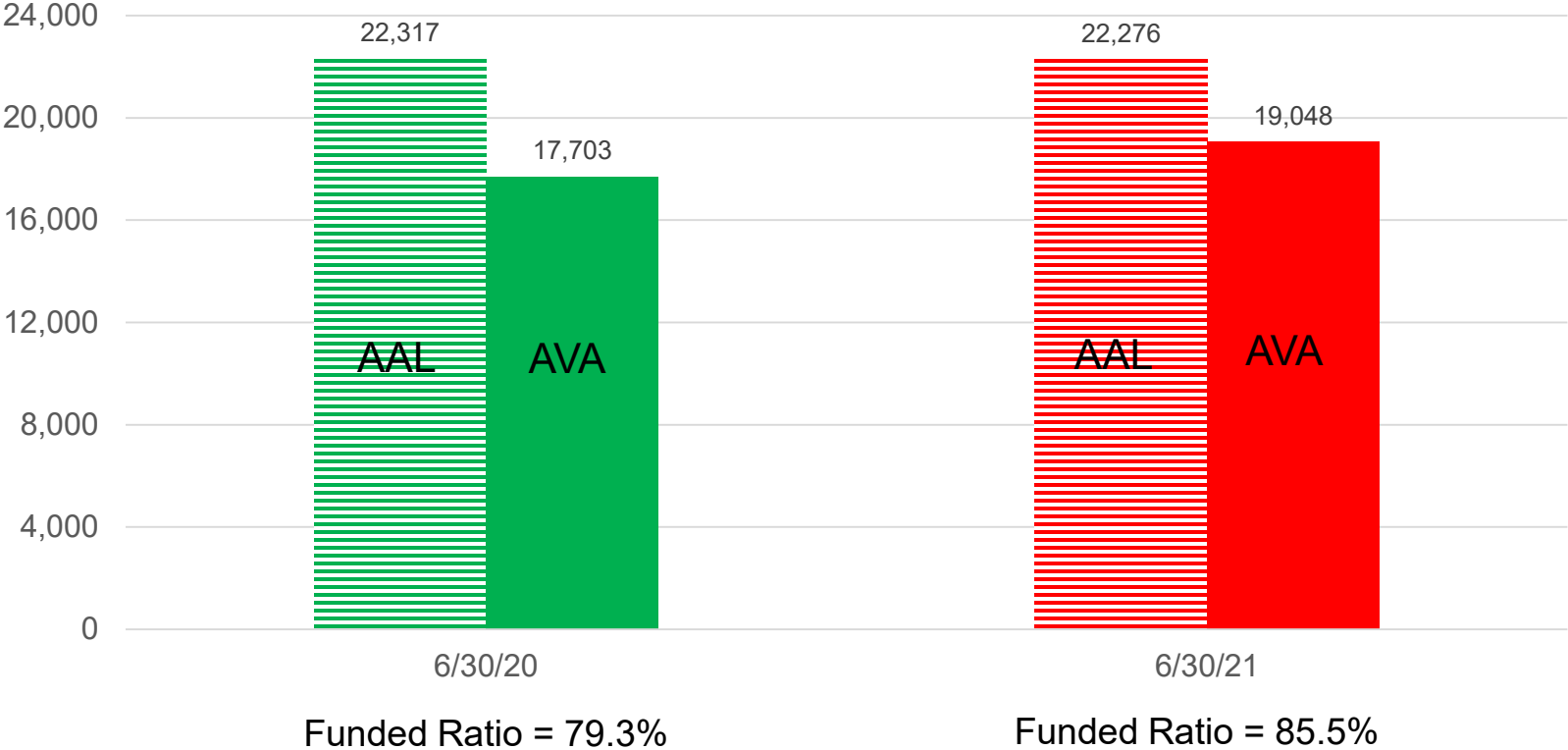
FY21 Gains:

- AAL: \$384M
- AVA: \$338M

PERS: Assets vs Liabilities – Total

(\$millions)

AAL = Actuarial Accrued Liability
AVA = Actuarial Value of Assets



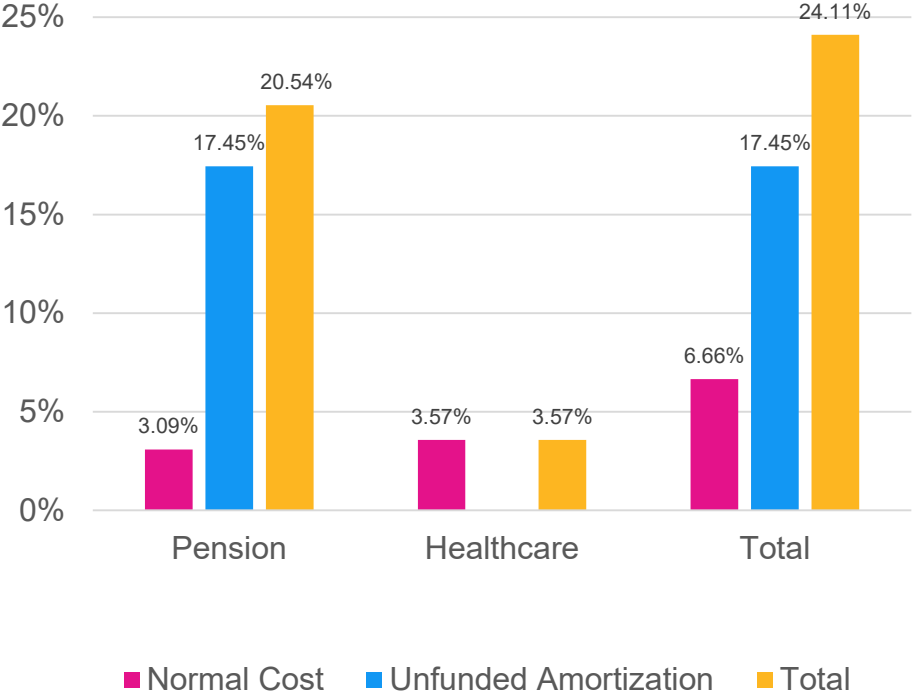
FY21 Gains:

- AAL: \$545M
- AVA: \$734M

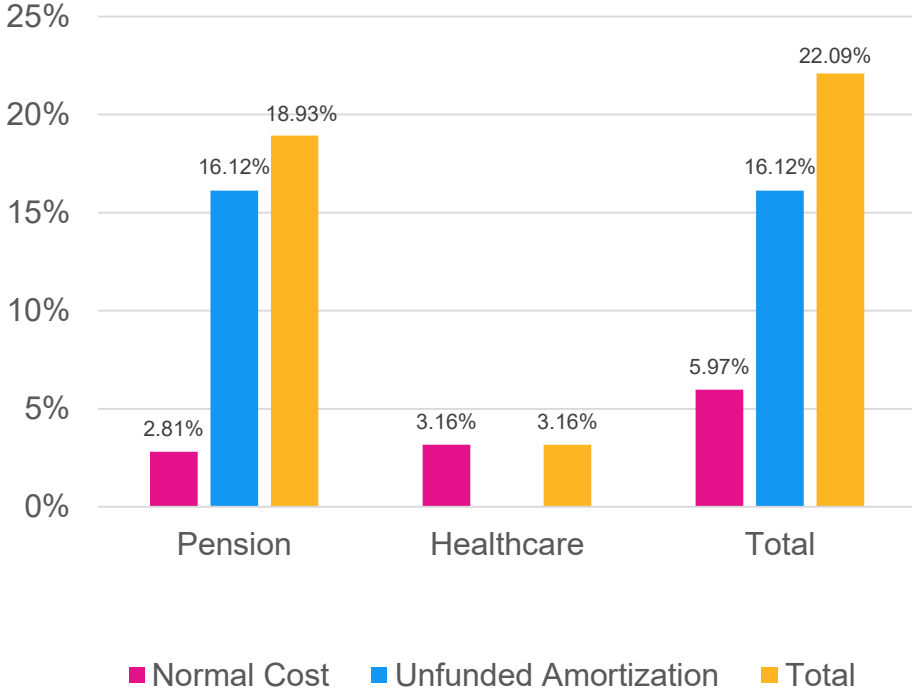
PERS: Employer/State Contribution Rates

(% of DB/DCR payroll)

as of 6/30/20



as of 6/30/21

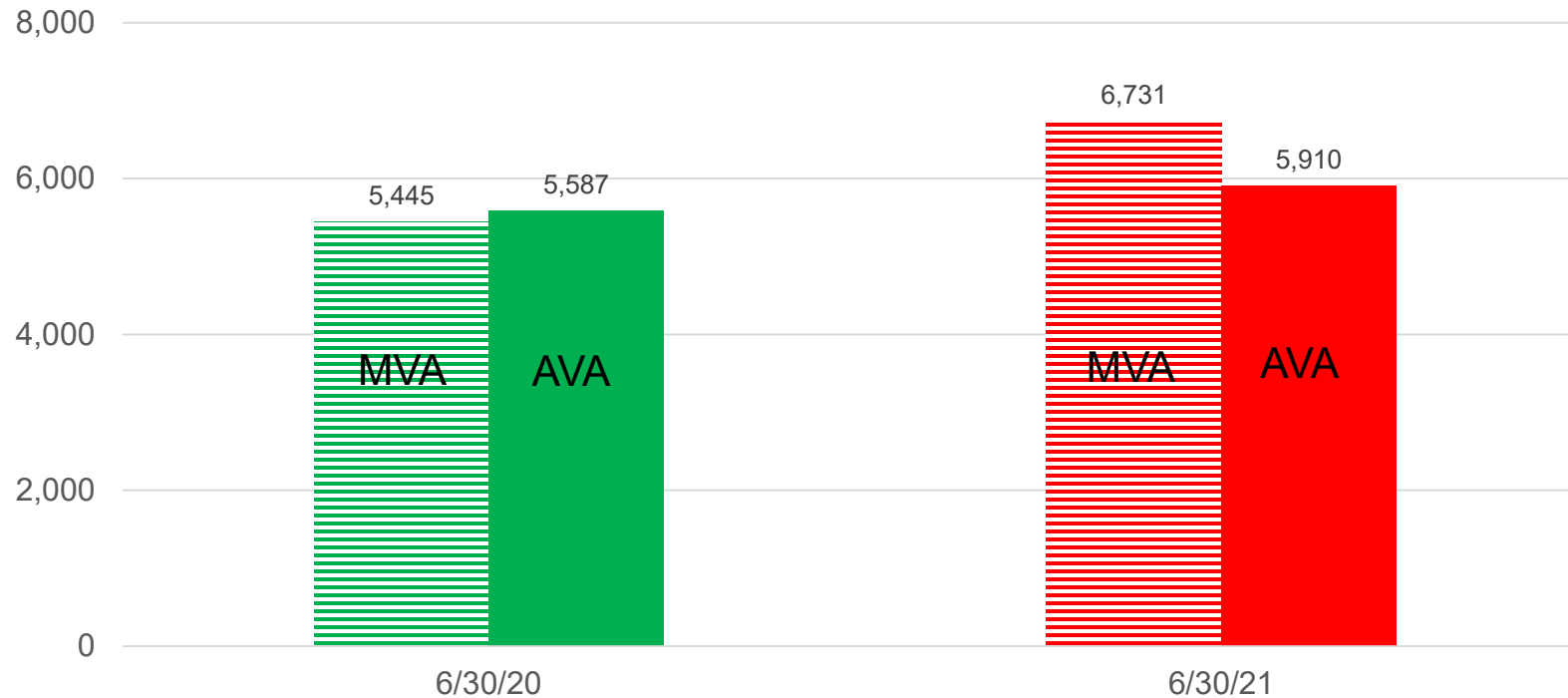


2021 Valuation Results - TRS

TRS: Assets – Pension

(\$millions)

MVA = Market Value of Assets
AVA = Actuarial Value of Assets



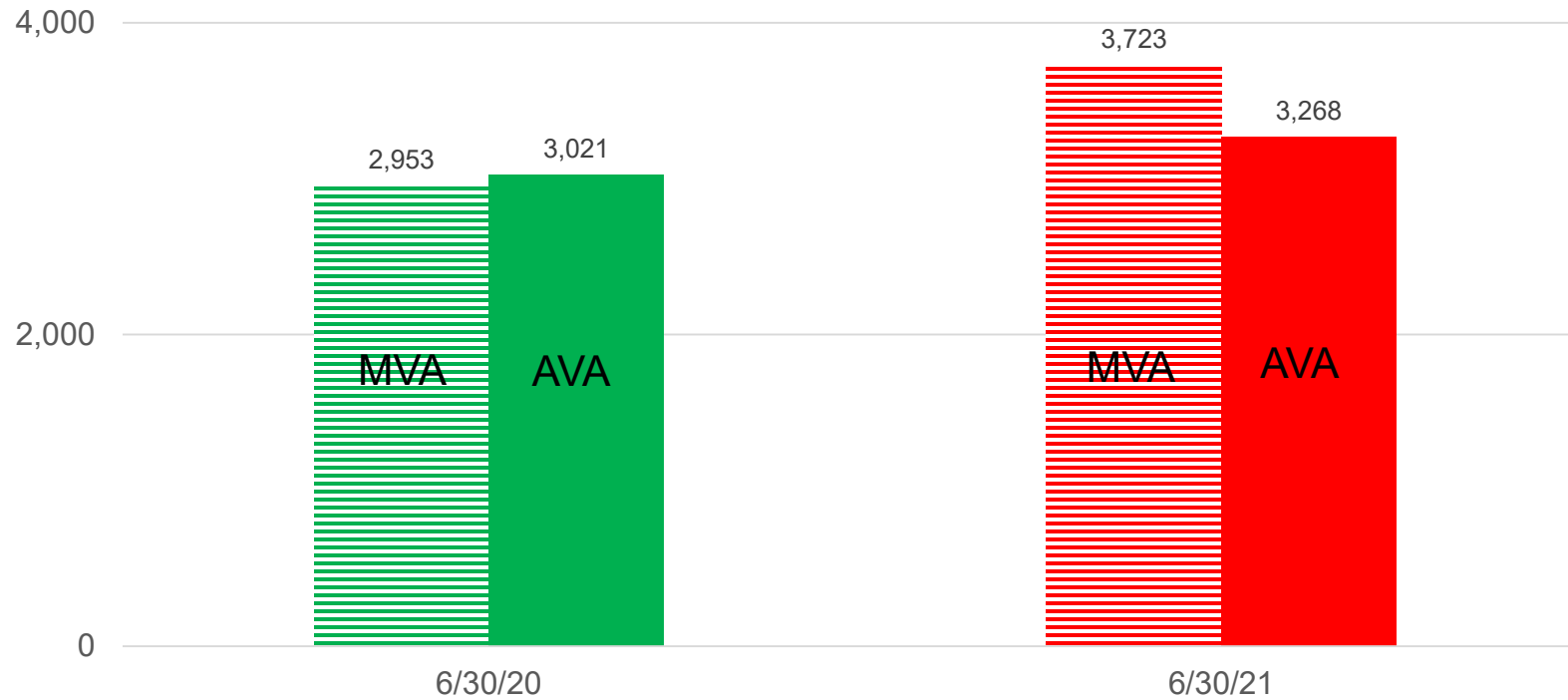
FY21 Asset Gains:

- MVA: \$1,200M
- AVA: \$227M

TRS: Assets – Healthcare

(\$millions)

MVA = Market Value of Assets
AVA = Actuarial Value of Assets



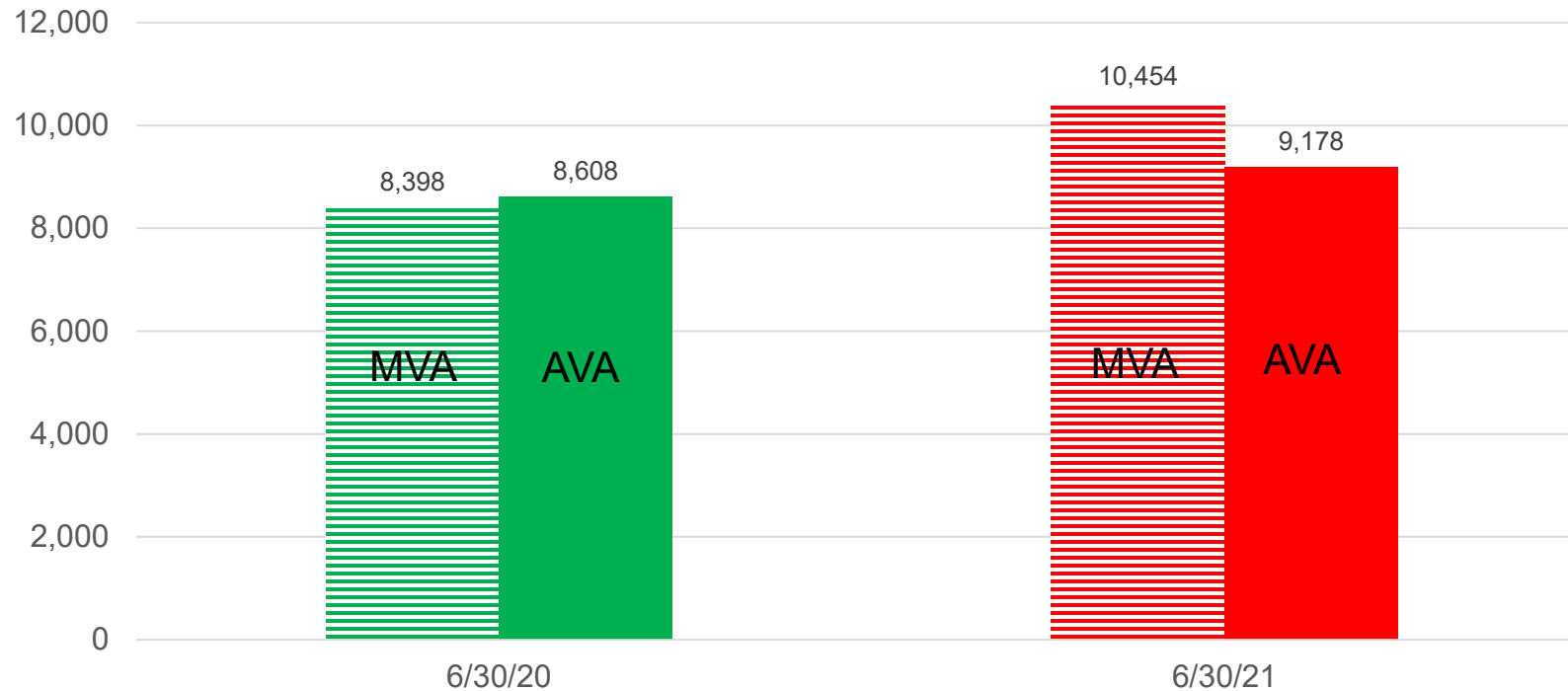
FY21 Asset Gains:

- MVA: \$656M
- AVA: \$127M

TRS: Assets – Total

(\$millions)

MVA = Market Value of Assets
AVA = Actuarial Value of Assets



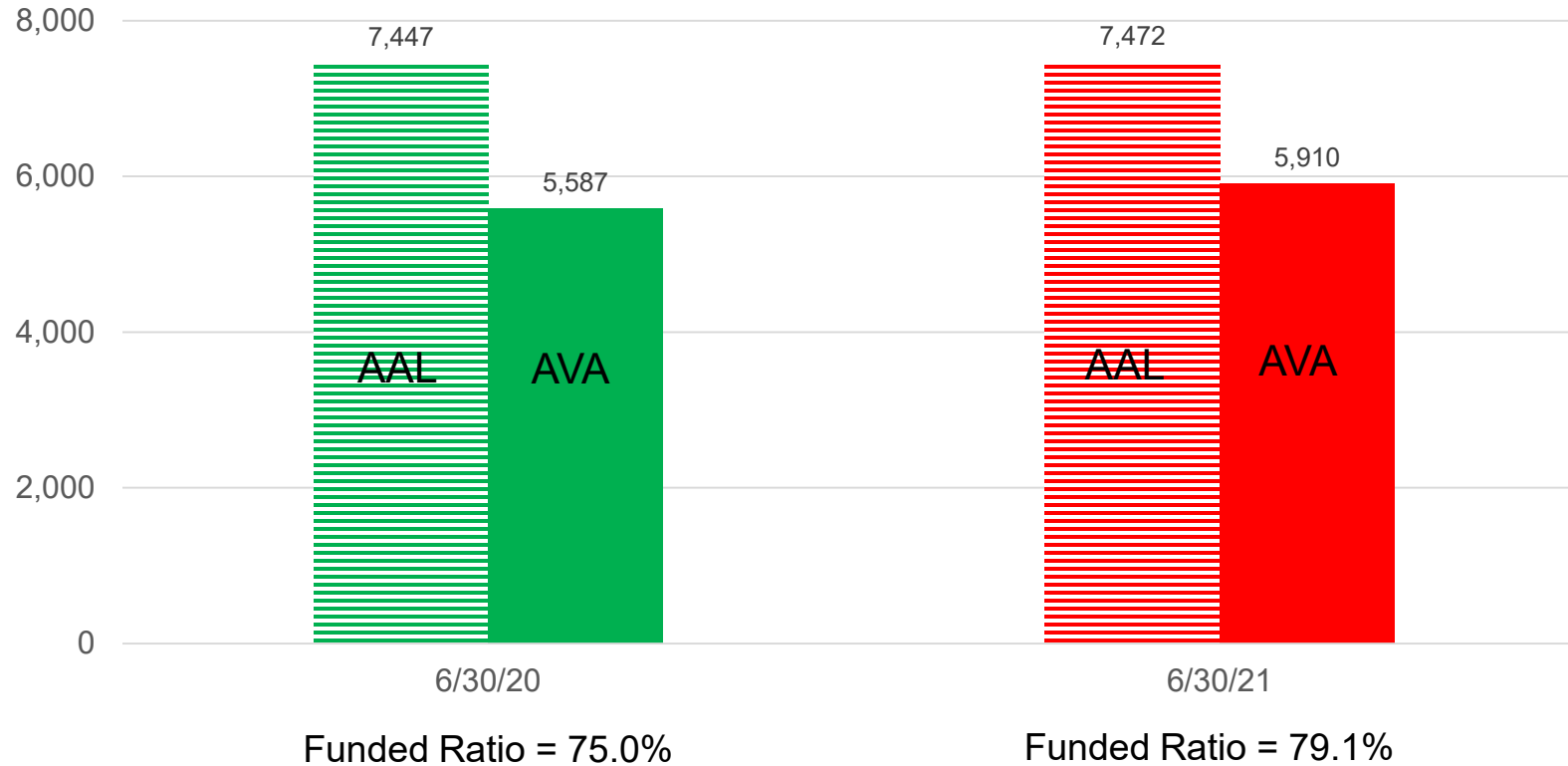
FY21 Asset Gains:

- MVA: \$1,856M
- AVA: \$354M

TRS: Assets vs Liabilities – Pension

(\$millions)

AAL = Actuarial Accrued Liability
AVA = Actuarial Value of Assets



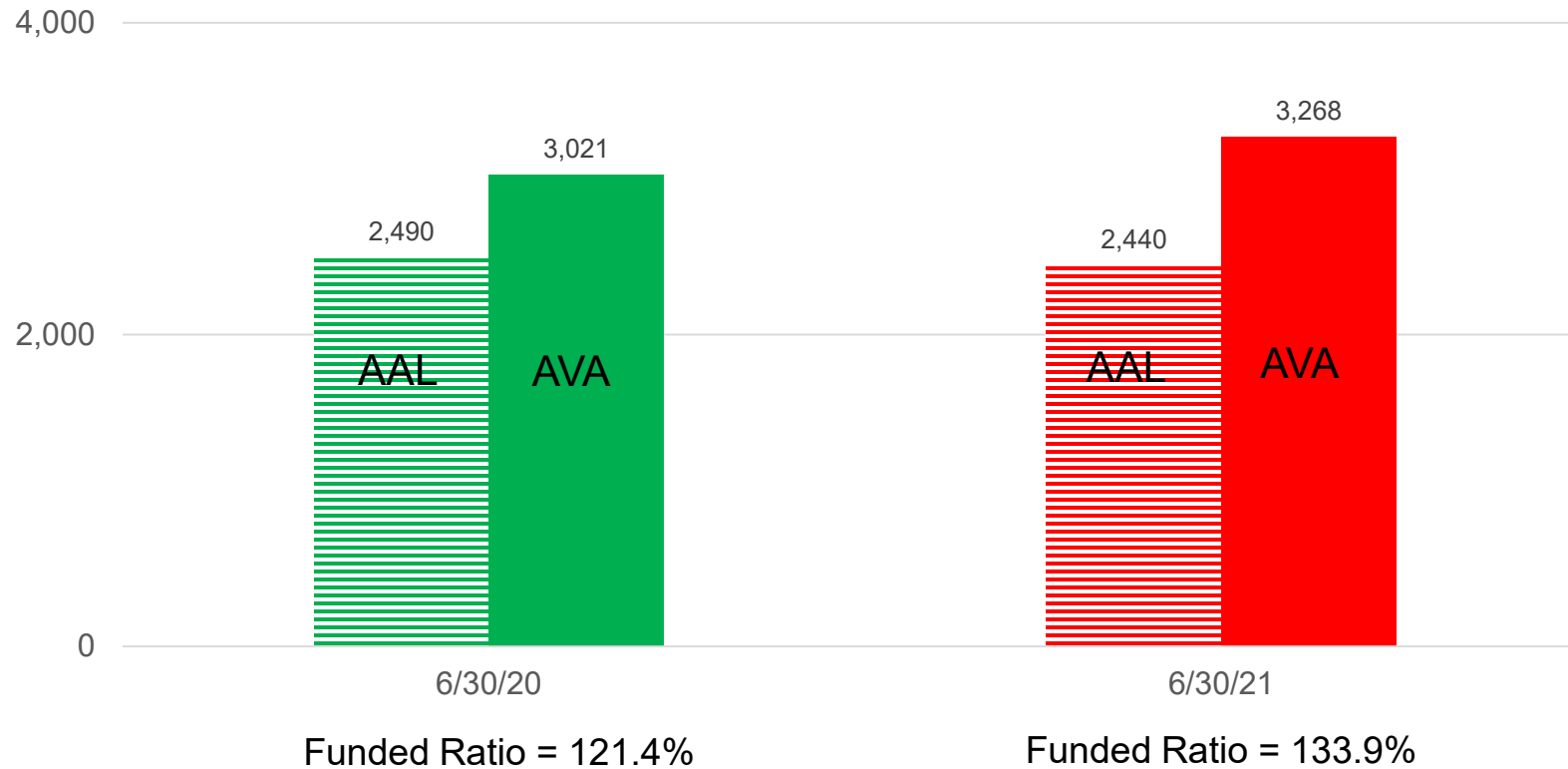
FY21 Gains:

- AAL: \$56M
- AVA: \$227M

TRS: Assets vs Liabilities – Healthcare

(\$millions)

AAL = Actuarial Accrued Liability
AVA = Actuarial Value of Assets



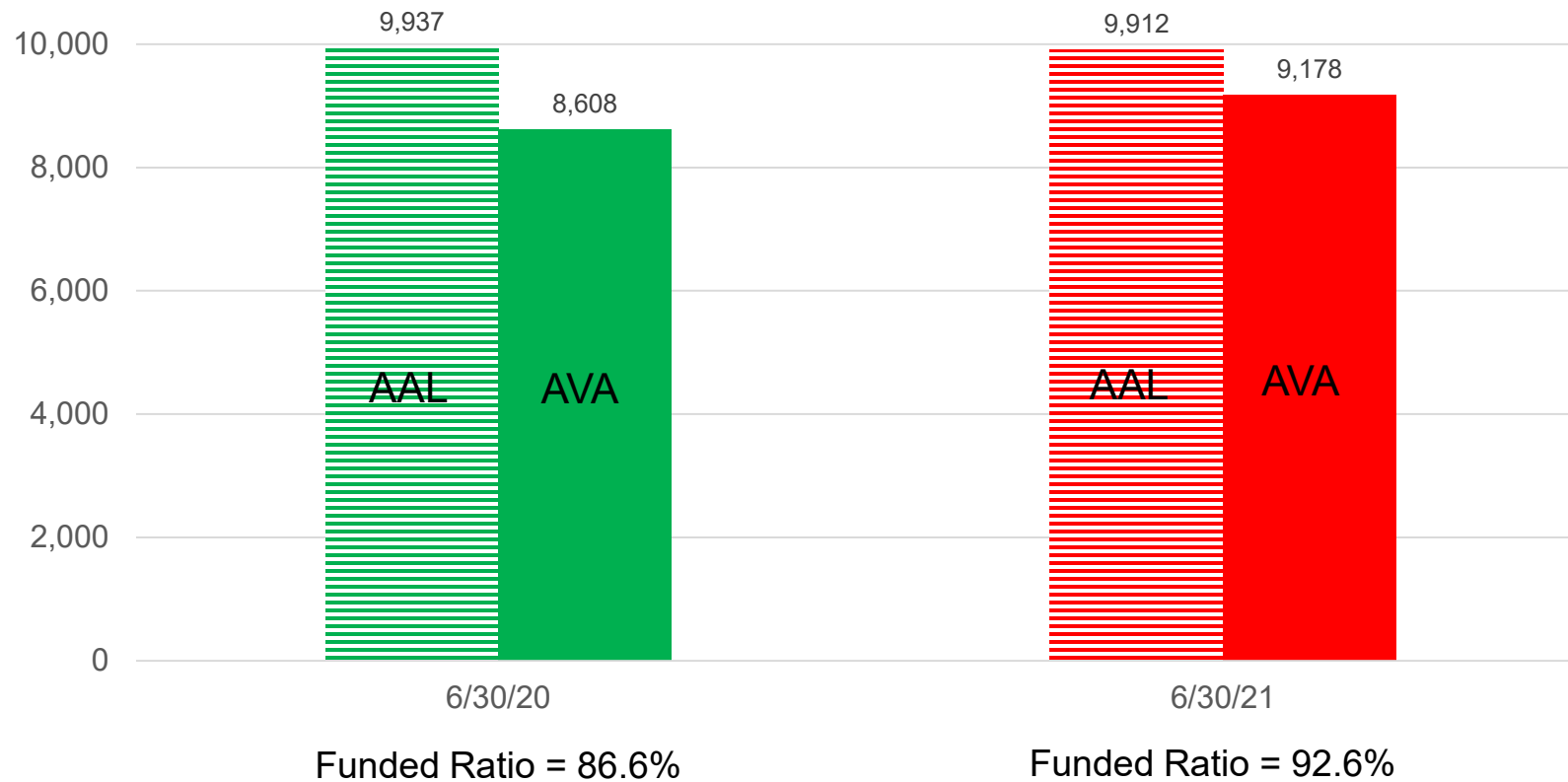
FY21 Gains:

- AAL: \$131M
- AVA: \$127M

TRS: Assets vs Liabilities – Total

(\$millions)

AAL = Actuarial Accrued Liability
AVA = Actuarial Value of Assets



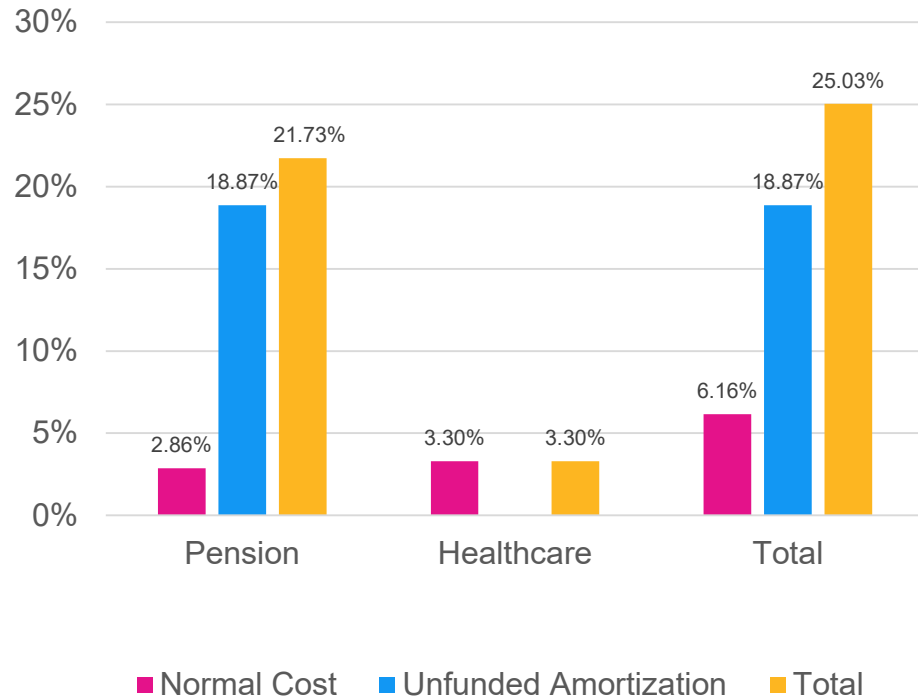
FY21 Gains:

- AAL: \$187M
- AVA: \$354M

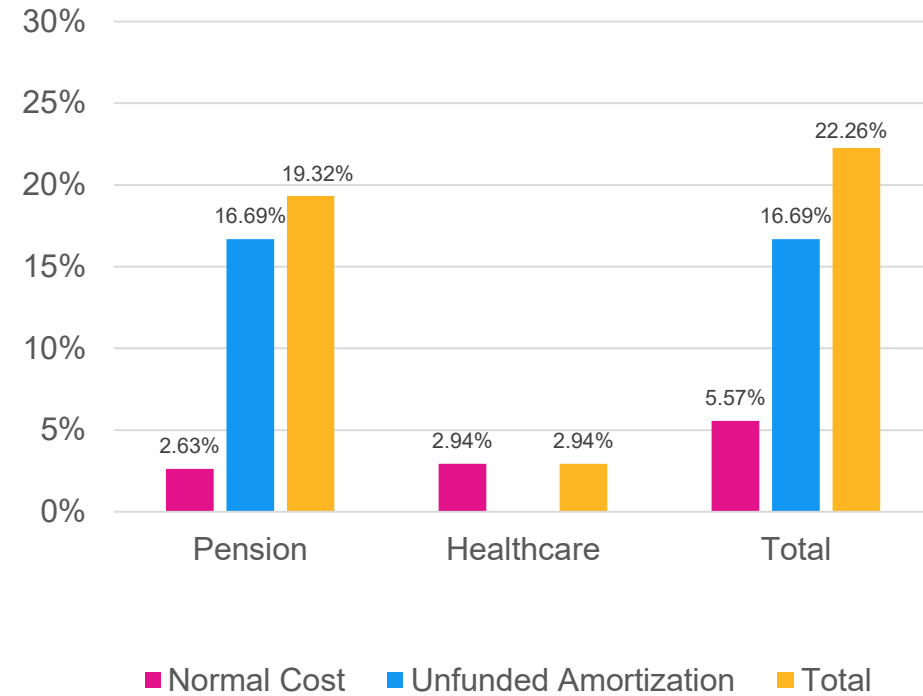
TRS: Employer/State Contribution Rates

(% of DB/DCR payroll)

as of 6/30/20



as of 6/30/21

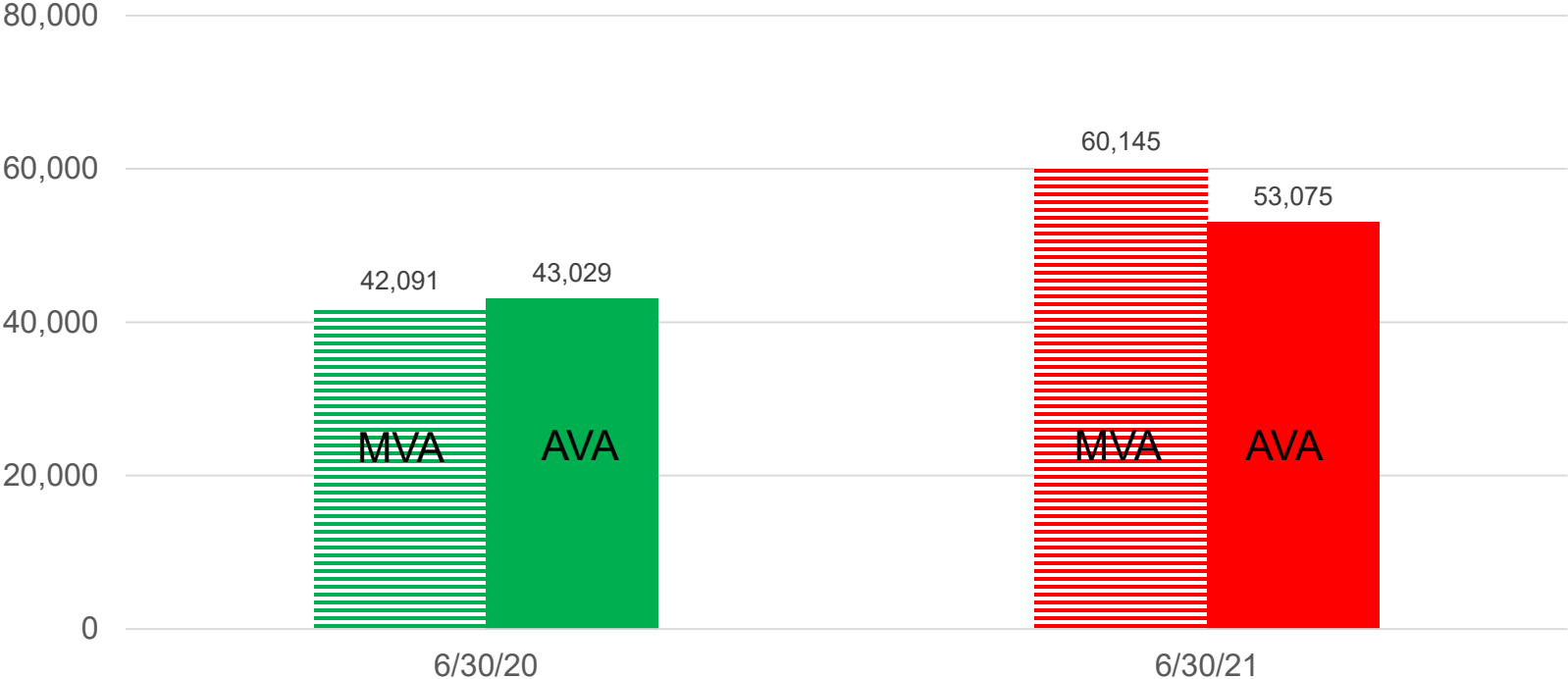


2021 Valuation Results – PERS DCR

PERS DCR: Assets – ODD

(\$000s)

MVA = Market Value of Assets
AVA = Actuarial Value of Assets



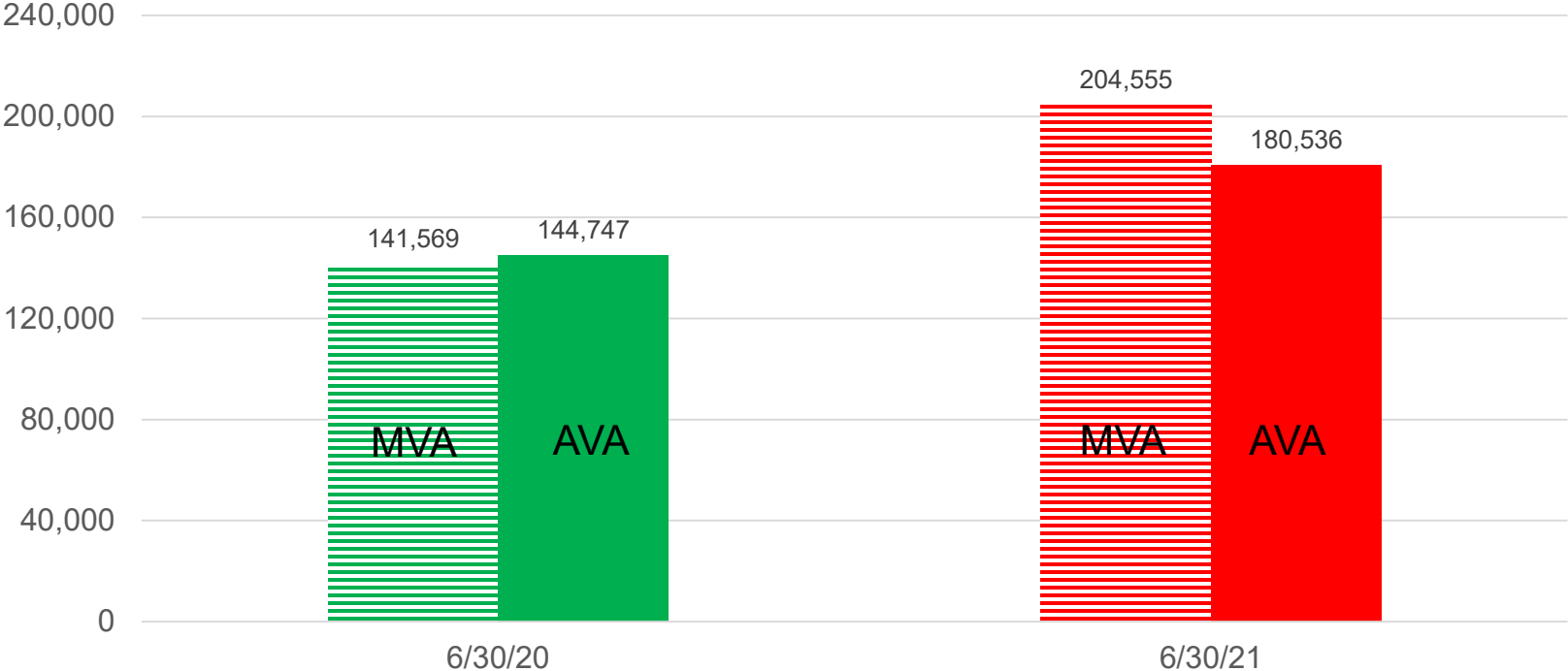
FY21 Asset Gains:

- MVA: \$9.9M
- AVA: \$1.8M

PERS DCR: Assets – Healthcare

(\$000s)

MVA = Market Value of Assets
AVA = Actuarial Value of Assets



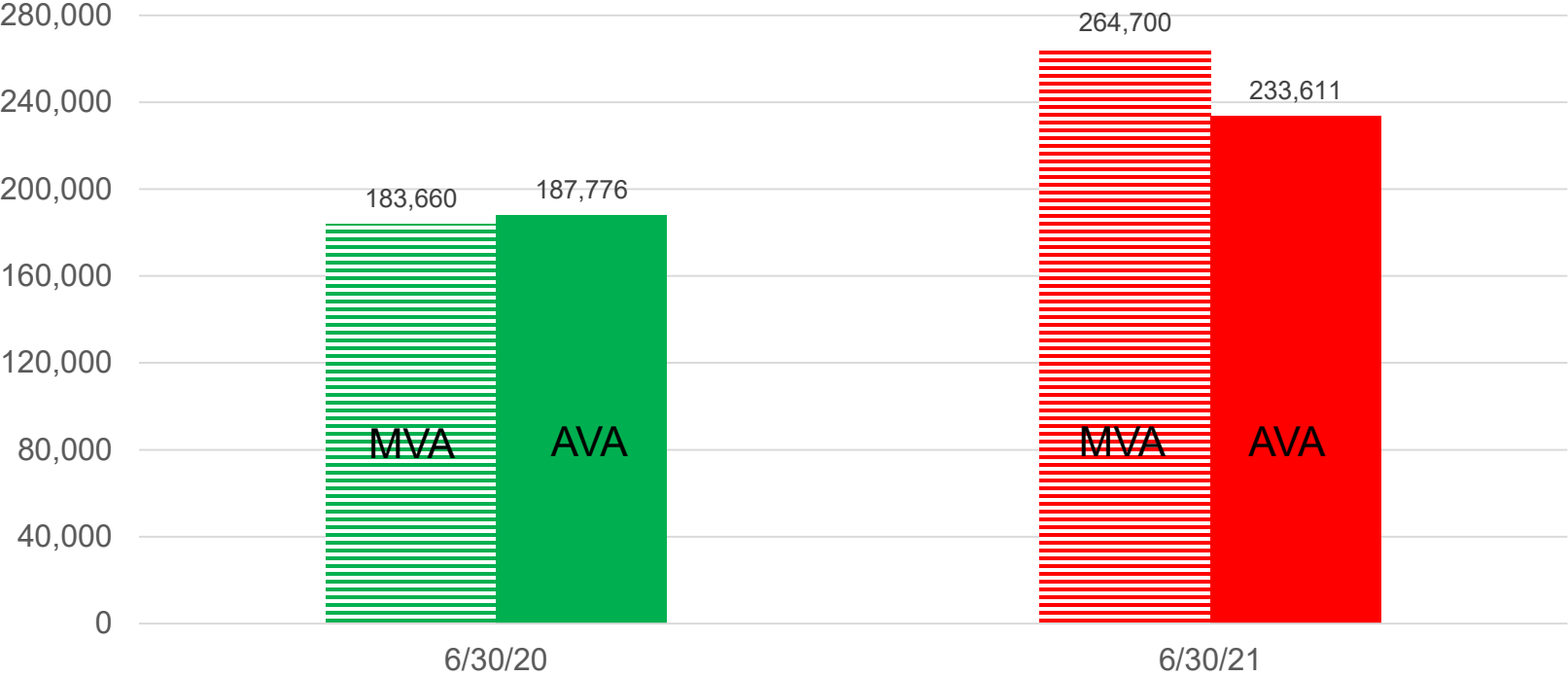
FY21 Asset Gains:

- MVA: \$33.5M
- AVA: \$6.1M

PERS DCR: Assets – Total

(\$000s)

MVA = Market Value of Assets
AVA = Actuarial Value of Assets



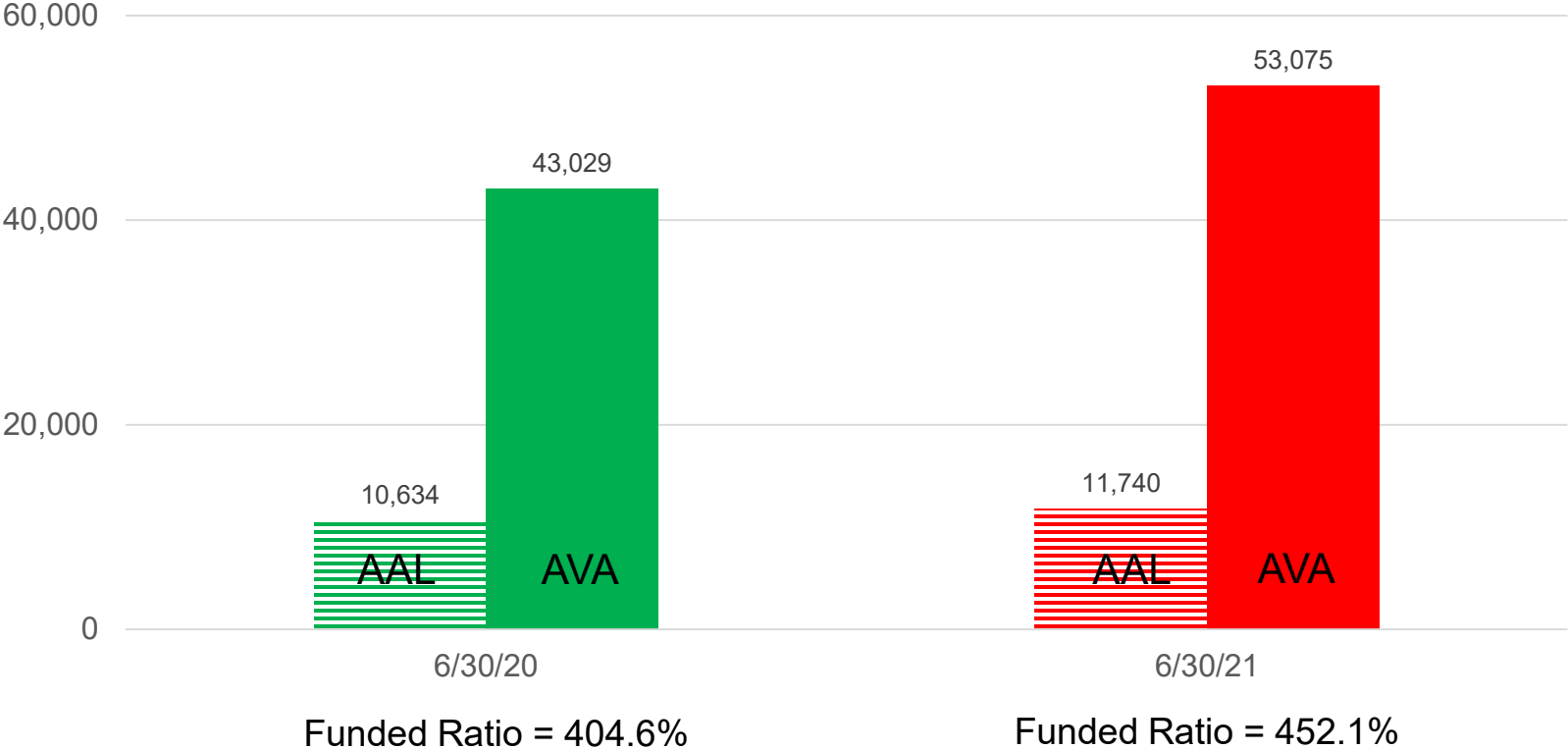
FY21 Asset Gains:

- MVA: \$43.4M
- AVA: \$7.9M

PERS DCR: Assets vs Liabilities – ODD

(\$000s)

AAL = Actuarial Accrued Liability
AVA = Actuarial Value of Assets



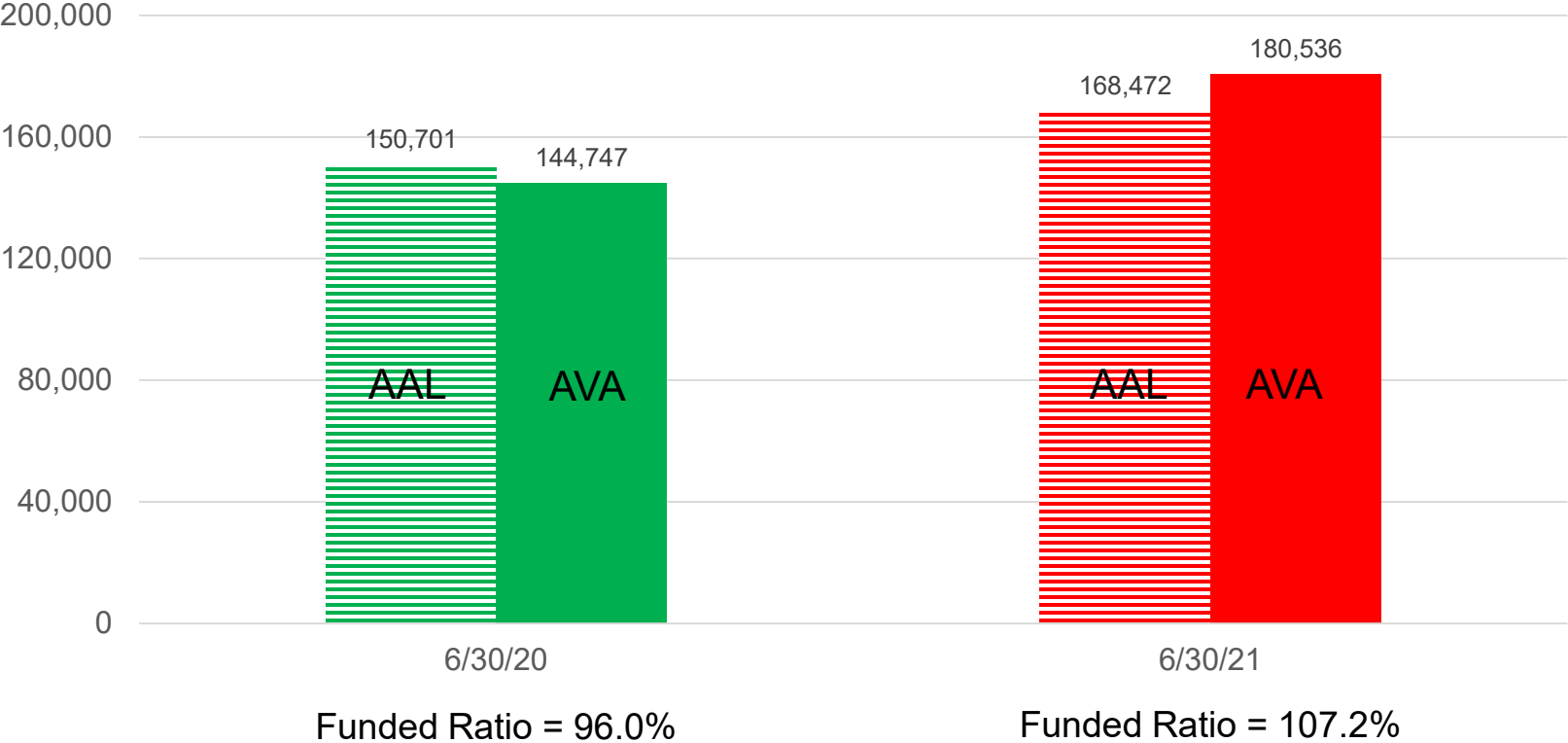
FY21 Gains:

- AAL: \$4.7M
- AVA: \$1.8M

PERS DCR: Assets vs Liabilities – Healthcare

(\$000s)

AAL = Actuarial Accrued Liability
AVA = Actuarial Value of Assets



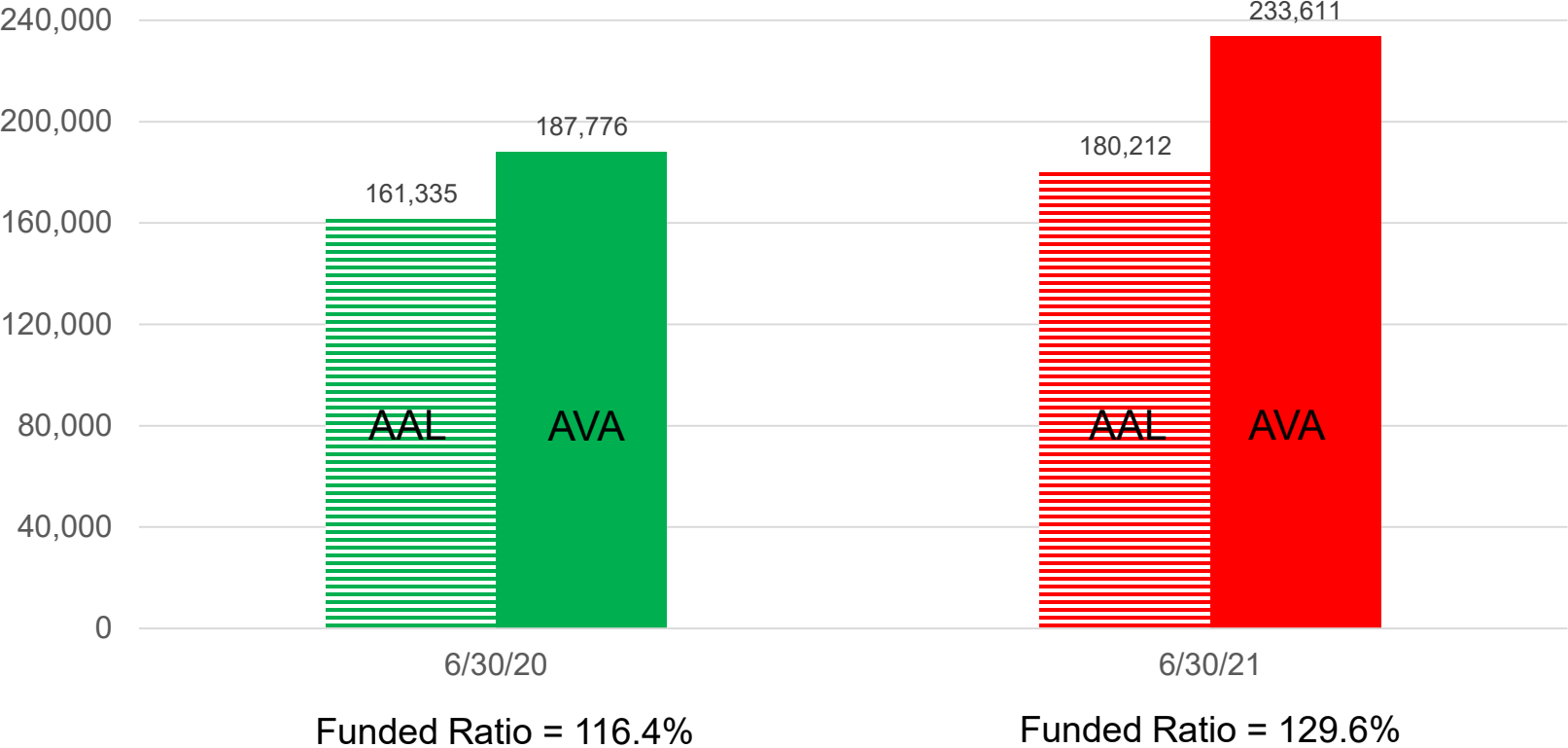
FY21 Gains:

- AAL: \$9.5M
- AVA: \$6.1M

PERS DCR: Assets vs Liabilities – Total

(\$000)

AAL = Actuarial Accrued Liability
 AVA = Actuarial Value of Assets

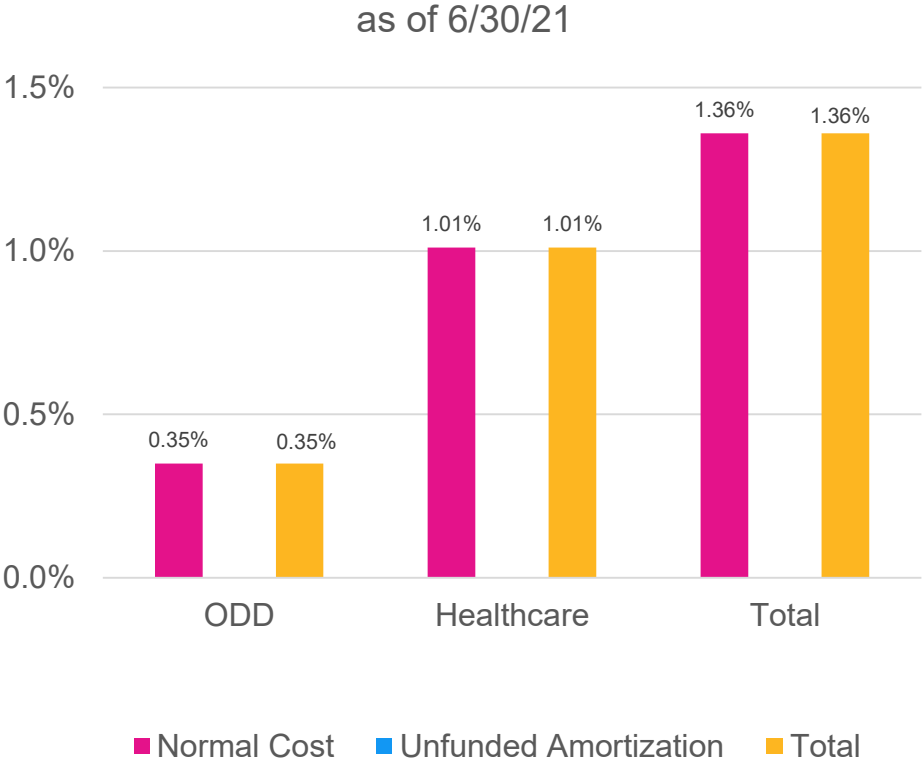
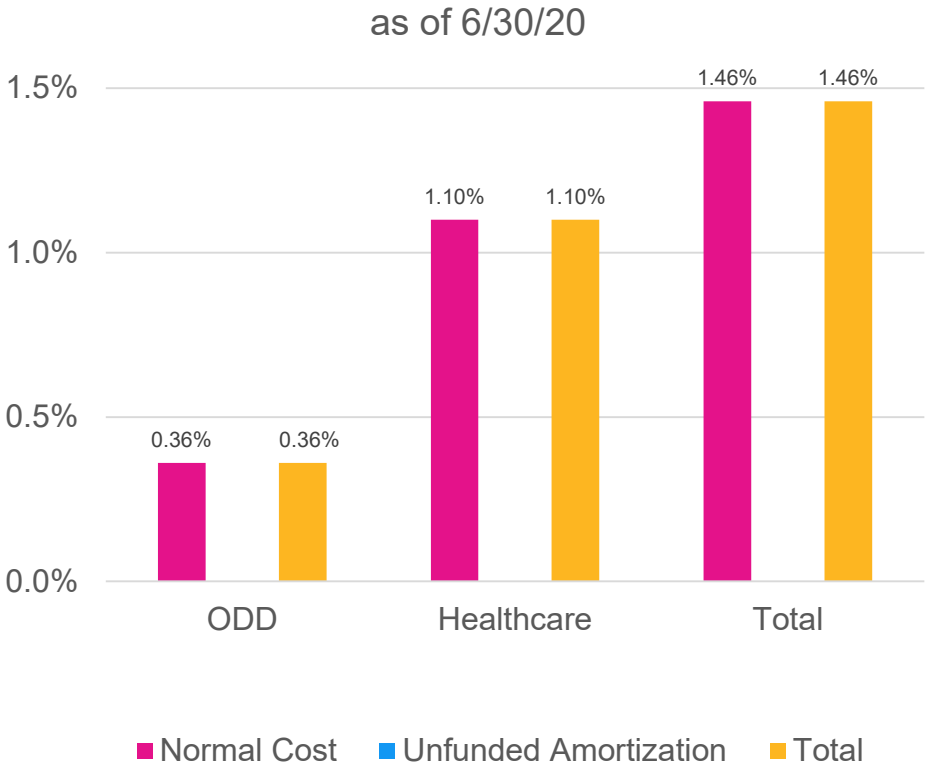


FY21 Gains:

- AAL: \$14.2M
- AVA: \$7.9M

PERS DCR: Employer Contribution Rates

(% of DCR payroll)

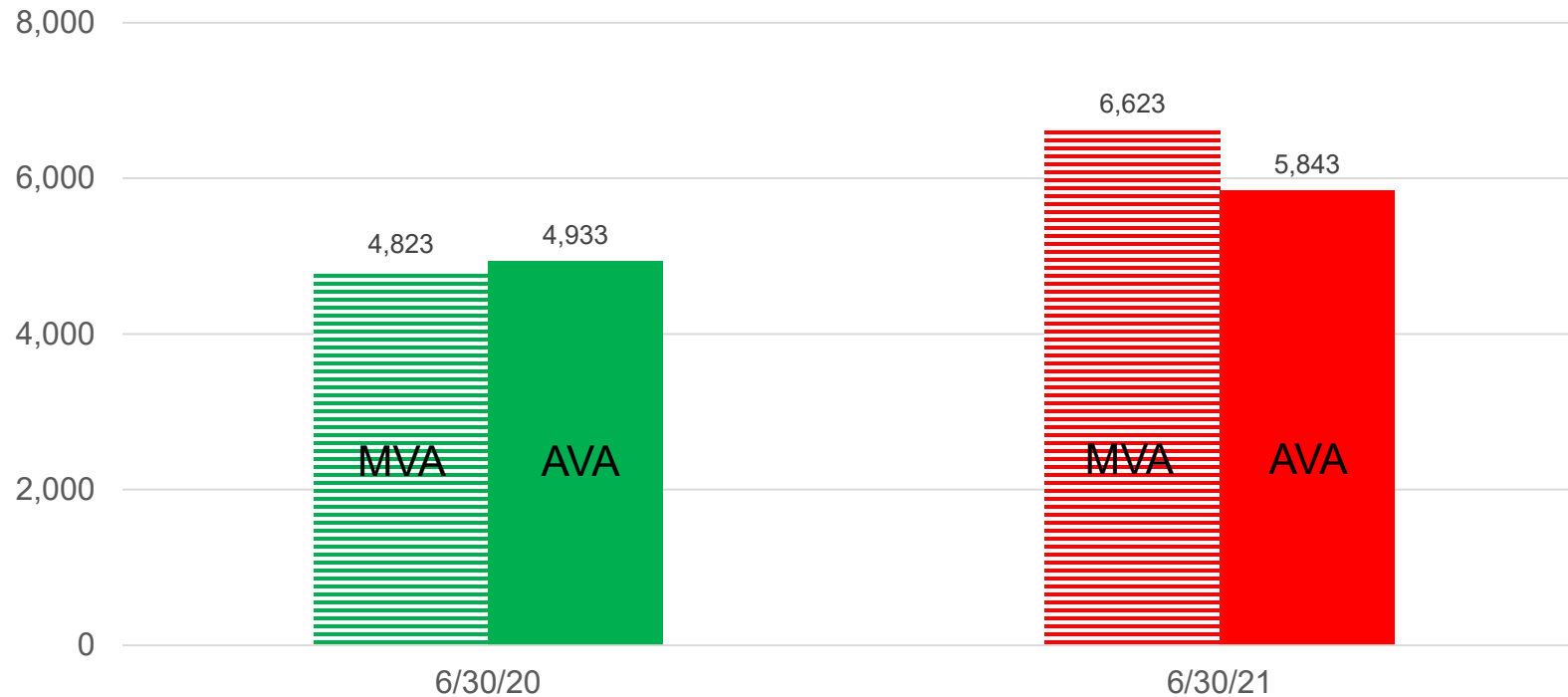


2021 Valuation Results – TRS DCR

TRS DCR: Assets – ODD

(\$000s)

MVA = Market Value of Assets
AVA = Actuarial Value of Assets



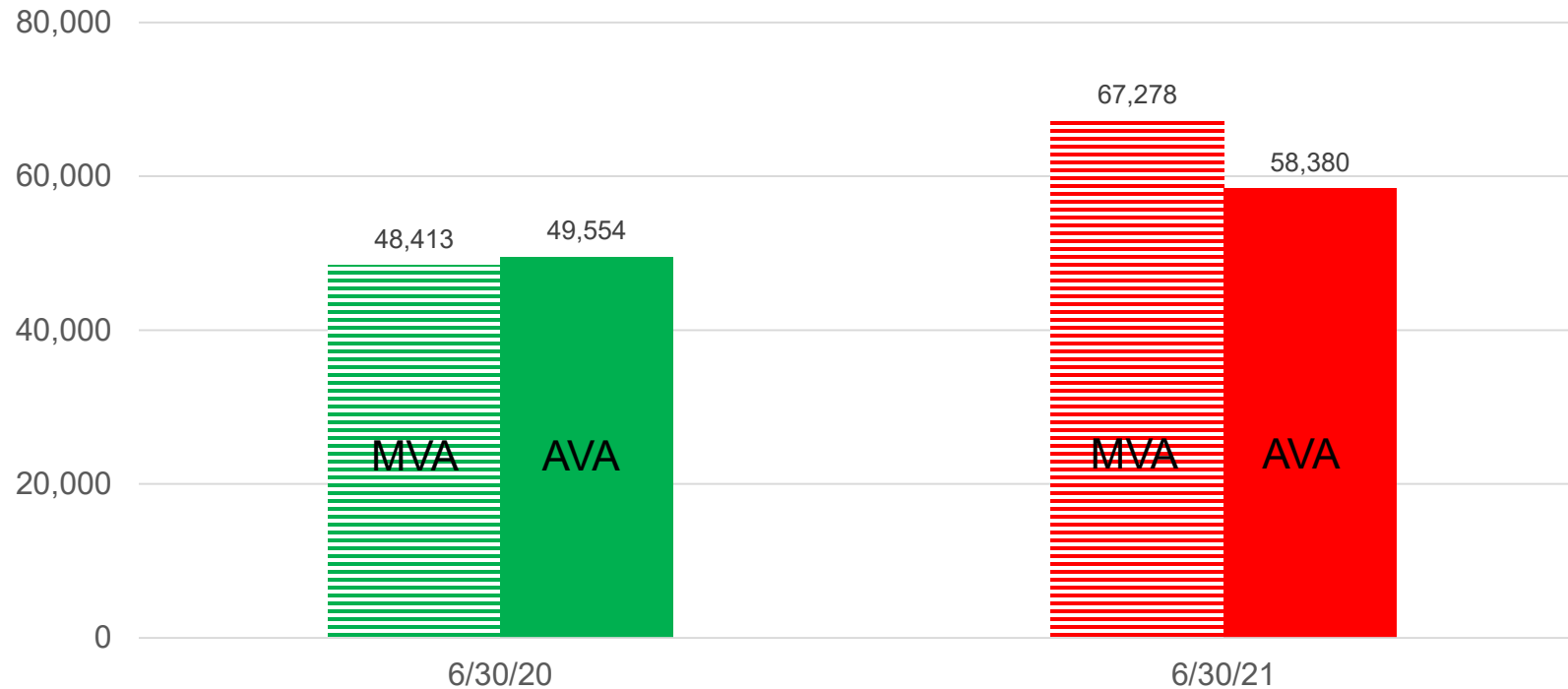
FY21 Asset Gains:

- MVA: \$1.1M
- AVA: \$0.2M

TRS DCR: Assets – Healthcare

(\$000s)

MVA = Market Value of Assets
AVA = Actuarial Value of Assets



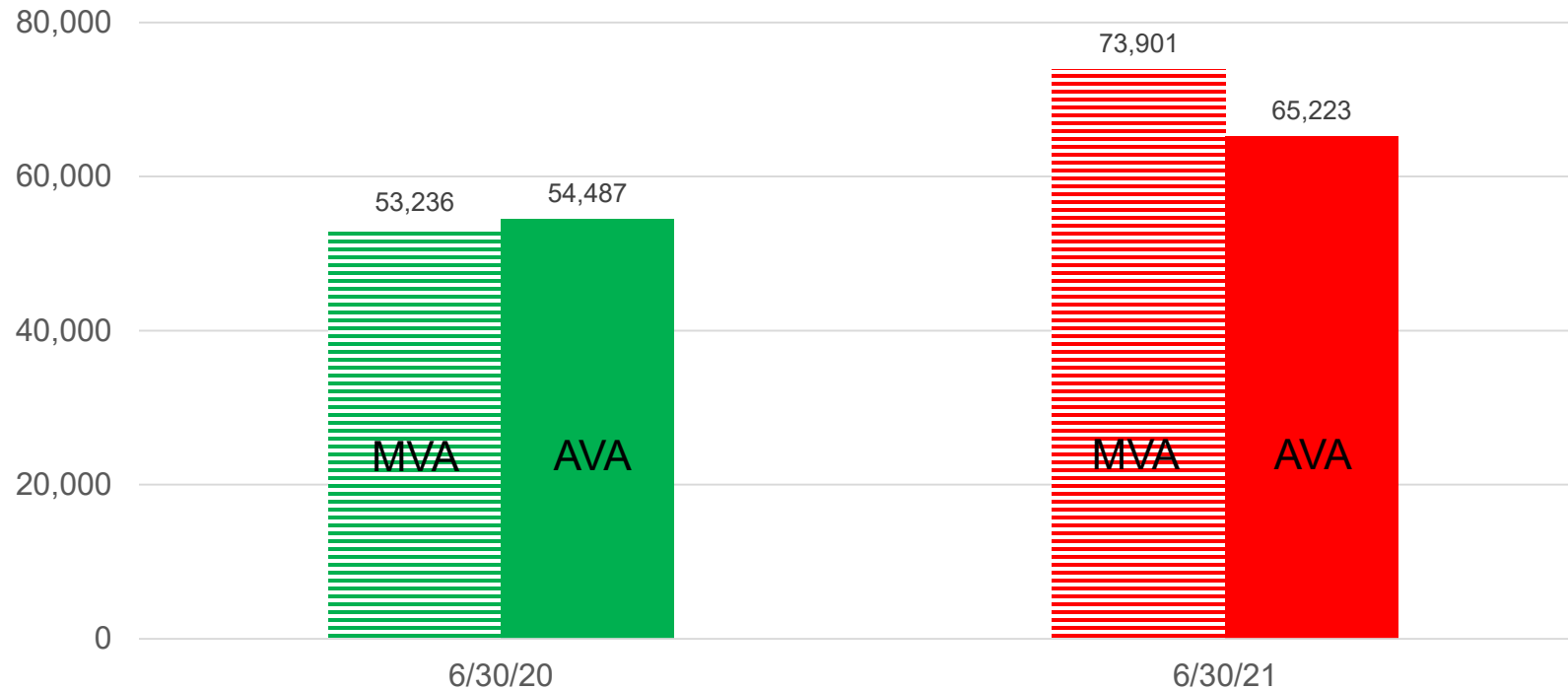
FY21 Asset Gains:

- MVA: \$11.1M
- AVA: \$2.0M

TRS DCR: Assets – Total

(\$000s)

MVA = Market Value of Assets
AVA = Actuarial Value of Assets



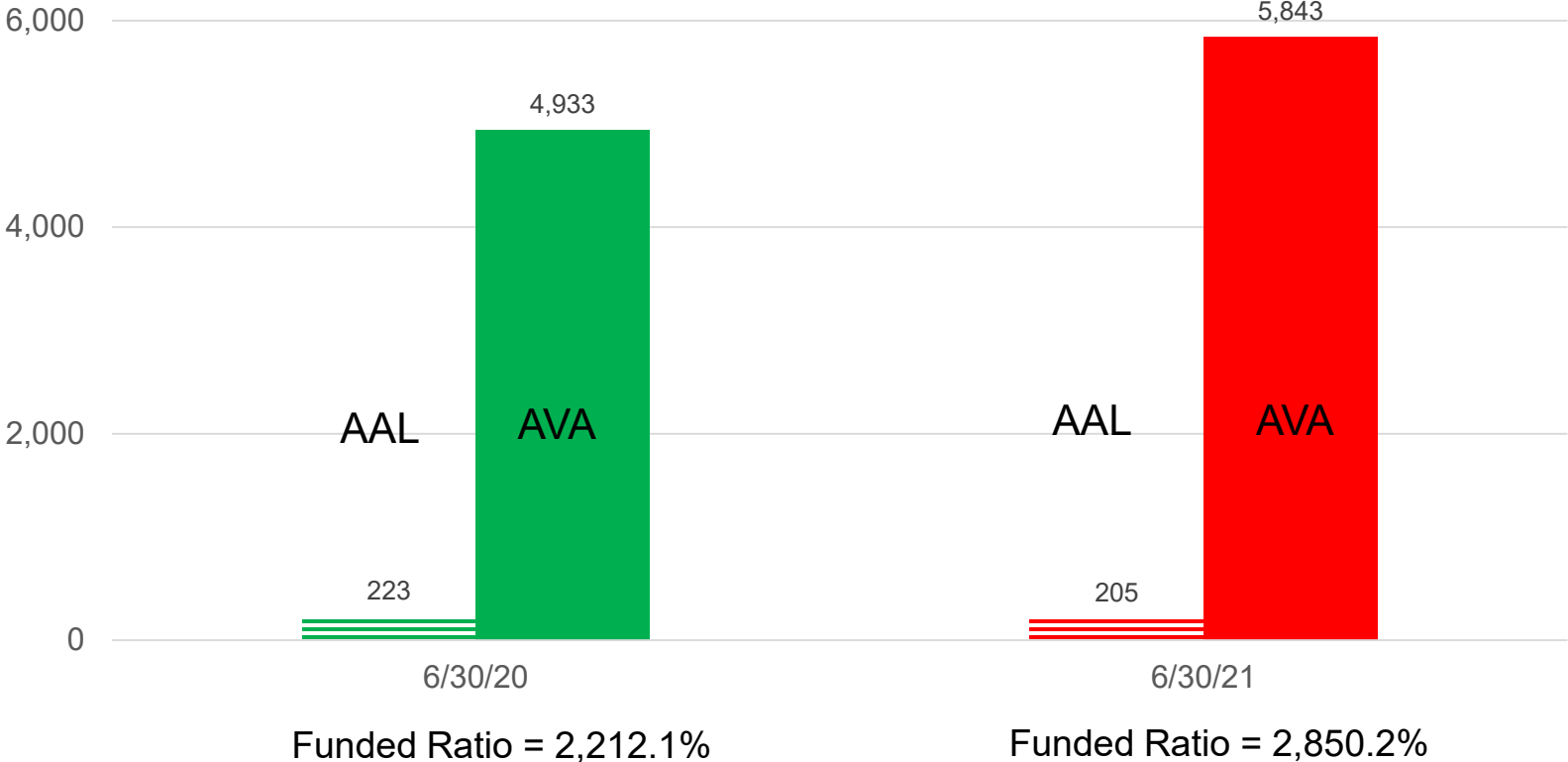
FY21 Asset Gains:

- MVA: \$12.2M
- AVA: \$2.2M

TRS DCR: Assets vs Liabilities – ODD

(\$000s)

AAL = Actuarial Accrued Liability
AVA = Actuarial Value of Assets



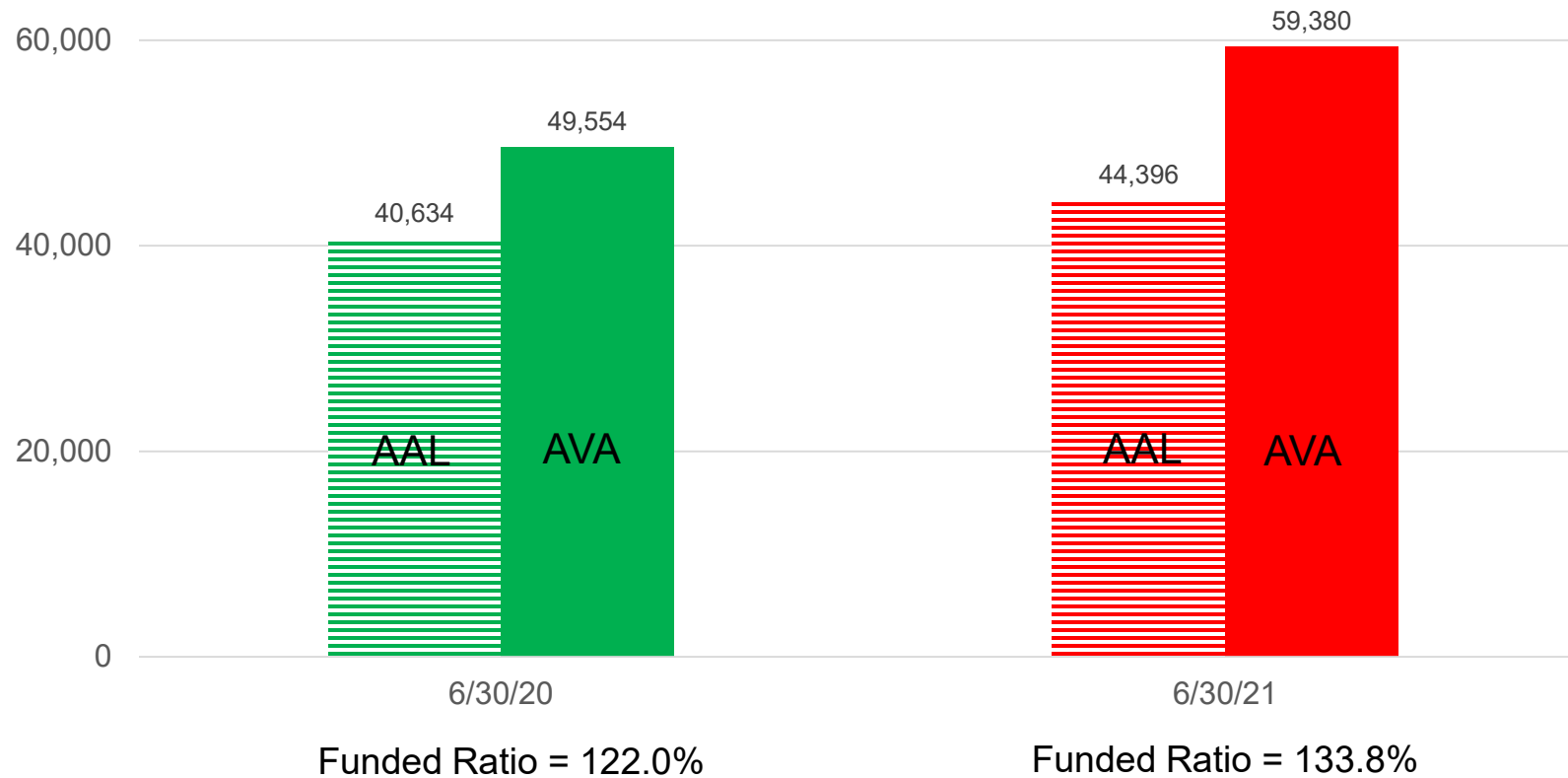
FY21 Gains:

- AAL: \$0.3M
- AVA: \$0.2M

TRS DCR: Assets vs Liabilities – Healthcare

(\$000s)

AAL = Actuarial Accrued Liability
AVA = Actuarial Value of Assets



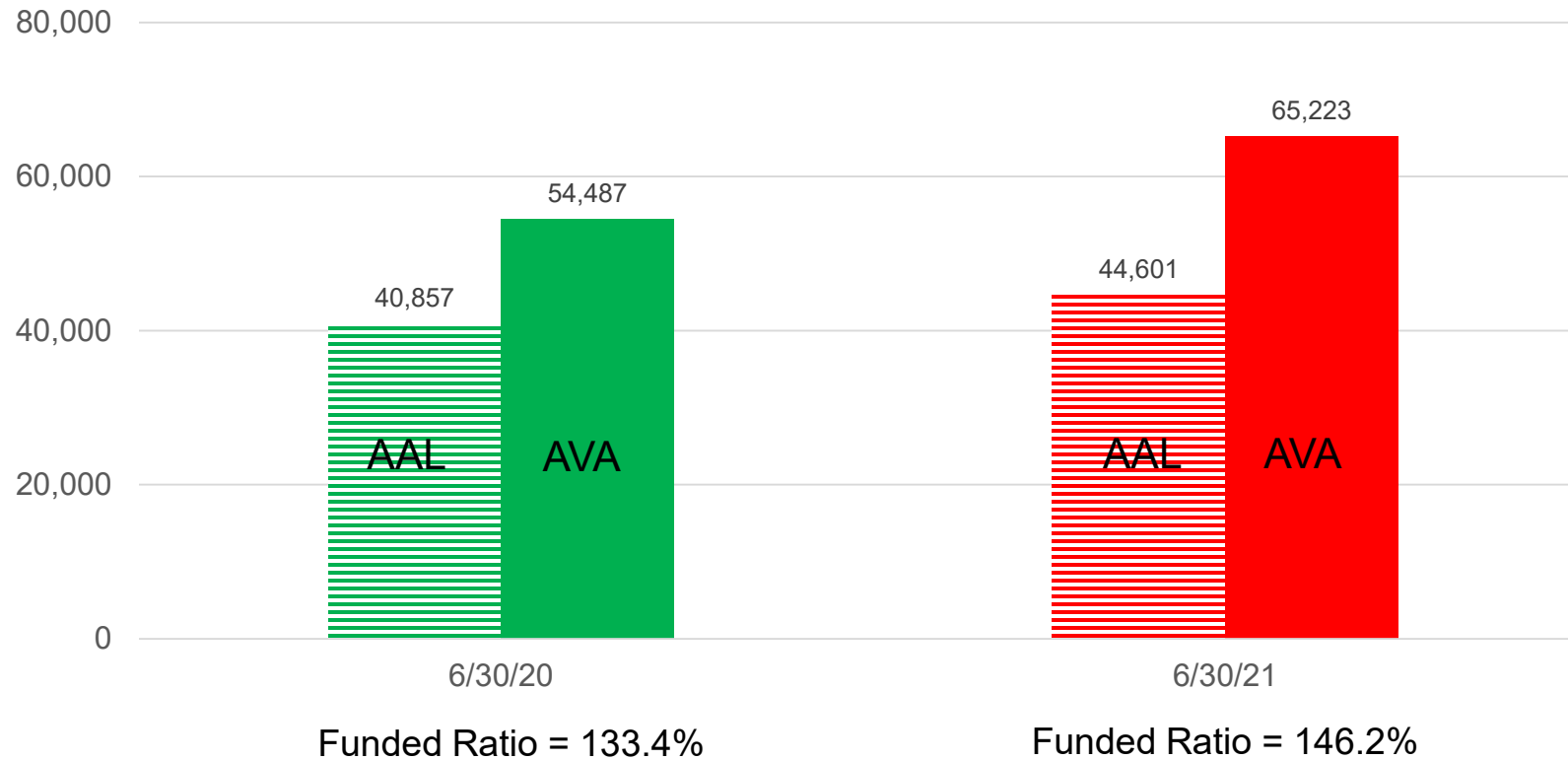
FY21 Gains:

- AAL: \$2.7M
- AVA: \$2.0M

TRS DCR: Assets vs Liabilities – Total

(\$000)

AAL = Actuarial Accrued Liability
AVA = Actuarial Value of Assets

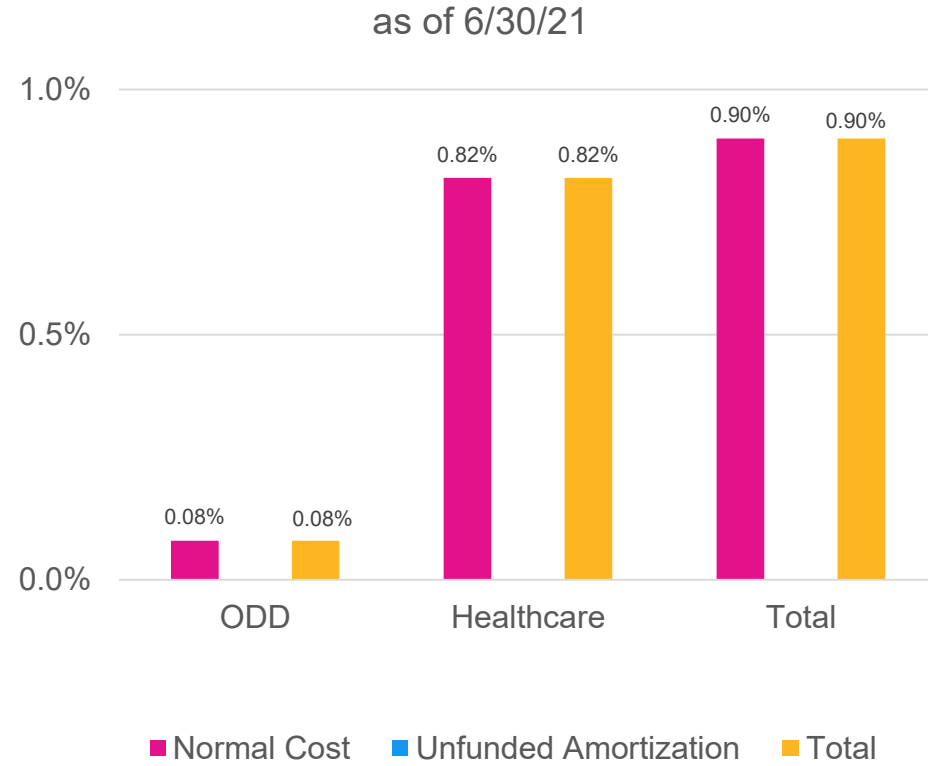
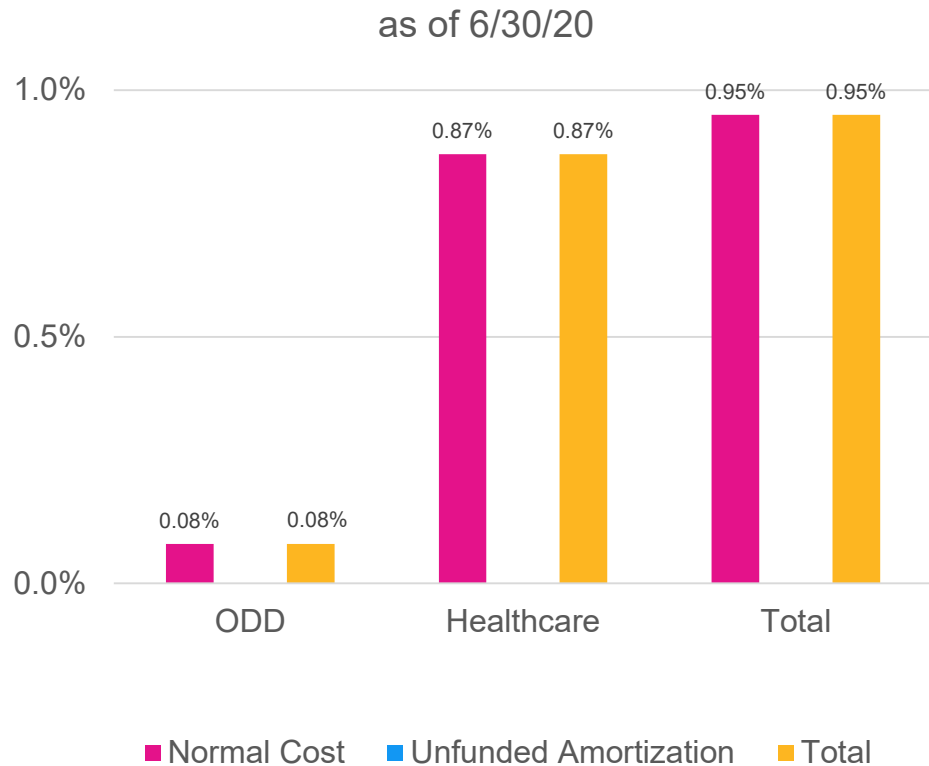


FY21 Gains:

- AAL: \$3.0M
- AVA: \$2.2M

TRS DCR: Employer Contribution Rates

(% of DCR payroll)



2021 Valuation Results – JRS

2021 Roll-Forward Valuation Results – JRS

(\$000s)

| | Pension | Healthcare | Total |
|--|----------------|---------------|----------------|
| Actuarial Accrued Liability (AAL) | 218,717 | 17,921 | 236,638 |
| Actuarial Value of Assets (AVA) | <u>215,641</u> | <u>37,884</u> | <u>253,525</u> |
| Unfunded Actuarial Accrued Liability (AAL – AVA) | 3,076 | (19,963) | (16,887) |
| Funded Ratio (AVA / AAL) | 98.6% | 211.4% | 107.1% |
| Market Value of Assets (MVA) | 245,048 | 43,173 | 288,221 |
| Contribution Rate (% of JRS payroll) | | | |
| - Normal Cost | 38.99% | 6.54% | 45.53% |
| - Unfunded Amortization | <u>19.71%</u> | <u>0.00%</u> | <u>19.71%</u> |
| - Total | 58.70% | 6.54% | 65.24% |

2021 Valuation Results – NGNMRS

2021 Roll-Forward Valuation Results – NGNMRS

(\$000s)

| | Pension |
|--|----------------|
| Actuarial Accrued Liability (AAL) | 22,975 |
| Actuarial Value of Assets (AVA) | <u>45,248</u> |
| Unfunded Actuarial Accrued Liability (AAL – AVA) | (22,273) |
| Funded Ratio (AVA / AAL) | 196.9% |
| Market Value of Assets (MVA) | 49,813 |
| Contribution Amount | |
| - Normal Cost | 503 |
| - Administrative Expenses | 268 |
| - Unfunded Amortization | <u>(3,486)</u> |
| - Total | 0 |

2021 Valuation Liability Gains/(Losses)

2021 Valuation Liability Gains/(Losses) – PERS

(\$000s)

| | Pension | Healthcare | Total |
|--|-----------------|-----------------|-----------------|
| Retirement | (7,211) | 7,125 | (86) |
| Termination | (7,963) | (10,409) | (18,372) |
| Disability | 6,650 | 10,858 | 17,508 |
| Mortality – Actives | 14,401 | (745) | 13,656 |
| Mortality – Inactives | (1,576) | 2,684 | 1,108 |
| Salary Increases | (17,126) | N/A | (17,126) |
| COLA/PRPA | 155,142 | N/A | 155,142 |
| Rehires | 15,067 | 14,045 | 29,112 |
| Transfers Between P/F and Others | (1,706) | (161) | (1,867) |
| Per Capita Claims Costs | N/A | 272,205 | 272,205 |
| Rx Plan Changes | N/A | 61,807 | 61,807 |
| Medicare Part B Only | N/A | 5,743 | 5,743 |
| Changes in Dependent Coverage Elections | N/A | 15,017 | 15,017 |
| Benefit Payments Different than Expected | 19,147 | 21,107 | 40,254 |
| Miscellaneous* | <u>(13,992)</u> | <u>(15,552)</u> | <u>(29,544)</u> |
| Total | 160,833 | 383,724 | 544,557 |

*Pension amount includes 10,900 loss due to data changes related to beneficiaries and QDRO's. Healthcare amount includes 10,592 loss for data changes related to spouses' dates of birth.

2021 Valuation Liability Gains/(Losses) – TRS

(\$000s)

| | Pension | Healthcare | Total |
|--|----------------|----------------|-----------------|
| Retirement | 4,502 | (2,282) | 2,220 |
| Termination | (7,088) | (2,979) | (10,067) |
| Disability | (103) | 220 | 117 |
| Mortality – Actives | 311 | (2,709) | (2,398) |
| Mortality – Inactives | (5,089) | 269 | (4,820) |
| Salary Increases | (29,192) | N/A | (29,192) |
| COLA/PRPA | 81,655 | N/A | 81,655 |
| Rehires | 3,085 | 3,476 | 6,561 |
| Per Capita Claims Costs | N/A | 96,861 | 96,861 |
| Rx Plan Changes | N/A | 21,763 | 21,763 |
| Medicare Part B Only | N/A | 1,278 | 1,278 |
| Changes in Dependent Coverage Elections | N/A | 9,126 | 9,126 |
| Benefit Payments Different than Expected | 14,033 | 10,592 | 24,625 |
| Miscellaneous | <u>(6,547)</u> | <u>(4,278)</u> | <u>(10,825)</u> |
| Total | 55,567 | 131,337 | 186,904 |

2021 Valuation Liability Gains/(Losses) – PERS DCR

(\$000s)

| | ODD | Healthcare | Total |
|--|--------------|--------------|--------------|
| Retirement | 0 | (521) | (521) |
| Termination | (90) | 2,669 | 2,579 |
| Disability | 3,346 | 341 | 3,687 |
| Mortality – Actives | 1,900 | 104 | 2,004 |
| Mortality – Inactives | (21) | 432 | 411 |
| Salary Increases | (8) | N/A | (8) |
| New Entrants | (89) | (1,320) | (1,409) |
| Rehires | (47) | (3,068) | (3,115) |
| Transfers Between P/F and Others | (31) | (52) | (83) |
| Per Capita Claims Costs | N/A | 7,066 | 7,066 |
| Rx Plan Changes | N/A | 2,029 | 2,029 |
| Benefit Payments Different than Expected | 145 | 209 | 354 |
| Miscellaneous | <u>(362)</u> | <u>1,560</u> | <u>1,198</u> |
| Total | 4,743 | 9,449 | 14,192 |

2021 Valuation Liability Gains/(Losses) – TRS DCR

(\$000s)

| | ODD | Healthcare | Total |
|--|----------|------------|------------|
| Retirement | 0 | 550 | 550 |
| Termination | (7) | 2,361 | 2,354 |
| Disability | 219 | (57) | 162 |
| Mortality – Actives | 107 | (9) | 98 |
| Mortality – Inactives | (1) | (30) | (31) |
| Salary Increases | (1) | N/A | (1) |
| New Entrants | 0 | (581) | (581) |
| Rehires | 1 | (2,038) | (2,037) |
| Per Capita Claims Costs | N/A | 1,883 | 1,883 |
| Rx Plan Changes | N/A | 528 | 528 |
| Benefit Payments Different than Expected | 18 | (101) | (83) |
| Miscellaneous | <u>8</u> | <u>195</u> | <u>203</u> |
| Total | 344 | 2,701 | 3,045 |

2021 Valuation Projections

2021 Valuation Projections - Background

- Because of the unusually large FY21 market asset gains, the pension trusts are currently projected to be 100% funded by FY37 (PERS) and by FY32 (TRS) – much sooner than prior years' projections
- When the pension trusts are projected to be 100% funded, we still have non-zero unfunded liability layered amortization amounts
 - These positive amortization amounts generate Additional State Contributions in years *after* the pension trusts are projected to be 100% funded → this leads to pension trust funded ratios *greater* than 100%
- Now or at some point in the future, the ARMB may want to consider modifying the 25-year layered amortization method such that all remaining layered amortization amounts are eliminated when a trust reaches a funded status of 100%, thereby avoiding funding the trust above 100%*.

* The healthcare trusts are currently more than 100% funded. If the ARMB were to implement this change, the healthcare unfunded liability amortization amounts (which are negative) would also be eliminated. However, this does not impact the current projections.

2021 Valuation Projections – Background (cont'd)

- To illustrate the impact of this potential change, we have included two alternative projections for the PERS and TRS pension trusts:
 - Alternative 1 – Current state (no changes to future unfunded liability amortization amounts)
 - Alternative 2 – Eliminate all remaining unfunded liability amortization amounts once the trust is projected to be 100% funded
- We considered each of these alternatives under two asset return scenarios*:
 - Scenario A – Market return of 7.38% in all years
 - Scenario B – Market return of 7.38% in all years except FY33 return of -10% (i.e., in the year after TRS is projected to be 100% funded)

* The impact of potential adverse asset returns (Scenario B) on future PERS contributions is not as significant as it is for TRS. Accordingly, projections for PERS are shown for Scenario A only.

2021 Valuation Projections – Background (cont'd)

- Why make the change?
 - Avoids funding the pension trust above 100%
 - ❑ *Without* the change, the FY39 funded ratio of the TRS pension trust is projected to be **115%** assuming expected asset returns in all years – see Alternative 1A on slide 68
 - ❑ *With* the change, the FY39 funded ratio of the TRS pension trust is projected to be **100%** assuming expected asset returns in all years – see Alternative 2A on slide 68
- Why not make the change?
 - If TRS experiences an adverse market return in FY33
 - ❑ The amortization amounts from the FY21 market gain are *negative*. If these negative amortization amounts are maintained (Alternative 1), they will mitigate against the *positive* amortization amounts from the FY33 adverse market return
 - ❑ Contributing the higher amounts in FY33-FY39 (Alternative 1) will lead to a higher projected FY39 funded ratio → see Alternative 1B (**92%**) vs Alternative 2B (**77%**) on slide 68

2021 Valuation Projections – Background (cont'd)

Summary of FY24-FY62 TRS employer contributions and Additional State Contributions (ASC's) (\$000's):

| Asset Return Scenario | Alternative 1 | | | Alternative 2 | | |
|-------------------------|---------------|-------------|-------------|---------------|-------------|-------------|
| | Employer | ASC's | Total | Employer | ASCs | Total |
| A - Expected Returns | \$446,193 | \$1,182,244 | \$1,628,437 | \$338,616 | \$629,575 | \$968,191 |
| B - FY33 Return of -10% | \$794,741 | \$2,617,898 | \$3,412,639 | \$950,338 | \$3,064,566 | \$4,014,904 |

Projected TRS pension funded ratios in FY39:

| Asset Return Scenario | Alternative 1 | Alternative 2 |
|-------------------------|---------------|---------------|
| A – Expected Returns | 115% | 100% |
| B – FY33 Return of -10% | 92% | 77% |

With expected returns each year:

- Employer contributions and ASC's thru FY62 are **lower under Alternative 2** (\$968M vs \$1,628M) because the positive pension amortization amounts after FY32 have been eliminated.

With adverse return in FY33:

- Employer contributions and ASC's are **lower under Alternative 1** (\$3,413M vs \$4,015M) because the negative pension amortization amounts from the FY21 asset gain are maintained, which will offset the positive amortization amounts from the FY33 asset loss.

2021 Valuation Projections – Assumptions

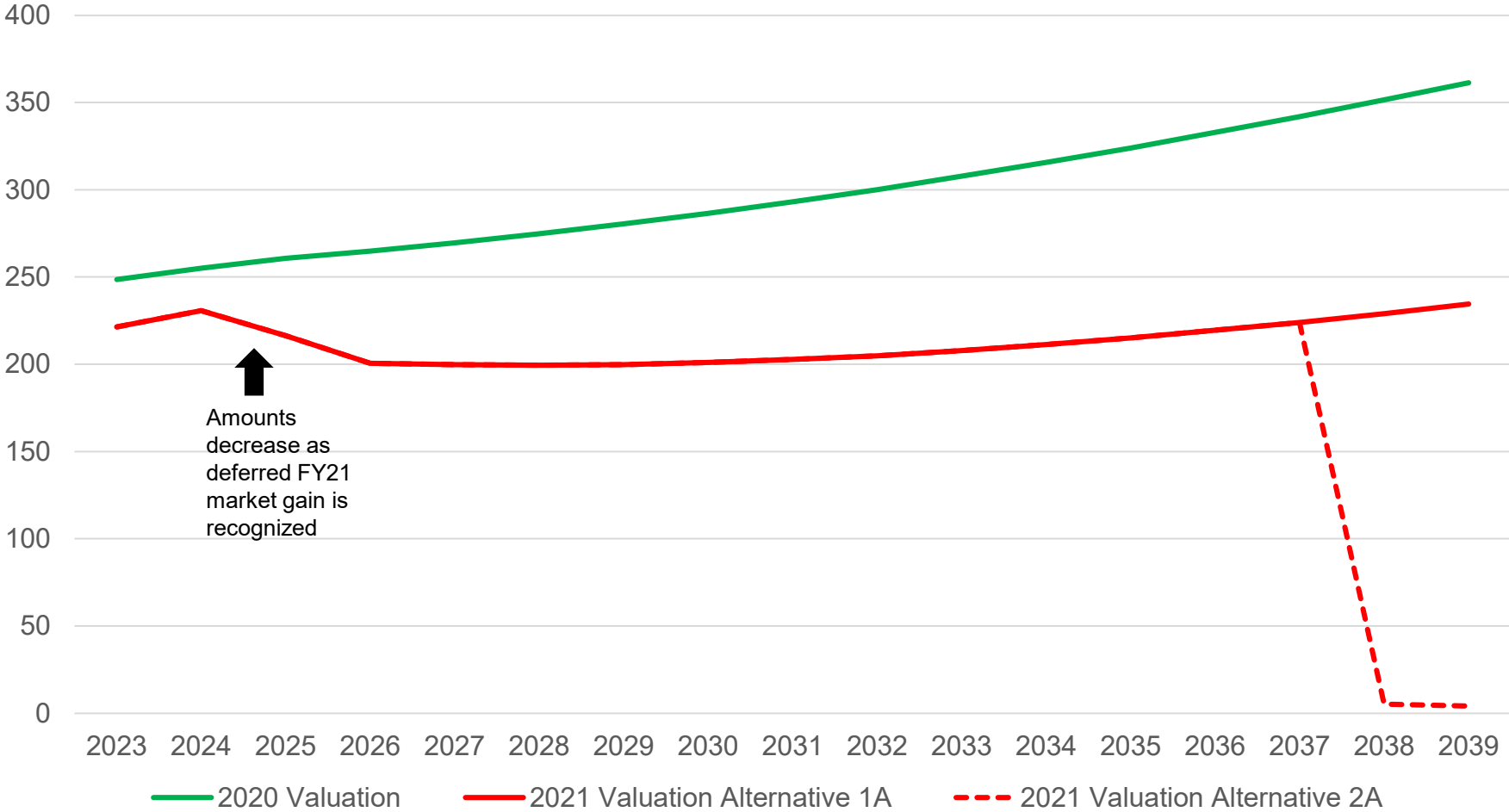
- All experience after 6/30/21 matches valuation assumptions
- 0% active plan population growth overall, all new hires enter the DCR plans
- DCR contribution rates as of 6/30/21 assumed to remain constant
- Active rehire assumption grades to zero uniformly over 20 years
- Normal Cost percentage load for administrative expenses assumed to remain constant
- Additional State Contributions were allocated 100% to pension each year
- The FY23 contribution rates adopted by the ARMB in October 2021 are reflected
- The healthcare Normal Cost was assumed to be deposited to the healthcare trusts in FY24 and later
- The percentage of total PERS DB/DCR payroll attributable to the State's employees based on the June 30, 2021 data (approximately 50%) was assumed to remain constant in all years

Note: The 2020 valuation projections are shown for comparison purposes, and reflect SB 55 that was implemented effective July 1, 2021. See Section 3.1 of the June 30, 2020 valuation reports for the 2020 valuation projection assumptions.

PERS Projections

PERS – State-as-an-Employer Contributions

(\$millions)



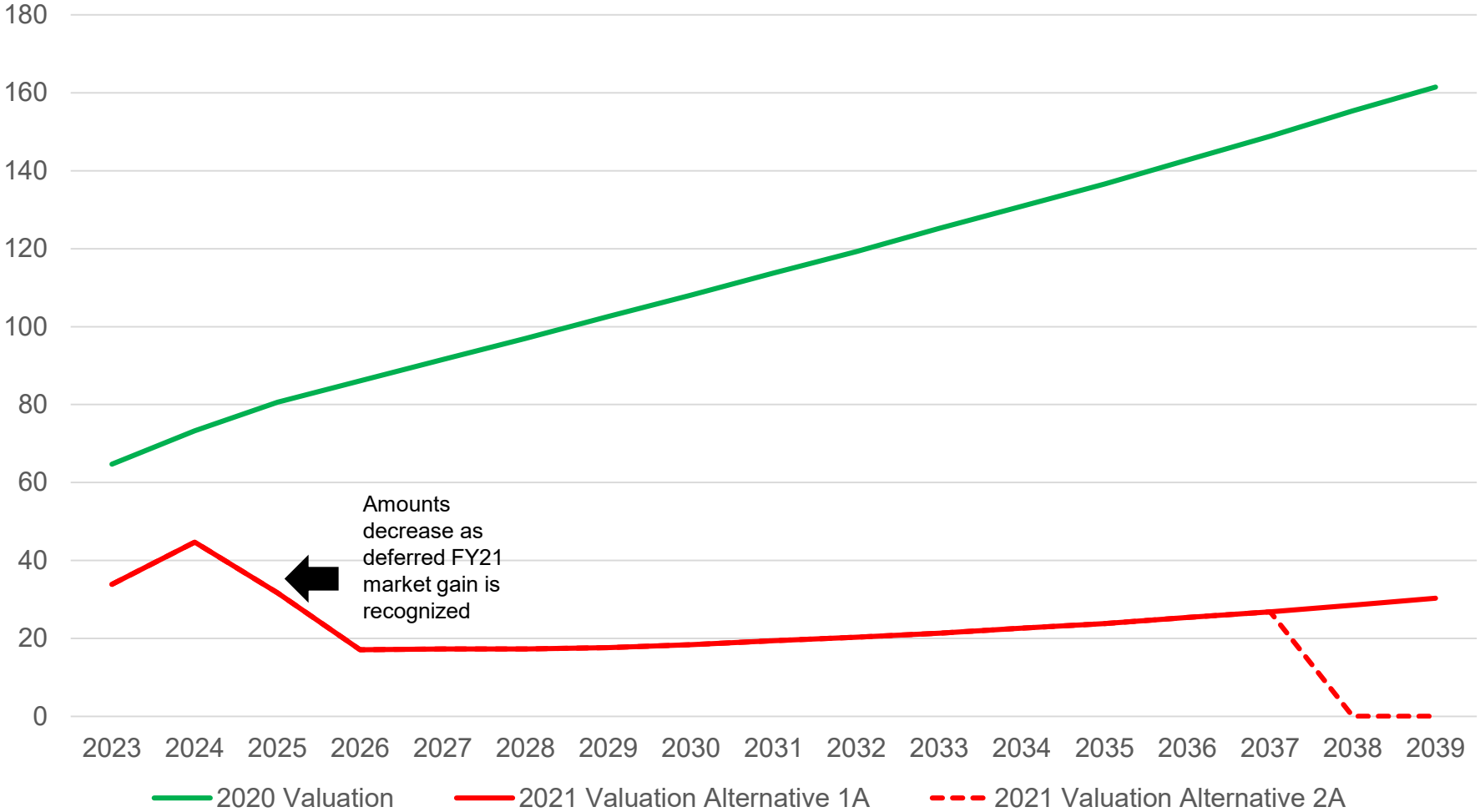
↑
Amounts decrease as deferred FY21 market gain is recognized

Under 2021 Valuation Alternative 1A, State-as-an-Employer Contributions continue to increase after the pension trust is projected to reach a funded status of 100%.

Under 2021 Valuation Alternative 2A, State-as-an-Employer Contributions are reduced to the Normal Cost after the pension trust is projected to reach a funded status of 100%.

PERS – Additional State Contributions

(\$millions)

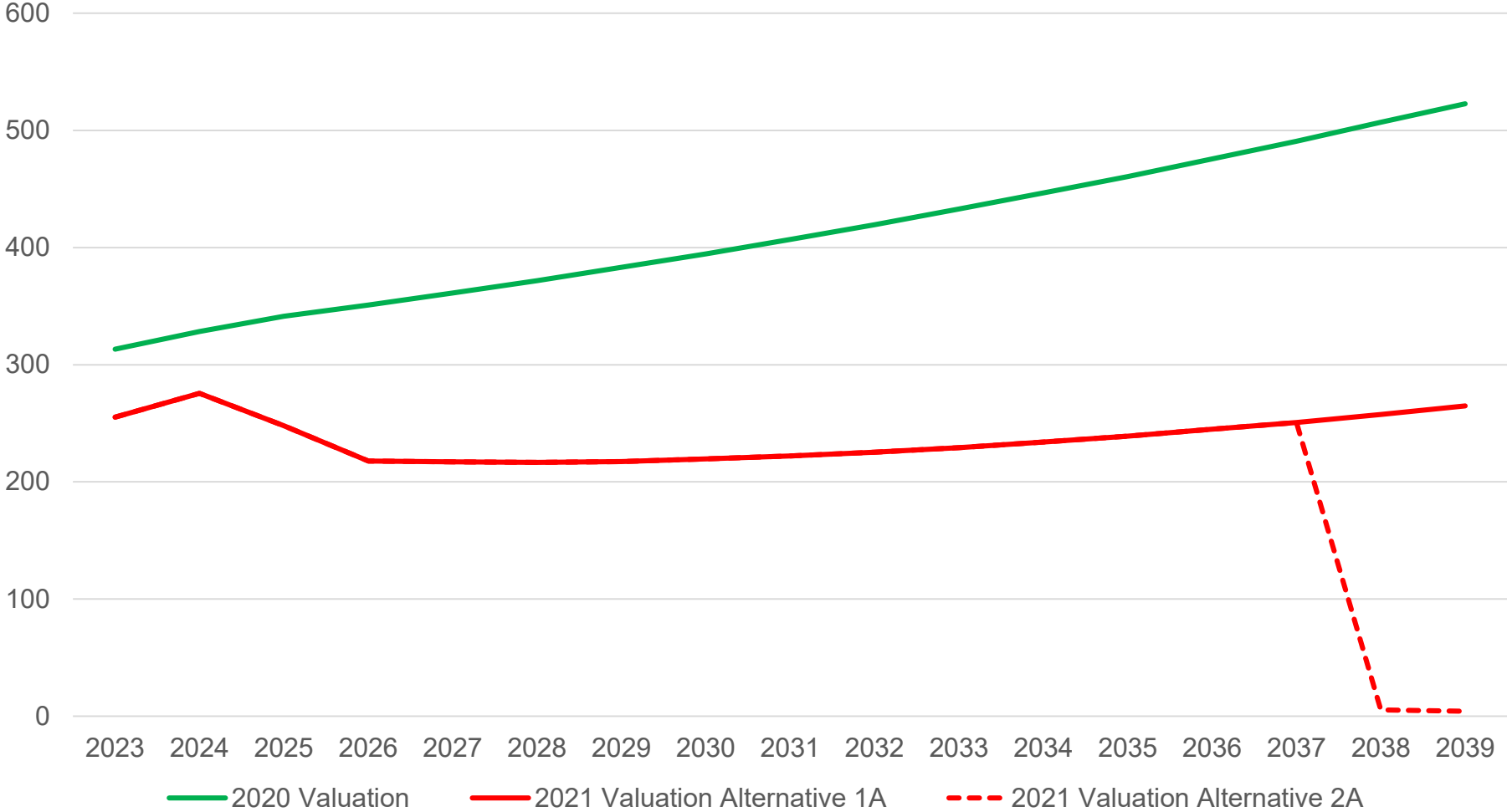


Under 2021 Valuation Alternative 1A, Additional State Contributions continue after the pension trust is projected to reach a funded status of 100%.

Under 2021 Valuation Alternative 2A, Additional State Contributions are zero after the pension trust is projected to reach a funded status of 100%.

PERS – Total State Contributions

(\$millions)



PERS – State Contribution Projection Summary

(\$millions)

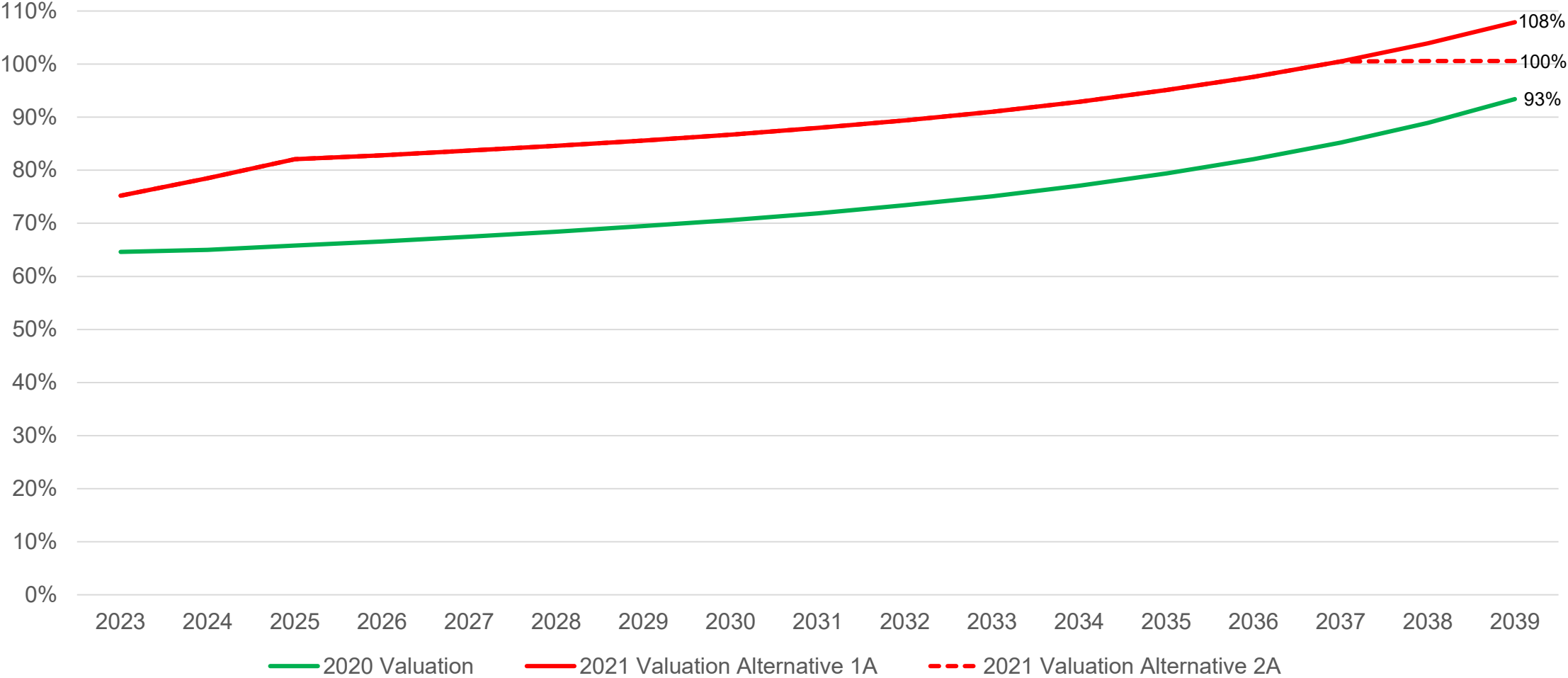
| Fiscal Year | State-as-an-Employer Contributions | | | Additional State Contributions | | | Total State Contributions | | |
|-------------|------------------------------------|----------------|----------------|--------------------------------|----------------|----------------|---------------------------|----------------|----------------|
| | 2020 Valuation | 2021 Valuation | 2021 Valuation | 2020 Valuation | 2021 Valuation | 2021 Valuation | 2020 Valuation | 2021 Valuation | 2021 Valuation |
| | | Alternative 1A | Alternative 2A | | Alternative 1A | Alternative 2A | | Alternative 1A | Alternative 2A |
| 2023 | 248.6 | 221.4 | 221.4 | 64.7 | 33.9 | 33.9 | 313.3 | 255.3 | 255.3 |
| 2024 | 255.0 | 230.8 | 230.8 | 73.3 | 44.7 | 44.7 | 328.3 | 275.5 | 275.5 |
| 2025 | 260.7 | 216.3 | 216.3 | 80.6 | 31.7 | 31.7 | 341.3 | 248.0 | 248.0 |
| 2026 | 264.9 | 200.6 | 200.6 | 86.1 | 17.1 | 17.1 | 351.0 | 217.7 | 217.7 |
| 2027 | 269.6 | 199.8 | 199.8 | 91.6 | 17.3 | 17.3 | 361.2 | 217.1 | 217.1 |
| 2028 | 274.8 | 199.4 | 199.4 | 97.0 | 17.3 | 17.3 | 371.8 | 216.7 | 216.7 |
| 2029 | 280.5 | 199.8 | 199.8 | 102.6 | 17.6 | 17.6 | 383.1 | 217.4 | 217.4 |
| 2030 | 286.5 | 201.1 | 201.1 | 108.1 | 18.4 | 18.4 | 394.6 | 219.5 | 219.5 |
| 2031 | 293.1 | 202.8 | 202.8 | 113.8 | 19.4 | 19.4 | 406.9 | 222.2 | 222.2 |
| 2032 | 300.1 | 204.9 | 204.9 | 119.3 | 20.3 | 20.3 | 419.4 | 225.2 | 225.2 |
| 2033 | 307.8 | 207.8 | 207.8 | 125.2 | 21.3 | 21.3 | 433.0 | 229.1 | 229.1 |
| 2034 | 315.7 | 211.3 | 211.3 | 130.9 | 22.6 | 22.6 | 446.6 | 233.9 | 233.9 |
| 2035 | 323.9 | 215.1 | 215.1 | 136.6 | 23.8 | 23.8 | 460.5 | 238.9 | 238.9 |
| 2036 | 332.9 | 219.5 | 219.5 | 142.8 | 25.4 | 25.4 | 475.7 | 244.9 | 244.9 |
| 2037 | 341.9 | 223.9 | 223.9 | 148.9 | 26.8 | 26.8 | 490.8 | 250.7 | 250.7 |
| 2038 | 351.5 | 229.0 | 5.3 | 155.4 | 28.5 | 0.0 | 506.9 | 257.5 | 5.3 |
| 2039 | 361.3 | 234.5 | 4.1 | 161.5 | 30.3 | 0.0 | 522.8 | 264.8 | 4.1 |
| Sub-Total | 5,068.8 | 3,618.0 | 3,163.9 | 1,938.4 | 416.4 | 357.6 | 7,007.2 | 4,034.4 | 3,521.5 |
| 2040-2062 | 0.0 | 13.1 | 13.1 | 0.0 | 0.0 | 0.0 | 0.0 | 13.1 | 13.1 |
| Total | 5,068.8 | 3,631.1 | 3,177.0 | 1,938.4 | 416.4 | 357.6 | 7,007.2 | 4,047.5 | 3,534.6 |

State-as-an-Employer contributions and Additional State Contributions thru FY39 are **lower under Alternative 2A vs Alternative 1A** because the positive amortization amounts after FY37 are eliminated under Alternative 2A.

Total State contributions thru FY62 are also **lower under Alternative 2A vs Alternative 1A**.

PERS – Projected Funded Ratios of Pension Trust

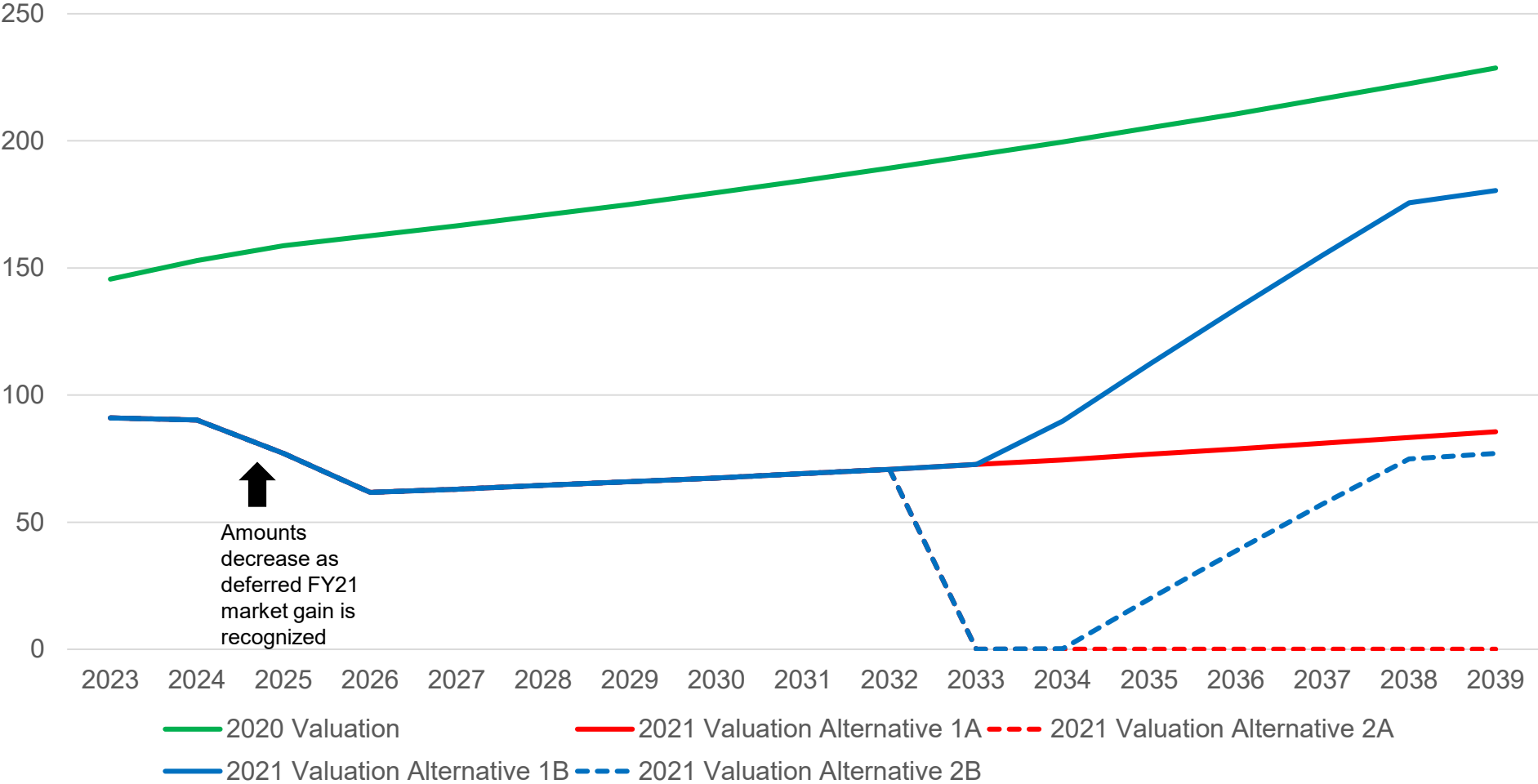
(based on Actuarial Value of Assets)



TRS Projections

TRS – Additional State Contributions

(\$millions)



All 2021 valuation alternative scenarios are the same through FY32.

The increases after FY33 under Alternatives 1B and 2B are due to the adverse FY33 market return.

Additional State Contributions are projected to be **zero** after FY39 with expected returns each year (Alternatives 1A and 2A).

Additional State Contributions are projected to be **non-zero** after FY39 with adverse FY33 returns (Alternatives 1B and 2B).

TRS – Additional State Contribution Projection Summary

(\$millions)

| Fiscal Year | Additional State Contributions | | | | |
|-------------|--------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| | 2020 Valuation | 2021 Valuation Alternative 1A | 2021 Valuation Alternative 2A | 2021 Valuation Alternative 1B | 2021 Valuation Alternative 2B |
| 2023 | 145.6 | 91.0 | 91.0 | 91.0 | 91.0 |
| 2024 | 152.9 | 90.2 | 90.2 | 90.2 | 90.2 |
| 2025 | 158.8 | 77.0 | 77.0 | 77.0 | 77.0 |
| 2026 | 162.7 | 61.7 | 61.7 | 61.7 | 61.7 |
| 2027 | 166.6 | 63.0 | 63.0 | 63.0 | 63.0 |
| 2028 | 170.8 | 64.5 | 64.5 | 64.5 | 64.5 |
| 2029 | 175.0 | 65.9 | 65.9 | 65.9 | 65.9 |
| 2030 | 179.6 | 67.4 | 67.4 | 67.4 | 67.4 |
| 2031 | 184.4 | 69.1 | 69.1 | 69.1 | 69.1 |
| 2032 | 189.3 | 70.8 | 70.8 | 70.8 | 70.8 |
| 2033 | 194.4 | 72.7 | 0.0 | 72.7 | 0.0 |
| 2034 | 199.6 | 74.5 | 0.0 | 89.8 | 0.2 |
| 2035 | 205.1 | 76.7 | 0.0 | 112.1 | 19.8 |
| 2036 | 210.6 | 78.8 | 0.0 | 133.8 | 38.7 |
| 2037 | 216.5 | 81.0 | 0.0 | 155.0 | 57.1 |
| 2038 | 222.5 | 83.3 | 0.0 | 175.6 | 74.9 |
| 2039 | 228.7 | 85.6 | 0.0 | 180.5 | 77.0 |
| Sub-Total | 3,163.1 | 1,273.2 | 720.6 | 1,640.1 | 988.3 |
| 2040-2062 | 0.0 | 0.0 | 0.0 | 1,068.9 | 2,167.3 |
| Total | 3,163.1 | 1,273.2 | 720.6 | 2,709.0 | 3,155.6 |

Comparing Alternatives 1A and 2A (expected returns each year):

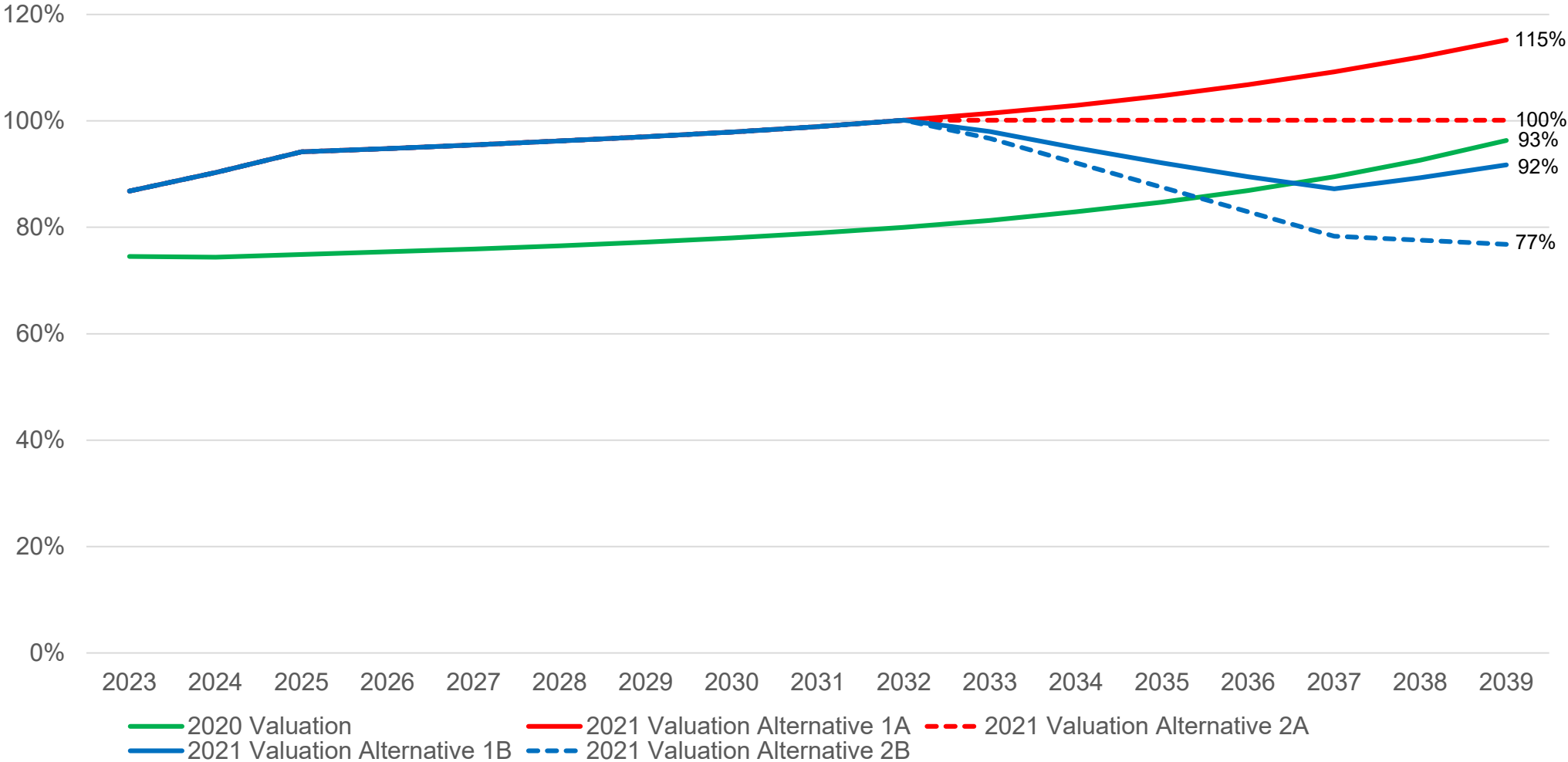
- Additional State Contributions thru FY39 are **lower under Alternative 2A vs Alternative 1A** because the positive amortization amounts after FY32 are eliminated.

Comparing Alternatives 1B and 2B (adverse return in FY33):

- Additional State Contributions thru FY39 are **lower under Alternative 2B vs Alternative 1B** because the positive amortization amounts after FY32 are eliminated.
- If we also consider FY40-FY62, Additional State Contributions in these years are **lower under Alternative 1B vs Alternative 2B** because the negative amortization amounts from the FY21 asset gain are maintained.

TRS – Projected Funded Ratios of Pension Trust

(based on Actuarial Value of Assets)



All 2021 valuation alternative scenarios are the same through FY32

Healthcare Sensitivities

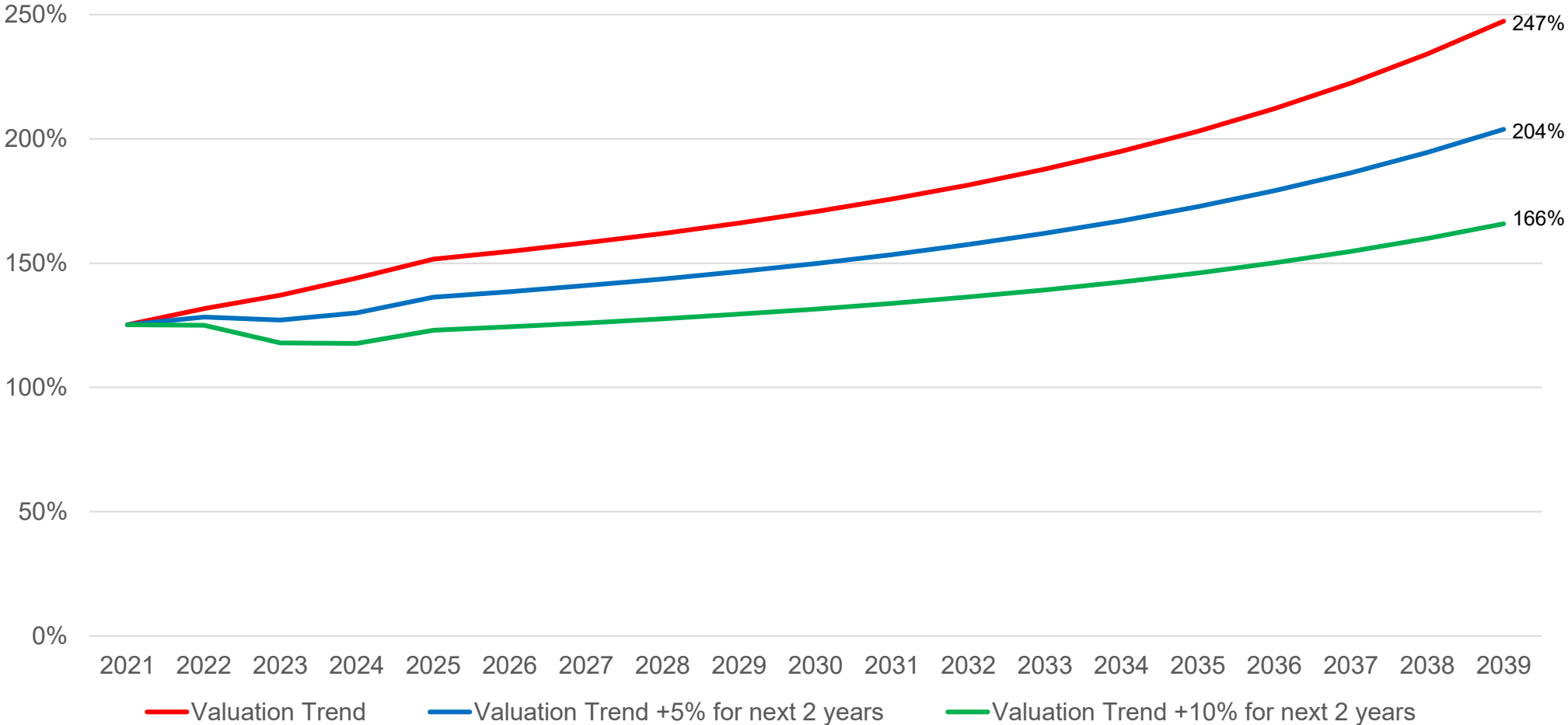
Healthcare Sensitivities - Background

- The PERS and TRS healthcare trusts are currently more than 100% funded, and have been so for the last few years due to several reasons
 - Favorable claims experience
 - Implementation of EGWP in 2019
 - New prescription drug contract with Optum in 2019
 - Plan changes made effective in 2022
 - Favorable asset returns
 - Contributing the healthcare Normal Cost per Alaska statutes
- If the healthcare Normal Cost continues to be deposited to the healthcare trust, the funded status of each healthcare trust is expected to continue to increase absent future adverse experience or changes in plan provisions and/or actuarial assumptions
- We have illustrated how the projected funded ratios of the healthcare trusts would change if the increases in healthcare costs during each of the next 2 years are*:
 - 5% higher than the valuation trend rate assumption
 - 10% higher than the valuation trend rate assumption

* Assuming no other gains/losses, and no changes in plan provisions and/or actuarial assumptions

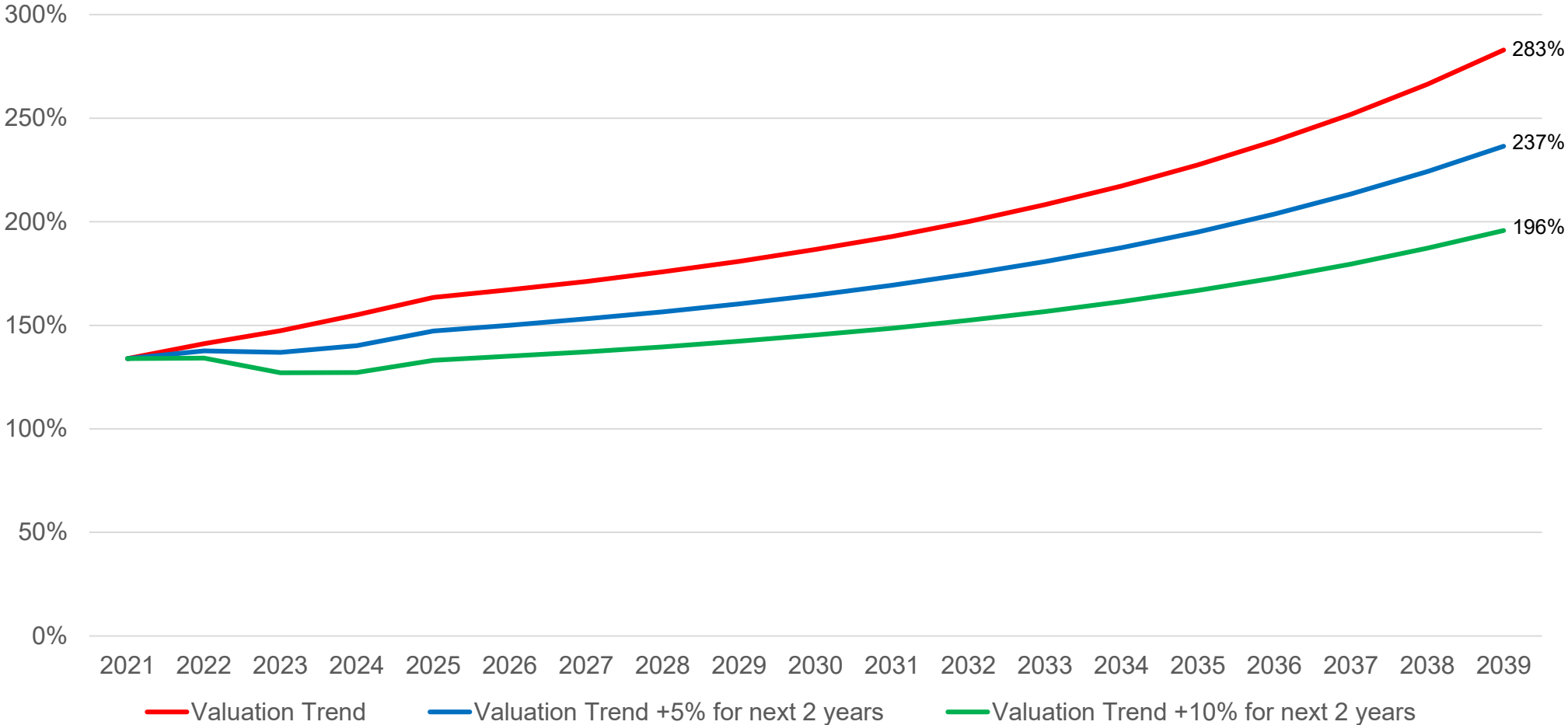
PERS – Projected Funded Ratios of Healthcare Trust

(based on Actuarial Value of Assets)



TRS – Projected Funded Ratios of Healthcare Trust

(based on Actuarial Value of Assets)



Actuarial Certification

Actuarial Certification

The purpose of this presentation is to provide the ARMB Actuarial Committee with June 30, 2021 valuation results and projections for discussion at the March 16, 2022 meeting. This presentation should be considered part of the June 30, 2021 actuarial valuation report services.

The data, assumptions, methods, and plan provisions used to determine the results shown in this presentation are as shown in the draft June 30, 2021 actuarial valuation reports. The draft June 30, 2021 actuarial valuation reports include details related to potential risks associated with the plans (ASOP 51), and information regarding our use of models (ASOP 56).

Where presented, references to “funded ratio” and “unfunded actuarial accrued liability” typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded actuarial 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) all or a portion of its liabilities.

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.

The results were prepared under the direction of David Kershner and Scott Young, both of whom meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. These results have been prepared in accordance with all applicable Actuarial Standards of Practice.

David Kershner
FSA, EA, MAAA, FCA
Principal, Retirement

Scott Young
FSA, EA, MAAA
Director, Health



State of Alaska

Timeline for June 30, 2021 Valuations (PERS/TRS DB and DCR, JRS, NGNMRS, EPORS)

| Item # | Task | Original Deadline | Revised Deadline | Date Completed | Team Responsible | Comments / Notes |
|--------|---|-------------------|------------------|----------------|------------------|---|
| 1 | Enrollment Data Request to Aetna | 7/16/21 | | 7/6/21 | Buck | Send to Daniel Dudley at Aetna. Enrollment counts received 7/21. |
| 2 | Valuation Data Request to DRB | 7/16/21 | | 7/16/21 | Buck | |
| 3 | Monthly Audit Discussion with GRS / Buck | 7/21/21 | | not needed | GRS / Buck | |
| 4 | Preliminary 6/30/2021 Assets to Buck | 8/6/21 | | 8/10/21 | DRB | These will be used only for the adoption of FY23 contribution rates. |
| 5 | Monthly Audit Discussion with GRS / Buck | 8/18/21 | | not needed | GRS / Buck | |
| 6 | Valuation Data to Buck | 9/3/21 | | 9/3/21 | DRB | |
| 7 | Monthly Audit Discussion with GRS / Buck | 9/15/21 | | 9/15/21 | GRS / Buck | |
| 8 | Audit Data and Sample Lives Request to Buck | 9/17/21 | | 9/22/21 | GRS | |
| 9 | Actuarial Committee Meeting - FY23 Contribution Rates | 9/22/21 | | 9/22/21 | All | Teleconference. Deadline for meeting materials is 9/3. |
| 10 | Claims Data Request to Segal/DRB | 9/24/21 | | 9/13/21 | Buck | Incurred claims through 6/30/21 that are paid through 8/31/21. |
| 11 | Data Questions to DRB | 9/24/21 | | 9/29/21 | Buck | PERS data questions sent on 9/24. TRS data questions sent on 9/29. |
| 12 | Data Answers to Buck | 10/8/21 | | 10/7/21 | DRB | |
| 13 | Final 6/30/2021 Assets to Buck | 10/15/21 | | n/a | DRB | Use same assets as provided for 6/30/21 GASB reporting. |
| 14 | Monthly Audit Discussion with GRS / Buck | 10/20/21 | | 10/20/21 | GRS / Buck | |
| 15 | TRS (and selected school districts in PERS) updated active listing at 10/1/21 to capture term/rehires since 6/30/21 | 10/22/21 | | | DRB | Won't be reflected in 6/30/21 valuations, but DRB still wants Buck to track how many terms/rehires by plan. |
| 16 | Claims Data to Buck | 10/22/21 | | 10/8/21 | Segal / DRB | Incurred claims through 6/30/21 that are paid through 8/31/21. |
| 17 | 6/30/2021 Valuation Data and DRB Data Questions to GRS | 10/29/21 | 11/15/21 | 11/15/21 | Buck | |
| 18 | Sample Life Information to GRS | 11/5/21 | 11/19/21 | 11/19/21 | Buck | |
| 19 | Preliminary Valuation Results and PVB's by individual to GRS | 11/15/21 | 11/23/21 | 11/23/21 | Buck | PERS DCR provided on 12/8. TRS DCR provided on 12/9. |
| 20 | Monthly Audit Discussion with GRS / Buck | 11/17/21 | | 11/17/21 | GRS / Buck | |
| 21 | Actuarial Committee Meeting - 6/30/21 valuation results (preliminary), economic assumptions for experience study | 12/1/21 | | 12/1/21 | All | Juneau. Deadline for meeting materials is 11/12. |
| 22 | Monthly Audit Discussion with GRS / Buck | 12/15/21 | | 12/15/21 | GRS / Buck | |
| 23 | Draft DCR Valuation Reports to GRS | 1/7/22 | | 1/7/22 | Buck | |
| 24 | Monthly Audit Discussion with GRS / Buck | 1/19/22 | 1/21/22 | 1/21/22 | GRS / Buck | |
| 25 | Draft DB Valuation Reports to GRS | 1/21/22 | | 1/26/22 | Buck | |
| 26 | Monthly Audit Discussion with GRS / Buck | 2/16/22 | | 2/16/22 | GRS / Buck | |
| 27 | Draft Actuarial Review Report to Buck | 2/28/22 | | | GRS | |
| 28 | Monthly Audit Discussion with GRS / Buck | 3/9/22 | | | GRS / Buck | |
| 29 | Actuarial Committee Meeting - 6/30/21 valuation results (full), projections, draft valuation reports, demographic assumptions for experience study | 3/16/22 | | | All | Juneau. Deadline for meeting materials is 2/25. Also include updated economic assumptions. |
| 30 | Monthly Audit Discussion with GRS / Buck | 4/20/22 | | | GRS / Buck | |
| 31 | Actuarial Committee Meeting - follow-up to March meeting (if needed) | 4/28/22 | | | All | Teleconference. |
| 32 | Monthly Audit Discussion with GRS / Buck | 5/18/22 | | | GRS / Buck | |
| 33 | Actuarial Committee Meeting - final valuation reports, follow-up discussion on assumptions for experience study | 6/15/22 | | | All | Anchorage. Deadline for meeting materials is 5/27. |

Note: All deadline and completion dates are specific to PERS/TRS.



State of Alaska

Public Employees' Retirement System

Actuarial Valuation Report
As of June 30, 2021

January 2022

DRAFT



January 26, 2022

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

Certification of Actuarial Valuation

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

This report summarizes the annual actuarial valuation results of the State of Alaska Public Employees' Retirement System (PERS) as of June 30, 2021 performed by Buck Global, LLC (Buck).

The actuarial valuation is based on financial information provided in the financial statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2021. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities and other factors under PERS were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Buck is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of PERS as of June 30, 2021.

PERS is funded by Employer, State, and Member Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board) and as required by Alaska state statutes. The funding objective for PERS is to pay required contributions that remain level as a percent of total PERS compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability (UAAL) as a level percentage of total PERS compensation over a closed 25-year period as required by Alaska state statutes. The closed 25-year period was originally established effective June 30, 2014. Effective June 30, 2018, the Board adopted a 25-year layered UAAL amortization method as described in Section 5.2. The UAAL amortization continues to be on a level percent of pay basis. The compensation used to determine required contributions is the total compensation of all active members in PERS, including those hired after July 1, 2006 who are members of the Defined Contribution Retirement (DCR) Plan. This objective is currently being met and is projected to continue to be met. Absent future gains/losses, actuarially determined contributions are expected to remain level as a percent of pay and the overall funded status (on a combined pension/healthcare basis) is expected to increase to 100% in FY26 (the funded status of the pension trust is expected to increase to 100% in FY38).

SB 55 was effective July 1, 2021. Under SB 55:

- The State-as-an-Employer contributes the full actuarial contribution rate based on the DB/DCR payroll of its employees (which is approximately 50% of the total PERS DB/DCR payroll).
- Non-State employers continue to contribute 22% of their DB/DCR payroll.
- The Additional State Contributions are based on the excess of the DB actuarial contribution rate and the DB contributions made by non-State employers.

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

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

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2013 to June 30, 2017. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2018 valuation to better reflect expected future experience. Based on our annual analysis of recent claims experience, changes were made to the per capita claim cost rates effective June 30, 2021 to better reflect expected future healthcare experience. A summary of the actuarial assumptions and methods used in this actuarial valuation is shown in Sections 5.2 and 5.3. We certify that the assumptions and methods described in Sections 5.2 and 5.3 of this report meet the requirements of all applicable Actuarial Standards of Practice.

Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB 67) was effective for PERS beginning with fiscal year ending June 30, 2014, and Statement No. 74 (GASB 74) was effective for PERS beginning with fiscal year ending June 30, 2017. Separate GASB 67 and GASB 74 reports as of June 30, 2021 have been prepared. We have also prepared the member data tables shown in Section 4 of this report for the Statistical Section of the ACFR, as well as the summary of actuarial assumptions and analysis of financial experience for the Actuarial Section of the ACFR. Please see our separate GASB 67 and GASB 74 reports for other information needed for the ACFR.

Assessment of Risks

Actuarial Standard of Practice No. 51 (ASOP 51) applies to actuaries performing funding calculations related to a pension plan. ASOP 51 does not apply to actuaries performing services in connection with other post-employment benefits, such as medical benefits. Accordingly, ASOP 51 does not apply to the healthcare portion of PERS. See Section 6 of this report for further details regarding ASOP 51.

Use of Models

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under the funding methods specified in this report. The output from the third-party vendor software is used as input to internally developed models that apply applicable funding methods and policies to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal models are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal models, extra checking and review are completed. Significant changes to the internal models that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

Additional models used in valuing health benefits are described later in the report.

COVID-19

The potential impact of the ongoing COVID-19 pandemic on costs and liabilities was considered and an adjustment was made in setting the medical per capita claims cost assumption. FY20 medical claims were adjusted for a COVID-19 related decline in claims during the last four months (March – June) of FY20. FY21 medical claims were adjusted for a COVID-19 related decline in those claims during the fiscal year. A more detailed explanation on these adjustments is shown in Section 5.2.

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

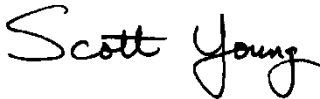
I am available to discuss this report with you at your convenience. I can be reached at 602-803-6174.

Respectfully submitted,



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

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



Scott Young, FSA, EA, MAAA, FCA
Director
Buck

Contents

| | |
|---|-----------|
| Executive Summary | 1 |
| Section 1: Actuarial Funding Results | 9 |
| Section 1.1: Actuarial Liabilities and Normal Cost | 9 |
| Section 1.2: Actuarial Contributions as of June 30, 2021 | 15 |
| Section 1.3: Roll-Forward Contribution Rate Calculation for FY24 | 21 |
| Section 1.4: Actuarial Gain/(Loss) for FY21 | 25 |
| Section 1.5: Development of Change in Unfunded Liability During FY21 | 26 |
| Section 1.6: Analysis of Financial Experience | 27 |
| Section 1.7: History of Unfunded Liability and Funded Ratio | 30 |
| Section 2: Plan Assets | 31 |
| Section 2.1: Summary of Fair Value of Assets | 31 |
| Section 2.2: Changes in Fair Value of Assets During FY21 | 32 |
| Section 2.3: Development of Actuarial Value of Assets | 33 |
| Section 2.4: Historical Asset Rates of Return | 35 |
| Section 3: Projections | 36 |
| Section 3.1: Projection Assumptions and Methods | 36 |
| Section 3.2: Membership Projection | 37 |
| Section 3.3: Projected Employer/State Contribution Rates | 40 |
| Section 3.4: Projected Employer/State Contribution Amounts | 41 |
| Section 3.5: Projection of Funded Ratios | 42 |
| Section 3.6: Table of Projected Actuarial Results | 43 |
| Section 3.7: Projected Pension Benefit Recipients and Amounts | 47 |
| Section 4: Member Data | 48 |
| Section 4.1: Summary of Members Included | 48 |
| Section 4.2: Age and Service Distribution of Active Members | 53 |
| Section 4.3: Member Data Reconciliation | 55 |
| Section 4.4: Schedule of Active Member Data | 57 |
| Section 4.5: Active Member Payroll Reconciliation | 58 |
| Section 4.6: Summary of New Pension Benefit Recipients | 59 |
| Section 4.7: Summary of All Pension Benefit Recipients | 63 |
| Section 4.8: Pension Benefit Recipients by Type of Benefit and Option Elected | 68 |
| Section 4.9: Pension Benefit Recipients Added to and Removed from Rolls | 70 |

| | |
|--|------------|
| Section 5: Basis of the Actuarial Valuation | 72 |
| Section 5.1: Summary of Plan Provisions..... | 72 |
| Section 5.2: Description of Actuarial Methods and Valuation Procedures | 79 |
| Section 5.3: Summary of Actuarial Assumptions..... | 86 |
| Section 6: Actuarial Standard of Practice No. 51 | 99 |
| Glossary of Terms | 103 |

DRAFT

Executive Summary

Overview

The State of Alaska Public Employees' Retirement System (PERS) provides pension and postemployment healthcare benefits to eligible participants. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of PERS as of the valuation date of June 30, 2021.

Purpose

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

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

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

Actuarial projections are also performed to provide a long-term view of the expected future funded status and contribution patterns (see Section 3). The future funded status and contribution patterns would be different than those shown in Section 3 if future experience does not match the actuarial assumptions used in the projections.

Retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements.

Funded Status

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

Funded Status as of June 30 (\$'s in 000's)
2020
2021
Pension

| | | |
|--|------------------|-------------------|
| a. Actuarial Accrued Liability | \$ 15,279,525 | \$ 15,419,975 |
| b. Valuation Assets | <u>9,713,710</u> | <u>10,466,709</u> |
| c. Unfunded Actuarial Accrued Liability, (a) - (b) | \$ 5,565,815 | \$ 4,953,266 |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a) | 63.6% | 67.9% |
| e. Fair Value of Assets | \$ 9,469,161 | \$ 11,912,309 |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 62.0% | 77.3% |

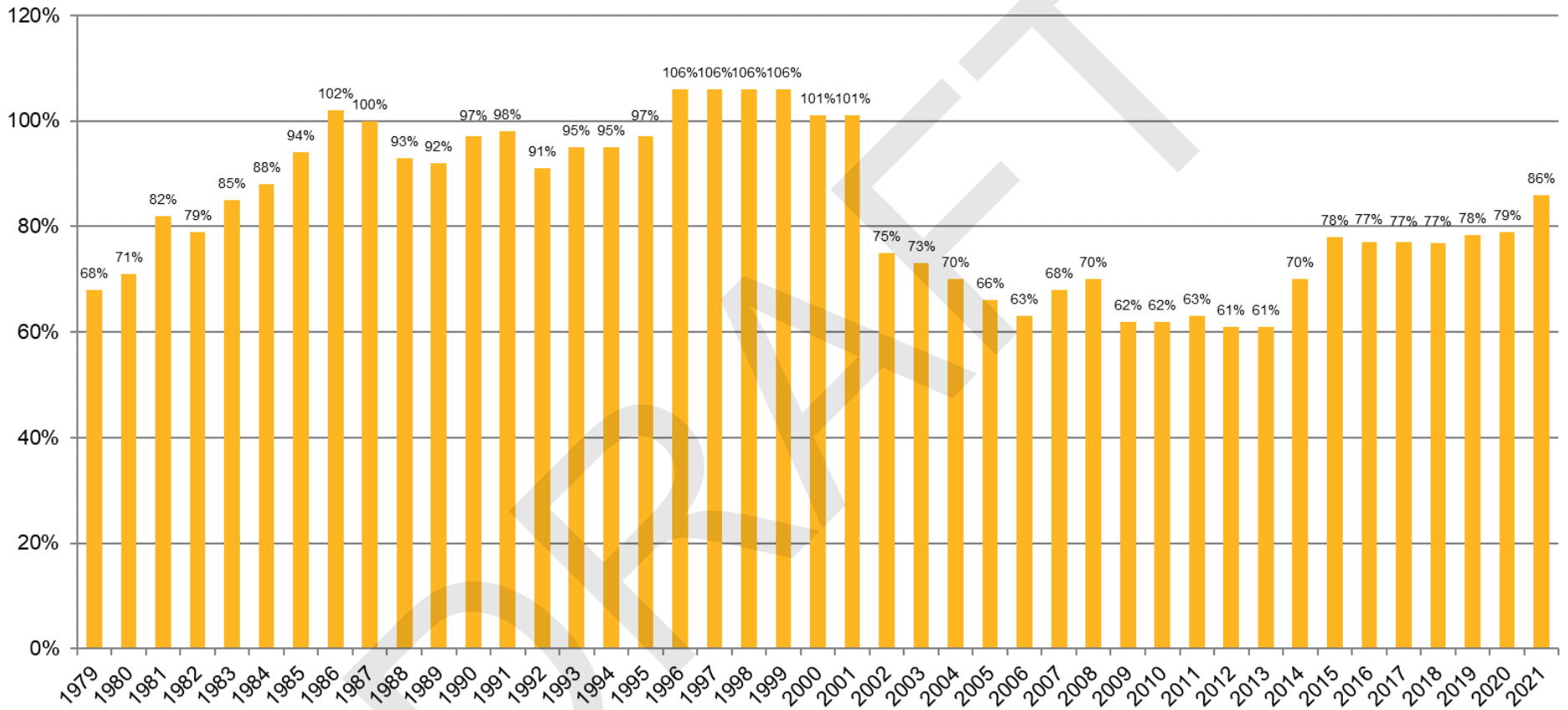
Healthcare

| | | |
|--|------------------|------------------|
| a. Actuarial Accrued Liability | \$ 7,036,550 | \$ 6,856,170 |
| b. Valuation Assets | <u>7,989,358</u> | <u>8,581,155</u> |
| c. Unfunded Actuarial Accrued Liability, (a) - (b) | \$ (952,808) | \$ (1,724,985) |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a) | 113.5% | 125.2% |
| e. Fair Value of Assets | \$ 7,813,511 | \$ 9,784,141 |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 111.0% | 142.7% |

Total

| | | |
|--|-------------------|-------------------|
| a. Actuarial Accrued Liability | \$ 22,316,075 | \$ 22,276,145 |
| b. Valuation Assets | <u>17,703,068</u> | <u>19,047,864</u> |
| c. Unfunded Actuarial Accrued Liability, (a) - (b) | \$ 4,613,007 | \$ 3,228,281 |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a) | 79.3% | 85.5% |
| e. Fair Value of Assets | \$ 17,282,672 | \$ 21,696,450 |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 77.4% | 97.4% |

Funded Ratio History (Based on Valuation Assets)



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

1. Investment Experience

The actuarial asset value was reinitialized to equal fair value of assets as of June 30, 2014. Beginning in FY15, the asset valuation method recognizes 20% of the investment gain or loss each year, for a period of five years. The FY21 investment return based on fair value of assets was approximately 30.0% compared to the expected investment return of 7.38% (net of investment expenses). This resulted in a market asset gain of approximately \$3,834 million. Due to the recognition of investment gains and losses over a 5-year period, the FY21 investment return based on actuarial value of assets was approximately 11.6%, which resulted in an actuarial asset gain of approximately \$734 million.

2. Salary Increases

Salary increases for continuing active members during FY21 were higher than expected based on the valuation assumptions, resulting in a liability loss of approximately \$17 million.

3. Demographic Experience

Section 4 provides statistics on active and inactive participants. The number of active participants decreased 10.4% from 11,033 at June 30, 2020 to 9,888 at June 30, 2021 due to active members exiting the plan during the year (due to retirement, termination, death, and disability) and the closure of the plan to new entrants as of July 1, 2006. The average age of active participants increased from 53.21 to 53.51 and average credited service increased from 18.38 to 18.96 years.

The number of benefit recipients increased 1.6% from 37,106 to 37,717 and their average age increased from 70.77 to 71.17. The number of vested terminated participants decreased 3.6% from 5,327 to 5,135. Their average age increased from 53.52 to 53.92.

The overall effect of the demographic experience during FY21 was a liability gain of approximately \$4.3 million (pension) and a liability gain of approximately \$30.3¹ million (healthcare).

4. COLA / PRPA Experience

The cost-of-living increases (COLA) for benefit recipients during FY21 were less than expected based on the valuation assumptions, resulting in a liability gain of approximately \$6 million. The postretirement pension adjustments (PRPA) were also less than expected, resulting in a liability gain of approximately \$149 million.

5. Retiree Medical Claims Experience

As described in Section 5.2, recent medical claims experience and changes in healthcare enrollment data provided to us for the June 30, 2021 valuation generated a liability gain of approximately \$272 million. Reduced claims during FY21, largely attributable to medical claims impacted by COVID-19, generated a liability gain of approximately \$21 million.

¹ Includes the effects of changes in dependent coverage elections and Medicare Part B only experience.

6. Changes in Methods Since the Prior Valuation

There were no changes in actuarial methods since the prior valuation.

7. Changes in Assumptions Since the Prior Valuation

Healthcare claim costs are updated annually as described in Section 5.2. The amounts included in the Normal Cost for administrative expenses were updated based on the last two years of actual administrative expenses paid from plan assets. There were no other changes in actuarial assumptions since the prior valuation.

8. Changes in Benefit Provisions Since the Prior Valuation

Starting in 2022, prior authorization will be required for certain specialty medications for all participants, and certain preventive benefits for pre-Medicare participants will now be covered by the plan. These changes created an actuarial gain of approximately \$62 million.

Under SB 55 that was effective July 1, 2021: (i) The State-as-an-Employer contributes the full actuarial contribution rate based on the DB/DCR payroll of its employees (which is approximately 50% of the total PERS DB/DCR payroll); (ii) Non-State employers continue to contribute 22% of their DB/DCR payroll; (iii) the Additional State Contributions are based on the excess of the DB actuarial contribution rate and the DB contributions made by non-State employers.

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

Projections

Absent future asset (and/or liability) losses, changes in plan provisions or actuarial assumptions, the \$3,834 million FY21 market asset gain has a significant impact on the projections shown in Section 3. For example, the pension trust is currently projected to reach a funded status of 100% in FY38. Based on the 2020 valuation projections, the funded status of the pension trust was projected to be only 85% in FY38.

Once the pension trust is projected to reach of funded status of 100%, it may be reasonable to assume that all remaining pension unfunded liability layered amortization amounts should be reduced to zero. Since the healthcare trust is currently more than 100% funded, the healthcare unfunded liability amortization amounts would also be reduced to zero if the Board decides to implement this change (this does not impact the projections shown in Section 3.6 since the healthcare Normal Cost is assumed to be contributed as a minimum in all years after FY23 per Alaska state statutes).

We have shown the table of projected figures in Section 3.6 two ways:

- a) Section 3.6A – No changes to the pension unfunded liability layered amortization amounts. In this case, Additional State Contributions totaling approximately \$59 million are projected for FY38-FY39, even though the pension trust is projected to be 100% funded in FY38.
- b) Section 3.6B – Eliminate the pension unfunded liability layered amortization amounts when the pension trust is projected to be 100% funded. In this case, the Additional State Contributions are projected to be zero after FY37.

The pros and cons of these two methods can be discussed further upon request.

In both cases, the pension Normal Cost is assumed to be contributed as a minimum based on Alaska state statutes. (The healthcare trust is currently over 100% funded, so the healthcare Normal Cost is also assumed to be contributed as a minimum based on Alaska state statutes.)

Sections 3.3 through 3.5 are based on the projections shown in Section 3.6A.

Comparative Summary of Contribution Rates

| Pension | Actual FY 2023 | Estimated FY 2024 |
|--|-------------------|----------------------|
| a. Normal Cost Rate Net of Member Contributions | 2.37% | 2.14% |
| b. Past Service Cost Rate | <u>16.01%</u> | <u>14.38%</u> |
| c. Total Employer/State Contribution Rate, (a) + (b), not less than (a) ¹ | 18.38% | 16.52% |

| Healthcare | Actual FY 2023 | Estimated FY 2024 |
|--|-------------------|----------------------|
| a. Normal Cost Rate | 2.84% | 2.50% |
| b. Past Service Cost Rate | <u>(4.94%)</u> | <u>(7.45%)</u> |
| c. Total Employer/State Contribution Rate, (a) + (b), not less than (a) ¹ | 2.84% | 2.50% |

| Total | Actual FY 2023 | Estimated FY 2024 |
|--|---------------------|----------------------|
| a. Normal Cost Rate Net of Member Contributions | 5.21% | 4.64% |
| b. Past Service Cost Rate | <u>16.01%</u> | <u>14.38%</u> |
| c. Total Employer/State Contribution Rate, (a) + (b) ¹ | 21.22% | 19.02% |
| d. Board Adopted Total Employer/State Contribution Rate | 18.38% ² | TBD |
| e. Defined Contribution Retirement (DCR) Rate Paid by Employers | <u>6.41%</u> | <u>6.63%</u> |
| f. Board Adopted Total Rate, Including DCR Rate Paid by Employers, (d) + (e) | 24.79% | TBD |

Contribution rates are based on total (DB and DCR) payroll. The contribution rates shown above for FY24 are estimated assuming no actuarial gains/losses during FY22 and FY23. Actual FY24 contribution rates will be adopted by the Board in September 2022 reflecting FY22 asset experience.

Contribution rates include Employer contribution rates as limited by Alaska state statutes and the Additional State Contribution required under SB 125.

¹ Beginning with the June 30, 2014 valuation, contribution rates for FY17 and beyond are determined using new methodology in accordance with 2014 legislation under HB 385 and SB 119, 2014 Alaska Laws, which changed the amortization methodology to a closed 25-year period as a level percentage of pay, and eliminated the time lag on the contribution rate calculation by using a 2-year "roll-forward" approach assuming 0% population growth. Investment gains and losses are recognized over a 5-year period beginning in FY15. Beginning with the June 30, 2018 valuation, the UAAL amortization was changed as described in Section 5.2.

² The FY23 contribution rates adopted by the Board in October 2021 were 18.38% for Pension and 0.00% for Healthcare.

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

The following table summarizes the sources of change in the total Employer/State contribution rate as of June 30, 2020 and June 30, 2021 based on DB and DCR payroll combined:

| | Pension | Healthcare | Total |
|---|--------------|----------------|----------------|
| 1. Total Employer/State Contribution Rate as of June 30, 2020 | 20.54% | 3.57% | 24.11% |
| 2. Change due to: | | | |
| a. Health Claims Experience | N/A | (0.12)% | (0.12)% |
| b. Salary Increases | 0.05% | N/A | 0.05% |
| c. Investment Experience | (1.06)% | 0.00% | (1.06)% |
| d. Demographic Experience and Miscellaneous ¹ | (0.54)% | (0.26)% | (0.80)% |
| e. Actual vs Expected Contributions | (0.06)% | 0.00% | (0.06)% |
| f. Assumption/Method Changes | 0.00% | 0.00% | 0.00% |
| g. Plan Changes | <u>0.00%</u> | <u>(0.03)%</u> | <u>(0.03)%</u> |
| h. Total Change, (a) + (b) + (c) + (d) + (e) + (f) + (g) | (1.61)% | (0.41)% | (2.02)% |
| 3. Total Employer/State Contribution Rate as of June 30, 2021, (1) + (2)(h) | 18.93% | 3.16% | 22.09% |

The following table shows the FY21 gain/(loss) on actuarial accrued liability as of June 30, 2021 (\$'s in 000's):

| | Pension | Healthcare | Total |
|--|-----------------|-----------------|-----------------|
| Retirement Experience | \$ (7,211) | \$ 7,125 | \$ (86) |
| Termination Experience | (7,963) | (10,409) | (18,372) |
| Disability Experience | 6,650 | 10,858 | 17,508 |
| Active Mortality Experience | 14,401 | (745) | 13,656 |
| Inactive Mortality Experience | (1,576) | 2,684 | 1,108 |
| Salary Increases | (17,126) | N/A | (17,126) |
| Rehires (Net of Rehire Load) | 15,067 | 14,045 | 29,112 |
| Transfers between Peace/Fire and Others | (1,706) | (161) | (1,867) |
| COLA Increases | 5,956 | N/A | 5,956 |
| PRPA Increases | 149,186 | N/A | 149,186 |
| Benefit Payments Different than Expected | 19,147 | 21,107 | 40,254 |
| Per Capita Claims Cost | N/A | 272,205 | 272,205 |
| Medical and Prescription Drug Plan Changes | N/A | 61,807 | 61,807 |
| Medicare Part B Only Experience | N/A | 5,743 | 5,743 |
| Changes in Dependent Coverage Elections | N/A | 15,017 | 15,017 |
| Programming Changes ² | (512) | N/A | (512) |
| Miscellaneous ³ | <u>(13,480)</u> | <u>(15,552)</u> | <u>(29,032)</u> |
| Total | \$ 160,833 | \$ 383,724 | \$ 544,557 |

¹ Includes the effects of census data changes between the two valuations.

² Includes adjustments to (a) the 10% COLA to apply immediately for all disabled members, and (b) the PRPA increases for Peace Officer/Firefighters who retire from occupational disability.

³ Includes the effects of various data changes that are typical when new census data is received for the annual valuation, as well as other items that do not fit neatly into any of the other categories. The pension amount includes a loss of \$10,900 for unexpected beneficiaries and QDRO's based on last year's data, and the healthcare amount includes a loss of \$10,592 for changes in spouses' dates of birth in the data.

The rehire gain/(loss) amount shown on the previous page is the difference between (i) the increase in Actuarial Accrued Liability at June 30, 2021 due to rehires during the most recent plan year, and (ii) the load that was added to the June 30, 2020 Normal Cost based on the rehire load assumption used in the June 30, 2020 valuation. The development of the FY21 rehire gain/(loss) amount is shown in the table below (\$'s in 000's):

| | Pension | Healthcare | Total |
|---|-----------|------------|-----------|
| 1. Increase/(Decrease) in Actuarial Accrued Liability at June 30, 2021 due to Rehires | \$ 7,095 | \$ (1,523) | \$ 5,572 |
| 2. June 30, 2020 Normal Cost Rehire Load, with interest to June 30, 2021 | \$ 22,162 | \$ 12,522 | \$ 34,684 |
| 3. Rehire Gain/(Loss), (2) - (1) | \$ 15,067 | \$ 14,045 | \$ 29,112 |

Section 1: Actuarial Funding Results

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

Peace Officer / Firefighter

| As of June 30, 2021 | Present Value of Projected Benefits | Actuarial Accrued (Past Service) Liability |
|---|--|--|
| Active Members | | |
| Retirement Benefits | \$ 877,332 | \$ 783,315 |
| Termination Benefits | 9,109 | 1,315 |
| Disability Benefits | 1,259 | (1,287) |
| Death Benefits | 9,057 | 5,989 |
| Return of Contributions | 1,243 | (4,141) |
| Medical and Prescription Drug Benefits | 356,026 | 305,813 |
| Medicare Part D Subsidy | (30,079) | (25,883) |
| Indebtedness | <u>(4,797)</u> | <u>(4,797)</u> |
| Subtotal | \$ 1,219,150 | \$ 1,060,324 |
| Inactive Members | | |
| Not Vested | \$ 2,487 | \$ 2,487 |
| Vested Terminations | | |
| - Retirement Benefits | 35,573 | 35,573 |
| - Medical and Prescription Drug Benefits | 95,523 | 95,523 |
| - Medicare Part D Subsidy | (9,689) | (9,689) |
| - Indebtedness | (475) | (475) |
| Retirees & Beneficiaries | | |
| - Retirement Benefits | 1,730,944 | 1,730,944 |
| - Medical and Prescription Drug Benefits | 590,605 | 590,605 |
| - Medicare Part D Subsidy | <u>(79,219)</u> | <u>(79,219)</u> |
| Subtotal | \$ 2,365,749 | \$ 2,365,749 |
| Total | \$ 3,584,899 | \$ 3,426,073 |
| Total Pension | \$ 2,661,732 | \$ 2,548,923 |
| Total Medical, Net of Part D Subsidy | \$ 923,167 | \$ 877,150 |
| Total Medical, Gross of Part D Subsidy | \$ 1,042,154 | \$ 991,941 |

Peace Officer / Firefighter

| As of June 30, 2021 | Present Value of Projected Benefits | Actuarial Accrued (Past Service) Liability |
|----------------------------------|--|--|
| By Tier | | |
| Tier 1 | | |
| - Pension | \$ 989,348 | \$ 988,683 |
| - Medical, Net of Part D Subsidy | 272,846 | 272,432 |
| Tier 2 | | |
| - Pension | 694,313 | 683,185 |
| - Medical, Net of Part D Subsidy | 265,750 | 261,524 |
| Tier 3 | | |
| - Pension | 978,071 | 877,055 |
| - Medical, Net of Part D Subsidy | 384,571 | 343,194 |
| Total | \$ 3,584,899 | \$ 3,426,073 |

| As of June 30, 2021 | Normal Cost |
|---|------------------|
| Active Members | |
| Retirement Benefits | \$ 17,624 |
| Termination Benefits | 1,528 |
| Disability Benefits | 495 |
| Death Benefits | 612 |
| Return of Contributions | 1,029 |
| Medical and Prescription Drug Benefits | 9,196 |
| Medicare Part D Subsidy | (788) |
| Rehire Assumption (Pension) | 3,996 |
| Rehire Assumption (Medical) | 1,437 |
| Administrative Expenses (Pension) | 1,615 |
| Administrative Expenses (Medical) | 773 |
| Total | \$ 37,517 |
| Total Pension | \$ 26,899 |
| Total Medical, Net of Part D Subsidy | \$ 10,618 |
| Total Medical, Gross of Part D Subsidy | \$ 11,406 |

| | |
|----------------------------------|------------------|
| By Tier | |
| Tier 1 | |
| - Pension | \$ 310 |
| - Medical, Net of Part D Subsidy | 204 |
| Tier 2 | |
| - Pension | 3,601 |
| - Medical, Net of Part D Subsidy | 1,332 |
| Tier 3 | |
| - Pension | 22,988 |
| - Medical, Net of Part D Subsidy | 9,082 |
| Total | \$ 37,517 |

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

Others

| As of June 30, 2021 | Present Value of Projected Benefits | Actuarial Accrued (Past Service) Liability |
|---|--|--|
| Active Members | | |
| Retirement Benefits | \$ 3,314,325 | \$ 3,021,247 |
| Termination Benefits | 213,325 | 120,766 |
| Disability Benefits | 16,937 | 5,047 |
| Death Benefits | 45,609 | 36,004 |
| Return of Contributions | 14,215 | (28,530) |
| Medical and Prescription Drug Benefits | 1,848,190 | 1,513,162 |
| Medicare Part D Subsidy | (234,865) | (197,726) |
| Indebtedness | <u>(39,283)</u> | <u>(39,283)</u> |
| Subtotal | \$ 5,178,453 | \$ 4,430,687 |
| Inactive Members | | |
| Not Vested | \$ 73,923 | \$ 73,923 |
| Vested Terminations | | |
| - Retirement Benefits | 651,624 | 651,624 |
| - Medical and Prescription Drug Benefits | 930,456 | 930,456 |
| - Medicare Part D Subsidy | (102,384) | (102,384) |
| - Indebtedness | (12,942) | (12,942) |
| Retirees & Beneficiaries | | |
| - Retirement Benefits | 9,043,196 | 9,043,196 |
| - Medical and Prescription Drug Benefits | 4,572,277 | 4,572,277 |
| - Medicare Part D Subsidy | <u>(736,765)</u> | <u>(736,765)</u> |
| Subtotal | \$ 14,419,385 | \$ 14,419,385 |
| Total | \$ 19,597,838 | \$ 18,850,072 |
| Total Pension | \$ 13,320,929 | \$ 12,871,052 |
| Total Medical, Net of Part D Subsidy | \$ 6,276,909 | \$ 5,979,020 |
| Total Medical, Gross of Part D Subsidy | \$ 7,350,923 | \$ 7,015,895 |

Others

| As of June 30, 2021 | Present Value of Projected Benefits | Actuarial Accrued (Past Service) Liability |
|----------------------------------|--|--|
| By Tier | | |
| Tier 1 | | |
| - Pension | \$ 6,024,842 | \$ 6,001,018 |
| - Medical, Net of Part D Subsidy | 2,358,156 | 2,335,845 |
| Tier 2 | | |
| - Pension | 3,811,976 | 3,721,454 |
| - Medical, Net of Part D Subsidy | 1,873,154 | 1,810,864 |
| Tier 3 | | |
| - Pension | 3,484,111 | 3,148,580 |
| - Medical, Net of Part D Subsidy | 2,045,599 | 1,832,311 |
| Total | \$ 19,597,838 | \$ 18,850,072 |

| As of June 30, 2021 | Normal Cost |
|---|-------------------|
| Active Members | |
| Retirement Benefits | \$ 53,983 |
| Termination Benefits | 14,497 |
| Disability Benefits | 1,969 |
| Death Benefits | 1,742 |
| Return of Contributions | 7,031 |
| Medical and Prescription Drug Benefits | 58,336 |
| Medicare Part D Subsidy | (6,562) |
| Rehire Assumption (Pension) | 14,870 |
| Rehire Assumption (Medical) | 8,848 |
| Administrative Expenses (Pension) | 6,010 |
| Administrative Expenses (Medical) | 4,758 |
| Total | \$ 165,482 |
| Total Pension | \$ 100,102 |
| Total Medical, Net of Part D Subsidy | \$ 65,380 |
| Total Medical, Gross of Part D Subsidy | \$ 71,942 |

| | |
|----------------------------------|-------------------|
| By Tier | |
| Tier 1 | |
| - Pension | \$ 8,729 |
| - Medical, Net of Part D Subsidy | 8,011 |
| Tier 2 | |
| - Pension | 23,906 |
| - Medical, Net of Part D Subsidy | 15,939 |
| Tier 3 | |
| - Pension | 67,467 |
| - Medical, Net of Part D Subsidy | 41,430 |
| Total | \$ 165,482 |

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

All Members

| As of June 30, 2021 | Present Value of Projected Benefits | Actuarial Accrued (Past Service) Liability |
|---|--|--|
| Active Members | | |
| Retirement Benefits | \$ 4,191,657 | \$ 3,804,562 |
| Termination Benefits | 222,434 | 122,081 |
| Disability Benefits | 18,196 | 3,760 |
| Death Benefits | 54,666 | 41,993 |
| Return of Contributions | 15,458 | (32,671) |
| Medical and Prescription Drug Benefits | 2,204,216 | 1,818,975 |
| Medicare Part D Subsidy | (264,944) | (223,609) |
| Indebtedness | <u>(44,080)</u> | <u>(44,080)</u> |
| Subtotal | \$ 6,397,603 | \$ 5,491,011 |
| Inactive Members | | |
| Not Vested | \$ 76,410 | \$ 76,410 |
| Vested Terminations | | |
| - Retirement Benefits | 687,197 | 687,197 |
| - Medical and Prescription Drug Benefits | 1,025,979 | 1,025,979 |
| - Medicare Part D Subsidy | (112,073) | (112,073) |
| - Indebtedness | (13,417) | (13,417) |
| Retirees & Beneficiaries | | |
| - Retirement Benefits | 10,774,140 | 10,774,140 |
| - Medical and Prescription Drug Benefits | 5,162,882 | 5,162,882 |
| - Medicare Part D Subsidy | <u>(815,984)</u> | <u>(815,984)</u> |
| Subtotal | \$ 16,785,134 | \$ 16,785,134 |
| Total | \$ 23,182,737 | \$ 22,276,145 |
| Total Pension | \$ 15,982,661 | \$ 15,419,975 |
| Total Medical, Net of Part D Subsidy | \$ 7,200,076 | \$ 6,856,170 |
| Total Medical, Gross of Part D Subsidy | \$ 8,393,077 | \$ 8,007,836 |

All Members

| As of June 30, 2021 | Present Value of Projected Benefits | Actuarial Accrued (Past Service) Liability |
|----------------------------------|--|--|
| By Tier | | |
| Tier 1 | | |
| - Pension | \$ 7,014,190 | \$ 6,989,701 |
| - Medical, Net of Part D Subsidy | 2,631,002 | 2,608,277 |
| Tier 2 | | |
| - Pension | 4,506,289 | 4,404,639 |
| - Medical, Net of Part D Subsidy | 2,138,904 | 2,072,388 |
| Tier 3 | | |
| - Pension | 4,462,182 | 4,025,635 |
| - Medical, Net of Part D Subsidy | 2,430,170 | 2,175,505 |
| Total | \$ 23,182,737 | \$ 22,276,145 |

| As of June 30, 2021 | Normal Cost |
|---|-------------------|
| Active Members | |
| Retirement Benefits | \$ 71,607 |
| Termination Benefits | 16,025 |
| Disability Benefits | 2,464 |
| Death Benefits | 2,354 |
| Return of Contributions | 8,060 |
| Medical and Prescription Drug Benefits | 67,532 |
| Medicare Part D Subsidy | (7,350) |
| Rehire Assumption (Pension) | 18,866 |
| Rehire Assumption (Medical) | 10,285 |
| Administrative Expenses (Pension) | 7,625 |
| Administrative Expenses (Medical) | 5,531 |
| Total | \$ 202,999 |
| Total Pension | \$ 127,001 |
| Total Medical, Net of Part D Subsidy | \$ 75,998 |
| Total Medical, Gross of Part D Subsidy | \$ 83,348 |

| | |
|----------------------------------|-------------------|
| By Tier | |
| Tier 1 | |
| - Pension | \$ 9,039 |
| - Medical, Net of Part D Subsidy | 8,215 |
| Tier 2 | |
| - Pension | 27,507 |
| - Medical, Net of Part D Subsidy | 17,271 |
| Tier 3 | |
| - Pension | 90,455 |
| - Medical, Net of Part D Subsidy | 50,512 |
| Total | \$ 202,999 |

Section 1.2: Actuarial Contributions as of June 30, 2021 (\$'s in 000's)

Peace Officer / Firefighter

| Normal Cost Rate | Pension | Healthcare | Total |
|---|-----------|------------|-----------|
| 1. Total Normal Cost | \$ 26,899 | \$ 10,618 | \$ 37,517 |
| 2. DB Rate Payroll Projected for FY22 | 147,739 | 147,739 | 147,739 |
| 3. DCR Rate Payroll Projected for FY22 | 220,974 | 220,974 | 220,974 |
| 4. Total Rate Payroll Projected for FY22 | 368,713 | 368,713 | 368,713 |
| 5. Normal Cost Rate | | | |
| a. Based on DB Rate Payroll, (1) ÷ (2) | 18.21% | 7.19% | 25.39% |
| b. Based on Total Rate Payroll, (1) ÷ (4) | 7.30% | 2.88% | 10.18% |
| 6. Average Member Contribution Rate | 3.01% | 0.00% | 3.01% |
| 7. Employer Normal Cost, (5)(b) - (6) | 4.29% | 2.88% | 7.17% |

| Past Service Rate | Pension | Healthcare | Total |
|---|---------------|--------------|---------------|
| 1. Actuarial Accrued Liability | \$ 2,548,923 | \$ 877,150 | \$ 3,426,073 |
| 2. Valuation Assets ¹ | 1,730,148 | 1,097,837 | 2,827,985 |
| 3. Unfunded Actuarial Accrued Liability, (1) - (2) | \$ 818,775 | \$ (220,687) | \$ 598,088 |
| 4. Funded Ratio, (2) ÷ (1) | 67.9% | 125.2% | 82.5% |
| 5. Past Service Cost Amortization Payment | 63,731 | (14,845) | 48,886 |
| 6. Total Rate Payroll Projected for FY22 | 368,713 | 368,713 | 368,713 |
| 7. Past Service Rate, (5) ÷ (6) | 17.28% | (4.03%) | 17.28% |
| Total Employer / State Contribution Rate, not less than Normal Cost Rate | 21.57% | 2.88% | 24.45% |

Normal Cost Rate by Tier (Total Employer and Member)²

| | | | |
|--------|--------|--------|--------|
| Tier 1 | 20.67% | 13.60% | 34.27% |
| Tier 2 | 17.94% | 6.64% | 24.58% |
| Tier 3 | 18.22% | 7.20% | 25.42% |

¹ Allocated between Peace Officer / Firefighter and Others in proportion to Actuarial Accrued Liability.

² Rates determined considering the payroll for members in each tier. DCR payroll is excluded from these calculations.

Peace Officer / Firefighter

Schedule of Past Service Cost Amortizations - Pension (\$'s in 000's)

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|-----------------------|---------------------|-----------------|------------|-------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Amount | 6/30/2018 | 18 | \$ 731,232 | \$ 719,620 | \$ 56,655 |
| Change in Assumptions | 6/30/2018 | 22 | 88,162 | 88,911 | 6,175 |
| FY19 Loss | 6/30/2019 | 23 | 61,980 | 62,436 | 4,225 |
| FY20 Loss | 6/30/2020 | 24 | 31,158 | 31,297 | 2,067 |
| FY21 Gain | 6/30/2021 | 25 | (83,489) | (83,489) | (5,391) |
| Total | | | | \$ 818,775 | \$ 63,731 |

Schedule of Past Service Cost Amortizations - Healthcare (\$'s in 000's)

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--|---------------------|-----------------|-------------|---------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Amount | 6/30/2018 | 18 | \$ (30,991) | \$ (30,499) | \$ (2,401) |
| Change in Assumptions/Methods/EGWP | 6/30/2018 | 22 | 27,556 | 27,790 | 1,930 |
| FY19 Gain | 6/30/2019 | 23 | (77,575) | (78,145) | (5,288) |
| FY20 Gain | 6/30/2020 | 24 | (38,036) | (38,206) | (2,524) |
| Medical and Prescription Drug Plan Chang | 6/30/2021 | 25 | (7,361) | (7,361) | (475) |
| FY21 Gain | 6/30/2021 | 25 | (94,266) | (94,266) | (6,087) |
| Total | | | | \$ (220,687) | \$ (14,845) |

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--|---------------------|-----------------|------------|-------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Amount | 6/30/2018 | 18 | \$ 700,241 | \$ 689,121 | \$ 54,254 |
| Change in Assumptions/Methods/EGWP | 6/30/2018 | 22 | 115,718 | 116,701 | 8,105 |
| FY19 Gain | 6/30/2019 | 23 | (15,595) | (15,709) | (1,063) |
| FY20 Gain | 6/30/2020 | 24 | (6,878) | (6,909) | (457) |
| Medical and Prescription Drug Plan Chang | 6/30/2021 | 25 | (7,361) | (7,361) | (475) |
| FY21 Gain | 6/30/2021 | 25 | (177,755) | (177,755) | (11,478) |
| Total | | | | \$ 598,088 | \$ 48,886 |

Section 1.2: Actuarial Contributions as of June 30, 2021 (\$'s in 000's)

Others

| Normal Cost Rate | Pension | Healthcare | Total |
|---|------------|------------|------------|
| 1. Total Normal Cost | \$ 100,102 | \$ 65,380 | \$ 165,482 |
| 2. DB Rate Payroll Projected for FY22 | 710,902 | 710,902 | 710,902 |
| 3. DCR Rate Payroll Projected for FY22 | 1,327,142 | 1,327,142 | 1,327,142 |
| 4. Total Rate Payroll Projected for FY22 | 2,038,044 | 2,038,044 | 2,038,044 |
| 5. Normal Cost Rate | | | |
| a. Based on DB Rate Payroll, (1) ÷ (2) | 14.08% | 9.20% | 23.28% |
| b. Based on Total Rate Payroll, (1) ÷ (4) | 4.91% | 3.21% | 8.12% |
| 6. Average Member Contribution Rate | 2.38% | 0.00% | 2.38% |
| 7. Employer Normal Cost, (5)(b) - (6) | 2.53% | 3.21% | 5.74% |

| Past Service Rate | Pension | Healthcare | Total |
|---|---------------|----------------|---------------|
| 1. Actuarial Accrued Liability | \$ 12,871,052 | \$ 5,979,020 | \$ 18,850,072 |
| 2. Valuation Assets ¹ | 8,736,561 | 7,483,318 | 16,219,879 |
| 3. Unfunded Actuarial Accrued Liability, (1) - (2) | \$ 4,134,491 | \$ (1,504,298) | \$ 2,630,193 |
| 4. Funded Ratio, (2) ÷ (1) | 67.9% | 125.2% | 86.0% |
| 5. Past Service Cost Amortization Payment | 324,336 | (99,791) | 224,545 |
| 6. Total Rate Payroll Projected for FY22 | 2,038,044 | 2,038,044 | 2,038,044 |
| 7. Past Service Rate, (5) ÷ (6) | 15.91% | (4.90%) | 15.91% |
| Total Employer / State Contribution Rate, not less than Normal Cost Rate | 18.44% | 3.21% | 21.65% |

Normal Cost Rate by Tier (Total Employer and Member)²

| | | | |
|--------|--------|--------|--------|
| Tier 1 | 18.20% | 16.71% | 34.91% |
| Tier 2 | 13.31% | 8.87% | 22.18% |
| Tier 3 | 13.96% | 8.57% | 22.53% |

¹ Allocated between Peace Officer / Firefighter and Others in proportion to Actuarial Accrued Liability.

² Rates determined considering the payroll for members in each tier. DCR payroll is excluded from these calculations.

Others

Schedule of Past Service Cost Amortizations - Pension (\$'s in 000's)

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|-----------------------|---------------------|-----------------|--------------|---------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Amount | 6/30/2018 | 18 | \$ 3,889,167 | \$ 3,827,409 | \$ 301,329 |
| Change in Assumptions | 6/30/2018 | 22 | 467,280 | 471,245 | 32,732 |
| FY19 Loss | 6/30/2019 | 23 | 235,559 | 237,288 | 16,059 |
| FY20 Loss | 6/30/2020 | 24 | 93,343 | 93,760 | 6,193 |
| FY21 Gain | 6/30/2021 | 25 | (495,211) | (495,211) | (31,977) |
| Total | | | | \$ 4,134,491 | \$ 324,336 |

Schedule of Past Service Cost Amortizations - Healthcare (\$'s in 000's)

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--|---------------------|-----------------|-------------|-----------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Amount | 6/30/2018 | 18 | \$ (47,263) | \$ (46,513) | \$ (3,662) |
| Change in Assumptions/Methods/EGWP | 6/30/2018 | 22 | 22,293 | 22,482 | 1,562 |
| FY19 Gain | 6/30/2019 | 23 | (553,265) | (557,331) | (37,718) |
| FY20 Gain | 6/30/2020 | 24 | (253,711) | (254,843) | (16,833) |
| Medical and Prescription Drug Plan Chang | 6/30/2021 | 25 | (54,446) | (54,446) | (3,516) |
| FY21 Gain | 6/30/2021 | 25 | (613,647) | (613,647) | (39,624) |
| Total | | | | \$ (1,504,298) | \$ (99,791) |

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--|---------------------|-----------------|--------------|---------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Amount | 6/30/2018 | 18 | \$ 3,841,904 | \$ 3,780,896 | \$ 297,667 |
| Change in Assumptions/Methods/EGWP | 6/30/2018 | 22 | 489,573 | 493,727 | 34,294 |
| FY19 Gain | 6/30/2019 | 23 | (317,706) | (320,043) | (21,659) |
| FY20 Gain | 6/30/2020 | 24 | (160,368) | (161,083) | (10,640) |
| Medical and Prescription Drug Plan Chang | 6/30/2021 | 25 | (54,446) | (54,446) | (3,516) |
| FY21 Gain | 6/30/2021 | 25 | (1,108,858) | (1,108,858) | (71,601) |
| Total | | | | \$ 2,630,193 | \$ 224,545 |

Section 1.2: Actuarial Contributions as of June 30, 2021 (\$'s in 000's)

All Members

| Normal Cost Rate | Pension | Healthcare | Total |
|--|----------------|-------------------|--------------|
| 1. Total Normal Cost | \$ 127,001 | \$ 75,998 | \$ 202,999 |
| 2. DB Rate Payroll Projected for FY22 | 858,641 | 858,641 | 858,641 |
| 3. DCR Rate Payroll Projected for FY22 | 1,548,116 | 1,548,116 | 1,548,116 |
| 4. Total Rate Payroll Projected for FY22 | 2,406,757 | 2,406,757 | 2,406,757 |
| 5. Normal Cost Rate | | | |
| a. Based on DB Rate Payroll, (1) ÷ (2) | 14.79% | 8.85% | 23.64% |
| b. Based on Total Rate Payroll, (1) ÷ (4) | 5.28% | 3.16% | 8.44% |
| 6. Average Member Contribution Rate ¹ | 2.47% | 0.00% | 2.47% |
| 7. Employer Normal Cost, (5)(b) - (6) | 2.81% | 3.16% | 5.97% |

| Past Service Rate | Pension | Healthcare | Total |
|---|----------------|-------------------|---------------|
| 1. Actuarial Accrued Liability | \$ 15,419,975 | \$ 6,856,170 | \$ 22,276,145 |
| 2. Valuation Assets | 10,466,709 | 8,581,155 | 19,047,864 |
| 3. Unfunded Actuarial Accrued Liability, (1) - (2) | \$ 4,953,266 | \$ (1,724,985) | \$ 3,228,281 |
| 4. Funded Ratio, (2) ÷ (1) | 67.9% | 125.2% | 85.5% |
| 5. Past Service Cost Amortization Payment | 388,067 | (114,636) | 273,431 |
| 6. Total Rate Payroll Projected for FY22 | 2,406,757 | 2,406,757 | 2,406,757 |
| 7. Past Service Rate, (5) ÷ (6) | 16.12% | (4.76%) | 16.12% |
| Total Employer / State Contribution Rate, not less than Normal Cost Rate | 18.93% | 3.16% | 22.09% |

| Normal Cost Rate by Tier (Total Employer and Member)² | | | |
|---|--------|--------|--------|
| Tier 1 | 18.28% | 16.61% | 34.89% |
| Tier 2 | 13.78% | 8.65% | 22.43% |
| Tier 3 | 14.84% | 8.29% | 23.13% |

¹ 7.5% for Peace Officer / Firefighter and 6.82% weighted average for Others

² Rates determined considering the payroll for members in each tier. DCR payroll is excluded from these calculations.

All Members

Schedule of Past Service Cost Amortizations - Pension (\$'s in 000's)

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|-----------------------|---------------------|-----------------|--------------|---------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Amount | 6/30/2018 | 18 | \$ 4,620,399 | \$ 4,547,029 | \$ 357,984 |
| Change in Assumptions | 6/30/2018 | 22 | 555,442 | 560,156 | 38,907 |
| FY19 Loss | 6/30/2019 | 23 | 297,539 | 299,724 | 20,284 |
| FY20 Loss | 6/30/2020 | 24 | 124,501 | 125,057 | 8,260 |
| FY21 Gain | 6/30/2021 | 25 | (578,700) | (578,700) | (37,368) |
| Total | | | | \$ 4,953,266 | \$ 388,067 |

Schedule of Past Service Cost Amortizations - Healthcare (\$'s in 000's)

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--|---------------------|-----------------|-------------|-----------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Amount | 6/30/2018 | 18 | \$ (78,254) | \$ (77,012) | \$ (6,063) |
| Change in Assumptions/Methods/EGWP | 6/30/2018 | 22 | 49,849 | 50,272 | 3,492 |
| FY19 Gain | 6/30/2019 | 23 | (630,840) | (635,476) | (43,006) |
| FY20 Gain | 6/30/2020 | 24 | (291,747) | (293,049) | (19,357) |
| Medical and Prescription Drug Plan Chang | 6/30/2021 | 25 | (61,807) | (61,807) | (3,991) |
| FY21 Gain | 6/30/2021 | 25 | (707,913) | (707,913) | (45,711) |
| Total | | | | \$ (1,724,985) | \$ (114,636) |

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--|---------------------|-----------------|--------------|---------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Amount | 6/30/2018 | 18 | \$ 4,542,145 | \$ 4,470,017 | \$ 351,921 |
| Change in Assumptions/Methods/EGWP | 6/30/2018 | 22 | 605,291 | 610,428 | 42,399 |
| FY19 Gain | 6/30/2019 | 23 | (333,301) | (335,752) | (22,722) |
| FY20 Gain | 6/30/2020 | 24 | (167,246) | (167,992) | (11,097) |
| Medical and Prescription Drug Plan Chang | 6/30/2021 | 25 | (61,807) | (61,807) | (3,991) |
| FY21 Gain | 6/30/2021 | 25 | (1,286,613) | (1,286,613) | (83,079) |
| Total | | | | \$ 3,228,281 | \$ 273,431 |

Section 1.3: Roll-Forward Contribution Rate Calculation for FY24 (\$'s in 000's)

| | Pension | Healthcare | Total |
|--|----------------------|-----------------------|----------------------|
| 1. Liability Roll Forward | | | |
| a. Actuarial Accrued Liability as of June 30, 2021 | \$ 15,419,975 | \$ 6,856,170 | \$ 22,276,145 |
| b. Normal Cost | 119,376 | 70,467 | 189,843 |
| c. Interest on (a) and (b) at 7.38% | 1,146,804 | 511,186 | 1,657,990 |
| d. Estimated Benefit Payments | (974,479) | (410,194) | (1,384,673) |
| e. Interest on (d) at 7.38%, adjusted for timing | <u>(38,319)</u> | <u>(14,867)</u> | <u>(53,186)</u> |
| f. Expected Actuarial Accrued Liability as of June 30, 2022 | \$ 15,673,357 | \$ 7,012,762 | \$ 22,686,119 |
| g. Projected Normal Cost | 106,811 | 63,186 | 169,997 |
| h. Interest on (f) and (g) at 7.38% | 1,164,576 | 522,205 | 1,686,781 |
| i. Estimated Benefit Payments | (1,023,259) | (429,353) | (1,452,612) |
| j. Interest on (i) at 7.38%, adjusted for timing | <u>(40,237)</u> | <u>(15,561)</u> | <u>(55,798)</u> |
| k. Expected Actuarial Accrued Liability as of June 30, 2023 | \$ 15,881,248 | \$ 7,153,239 | \$ 23,034,487 |
| 2. Asset Roll Forward | | | |
| a. Actuarial Value of Assets as of June 30, 2021 | \$ 10,466,709 | \$ 8,581,155 | \$ 19,047,864 |
| b. Interest on (a) at 7.38% | 772,443 | 633,289 | 1,405,732 |
| c. Employee Contributions | 65,405 | 0 | 65,405 |
| d. Employer Contributions | 404,768 | 75,091 | 479,859 |
| e. State Assistance Contributions | 97,700 | 0 | 97,700 |
| f. Interest on (c) thru (e) at 7.38%, adjusted for timing* | 24,251 | 2,722 | 26,973 |
| g. Estimated Benefit Payments | (974,479) | (410,194) | (1,384,673) |
| h. Administrative Expenses | (7,625) | (5,531) | (13,156) |
| i. Interest on (g) and (h) at 7.38%, adjusted for timing | (38,595) | (15,067) | (53,662) |
| j. AVA Adjustments | <u>441,594</u> | <u>371,829</u> | <u>813,423</u> |
| k. Expected Actuarial Value of Assets as of June 30, 2022 | \$ 11,252,171 | \$ 9,233,294 | \$ 20,485,465 |
| l. Interest on (k) at 7.38% | 830,410 | 681,417 | 1,511,827 |
| m. Employee Contributions | 60,574 | 0 | 60,574 |
| n. Employer Contributions | 410,773 | 0 | 410,773 |
| o. State Assistance Contributions** | 33,933 | 0 | 33,933 |
| p. Interest on (m) thru (o) at 7.38%, adjusted for timing* | 19,587 | 0 | 19,587 |
| q. Estimated Benefit Payments | (1,023,259) | (429,353) | (1,452,612) |
| r. Administrative Expenses | (6,877) | (4,996) | (11,873) |
| s. Interest on (q) and (r) at 7.38%, adjusted for timing | (40,486) | (15,742) | (56,228) |
| t. AVA Adjustments | <u>413,313</u> | <u>344,736</u> | <u>758,049</u> |
| u. Expected Actuarial Value of Assets as of June 30, 2023 | \$ 11,950,139 | \$ 9,809,356 | \$ 21,759,495 |
| 3. Expected Unfunded Actuarial Accrued Liability as of June 30, 2023, 1(k) - 2(u) | | | |
| | \$ 3,931,109 | \$ (2,656,117) | \$ 1,274,992 |

* Employee and Employer Contributions are paid throughout the year. State Assistance Contributions are assumed to be paid on July 1, 2021 for FY22, and July 1, 2022 for FY23.

** The FY23 State Assistance Contribution is expected to be contributed 100% to pension.

| | Pension | Healthcare | Total |
|---|---------------|----------------|---------------------|
| 4. Expected Annual Rate Payroll for FY24 | | | |
| a. Defined Benefit Members | | | \$ 711,617 |
| b. Defined Contribution Retirement Members | | | 1,726,002 |
| c. Total Rate Payroll | | | \$ 2,437,619 |
| 5. Expected FY24 Contribution Rate Calculation | | | |
| a. Projected Normal Cost for FY24 | \$ 101,319 | \$ 60,964 | \$ 162,283 |
| b. Projected Normal Cost Rate for FY24 | 4.16% | 2.50% | 6.66% |
| c. Expected Member Contribution Rate for FY24 | (2.02%) | 0.00% | (2.02%) |
| d. Expected Employer Normal Cost Rate for FY24 | 2.14% | 2.50% | 4.64% |
| e. Expected Unfunded Liability as of June 30, 2023 | \$ 3,931,109 | \$ (2,656,117) | \$ 1,274,992 |
| f. FY24 Layered Amortization of Expected Unfunded Liability | 350,577 | (181,538) | 169,039 |
| g. Expected Past Service Cost Contribution Rate for FY24 | 14.38% | (7.45%) | 14.38% |
| h. Expected Total Contribution Rate for FY24, not less than Normal Cost Rate | 16.52% | 2.50% | 19.02% |

The components of the expected FY24 amortization amounts are shown below (totals may not add due to rounding):

Expected FY24 Schedule of Past Service Cost Amortizations - Pension (\$'s in 000's)

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment for FY24 |
|-----------------------|---------------------|----------------------------|--------------|------------------------|------------------------------------|
| | Date Created | Years Remaining at 6/30/23 | Initial | Outstanding at 6/30/23 | |
| Initial Amount | 6/30/2018 | 16 | \$ 4,620,399 | \$ 4,435,190 | \$ 377,944 |
| Change in Assumptions | 6/30/2018 | 20 | 555,442 | 558,096 | 41,076 |
| FY19 Loss | 6/30/2019 | 21 | 297,539 | 299,829 | 21,415 |
| FY20 Loss | 6/30/2020 | 22 | 124,501 | 125,558 | 8,721 |
| FY21 Gain | 6/30/2021 | 23 | (578,700) | (582,952) | (39,451) |
| Expected FY22 Gain | 6/30/2022 | 24 | (480,925) | (483,071) | (31,908) |
| Expected FY23 Gain | 6/30/2023 | 25 | (421,541) | (421,541) | (27,220) |
| Total | | | | \$ 3,931,109 | \$ 350,577 |

Expected FY24 Schedule of Past Service Cost Amortizations - Healthcare (\$'s in 000's)

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment for FY24 |
|--|---------------------|----------------------------|-------------|------------------------|------------------------------------|
| | Date Created | Years Remaining at 6/30/23 | Initial | Outstanding at 6/30/23 | |
| Initial Amount | 6/30/2018 | 16 | \$ (78,254) | \$ (75,118) | \$ (6,401) |
| Change in Assumptions/Methods/EGWP | 6/30/2018 | 20 | 49,849 | 50,086 | 3,686 |
| FY19 Gain | 6/30/2019 | 21 | (630,840) | (635,696) | (45,403) |
| FY20 Gain | 6/30/2020 | 22 | (291,747) | (294,222) | (20,436) |
| Medical and Prescription Drug Plan Chang | 6/30/2021 | 23 | (61,807) | (62,261) | (4,213) |
| FY21 Gain | 6/30/2021 | 23 | (707,913) | (713,116) | (48,260) |
| Expected FY22 Gain | 6/30/2022 | 24 | (491,339) | (493,531) | (32,599) |
| Expected FY23 Gain | 6/30/2023 | 25 | (432,259) | (432,259) | (27,912) |
| Total | | | | \$ (2,656,117) | \$ (181,538) |

The components of the expected FY24 amortization amounts are shown below (totals may not add due to rounding):

Expected FY24 Schedule of Past Service Cost Amortizations - Total (\$'s in 000's)

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment for FY24 |
|--|---------------------|----------------------------|--------------|------------------------|------------------------------------|
| | Date Created | Years Remaining at 6/30/23 | Initial | Outstanding at 6/30/23 | |
| Initial Amount | 6/30/2018 | 16 | \$ 4,542,145 | \$ 4,360,072 | \$ 371,543 |
| Change in Assumptions/Methods/EGWP | 6/30/2018 | 20 | 605,291 | 608,182 | 44,762 |
| FY19 Gain | 6/30/2019 | 21 | (333,301) | (335,867) | (23,988) |
| FY20 Gain | 6/30/2020 | 22 | (167,246) | (168,664) | (11,715) |
| Medical and Prescription Drug Plan Chang | 6/30/2021 | 23 | (61,807) | (62,261) | (4,213) |
| FY21 Gain | 6/30/2021 | 23 | (1,286,613) | (1,296,068) | (87,711) |
| Expected FY22 Gain | 6/30/2022 | 24 | (972,264) | (976,602) | (64,507) |
| Expected FY23 Gain | 6/30/2023 | 25 | (853,800) | (853,800) | (55,132) |
| Total | | | | \$ 1,274,992 | \$ 169,039 |

Section 1.4: Actuarial Gain/(Loss) for FY21 (\$'s in 000's)

| | Pension | Healthcare | Total |
|--|-------------------|-------------------|---------------------|
| 1. Expected Actuarial Accrued Liability | | | |
| a. Actuarial Accrued Liability as of June 30, 2020 | \$ 15,279,525 | \$ 7,036,550 | \$ 22,316,075 |
| b. Normal Cost | 130,592 | 79,891 | 210,483 |
| c. Interest on (a) and (b) at 7.38% | 1,137,267 | 525,193 | 1,662,460 |
| d. Employer Group Waiver Plan | 0 | 52,545 | 52,545 |
| e. Benefit Payments | (921,899) | (440,234) | (1,362,133) |
| f. Refund of Contributions | (8,107) | 0 | (8,107) |
| g. Interest on (d) thru (f) at 7.38%, adjusted for timing | (36,570) | (14,051) | (50,621) |
| h. Assumptions/Methods Changes | 0 | 0 | 0 |
| i. Expected Actuarial Accrued Liability as of June 30, 2021 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) | \$ 15,580,808 | \$ 7,239,894 | \$ 22,820,702 |
| 2. Actual Actuarial Accrued Liability as of June 30, 2021 | 15,419,975 | 6,856,170 | 22,276,145 |
| 3. Liability Gain/(Loss), (1)(i) - (2) | \$ 160,833 | \$ 383,724 | \$ 544,557 |
| 4. Expected Actuarial Asset Value | | | |
| a. Actuarial Value of Assets as of June 30, 2020 | \$ 9,713,710 | \$ 7,989,358 | \$ 17,703,068 |
| b. Interest on (a) at 7.38% | 716,872 | 589,615 | 1,306,487 |
| c. Employee Contributions | 70,614 | 0 | 70,614 |
| d. Employer Contributions | 312,538 | 68,191 | 380,729 |
| e. State Assistance Contributions | 203,585 | 0 | 203,585 |
| f. Employer Group Waiver Plan | 0 | 52,545 | 52,545 |
| g. Interest on (c) thru (f) at 7.38%, adjusted for timing | 28,911 | 4,376 | 33,287 |
| h. Benefit Payments | (921,899) | (440,234) | (1,362,133) |
| i. Refund of Contributions | (8,107) | 0 | (8,107) |
| j. Administrative Expenses | (8,232) | (4,859) | (13,091) |
| k. Interest on (h) thru (j) at 7.38%, adjusted for timing | (36,868) | (16,132) | (53,000) |
| l. Expected Actuarial Asset Value as of June 30, 2021 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) + (i) + (j) + (k) | \$ 10,071,124 | \$ 8,242,860 | \$ 18,313,984 |
| 5. Actual Actuarial Asset Value as of June 30, 2021 | 10,466,709 | 8,581,155 | 19,047,864 |
| 6. Actuarial Asset Value Gain/(Loss), (5) - (4)(l) | \$ 395,585 | \$ 338,295 | \$ 733,880 |
| 7. Total Actuarial Gain/(Loss), (3) + (6) | \$ 556,418 | \$ 722,019 | \$ 1,278,437 |
| 8. Contribution Gain/(Loss) | \$ 23,056 | \$ 47,438 | \$ 70,494 |
| 9. Administrative Expense Gain/(Loss) | \$ (774) | \$ 263 | \$ (511) |
| 10. FY21 Gain/(Loss), (7) + (8) + (9) | \$ 578,700 | \$ 769,720 | \$ 1,348,420 |

Section 1.5: Development of Change in Unfunded Liability During FY21 (\$'s in 000's)

| | Pension | Healthcare | Total |
|---|------------------|------------------|------------------|
| 1. 2020 Unfunded Liability | \$ 5,565,815 | \$ (952,808) | \$ 4,613,007 |
| a. Interest on Unfunded Liability at 7.38% | \$ 410,757 | \$ (70,317) | \$ 340,440 |
| b. Normal Cost | 130,592 | 79,891 | 210,483 |
| c. Employee Contributions | (70,614) | 0 | (70,614) |
| d. Employer Contributions | (312,538) | (68,191) | (380,729) |
| e. State Assistance Contributions | (203,585) | 0 | (203,585) |
| f. Administrative Expenses | 8,232 | 4,859 | 13,091 |
| g. Interest on (b) thru (f) at 7.38%, adjusted for timing | (18,975) | 3,600 | (15,375) |
| h. Assumptions/Methods Changes | 0 | 0 | 0 |
| i. Expected Change in Unfunded Liability During FY21 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) | \$ (56,131) | \$ (50,158) | \$ (106,289) |
| 2. Expected 2021 Unfunded Liability, (1) + (1)(i) | \$ 5,509,684 | \$ (1,002,966) | \$ 4,506,718 |
| a. Liability (Gain)/Loss During FY21 | \$ (160,833) | \$ (383,724) | \$ (544,557) |
| b. Actuarial Assets (Gain)/Loss During FY21 | <u>(395,585)</u> | <u>(338,295)</u> | <u>(733,880)</u> |
| c. Total Actuarial (Gain)/Loss During FY21 | \$ (556,418) | \$ (722,019) | \$ (1,278,437) |
| 3. Actual 2021 Unfunded Liability, (2) + (2)(c) | \$ 4,953,266 | \$ (1,724,985) | \$ 3,228,281 |

Section 1.6: Analysis of Financial Experience

Pension

**Change in Employer / State Contribution Rate as of Valuation Date
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 | | | | |
|---|---|---------------|---------------|---------------|----------------|
| | 2017 | 2018 | 2019 | 2020 | 2021 |
| | Pension | | | | |
| 1. Health Claims | N/A | N/A | N/A | N/A | N/A |
| 2. Salary Experience | (0.36%) | (0.30%) | 0.16% | (0.03%) | 0.05% |
| 3. Investment Experience | 0.64% | 0.52% | 0.50% | 0.44% | (1.06%) |
| 4. Demographic Experience and Miscellaneous | (0.19%) | 0.26% | (0.45%) | (0.19%) | (0.54%) |
| 5. Actual vs Expected Contributions | <u>0.15%</u> | <u>0.14%</u> | <u>0.11%</u> | <u>0.15%</u> | <u>(0.06%)</u> |
| 6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5) | 0.24% | 0.62% | 0.32% | 0.37% | (1.61%) |
| 7. Assumptions / Method Changes | 0.00% | 1.65% | 0.00% | 0.00% | 0.00% |
| 8. Plan Changes | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> |
| 9. Composite (Gain) or Loss During Year, (6) + (7) + (8) | 0.24% | 2.27% | 0.32% | 0.37% | (1.61%) |
| 10. Beginning Total Employer / State Contribution Rate | <u>17.34%</u> | <u>17.58%</u> | <u>19.85%</u> | <u>20.17%</u> | <u>20.54%</u> |
| 11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10) | 17.58% | 19.85% | 20.17% | 20.54% | 18.93% |
| 12. Fiscal Year Rates Adopted by ARMB | | | | | |
| a. Fiscal Year Employer / State Contribution Rate | 18.29% | 20.66% | 20.89% | 18.38% | 16.52% * |
| b. Fiscal Year for which Rate Applies | FY20 | FY21 | FY22 | FY23 | FY24 |

* Expected rate. Actual rate to be determined

Healthcare

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

| Type of (Gain) or Loss | Change in Employer / State Contribution Rate During Fiscal Year | | | | |
|---|---|--------------|--------------|----------------|----------------|
| | Healthcare | | | | |
| | 2017 | 2018 | 2019 | 2020 | 2021 |
| 1. Health Claims | (2.46%) | (1.51%) | (2.39%) | (0.87%) | (0.12%) |
| 2. Salary Experience | N/A | N/A | N/A | N/A | N/A |
| 3. Investment Experience | 0.51% | 0.40% | 0.38% | 0.31% | 0.00% |
| 4. Demographic Experience and Miscellaneous | (0.48%) | (1.08%) | 1.16% | 0.38% | (0.26%) |
| 5. Actual vs Expected Contributions | <u>(0.12%)</u> | <u>0.06%</u> | <u>0.02%</u> | <u>(0.16%)</u> | <u>0.00%</u> |
| 6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5) | (2.55%) | (2.13%) | (0.83%) | (0.34%) | (0.38%) |
| 7. Assumptions / Method Changes | 2.89% | 2.20% | 0.00% | 0.00% | 0.00% |
| 8. Plan Changes | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> | <u>(0.03%)</u> |
| 9. Composite (Gain) or Loss During Year, (6) + (7) + (8) | 0.34% | 0.07% | (0.83%) | (0.34%) | (0.41%) |
| 10. Beginning Total Employer / State Contribution Rate | <u>4.33%</u> | <u>4.67%</u> | <u>4.74%</u> | <u>3.91%</u> | <u>3.57%</u> |
| 11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10) | 4.67% | 4.74% | 3.91% | 3.57% | 3.16% |
| 12. Fiscal Year Rates Adopted by ARMB | | | | | |
| a. Fiscal Year Employer / State Contribution Rate | 4.89% | 4.27% | 3.12% | 0.00% | 2.50% * |
| b. Fiscal Year for which Rate Applies | FY20 | FY21 | FY22 | FY23 | FY24 |

* Expected rate. Actual rate to be determined

Total
Change in Employer / State Contribution Rate as of Valuation Date
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 | | | | |
|---|---|---------------|---------------|----------------|----------------|
| | 2017 | 2018 | Total | 2020 | 2021 |
| 1. Health Claims | (2.46%) | (1.51%) | (2.39%) | (0.87%) | (0.12%) |
| 2. Salary Experience | (0.36%) | (0.30%) | 0.16% | (0.03%) | 0.05% |
| 3. Investment Experience | 1.15% | 0.92% | 0.88% | 0.75% | (1.06%) |
| 4. Demographic Experience and Miscellaneous | (0.67%) | (0.82%) | 0.71% | 0.19% | (0.80%) |
| 5. Actual vs Expected Contributions | <u>0.03%</u> | <u>0.20%</u> | <u>0.13%</u> | <u>(0.01%)</u> | <u>(0.06%)</u> |
| 6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5) | (2.31%) | (1.51%) | (0.51%) | 0.03% | (1.99%) |
| 7. Assumptions / Method Changes | 2.89% | 3.85% | 0.00% | 0.00% | 0.00% |
| 8. Plan Changes | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> | <u>(0.03%)</u> |
| 9. Composite (Gain) or Loss During Year, (6) + (7) + (8) | 0.58% | 2.34% | (0.51%) | 0.03% | (2.02%) |
| 10. Beginning Total Employer / State Contribution Rate | <u>21.67%</u> | <u>22.25%</u> | <u>24.59%</u> | <u>24.08%</u> | <u>24.11%</u> |
| 11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10) | 22.25% | 24.59% | 24.08% | 24.11% | 22.09% |
| 12. Fiscal Year Rates Adopted by ARMB | | | | | |
| a. Fiscal Year Employer / State Contribution Rate | 23.18% | 24.93% | 24.01% | 18.38% | 19.02% * |
| b. Fiscal Year for which Rate Applies | FY20 | FY21 | FY22 | FY23 | FY24 |

* Expected rate. 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 | \$ 10,561,653 | \$ 7,687,281 | 72.8% | \$ 2,874,372 |
| June 30, 2004 | 11,443,916 | 8,030,414 | 70.2% | 3,413,502 |
| June 30, 2005 | 12,844,841 | 8,442,919 | 65.7% | 4,401,922 |
| June 30, 2006 | 14,388,413 | 9,040,908 | 62.8% | 5,347,505 |
| June 30, 2007 | 14,570,933 | 9,900,960 | 68.0% | 4,669,973 |
| June 30, 2008 | 15,888,141 | 11,040,106 | 69.5% | 4,848,035 |
| June 30, 2009 | 16,579,371 | 10,242,978 | 61.8% | 6,336,393 |
| June 30, 2010 | 18,132,492 | 11,157,464 | 61.5% | 6,975,028 |
| June 30, 2011 | 18,740,550 | 11,813,774 | 63.0% | 6,926,776 |
| June 30, 2012 | 19,292,361 | 11,832,030 | 61.3% | 7,460,331 |
| June 30, 2013 | 19,992,759 | 12,162,626 | 60.8% | 7,830,133 |
| June 30, 2014 | 20,897,372 | 14,644,598 | 70.1% | 6,252,774 |
| June 30, 2015 | 20,648,663 | 16,173,459 | 78.3% | 4,475,204 |
| June 30, 2016 | 21,369,490 | 16,467,992 | 77.1% | 4,901,498 |
| June 30, 2017 | 21,881,395 | 16,786,771 | 76.7% | 5,094,624 |
| June 30, 2018 | 22,264,137 | 17,116,701 | 76.9% | 5,147,436 |
| June 30, 2019 | 22,190,874 | 17,387,184 | 78.4% | 4,803,690 |
| June 30, 2020 | 22,316,075 | 17,703,068 | 79.3% | 4,613,007 |
| June 30, 2021 | 22,276,145 | 19,047,864 | 85.5% | 3,228,281 |

Section 2: Plan Assets

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

| As of June 30, 2021 | Pension | Healthcare | Total | Allocation Percent |
|--|----------------------|---------------------|----------------------|--------------------|
| Cash and Short-Term Investments | | | | |
| - Cash and Cash Equivalents | \$ 136,182 | \$ 99,250 | \$ 235,432 | 1.2% |
| - Subtotal | \$ 136,182 | \$ 99,250 | \$ 235,432 | 1.2% |
| Fixed Income Investments | | | | |
| - Domestic Fixed Income Pool | \$ 2,413,353 | \$ 1,994,752 | \$ 4,408,105 | 20.2% |
| - International Fixed Income Pool | 0 | 0 | 0 | 0.0% |
| - Tactical Fixed Income Pool | 0 | 0 | 0 | 0.0% |
| - High Yield Pool | 0 | 0 | 0 | 0.0% |
| - Treasury Inflation Protection Pool | 0 | 0 | 0 | 0.0% |
| - Emerging Debt Pool | 0 | 0 | 0 | 0.0% |
| - Subtotal | \$ 2,413,353 | \$ 1,994,752 | \$ 4,408,105 | 20.2% |
| Equity Investments | | | | |
| - Domestic Equity Pool | \$ 3,265,330 | \$ 2,698,953 | \$ 5,964,283 | 27.4% |
| - International Equity Pool | 1,799,583 | 1,487,442 | 3,287,025 | 15.1% |
| - Private Equity Pool | 1,770,792 | 1,463,644 | 3,234,436 | 14.9% |
| - Emerging Markets Equity Pool | 382,294 | 315,985 | 698,279 | 3.2% |
| - Alternative Equity Strategies | 695,474 | 574,842 | 1,270,316 | 5.8% |
| - Subtotal | \$ 7,913,473 | \$ 6,540,866 | \$ 14,454,339 | 66.4% |
| Other Investments | | | | |
| - Real Estate Pool | \$ 732,171 | \$ 606,137 | \$ 1,338,308 | 6.1% |
| - Other Investments Pool | 731,828 | 604,892 | 1,336,720 | 6.1% |
| - Absolute Return Pool | 0 | 0 | 0 | 0.0% |
| - Other Assets | 17 | 967 | 984 | 0.0% |
| - Subtotal | \$ 1,464,016 | \$ 1,211,996 | \$ 2,676,012 | 12.2% |
| Total Cash and Investments | \$ 11,927,024 | \$ 9,846,864 | \$ 21,773,888 | 100.0% |
| Net Accrued Receivables | (14,715) | (62,723) | (77,438) | |
| Net Assets | \$ 11,912,309 | \$ 9,784,141 | \$ 21,696,450 | |

Section 2.2: Changes in Fair Value of Assets During FY21 (\$'s in 000's)

| Fiscal Year 2021 | Pension | Healthcare | Total |
|--|---------------|--------------|---------------|
| 1. Fair Value of Assets as of June 30, 2020 | \$ 9,469,161 | \$ 7,813,511 | \$ 17,282,672 |
| 2. Additions: | | | |
| a. Employee Contributions | \$ 70,614 | \$ 0 | \$ 70,614 |
| b. Employer Contributions | 312,538 | 68,191 | 380,729 |
| c. State Assistance Contributions | 203,585 | 0 | 203,585 |
| d. Interest and Dividend Income | 132,757 | 109,764 | 242,521 |
| e. Net Appreciation / Depreciation in Fair Value of Investments | 2,688,309 | 2,206,395 | 4,894,704 |
| f. Employer Group Waiver Plan | 0 | 52,545 | 52,545 |
| g. Other | 537 | 596 | 1,133 |
| h. Total Additions | \$ 3,408,340 | \$ 2,437,491 | \$ 5,845,831 |
| 3. Deductions: | | | |
| a. Medical Benefits | \$ 0 | \$ 440,234 | \$ 440,234 |
| b. Retirement Benefits | 921,899 | 0 | 921,899 |
| c. Refund of Contributions | 8,107 | 0 | 8,107 |
| d. Investment Expenses | 26,954 | 21,768 | 48,722 |
| e. Administrative Expenses | 8,232 | 4,859 | 13,091 |
| f. Total Deductions | \$ 965,192 | \$ 466,861 | \$ 1,432,053 |
| 4. Fair Value of Assets as of June 30, 2021 | \$ 11,912,309 | \$ 9,784,141 | \$ 21,696,450 |
| 5. Approximate Fair Value Investment Return Rate during FY21 Net of Investment Expenses | 30.1% | 30.0% | 30.0% |

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

The actuarial value of asset was set equal to the fair value as of 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 FY21 | | | |
| a. Fair Value of Assets as of June 30, 2020 | \$ 9,469,161 | \$ 7,813,511 | \$ 17,282,672 |
| b. Contributions | 586,737 | 68,191 | 654,928 |
| c. Employer Group Waiver Plan | 0 | 52,545 | 52,545 |
| d. Benefit Payments | 930,006 | 440,234 | 1,370,240 |
| e. Administrative Expenses | 8,232 | 4,859 | 13,091 |
| f. Actual Investment Return (net of investment expenses) | 2,794,649 | 2,294,987 | 5,089,636 |
| g. Expected Return Rate (net of investment expenses) | 7.38% | 7.38% | 7.38% |
| h. Expected Return, Weighted for Timing | 690,867 | 564,881 | 1,255,748 |
| i. Investment Gain / (Loss) for the Year, (f) - (h) | 2,103,782 | 1,730,106 | 3,833,888 |
| 2. Actuarial Value as of June 30, 2021 | | | |
| a. Fair Value as of June 30, 2021 | \$ 11,912,309 | \$ 9,784,141 | \$ 21,696,450 |
| b. Deferred Investment Gain / (Loss) | 1,445,600 | 1,202,986 | 2,648,586 |
| c. Actuarial Value as of June 30, 2021, (a) - (b) | 10,466,709 | 8,581,155 | 19,047,864 |
| 3. Ratio of Actuarial Value of Assets to Fair Value of Assets | | | |
| | 87.9% | 87.7% | 87.8% |
| 4. Approximate Actuarial Value Investment Return Rate during FY21 Net of Investment Expenses | | | |
| | 11.6% | 11.7% | 11.6% |

The tables below show the development of the gains/(losses) to be recognized in the current year (\$'s in 000's):

| Pension | | | | |
|---------------------------|----------------------------|--|---|---|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 393,607 | \$ 314,884 | \$ 78,723 | \$ 0 |
| June 30, 2018 | 17,834 | 10,701 | 3,567 | 3,566 |
| June 30, 2019 | (136,242) | (54,496) | (27,248) | (54,498) |
| June 30, 2020 | (310,824) | (62,165) | (62,165) | (186,494) |
| June 30, 2021 | <u>2,103,782</u> | <u>0</u> | <u>420,756</u> | <u>1,683,026</u> |
| Total | \$ 2,068,157 | \$ 208,924 | \$ 413,633 | \$ 1,445,600 |

| Healthcare | | | | |
|---------------------------|----------------------------|--|---|---|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 341,151 | \$ 272,920 | \$ 68,231 | \$ 0 |
| June 30, 2018 | 30,997 | 18,597 | 6,199 | 6,201 |
| June 30, 2019 | (101,128) | (40,452) | (20,226) | (40,450) |
| June 30, 2020 | (244,753) | (48,952) | (48,951) | (146,850) |
| June 30, 2021 | <u>1,730,106</u> | <u>0</u> | <u>346,021</u> | <u>1,384,085</u> |
| Total | \$ 1,756,373 | \$ 202,113 | \$ 351,274 | \$ 1,202,986 |

| Total | | | | |
|---------------------------|----------------------------|--|---|---|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 734,758 | \$ 587,804 | \$ 146,954 | \$ 0 |
| June 30, 2018 | 48,831 | 29,298 | 9,766 | 9,767 |
| June 30, 2019 | (237,370) | (94,948) | (47,474) | (94,948) |
| June 30, 2020 | (555,577) | (111,117) | (111,116) | (333,344) |
| June 30, 2021 | <u>3,833,888</u> | <u>0</u> | <u>766,777</u> | <u>3,067,111</u> |
| Total | \$ 3,824,530 | \$ 411,037 | \$ 764,907 | \$ 2,648,586 |

Section 2.4: Historical Asset Rates of Return

| Year Ending | Actuarial Value | | Fair Value | |
|---------------|-----------------|-------------|------------|-------------|
| | Annual | Cumulative* | Annual | Cumulative* |
| June 30, 2005 | 8.7% | 8.7% | 8.5% | 8.5% |
| June 30, 2006 | 9.3% | 9.0% | 11.4% | 9.9% |
| June 30, 2007 | 11.6% | 9.9% | 18.5% | 12.7% |
| June 30, 2008 | 10.0% | 9.9% | (3.1%) | 8.5% |
| June 30, 2009 | (7.3%) | 6.2% | (20.5%) | 2.0% |
| June 30, 2010 | 7.2% | 6.4% | 10.2% | 3.3% |
| June 30, 2011 | 7.2% | 6.5% | 20.4% | 5.6% |
| June 30, 2012 | 1.2% | 5.8% | 0.2% | 4.9% |
| June 30, 2013 | 4.0% | 5.6% | 12.1% | 5.7% |
| June 30, 2014 | 21.9% | 7.1% | 18.1% | 6.9% |
| June 30, 2015 | 7.0% | 7.1% | 2.9% | 6.5% |
| June 30, 2016 | 5.0% | 6.9% | (0.7%) | 5.9% |
| June 30, 2017 | 5.4% | 6.8% | 12.8% | 6.4% |
| June 30, 2018 | 6.1% | 6.8% | 8.2% | 6.5% |
| June 30, 2019 | 5.5% | 6.7% | 6.0% | 6.5% |
| June 30, 2020 | 5.8% | 6.6% | 4.1% | 6.3% |
| June 30, 2021 | 11.6% | 6.9% | 30.0% | 7.6% |

* Cumulative since fiscal year ending June 30, 2005

Section 3: Projections

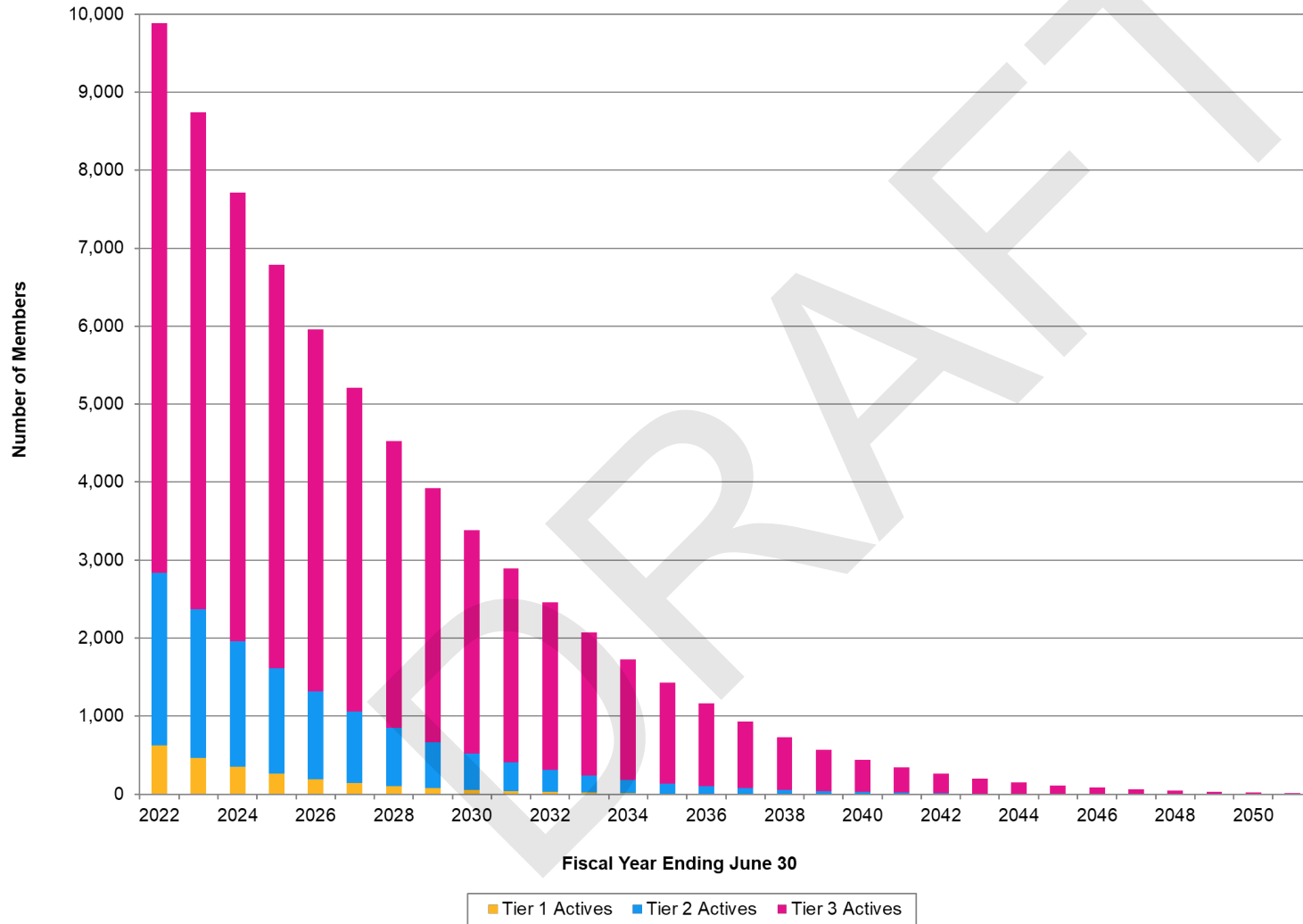
Section 3.1: Projection Assumptions and Methods

Key Assumptions

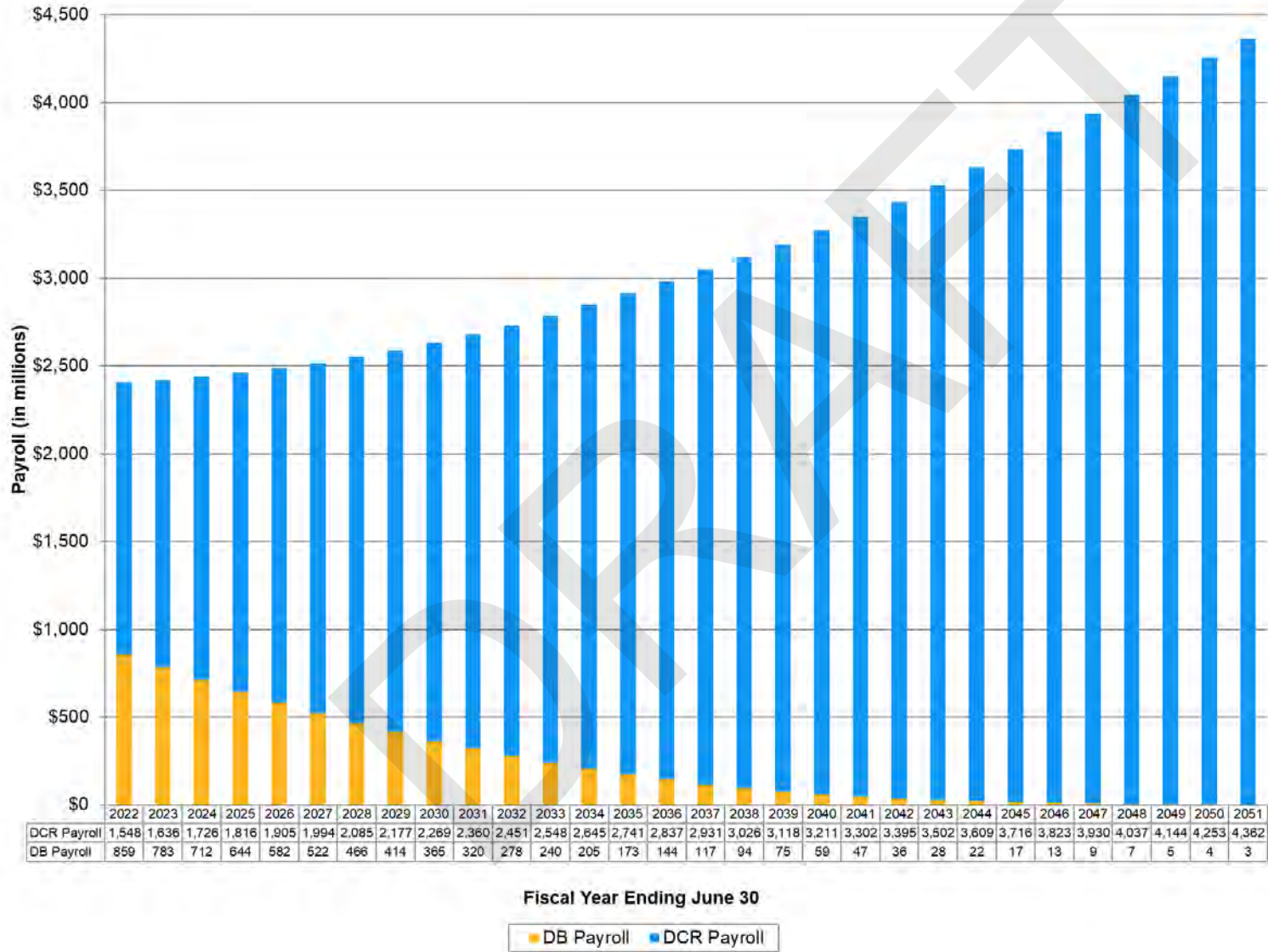
- 7.38% investment return (net of investment expenses) on the Fair Value of Assets in all future years.
- The Actuarial Value of Assets was re-initialized to Fair Value as of June 30, 2014. The Actuarial Value of Assets after June 30, 2014 reflects the deferred gains and losses generated by the smoothing method. The current deferred amount is recognized in the first four years of the projections.
- Actuarial assumptions and methods as described in Section 5. No actuarial gains/losses are assumed after June 30, 2021.
- The actuarially calculated contribution rate using a two-year roll-forward approach is adopted each year.
- Projections assume a 0% increase in the total active member population. All new members are expected to enter the DCR plan.
- Contribution rates are determined as a percent of total DB and DCR payroll.
- The DCR contribution rate determined as of June 30, 2021 is assumed to remain constant in all future years.
- The active rehire assumption shown in Section 5 is assumed to grade to zero on a uniform basis over 20 years.
- The Normal Cost is increased by the administrative expenses shown in Section 5. For future years, the percent increase is assumed to remain constant.
- The % of total DB/DCR payroll represented by the State's employees based on the June 30, 2021 data was assumed to remain constant in all future years.
- In Section 3.6B, we assumed all remaining pension unfunded liability layered amortization amounts would be zero after the pension trust is projected to reach a funded status of 100%.

Section 3.2: Membership Projection

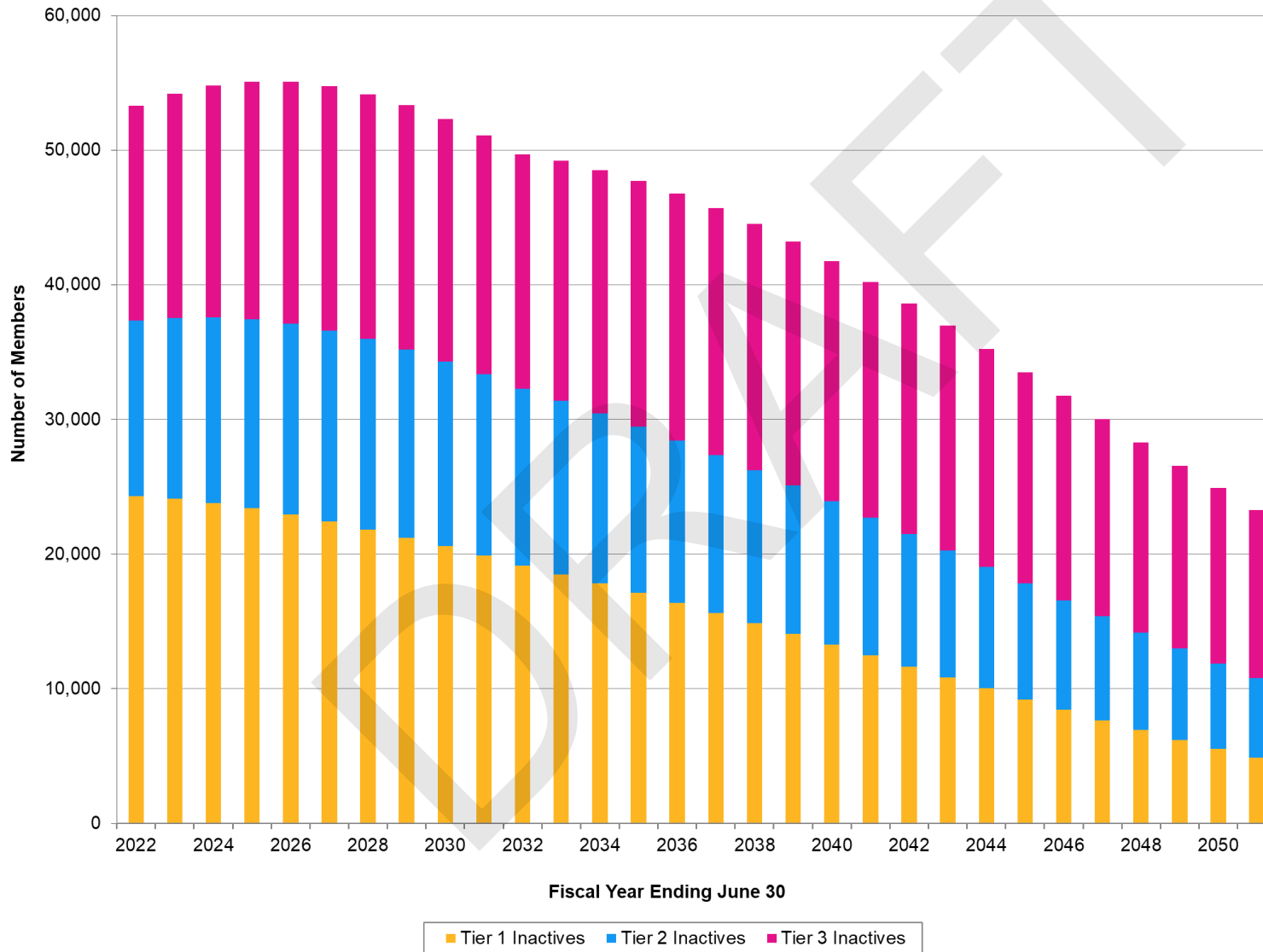
Projected Active Member Count



Projected DB and DCR Payroll

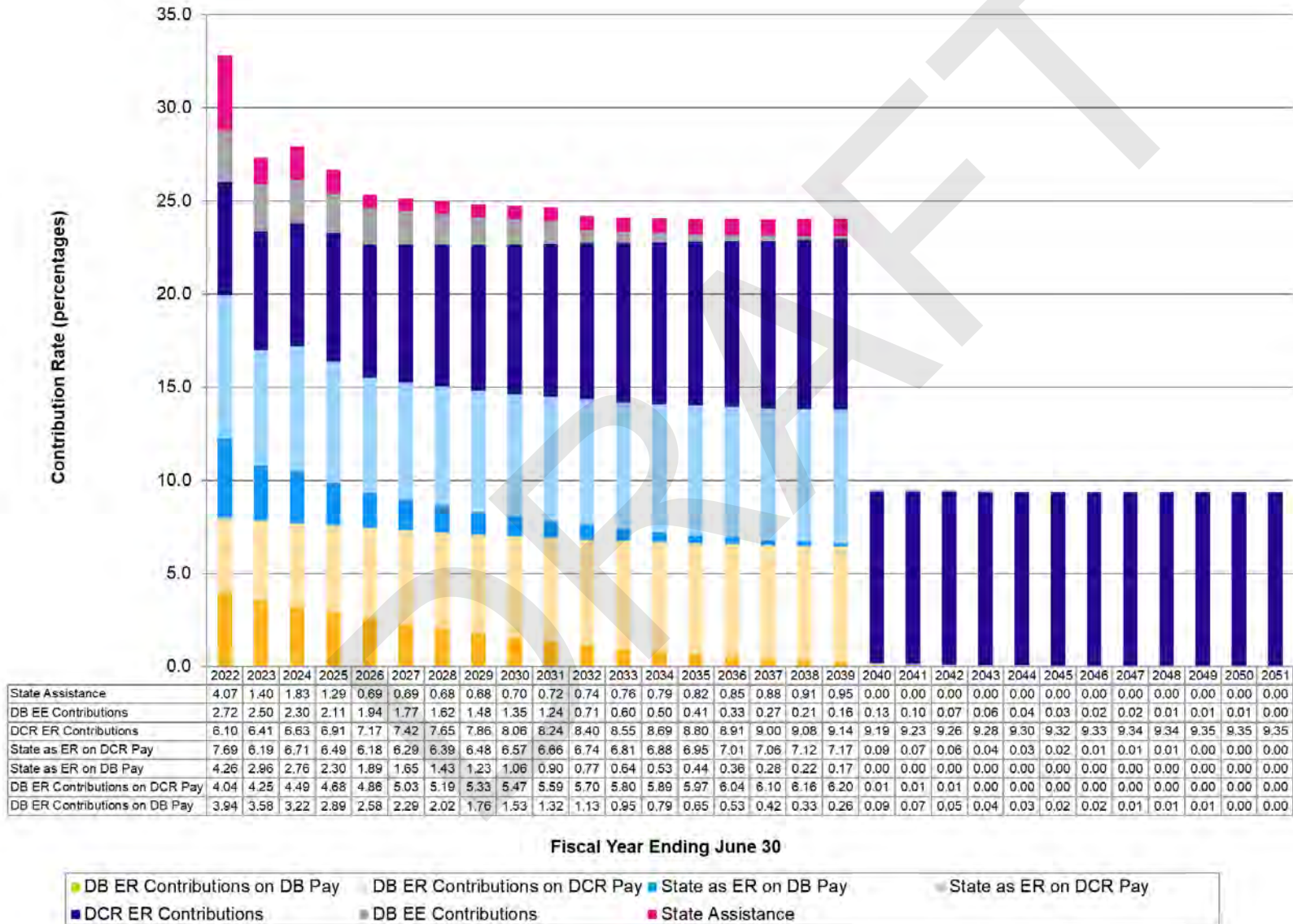


Projected Inactive Member Count

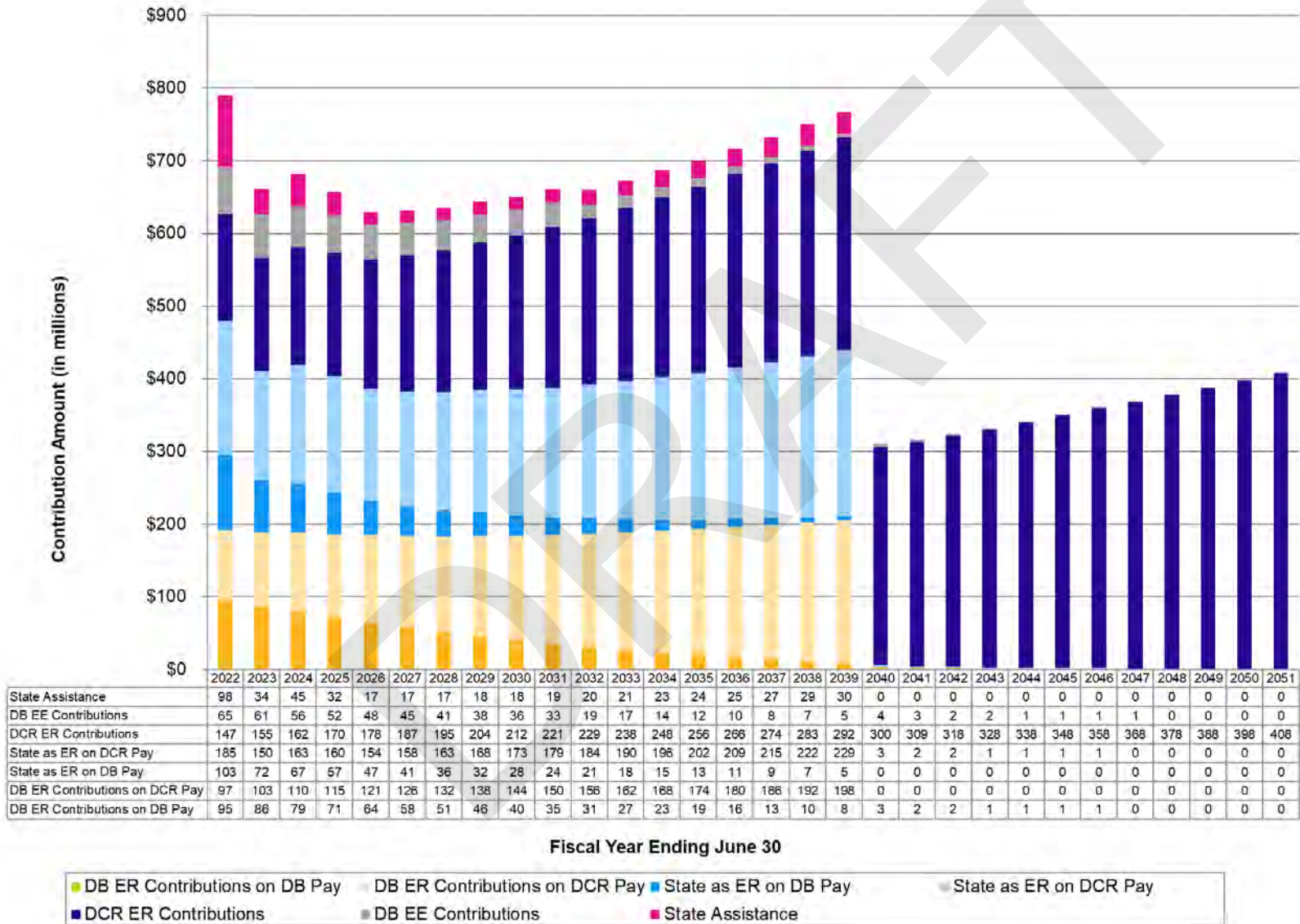


Section 3.3: Projected Employer/State Contribution Rates

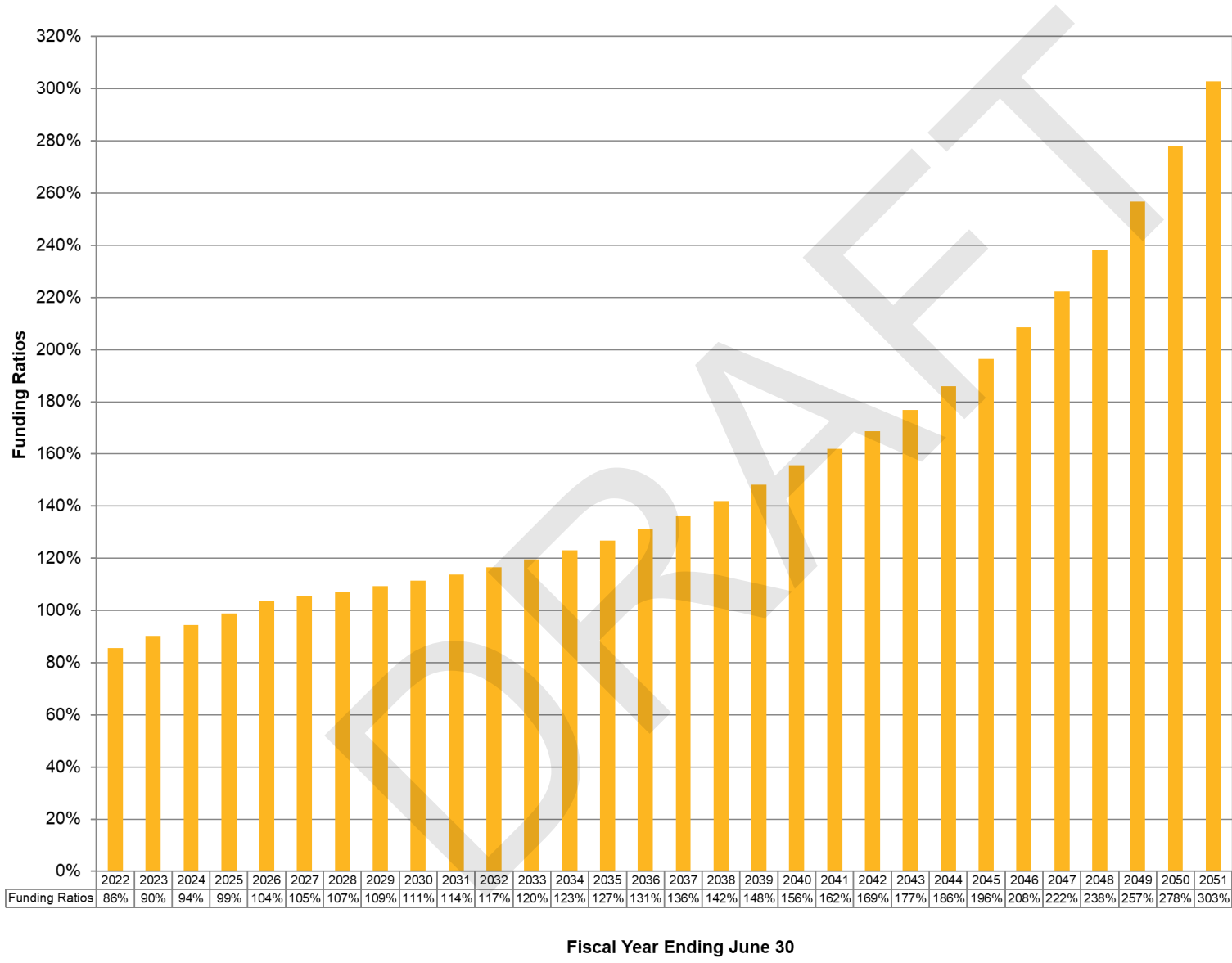
Based on Total DB and DCR Payroll



Section 3.4: Projected Employer/State Contribution Amounts



Section 3.5: Projection of Funded Ratios



Section 3.6A: Table of Projected Actuarial Results (\$'s in 000's)

| Fiscal Year End | Valuation Amounts on July 1 (Beginning of FY) | | | | Cash Flow Amounts during Following 12 Months | | | | | | | | | Deferred Asset Gain / (Loss) | |
|-----------------|---|-------------------|---------------|--------------------------------|--|--------------------------|-------|--------|---------------------|----------------------|-------------------|-------------------|------------------|------------------------------|--------------|
| | Actuarial Assets | Accrued Liability | Funding Ratio | Unfunded Liability / (Surplus) | Total Salaries | Actuarial Contrib. Rates | | | DB Contributions | | | | Benefit Payments | | |
| | | | | | | DB | DCR | Total | Non-State Employers | State as an Employer | State Assistance | Employee | | | Total |
| 2022 | \$ 19,047,864 | \$ 22,276,145 | 85.5% | \$ 3,228,281 | \$ 2,406,757 | 24.01% | 6.10% | 30.11% | \$ 192,141 | \$ 287,718 | \$ 97,700 | \$ 65,405 | \$ 642,964 | \$ 1,384,673 | \$ 2,030,628 |
| 2023 | 20,485,465 | 22,686,119 | 90.3% | 2,200,654 | 2,419,276 | 18.38% | 6.41% | 24.79% | 189,375 | 221,398 | 33,933 | 60,574 | 505,280 | 1,452,612 | 1,422,440 |
| 2024 | 21,759,495 | 23,034,487 | 94.5% | 1,274,992 | 2,437,619 | 19.02% | 6.63% | 25.65% | 188,118 | 230,844 | 44,673 | 56,077 | 519,712 | 1,519,487 | 766,777 |
| 2025 | 23,077,297 | 23,325,864 | 98.9% | 248,567 | 2,459,924 | 17.66% | 6.91% | 24.57% | 186,380 | 216,299 | 31,743 | 51,849 | 486,271 | 1,581,069 | 0 |
| 2026 | 24,457,146 | 23,553,712 | 103.8% | (903,434) | 2,486,407 | 16.20% | 7.17% | 23.37% | 185,141 | 200,553 | 17,103 | 48,126 | 450,923 | 1,639,102 | 0 |
| 2027 | 25,019,087 | 23,722,456 | 105.5% | (1,296,631) | 2,515,962 | 15.95% | 7.42% | 23.37% | 184,183 | 199,805 | 17,307 | 44,634 | 445,929 | 1,691,307 | 0 |
| 2028 | 25,564,111 | 23,834,711 | 107.3% | (1,729,400) | 2,551,387 | 15.70% | 7.65% | 23.35% | 183,830 | 199,443 | 17,294 | 41,406 | 441,973 | 1,743,410 | 0 |
| 2029 | 26,092,076 | 23,888,351 | 109.2% | (2,203,725) | 2,591,246 | 15.49% | 7.86% | 23.35% | 183,971 | 199,848 | 17,564 | 38,407 | 439,790 | 1,792,657 | 0 |
| 2030 | 26,606,454 | 23,882,931 | 111.4% | (2,723,523) | 2,634,091 | 15.33% | 8.06% | 23.39% | 184,367 | 201,056 | 18,384 | 35,618 | 439,425 | 1,841,559 | 0 |
| 2031 | 27,108,439 | 23,815,895 | 113.8% | (3,292,544) | 2,680,313 | 15.20% | 8.24% | 23.44% | 185,180 | 202,848 | 19,379 | 33,314 | 440,721 | 1,888,399 | 0 |
| 2032 | 27,600,920 | 23,686,165 | 116.5% | (3,914,755) | 2,729,431 | 15.08% | 8.40% | 23.48% | 186,380 | 204,935 | 20,283 | 19,379 | 430,977 | 1,921,262 | 0 |
| 2033 | 28,086,220 | 23,492,795 | 119.6% | (4,593,425) | 2,788,219 | 14.97% | 8.55% | 23.52% | 188,295 | 207,822 | 21,279 | 16,729 | 434,125 | 1,962,656 | 0 |
| 2034 | 28,568,243 | 23,233,706 | 123.0% | (5,334,537) | 2,849,691 | 14.89% | 8.69% | 23.58% | 190,443 | 211,269 | 22,607 | 14,248 | 438,567 | 1,997,145 | 0 |
| 2035 | 29,055,213 | 22,912,291 | 126.8% | (6,142,922) | 2,913,742 | 14.83% | 8.80% | 23.63% | 193,114 | 215,146 | 23,847 | 11,946 | 444,053 | 2,027,268 | 0 |
| 2036 | 29,553,053 | 22,529,016 | 131.2% | (7,024,037) | 2,980,267 | 14.79% | 8.91% | 23.70% | 195,878 | 219,465 | 25,439 | 9,835 | 450,617 | 2,052,266 | 0 |
| 2037 | 30,068,967 | 22,085,105 | 136.2% | (7,983,862) | 3,048,570 | 14.75% | 9.00% | 23.75% | 198,989 | 223,888 | 26,787 | 8,231 | 457,895 | 2,073,075 | 0 |
| 2038 | 30,609,336 | 21,582,882 | 141.8% | (9,026,454) | 3,119,617 | 14.74% | 9.08% | 23.82% | 202,374 | 228,950 | 28,508 | 6,551 | 466,383 | 2,084,652 | 0 |
| 2039 | 31,186,769 | 21,027,265 | 148.3% | (10,159,504) | 3,192,990 | 14.75% | 9.14% | 23.89% | 206,171 | 234,494 | 30,300 | 5,109 | 476,074 | 2,090,235 | 0 |
| 2040 | 31,811,419 | 20,421,271 | 155.8% | (11,390,148) | 3,269,593 | 0.19% | 9.19% | 9.38% | 3,119 | 3,093 | 0 | 4,250 | 10,462 | 2,085,624 | 0 |
| 2041 | 32,003,567 | 19,772,369 | 161.9% | (12,231,198) | 3,349,104 | 0.15% | 9.23% | 9.38% | 2,523 | 2,502 | 0 | 3,349 | 8,374 | 2,073,472 | 0 |
| 2042 | 32,220,543 | 19,085,708 | 168.8% | (13,134,835) | 3,431,102 | 0.12% | 9.26% | 9.38% | 2,067 | 2,050 | 0 | 2,402 | 6,519 | 2,052,889 | 0 |
| 2043 | 32,473,140 | 18,370,562 | 176.8% | (14,102,578) | 3,530,182 | 0.08% | 9.28% | 9.36% | 1,419 | 1,407 | 0 | 2,118 | 4,944 | 2,025,256 | 0 |
| 2044 | 32,771,570 | 17,627,087 | 185.9% | (15,144,483) | 3,630,726 | 0.06% | 9.30% | 9.36% | 1,094 | 1,085 | 0 | 1,452 | 3,631 | 1,985,697 | 0 |
| 2045 | 33,131,835 | 16,868,565 | 196.4% | (16,263,270) | 3,732,491 | 0.05% | 9.32% | 9.37% | 937 | 930 | 0 | 1,120 | 2,987 | 1,940,818 | 0 |
| 2046 | 33,564,699 | 16,099,675 | 208.5% | (17,465,024) | 3,835,282 | 0.03% | 9.33% | 9.36% | 578 | 573 | 0 | 767 | 1,918 | 1,889,001 | 0 |
| 2047 | 34,082,265 | 15,327,056 | 222.4% | (18,755,209) | 3,939,244 | 0.02% | 9.34% | 9.36% | 396 | 392 | 0 | 788 | 1,576 | 1,830,189 | 0 |
| 2048 | 34,698,782 | 14,557,874 | 238.4% | (20,140,908) | 4,044,148 | 0.02% | 9.34% | 9.36% | 406 | 402 | 0 | 404 | 1,212 | 1,769,122 | 0 |
| 2049 | 35,423,864 | 13,794,868 | 256.8% | (21,628,996) | 4,149,573 | 0.01% | 9.35% | 9.36% | 208 | 207 | 0 | 415 | 830 | 1,704,173 | 0 |
| 2050 | 36,269,528 | 13,042,643 | 278.1% | (23,226,885) | 4,256,510 | 0.01% | 9.35% | 9.36% | 214 | 212 | 0 | 426 | 852 | 1,639,176 | 0 |
| 2051 | 37,245,140 | 12,302,143 | 302.8% | (24,942,997) | 4,365,118 | 0.01% | 9.35% | 9.36% | 219 | 217 | 0 | 0 | 436 | 1,571,836 | 0 |
| Total | | | | | | | | | \$ 3,437,510 | \$ 3,918,851 | \$ 514,130 | \$ 584,929 | | | |

Pension unfunded liability layered amortization amounts are maintained after the pension trust is projected to be 100% funded.

Section 3.6A: Table of Projected Actuarial Results (\$'s in 000's) (continued)

| Fiscal Year End | Valuation Amounts on July 1 (Beginning of FY) | | | | | |
|-----------------|---|------------|--------|--------------------------------|----------------|--------------|
| | Funding Ratio | | | Unfunded Liability / (Surplus) | | |
| | Pension | Healthcare | Total | Pension | Healthcare | Total |
| 2022 | 67.9% | 125.2% | 85.5% | \$ 4,953,266 | \$ (1,724,985) | \$ 3,228,281 |
| 2023 | 71.8% | 131.7% | 90.3% | 4,421,186 | (2,220,532) | 2,200,654 |
| 2024 | 75.2% | 137.1% | 94.5% | 3,931,109 | (2,656,117) | 1,274,992 |
| 2025 | 78.5% | 144.0% | 98.9% | 3,447,316 | (3,198,749) | 248,567 |
| 2026 | 82.1% | 151.6% | 103.8% | 2,902,436 | (3,805,870) | (903,434) |
| 2027 | 82.8% | 154.7% | 105.5% | 2,789,764 | (4,086,395) | (1,296,631) |
| 2028 | 83.7% | 158.2% | 107.3% | 2,658,891 | (4,388,291) | (1,729,400) |
| 2029 | 84.6% | 161.9% | 109.2% | 2,508,543 | (4,712,268) | (2,203,725) |
| 2030 | 85.6% | 166.1% | 111.4% | 2,337,173 | (5,060,696) | (2,723,523) |
| 2031 | 86.7% | 170.7% | 113.8% | 2,142,666 | (5,435,210) | (3,292,544) |
| 2032 | 88.0% | 175.8% | 116.5% | 1,922,957 | (5,837,712) | (3,914,755) |
| 2033 | 89.4% | 181.5% | 119.6% | 1,675,797 | (6,269,222) | (4,593,425) |
| 2034 | 91.0% | 187.9% | 123.0% | 1,398,102 | (6,732,639) | (5,334,537) |
| 2035 | 92.9% | 195.1% | 126.8% | 1,087,337 | (7,230,259) | (6,142,922) |
| 2036 | 95.1% | 203.1% | 131.2% | 741,041 | (7,765,078) | (7,024,037) |
| 2037 | 97.6% | 212.2% | 136.2% | 355,919 | (8,339,781) | (7,983,862) |
| 2038 | 100.5% | 222.5% | 141.8% | (70,737) | (8,955,717) | (9,026,454) |
| 2039 | 103.9% | 234.2% | 148.3% | (542,888) | (9,616,616) | (10,159,504) |
| 2040 | 107.9% | 247.4% | 155.8% | (1,064,015) | (10,326,133) | (11,390,148) |
| 2041 | 108.8% | 262.5% | 161.9% | (1,143,242) | (11,087,956) | (12,231,198) |
| 2042 | 109.9% | 279.6% | 168.8% | (1,228,723) | (11,906,112) | (13,134,835) |
| 2043 | 111.0% | 299.1% | 176.8% | (1,320,548) | (12,782,030) | (14,102,578) |
| 2044 | 112.4% | 321.5% | 185.9% | (1,419,202) | (13,725,281) | (15,144,483) |
| 2045 | 114.0% | 347.0% | 196.4% | (1,525,307) | (14,737,963) | (16,263,270) |
| 2046 | 115.8% | 376.0% | 208.5% | (1,639,585) | (15,825,439) | (17,465,024) |
| 2047 | 117.9% | 409.0% | 222.4% | (1,762,076) | (16,993,133) | (18,755,209) |
| 2048 | 120.4% | 446.5% | 238.4% | (1,893,634) | (18,247,274) | (20,140,908) |
| 2049 | 123.2% | 489.1% | 256.8% | (2,035,226) | (19,593,770) | (21,628,996) |
| 2050 | 126.6% | 537.5% | 278.1% | (2,187,088) | (21,039,797) | (23,226,885) |
| 2051 | 130.5% | 592.8% | 302.8% | (2,350,329) | (22,592,668) | (24,942,997) |

Pension unfunded liability layered amortization amounts are maintained after the pension trust is projected to be 100% funded.

Section 3.6B: Table of Projected Actuarial Results (\$'s in 000's)

| Fiscal Year End | Valuation Amounts on July 1 (Beginning of FY) | | | | Cash Flow Amounts during Following 12 Months | | | | | | | | | | Deferred Asset Gain / (Loss) |
|-----------------|---|-------------------|---------------|--------------------------------|--|--------------------------|-------|--------|---------------------|----------------------|-------------------|-------------------|------------|------------------|------------------------------|
| | Actuarial Assets | Accrued Liability | Funding Ratio | Unfunded Liability / (Surplus) | Total Salaries | Actuarial Contrib. Rates | | | DB Contributions | | | | | Benefit Payments | |
| | | | | | | DB | DCR | Total | Non-State Employers | State as an Employer | State Assistance | Employee | Total | | |
| 2022 | \$ 19,047,864 | \$ 22,276,145 | 85.5% | \$ 3,228,281 | \$ 2,406,757 | 24.01% | 6.10% | 30.11% | \$ 192,141 | \$ 287,718 | \$ 97,700 | \$ 65,405 | \$ 642,964 | \$ 1,384,673 | \$ 2,030,628 |
| 2023 | 20,485,465 | 22,686,119 | 90.3% | 2,200,654 | 2,419,276 | 18.38% | 6.41% | 24.79% | 189,375 | 221,398 | 33,933 | 60,574 | 505,280 | 1,452,612 | 1,422,440 |
| 2024 | 21,759,495 | 23,034,487 | 94.5% | 1,274,992 | 2,437,619 | 19.02% | 6.63% | 25.65% | 188,118 | 230,844 | 44,673 | 56,077 | 519,712 | 1,519,487 | 766,777 |
| 2025 | 23,077,297 | 23,325,864 | 98.9% | 248,567 | 2,459,924 | 17.66% | 6.91% | 24.57% | 186,380 | 216,299 | 31,743 | 51,849 | 486,271 | 1,581,069 | 0 |
| 2026 | 24,457,146 | 23,553,712 | 103.8% | (903,434) | 2,486,407 | 16.20% | 7.17% | 23.37% | 185,141 | 200,553 | 17,103 | 48,126 | 450,923 | 1,639,102 | 0 |
| 2027 | 25,019,087 | 23,722,456 | 105.5% | (1,296,631) | 2,515,962 | 15.95% | 7.42% | 23.37% | 184,183 | 199,805 | 17,307 | 44,634 | 445,929 | 1,691,307 | 0 |
| 2028 | 25,564,111 | 23,834,711 | 107.3% | (1,729,400) | 2,551,387 | 15.70% | 7.65% | 23.35% | 183,830 | 199,443 | 17,294 | 41,406 | 441,973 | 1,743,410 | 0 |
| 2029 | 26,092,076 | 23,888,351 | 109.2% | (2,203,725) | 2,591,246 | 15.49% | 7.86% | 23.35% | 183,971 | 199,848 | 17,564 | 38,407 | 439,790 | 1,792,657 | 0 |
| 2030 | 26,606,454 | 23,882,931 | 111.4% | (2,723,523) | 2,634,091 | 15.33% | 8.06% | 23.39% | 184,367 | 201,056 | 18,384 | 35,618 | 439,425 | 1,841,559 | 0 |
| 2031 | 27,108,439 | 23,815,895 | 113.8% | (3,292,544) | 2,680,313 | 15.20% | 8.24% | 23.44% | 185,180 | 202,848 | 19,379 | 33,314 | 440,721 | 1,888,399 | 0 |
| 2032 | 27,600,920 | 23,686,165 | 116.5% | (3,914,755) | 2,729,431 | 15.08% | 8.40% | 23.48% | 186,380 | 204,935 | 20,283 | 19,379 | 430,977 | 1,921,262 | 0 |
| 2033 | 28,086,220 | 23,492,795 | 119.6% | (4,593,425) | 2,788,219 | 14.97% | 8.55% | 23.52% | 188,295 | 207,822 | 21,279 | 16,729 | 434,125 | 1,962,656 | 0 |
| 2034 | 28,568,243 | 23,233,706 | 123.0% | (5,334,537) | 2,849,691 | 14.89% | 8.69% | 23.58% | 190,443 | 211,269 | 22,607 | 14,248 | 438,567 | 1,997,145 | 0 |
| 2035 | 29,055,213 | 22,912,291 | 126.8% | (6,142,922) | 2,913,742 | 14.83% | 8.80% | 23.63% | 193,114 | 215,146 | 23,847 | 11,946 | 444,053 | 2,027,268 | 0 |
| 2036 | 29,553,053 | 22,529,016 | 131.2% | (7,024,037) | 2,980,267 | 14.79% | 8.91% | 23.70% | 195,878 | 219,465 | 25,439 | 9,835 | 450,617 | 2,052,266 | 0 |
| 2037 | 30,068,967 | 22,085,105 | 136.2% | (7,983,862) | 3,048,570 | 14.75% | 9.00% | 23.75% | 198,989 | 223,888 | 26,787 | 8,231 | 457,895 | 2,073,075 | 0 |
| 2038 | 30,609,336 | 21,582,882 | 141.8% | (9,026,454) | 3,119,617 | 0.34% | 9.08% | 9.42% | 5,326 | 5,281 | 0 | 6,551 | 17,158 | 2,084,652 | 0 |
| 2039 | 30,720,192 | 21,027,265 | 146.1% | (9,692,927) | 3,192,990 | 0.26% | 9.14% | 9.40% | 4,168 | 4,134 | 0 | 5,109 | 13,411 | 2,090,235 | 0 |
| 2040 | 30,829,839 | 20,421,271 | 151.0% | (10,408,568) | 3,269,593 | 0.19% | 9.19% | 9.38% | 3,119 | 3,093 | 0 | 4,250 | 10,462 | 2,085,624 | 0 |
| 2041 | 30,949,547 | 19,772,369 | 156.5% | (11,177,178) | 3,349,104 | 0.15% | 9.23% | 9.38% | 2,523 | 2,502 | 0 | 3,349 | 8,374 | 2,073,472 | 0 |
| 2042 | 31,088,736 | 19,085,708 | 162.9% | (12,003,028) | 3,431,102 | 0.12% | 9.26% | 9.38% | 2,067 | 2,050 | 0 | 2,402 | 6,519 | 2,052,889 | 0 |
| 2043 | 31,257,806 | 18,370,562 | 170.2% | (12,887,244) | 3,530,182 | 0.08% | 9.28% | 9.36% | 1,419 | 1,407 | 0 | 2,118 | 4,944 | 2,025,256 | 0 |
| 2044 | 31,466,545 | 17,627,087 | 178.5% | (13,839,458) | 3,630,726 | 0.06% | 9.30% | 9.36% | 1,094 | 1,085 | 0 | 1,452 | 3,631 | 1,985,697 | 0 |
| 2045 | 31,730,499 | 16,868,565 | 188.1% | (14,861,934) | 3,732,491 | 0.05% | 9.32% | 9.37% | 937 | 930 | 0 | 1,120 | 2,987 | 1,940,818 | 0 |
| 2046 | 32,059,944 | 16,099,675 | 199.1% | (15,960,269) | 3,835,282 | 0.03% | 9.33% | 9.36% | 578 | 573 | 0 | 767 | 1,918 | 1,889,001 | 0 |
| 2047 | 32,466,459 | 15,327,056 | 211.8% | (17,139,403) | 3,939,244 | 0.02% | 9.34% | 9.36% | 396 | 392 | 0 | 788 | 1,576 | 1,830,189 | 0 |
| 2048 | 32,963,730 | 14,557,874 | 226.4% | (18,405,856) | 4,044,148 | 0.02% | 9.34% | 9.36% | 406 | 402 | 0 | 404 | 1,212 | 1,769,122 | 0 |
| 2049 | 33,560,765 | 13,794,868 | 243.3% | (19,765,897) | 4,149,573 | 0.01% | 9.35% | 9.36% | 208 | 207 | 0 | 415 | 830 | 1,704,173 | 0 |
| 2050 | 34,268,932 | 13,042,643 | 262.7% | (21,226,289) | 4,256,510 | 0.01% | 9.35% | 9.36% | 214 | 212 | 0 | 426 | 852 | 1,639,176 | 0 |
| 2051 | 35,096,900 | 12,302,143 | 285.3% | (22,794,757) | 4,365,118 | 0.01% | 9.35% | 9.36% | 219 | 217 | 0 | 0 | 436 | 1,571,836 | 0 |
| Total | | | | | | | | | \$ 3,038,459 | \$ 3,464,822 | \$ 455,322 | \$ 584,929 | | | |

Pension unfunded liability layered amortization amounts are reduced to zero when the pension trust is projected to be 100% funded. The healthcare unfunded liability amortization amounts would also be reduced to zero since the healthcare trust is currently more than 100% funded.

Section 3.6B: Table of Projected Actuarial Results (\$'s in 000's) (continued)

| Fiscal Year End | Valuation Amounts on July 1 (Beginning of FY) | | | | | |
|-----------------|---|------------|--------|--------------------------------|----------------|--------------|
| | Funding Ratio | | | Unfunded Liability / (Surplus) | | |
| | Pension | Healthcare | Total | Pension | Healthcare | Total |
| 2022 | 67.9% | 125.2% | 85.5% | \$ 4,953,266 | \$ (1,724,985) | \$ 3,228,281 |
| 2023 | 71.8% | 131.7% | 90.3% | 4,421,186 | (2,220,532) | 2,200,654 |
| 2024 | 75.2% | 137.1% | 94.5% | 3,931,109 | (2,656,117) | 1,274,992 |
| 2025 | 78.5% | 144.0% | 98.9% | 3,447,316 | (3,198,749) | 248,567 |
| 2026 | 82.1% | 151.6% | 103.8% | 2,902,436 | (3,805,870) | (903,434) |
| 2027 | 82.8% | 154.7% | 105.5% | 2,789,764 | (4,086,395) | (1,296,631) |
| 2028 | 83.7% | 158.2% | 107.3% | 2,658,891 | (4,388,291) | (1,729,400) |
| 2029 | 84.6% | 161.9% | 109.2% | 2,508,543 | (4,712,268) | (2,203,725) |
| 2030 | 85.6% | 166.1% | 111.4% | 2,337,173 | (5,060,696) | (2,723,523) |
| 2031 | 86.7% | 170.7% | 113.8% | 2,142,666 | (5,435,210) | (3,292,544) |
| 2032 | 88.0% | 175.8% | 116.5% | 1,922,957 | (5,837,712) | (3,914,755) |
| 2033 | 89.4% | 181.5% | 119.6% | 1,675,797 | (6,269,222) | (4,593,425) |
| 2034 | 91.0% | 187.9% | 123.0% | 1,398,102 | (6,732,639) | (5,334,537) |
| 2035 | 92.9% | 195.1% | 126.8% | 1,087,337 | (7,230,259) | (6,142,922) |
| 2036 | 95.1% | 203.1% | 131.2% | 741,041 | (7,765,078) | (7,024,037) |
| 2037 | 97.6% | 212.2% | 136.2% | 355,919 | (8,339,781) | (7,983,862) |
| 2038 | 100.5% | 222.5% | 141.8% | (70,737) | (8,955,717) | (9,026,454) |
| 2039 | 100.6% | 234.2% | 146.1% | (76,311) | (9,616,616) | (9,692,927) |
| 2040 | 100.6% | 247.4% | 151.0% | (82,435) | (10,326,133) | (10,408,568) |
| 2041 | 100.7% | 262.5% | 156.5% | (89,222) | (11,087,956) | (11,177,178) |
| 2042 | 100.8% | 279.6% | 162.9% | (96,916) | (11,906,112) | (12,003,028) |
| 2043 | 100.9% | 299.1% | 170.2% | (105,214) | (12,782,030) | (12,887,244) |
| 2044 | 101.0% | 321.5% | 178.5% | (114,177) | (13,725,281) | (13,839,458) |
| 2045 | 101.1% | 347.0% | 188.1% | (123,971) | (14,737,963) | (14,861,934) |
| 2046 | 101.3% | 376.0% | 199.1% | (134,830) | (15,825,439) | (15,960,269) |
| 2047 | 101.5% | 409.0% | 211.8% | (146,270) | (16,993,133) | (17,139,403) |
| 2048 | 101.7% | 446.5% | 226.4% | (158,582) | (18,247,274) | (18,405,856) |
| 2049 | 102.0% | 489.1% | 243.3% | (172,127) | (19,593,770) | (19,765,897) |
| 2050 | 102.3% | 537.5% | 262.7% | (186,492) | (21,039,797) | (21,226,289) |
| 2051 | 102.6% | 592.8% | 285.3% | (202,089) | (22,592,668) | (22,794,757) |

Pension unfunded liability layered amortization amounts are reduced to zero when the pension trust is projected to be 100% funded. The healthcare unfunded liability amortization amounts would also be reduced to zero since the healthcare trust is currently more than 100% funded.

Section 3.7: Projected Pension Benefit Recipients and Amounts (\$'s in 000's)

| Fiscal Year End | Pension | | Fiscal Year End | Pension | |
|-----------------|------------------|-----------------|-----------------|------------------|-----------------|
| | Recipient Counts | Benefit Amounts | | Recipient Counts | Benefit Amounts |
| 2022 | 37,717 | \$ 974,479 | 2064 | 4,967 | \$ 433,043 |
| 2023 | 39,219 | 1,023,259 | 2065 | 4,396 | 395,909 |
| 2024 | 40,483 | 1,070,386 | 2066 | 3,878 | 360,533 |
| 2025 | 41,478 | 1,114,086 | 2067 | 3,411 | 326,935 |
| 2026 | 42,213 | 1,154,914 | 2068 | 2,989 | 295,126 |
| 2027 | 42,715 | 1,194,307 | 2069 | 2,609 | 265,117 |
| 2028 | 42,995 | 1,232,455 | 2070 | 2,268 | 236,912 |
| 2029 | 43,078 | 1,267,441 | 2071 | 1,962 | 210,515 |
| 2030 | 43,000 | 1,300,547 | 2072 | 1,690 | 185,925 |
| 2031 | 42,776 | 1,330,695 | 2073 | 1,447 | 163,136 |
| 2032 | 42,387 | 1,345,678 | 2074 | 1,232 | 142,139 |
| 2033 | 41,884 | 1,368,593 | 2075 | 1,042 | 122,918 |
| 2034 | 41,242 | 1,387,229 | 2076 | 876 | 105,446 |
| 2035 | 40,483 | 1,401,876 | 2077 | 731 | 89,683 |
| 2036 | 39,591 | 1,413,159 | 2078 | 604 | 75,579 |
| 2037 | 38,627 | 1,420,047 | 2079 | 496 | 63,070 |
| 2038 | 37,549 | 1,421,411 | 2080 | 403 | 52,079 |
| 2039 | 36,347 | 1,417,753 | 2081 | 325 | 42,522 |
| 2040 | 35,040 | 1,407,945 | 2082 | 259 | 34,303 |
| 2041 | 33,642 | 1,393,880 | 2083 | 204 | 27,322 |
| 2042 | 32,180 | 1,374,647 | 2084 | 159 | 21,469 |
| 2043 | 30,677 | 1,350,546 | 2085 | 122 | 16,633 |
| 2044 | 29,118 | 1,322,273 | 2086 | 93 | 12,693 |
| 2045 | 27,551 | 1,289,338 | 2087 | 70 | 9,539 |
| 2046 | 25,964 | 1,252,998 | 2088 | 52 | 7,052 |
| 2047 | 24,386 | 1,213,386 | 2089 | 38 | 5,130 |
| 2048 | 22,812 | 1,171,109 | 2090 | 28 | 3,669 |
| 2049 | 21,266 | 1,126,517 | 2091 | 20 | 2,583 |
| 2050 | 19,762 | 1,080,001 | 2092 | 14 | 1,789 |
| 2051 | 18,303 | 1,032,106 | 2093 | 11 | 1,222 |
| 2052 | 16,890 | 983,276 | 2094 | 7 | 826 |
| 2053 | 15,533 | 933,864 | 2095 | 5 | 553 |
| 2054 | 14,234 | 884,229 | 2096 | 4 | 370 |
| 2055 | 12,998 | 834,705 | 2097 | 3 | 249 |
| 2056 | 11,828 | 785,605 | 2098 | 2 | 170 |
| 2057 | 10,728 | 737,196 | 2099 | 2 | 118 |
| 2058 | 9,699 | 689,711 | 2100 | 1 | 85 |
| 2059 | 8,741 | 643,344 | 2101 | 1 | 62 |
| 2060 | 7,853 | 598,258 | 2102 | 1 | 48 |
| 2061 | 7,035 | 554,586 | 2103 | 1 | 38 |
| 2062 | 6,283 | 512,440 | 2104 | 0 | 0 |
| 2063 | 5,594 | 471,903 | 2105 | 0 | 0 |

Counts include retirees, disabilitants, and beneficiaries.

Section 4: Member Data

Section 4.1: Summary of Members Included

| As of June 30 | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|---------------|---------------|---------------|---------------|--------------------|
| Active Members | | | | | |
| 1. Number | 14,719 | 13,434 | 12,152 | 11,033 | 9,888 ¹ |
| 2. Average Age | 52.10 | 52.52 | 52.84 | 53.21 | 53.51 |
| 3. Average Credited Service | 16.57 | 17.21 | 17.80 | 18.38 | 18.96 |
| 4. Average Entry Age | 35.53 | 35.30 | 35.04 | 34.83 | 34.55 |
| 5. Average Annual Earnings | \$ 76,902 | \$ 77,813 | \$ 82,192 | \$ 83,757 | \$ 86,316 |
| 6. Number Vested | 14,314 | 13,103 | 11,868 | 10,791 | 9,675 |
| 7. Percent Who Are Vested | 97.2% | 97.5% | 97.7% | 97.8% | 97.8% |
| Retirees, Disabilitants, and Beneficiaries | | | | | |
| 1. Number | 34,347 | 35,454 | 36,310 | 37,106 | 37,717 |
| 2. Average Age | 69.42 | 69.85 | 70.29 | 70.77 | 71.17 |
| 3. Average Years Since Retirement | 11.71 | 11.87 | 12.14 | 12.45 | 12.66 |
| 4. Average Monthly Pension Benefit | | | | | |
| a. Base | \$ 1,574 | \$ 1,616 | \$ 1,660 | \$ 1,704 | \$ 1,752 |
| b. COLA ² | 93 | 94 | 92 | 93 | 94 |
| c. PRPA ² | 230 | 222 | 241 | 244 | 230 |
| d. Adjustment | 1 | 1 | 1 | 0 | 0 |
| e. Total | \$ 1,898 | \$ 1,933 | \$ 1,994 | \$ 2,041 | \$ 2,076 |
| Vested Terminations (vested at termination, not refunded contributions, or commenced benefit) | | | | | |
| 1. Number | 5,962 | 5,660 | 5,499 | 5,327 | 5,135 |
| 2. Average Age | 52.45 | 52.56 | 53.06 | 53.52 | 53.92 |
| 3. Average Monthly Pension Benefit | \$ 1,080 | \$ 1,087 | \$ 1,123 | \$ 1,158 | \$ 1,205 |
| Non-Vested Terminations (not vested at termination, not refunded contributions) | | | | | |
| 1. Number | 11,506 | 11,192 | 10,921 | 10,642 | 10,432 |
| 2. Average Account Balance | \$ 6,462 | \$ 6,558 | \$ 6,923 | \$ 7,060 | \$ 7,325 |
| Total Number of Members | 66,534 | 65,740 | 64,882 | 64,108 | 63,172 |

¹ Includes 4,643 male active members and 5,245 female active members.

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

Summary of Members Included

| As of June 30, 2021 | DB | | | | DCR Tier 4 | Grand Total |
|-----------------------------|-----------|------------|------------|------------|--------------|--------------|
| | Tier 1 | Tier 2 | Tier 3 | Total | | |
| Active Members | | | | | | |
| 1. Number | 622 | 2,219 | 7,047 | 9,888 | 23,933 | 33,821 |
| 2. Average Age | 63.38 | 56.77 | 51.61 | 53.51 | 41.26 | 44.84 |
| 3. Average Credited Service | 23.72 | 23.30 | 17.17 | 18.96 | 4.93 | 9.03 |
| 4. Average Entry Age | 39.66 | 33.47 | 34.44 | 34.55 | 36.33 | 35.81 |
| 5. Annual Earnings | | | | | | |
| a. Total (000's) | \$ 49,598 | \$ 198,403 | \$ 605,488 | \$ 853,489 | \$ 1,530,905 | \$ 2,384,394 |
| b. Average | \$ 79,740 | \$ 89,411 | \$ 85,921 | \$ 86,316 | \$ 63,966 | \$ 70,500 |

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

| As of June 30, 2021 | Tier 1 | Tier 2 | Tier 3 | Total |
|---|----------|----------|----------|----------|
| Retirees, Disabilitants, and Beneficiaries | | | | |
| 1. Number | 23,077 | 9,340 | 5,300 | 37,717 |
| 2. Average Age | 72.84 | 69.13 | 67.42 | 71.17 |
| 3. Average Years Since Retirement | 15.90 | 8.64 | 5.59 | 12.66 |
| 4. Average Monthly Pension Benefit | | | | |
| a. Base | \$ 1,766 | \$ 1,913 | \$ 1,405 | \$ 1,752 |
| b. COLA | 119 | 59 | 46 | 94 |
| c. PRPA | 325 | 100 | 43 | 230 |
| d. Adjustment | 0 | 1 | 1 | 0 |
| e. Total | \$ 2,210 | \$ 2,073 | \$ 1,495 | \$ 2,076 |

Summary of Members Included

| As of June 30, 2021 | Inactive Members | | | | | Total Inactive Members |
|-------------------------------------|------------------|----------|-----------------|-------------------------------|----------|------------------------|
| | Active Members | Retirees | Covered Spouses | Covered Children / Dependents | Deferred | |
| Retiree Medical Participants | | | | | | |
| 1. Retiree Coverage Only | 9,817 | 19,421 | 0 | 0 | 2,153 | 21,574 |
| 2. Retiree + Spouse | 0 | 12,647 | 12,647 | 0 | 3,281 | 28,575 |
| 3. Retiree + Children / Dependents | 0 | 413 | 0 | 412 | 0 | 825 |
| 4. Family | 0 | 773 | 773 | 1,112 | 0 | 2,658 |
| 5. Total | 9,817 | 33,254 | 13,420 | 1,524 | 5,434 | 53,632 |

| As of June 30, 2021 | Retirees | Covered Spouses | Covered Children / Dependents | Deferred | Total Inactive Members |
|-------------------------------------|----------|-----------------|-------------------------------|----------|------------------------|
| Retiree Medical Participants | | | | | |
| 1. Pre-Medicare | 7,134 | 4,641 | 1,524 | 5,260 | 18,559 |
| 2. Medicare Part A & B | 25,889 | 8,730 | 0 | 174 | 34,793 |
| 3. Medicare Part B Only | 231 | 49 | 0 | 0 | 280 |
| 4. Total | 33,254 | 13,420 | 1,524 | 5,434 | 53,632 |

| As of June 30, 2021 | Retirees |
|---|----------|
| Summary of Retiree Medical Data Received | |
| 1. Retiree records on pension data | 37,717 |
| 2. Remove duplicates on pension data | (1,163) |
| 3. Valued in a different retiree healthcare plan ¹ | (1,146) |
| 4. Records without medical coverage | (2,305) |
| 5. Medical only retirees | 151 |
| 6. Total | 33,254 |

¹ Each member's retiree medical benefits are valued in the plan indicated in the data from Aetna

Summary of Members Included

Active Members – DB Only

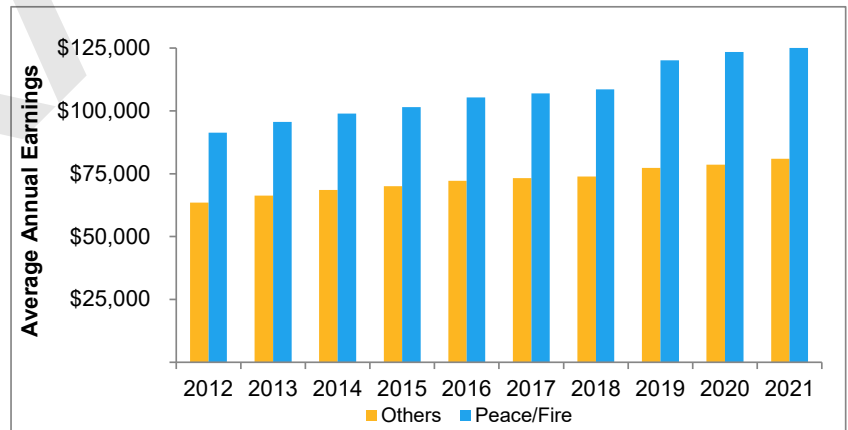
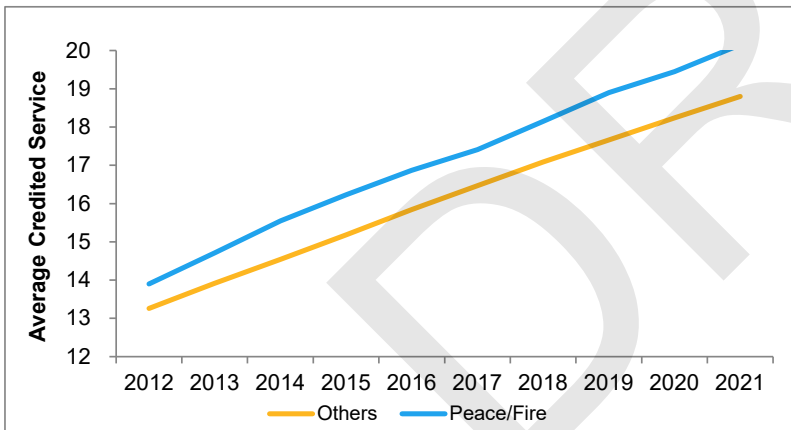
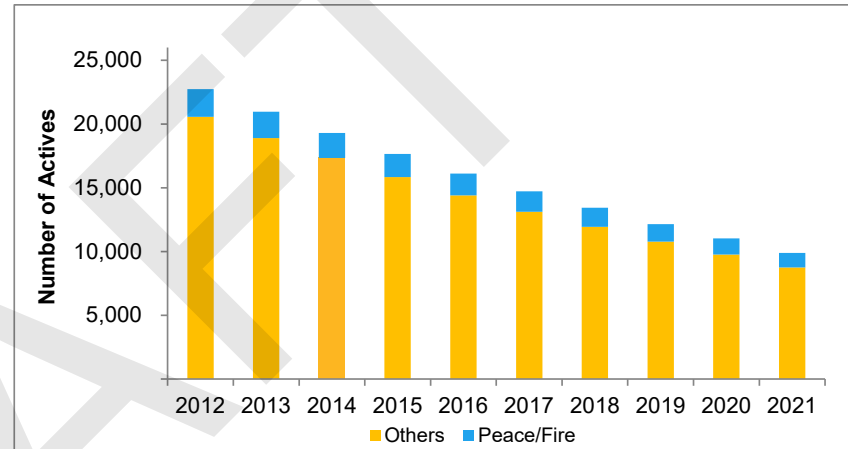
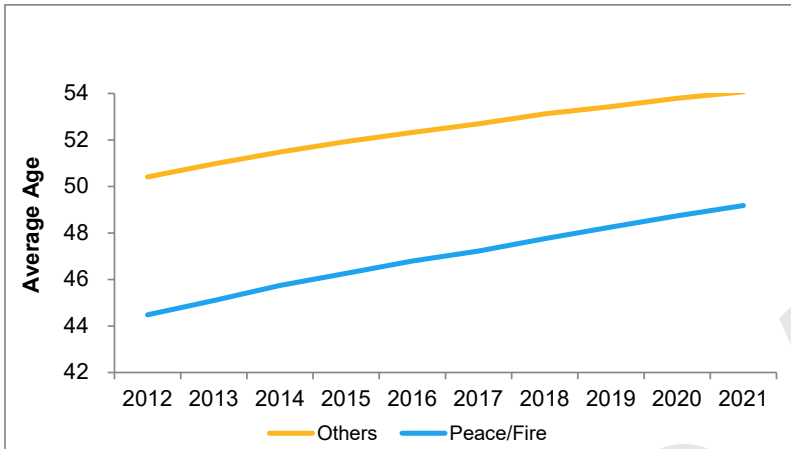
| As of June 30 | 2017 | 2018 | 2019 | 2020 | 2021 |
|------------------------------------|------------|------------|------------|------------|--------------------|
| Peace Officer / Firefighter | | | | | |
| 1. Number | 1,606 | 1,507 | 1,382 | 1,266 | 1,137 ¹ |
| 2. Average Age | 47.22 | 47.75 | 48.25 | 48.74 | 49.18 |
| 3. Average Credited Service | 17.41 | 18.15 | 18.90 | 19.45 | 20.15 |
| 4. Average Entry Age | 29.81 | 29.60 | 29.35 | 29.29 | 29.03 |
| 5. Average Annual Earnings | \$ 106,987 | \$ 108,580 | \$ 120,089 | \$ 123,436 | \$ 127,327 |
| 6. Number Vested | 1,599 | 1,500 | 1,374 | 1,260 | 1,134 |
| 7. Percent Who Are Vested | 99.6% | 99.5% | 99.4% | 99.5% | 99.7% |
| Others | | | | | |
| 1. Number | 13,113 | 11,927 | 10,770 | 9,767 | 8,751 ² |
| 2. Average Age | 52.70 | 53.12 | 53.43 | 53.79 | 54.07 |
| 3. Average Credited Service | 16.47 | 17.09 | 17.66 | 18.24 | 18.80 |
| 4. Average Entry Age | 36.23 | 36.03 | 35.77 | 35.55 | 35.27 |
| 5. Average Annual Earnings | \$ 73,218 | \$ 73,926 | \$ 77,329 | \$ 78,613 | \$ 80,987 |
| 6. Number Vested | 12,715 | 11,603 | 10,494 | 9,531 | 8,541 |
| 7. Percent Who Are Vested | 97.0% | 97.3% | 97.4% | 97.6% | 97.6% |
| Total | | | | | |
| 1. Number | 14,719 | 13,434 | 12,152 | 11,033 | 9,888 |
| 2. Average Age | 52.10 | 52.52 | 52.84 | 53.21 | 53.51 |
| 3. Average Credited Service | 16.57 | 17.21 | 17.80 | 18.38 | 18.96 |
| 4. Average Entry Age | 35.53 | 35.30 | 35.04 | 34.83 | 34.55 |
| 5. Average Annual Earnings | \$ 76,902 | \$ 77,813 | \$ 82,192 | \$ 83,757 | \$ 86,316 |
| 6. Number Vested | 14,314 | 13,103 | 11,868 | 10,791 | 9,675 |
| 7. Percent Who Are Vested | 97.2% | 97.5% | 97.7% | 97.8% | 97.8% |

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

¹ Includes 975 male active members and 162 female active members.

² Includes 3,668 male active members and 5,083 female active members.

Summary of Members Included - Active Members at June 30



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

Section 4.2: Age and Service Distribution of Active Members

Peace Officer / Firefighter

Annual Earnings by Age

| Age | Number | Total Annual Earnings | Average Annual Earnings |
|---------|--------|-----------------------|-------------------------|
| 0 - 19 | 0 | \$ 0 | \$ 0 |
| 20 - 24 | 0 | 0 | 0 |
| 25 - 29 | 0 | 0 | 0 |
| 30 - 34 | 1 | 149,735 | 149,735 |
| 35 - 39 | 82 | 10,000,382 | 121,956 |
| 40 - 44 | 211 | 27,523,104 | 130,441 |
| 45 - 49 | 342 | 44,289,542 | 129,502 |
| 50 - 54 | 298 | 38,709,607 | 129,898 |
| 55 - 59 | 154 | 18,406,191 | 119,521 |
| 60 - 64 | 39 | 4,580,412 | 117,446 |
| 65 - 69 | 9 | 1,003,897 | 111,544 |
| 70 - 74 | 0 | 0 | 0 |
| 75+ | 1 | 108,235 | 108,235 |

Total 1,137 \$ 144,771,105 \$ 127,327

Annual Earnings by Credited Service

| Years of Service | Number | Total Annual Earnings | Average Annual Earnings |
|------------------|----------|-----------------------|-------------------------|
| 0 | 0 | \$ 0 | \$ 0 |
| 1 | 0 | 0 | 0 |
| 2 | 2 | 112,128 | 56,064 |
| 3 | 0 | 0 | 0 |
| 4 | 1 | 72,120 | 72,120 |
| 0 - 4 | 3 | \$ 184,248 | \$ 61,416 |
| 5 - 9 | 14 | 1,250,847 | 89,346 |
| 10 - 14 | 64 | 6,186,036 | 96,657 |
| 15 - 19 | 520 | 64,179,398 | 123,422 |
| 20 - 24 | 372 | 50,328,887 | 135,293 |
| 25 - 29 | 137 | 19,319,401 | 141,018 |
| 30 - 34 | 24 | 2,885,555 | 120,231 |
| 35 - 39 | 1 | 201,624 | 201,624 |
| 40+ | 2 | 235,109 | 117,555 |

Total 1,137 \$ 144,771,105 \$ 127,327

Years of Credited Service by Age

| Age | Years of Service | | | | | | | | | |
|--------------|------------------|-----------|-----------|------------|------------|------------|-----------|----------|----------|--------------|
| | 0 - 4 | 5 - 9 | 10 - 14 | 15 - 19 | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40+ | Total |
| 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 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 35 - 39 | 0 | 6 | 10 | 65 | 1 | 0 | 0 | 0 | 0 | 82 |
| 40 - 44 | 1 | 3 | 11 | 143 | 52 | 1 | 0 | 0 | 0 | 211 |
| 45 - 49 | 1 | 1 | 12 | 145 | 143 | 40 | 0 | 0 | 0 | 342 |
| 50 - 54 | 0 | 2 | 15 | 87 | 124 | 64 | 6 | 0 | 0 | 298 |
| 55 - 59 | 1 | 2 | 11 | 64 | 44 | 23 | 9 | 0 | 0 | 154 |
| 60 - 64 | 0 | 0 | 4 | 12 | 7 | 8 | 7 | 0 | 1 | 39 |
| 65 - 69 | 0 | 0 | 1 | 3 | 1 | 1 | 2 | 1 | 0 | 9 |
| 70 - 74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 75+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Total | 3 | 14 | 64 | 520 | 372 | 137 | 24 | 1 | 2 | 1,137 |

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

Age and Service Distribution of Active Members

Others

Annual Earnings by Age

| Age | Number | Total Annual Earnings | Average Annual Earnings |
|---------|--------|-----------------------|-------------------------|
| 0 - 19 | 0 | \$ 0 | \$ 0 |
| 20 - 24 | 0 | 0 | 0 |
| 25 - 29 | 0 | 0 | 0 |
| 30 - 34 | 21 | 1,707,881 | 81,328 |
| 35 - 39 | 381 | 29,552,174 | 77,565 |
| 40 - 44 | 946 | 78,062,108 | 82,518 |
| 45 - 49 | 1,375 | 116,242,301 | 84,540 |
| 50 - 54 | 1,770 | 149,031,703 | 84,199 |
| 55 - 59 | 2,222 | 178,695,225 | 80,421 |
| 60 - 64 | 1,345 | 103,071,893 | 76,633 |
| 65 - 69 | 513 | 39,229,659 | 76,471 |
| 70 - 74 | 143 | 10,647,337 | 74,457 |
| 75+ | 35 | 2,477,974 | 70,799 |

Total 8,751 \$ 708,718,255 \$ 80,987

Annual Earnings by Credited Service

| Years of Service | Number | Total Annual Earnings | Average Annual Earnings |
|------------------|------------|-----------------------|-------------------------|
| 0 | 14 | \$ 610,926 | \$ 43,638 |
| 1 | 21 | 950,377 | 45,256 |
| 2 | 51 | 2,731,908 | 53,567 |
| 3 | 51 | 2,643,493 | 51,833 |
| 4 | 55 | 3,225,895 | 58,653 |
| 0 - 4 | 192 | \$ 10,162,599 | \$ 52,930 |
| 5 - 9 | 478 | 29,009,387 | 60,689 |
| 10 - 14 | 1,287 | 86,078,633 | 66,883 |
| 15 - 19 | 3,388 | 273,611,478 | 80,759 |
| 20 - 24 | 2,024 | 179,443,910 | 88,658 |
| 25 - 29 | 982 | 92,070,037 | 93,758 |
| 30 - 34 | 310 | 29,705,129 | 95,823 |
| 35 - 39 | 69 | 6,757,881 | 97,940 |
| 40+ | 21 | 1,879,201 | 89,486 |

Total 8,751 \$ 708,718,255 \$ 80,987

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 | 0 |
| 20 - 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 - 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 - 34 | 1 | 6 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 35 - 39 | 26 | 45 | 114 | 193 | 3 | 0 | 0 | 0 | 0 | 0 | 381 |
| 40 - 44 | 34 | 74 | 191 | 532 | 114 | 1 | 0 | 0 | 0 | 0 | 946 |
| 45 - 49 | 33 | 86 | 201 | 611 | 377 | 66 | 1 | 0 | 0 | 0 | 1,375 |
| 50 - 54 | 36 | 96 | 227 | 642 | 500 | 225 | 44 | 0 | 0 | 0 | 1,770 |
| 55 - 59 | 28 | 83 | 293 | 722 | 565 | 401 | 118 | 12 | 0 | 0 | 2,222 |
| 60 - 64 | 21 | 55 | 175 | 467 | 323 | 186 | 89 | 27 | 2 | 0 | 1,345 |
| 65 - 69 | 11 | 21 | 55 | 167 | 111 | 83 | 44 | 15 | 6 | 0 | 513 |
| 70 - 74 | 2 | 11 | 16 | 38 | 23 | 18 | 13 | 11 | 11 | 0 | 143 |
| 75+ | 0 | 1 | 4 | 13 | 8 | 2 | 1 | 4 | 2 | 0 | 35 |
| Total | 192 | 478 | 1,287 | 3,388 | 2,024 | 982 | 310 | 69 | 21 | 0 | 8,751 |

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

Section 4.3: Member Data Reconciliation

Pension

| | Inactive Members | | | | | | Total |
|----------------------------|------------------|---------------|-------------------|------------------|------------------|----------------|---------------|
| | Active Members | Due a Refund | Deferred Benefits | Retired Members | Disabled Members | Bene-ficiaries | |
| As of June 30, 2020 | 11,033 | 10,642 | 5,327 | 32,536 * | 149 | 4,436 | 64,123 |
| Vested Terminations | (366) | (8) | 376 | 0 | (2) | 0 | 0 |
| Non-Vested Terminations | (37) | 37 | 0 | 0 | 0 | 0 | 0 |
| Refund of Contributions | (10) | (152) | (31) | 0 | 0 | (6) | (199) |
| Disability Retirements | (12) | 0 | (6) | 0 | 18 | 0 | 0 |
| Age Retirements | (873) | (17) | (406) | 1,316 | (20) | 0 | 0 |
| Deaths With Beneficiary | (15) | 1 | (10) | (357) | (3) | 384 | 0 |
| Deaths Without Beneficiary | (13) | (26) | (7) | (469) | (3) | (266) | (784) |
| Expired Benefits | (2) | 0 | 0 | 0 | 0 | (3) | (5) |
| Data Corrections | 0 | (7) | (5) | 1 | 0 | (18) | (29) |
| Converted To DCR Plan | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Transfers In/Out | 2 | 0 | (2) | (3) | 0 | (1) | (4) |
| Rehires | 177 | (62) | (102) | (12) | 0 | 0 | 1 |
| Pick Ups*** | 4 | 24 | 1 | 3 | 0 | 52 | 84 |
| Net Change | (1,145) | (210) | (192) | 479 | (10) | 142 | (936) |
| As of June 30, 2021 | 9,888 | 10,432 | 5,135 | 33,015 ** | 139 | 4,578 | 63,187 |

* Includes 15 medical only retirees

** Includes 15 medical only retirees

*** Pickup beneficiaries are primarily new DROs.

Member Data Reconciliation

Healthcare

| | Active Members | Inactive Members | | | | Total Inactive Members |
|----------------------------------|----------------|------------------|-----------------|-------------------------------|--------------|------------------------|
| | | Retirees | Covered Spouses | Covered Children / Dependents | Deferred | |
| As of June 30, 2020 | 10,908 | 32,857 | 13,323 | 1,493 | 5,591 | 53,264 |
| Vested Terminations | (340) | 0 | 0 | 0 | 340 | 340 |
| Non-Vested Terminations | (36) | 0 | 0 | 0 | 0 | 0 |
| Refund of Contributions | (10) | 0 | 0 | 0 | (27) | (27) |
| Disability Retirements | (12) | 12 | 8 | 1 | 0 | 21 |
| Age Retirements | (757) | 757 | 386 | 118 | 0 | 1,261 |
| Deferred Retirements | 0 | 286 | 143 | 32 | (286) | 175 |
| Retired without Medical Coverage | (86) | 0 | 0 | 0 | 86 | 86 |
| Deceased | (25) | (913) | (91) | (13) | (27) | (1,044) |
| New Beneficiaries | 0 | 153 | (153) | 0 | 0 | 0 |
| Added Retiree Medical Coverage | 0 | 113 | 46 | 5 | (113) | 51 |
| Added Dependent Coverage | 0 | 0 | 110 | 83 | 0 | 193 |
| Dropped Retiree Medical Coverage | 0 | (12) | (4) | (4) | 12 | (8) |
| Dropped Dependent Coverage | 0 | 0 | (345) | (190) | 0 | (535) |
| Rehires | 177 | (12) | (3) | (2) | (142) | (159) |
| Transfers In/Out | (2) | 13 | 0 | 1 | 0 | 14 |
| Net Change | (1,091) | 397 | 97 | 31 | (157) | 368 |
| As of June 30, 2021 | 9,817 | 33,254 | 13,420 | 1,524 | 5,434 | 53,632 |

Section 4.4: Schedule of Active Member Data

Peace Officer / Firefighter

| Valuation Date | Number | Annual Earnings (000's) | Annual Average Earnings | Percent Increase in Average Earnings | Number of Participating Employers |
|----------------|--------|-------------------------|-------------------------|--------------------------------------|-----------------------------------|
| June 30, 2021 | 1,137 | \$ 144,771 | \$ 127,327 | 3.2% | 151 |
| June 30, 2020 | 1,266 | 156,271 | 123,436 | 2.8% | 153 |
| June 30, 2019 | 1,382 | 165,963 | 120,089 | 10.6% | 155 |
| June 30, 2018 | 1,507 | 163,630 | 108,580 | 1.5% | 155 |
| June 30, 2017 | 1,606 | 171,821 | 106,987 | 1.6% | 155 |
| June 30, 2016 | 1,704 | 179,461 | 105,317 | 3.8% | 155 |
| June 30, 2015 | 1,827 | 185,350 | 101,450 | 2.5% | 159 |
| June 30, 2014 | 1,958 | 193,737 | 98,946 | 3.4% | 159 |
| June 30, 2013 | 2,065 | 197,534 | 95,658 | 4.8% | 159 |
| June 30, 2012 | 2,164 | 197,544 | 91,287 | 4.1% | 160 |

Others

| Valuation Date | Number | Annual Earnings (000's) | Annual Average Earnings | Percent Increase in Average Earnings | Number of Participating Employers |
|----------------|--------|-------------------------|-------------------------|--------------------------------------|-----------------------------------|
| June 30, 2021 | 8,751 | \$ 708,718 | \$ 80,987 | 3.0% | 151 |
| June 30, 2020 | 9,767 | 767,817 | 78,613 | 1.7% | 153 |
| June 30, 2019 | 10,770 | 832,832 | 77,329 | 4.6% | 155 |
| June 30, 2018 | 11,927 | 881,716 | 73,926 | 1.0% | 155 |
| June 30, 2017 | 13,113 | 960,106 | 73,218 | 1.4% | 155 |
| June 30, 2016 | 14,401 | 1,039,960 | 72,214 | 3.2% | 155 |
| June 30, 2015 | 15,833 | 1,108,218 | 69,994 | 2.1% | 159 |
| June 30, 2014 | 17,339 | 1,188,918 | 68,569 | 3.4% | 159 |
| June 30, 2013 | 18,890 | 1,252,786 | 66,320 | 4.5% | 159 |
| June 30, 2012 | 20,566 | 1,305,337 | 63,471 | 4.6% | 160 |

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

Section 4.5: Active Member Payroll Reconciliation

| Payroll Field | Payroll Data (000's) |
|--|----------------------|
| a) DRB actual reported salaries FY21 in employer list | \$ 2,242,794 |
| b) DRB actual reported salaries FY21 in valuation data | 2,186,265 |
| c) Annualized valuation data | 2,384,394 |
| d) Valuation payroll as of June 30, 2021 | 2,480,990 |
| e) Rate payroll for FY22 | 2,406,757 |
| f) Rate payroll for FY24 | 2,437,619 |

- a) Actual reported salaries from DRB employer listing showing all payroll paid during FY21, including those who were not active as of June 30, 2021
- b) Payroll from valuation data for people who are in active status as of June 30, 2021
- c) Payroll from (b) annualized for both new entrants and part-timers
- d) Payroll from (c) with one year of salary scale applied to estimate salaries payable for the upcoming year
- e) Payroll from (d) with the part-timer annualization removed
- f) Payroll from (e) with two years of assumed decrements and salary scale, and 0% population growth

Section 4.6: Summary of New Pension Benefit Recipients

Peace Officer / Firefighter

| During the Year Ending June 30 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|----------|----------|----------|----------|----------|
| Service | | | | | |
| 1. Number | 119 | 105 | 109 | 118 | 129 |
| 2. Average Age at Commencement | 56.65 | 55.70 | 55.61 | 55.52 | 55.30 |
| 3. Average Monthly Pension Benefit | \$ 4,166 | \$ 4,519 | \$ 4,412 | \$ 5,199 | \$ 5,248 |
| Survivor (including surviving spouse and DROs) | | | | | |
| 1. Number | 42 | 44 | 36 | 43 | 58 |
| 2. Average Age at Commencement | 62.88 | 63.76 | 68.19 | 67.92 | 64.58 |
| 3. Average Monthly Pension Benefit | \$ 1,797 | \$ 2,187 | \$ 1,842 | \$ 1,785 | \$ 1,971 |
| Disability | | | | | |
| 1. Number | 4 | 4 | 4 | 3 | 4 |
| 2. Average Age at Commencement | 49.33 | 46.56 | 50.44 | 51.72 | 52.10 |
| 3. Average Monthly Pension Benefit | \$ 2,427 | \$ 3,230 | \$ 3,071 | \$ 5,276 | \$ 2,890 |
| Total | | | | | |
| 1. Number | 165 | 153 | 149 | 164 | 191 |
| 2. Average Age at Commencement | 58.06 | 57.78 | 58.51 | 58.70 | 58.05 |
| 3. Average Monthly Pension Benefit | \$ 3,521 | \$ 3,814 | \$ 3,755 | \$ 4,305 | \$ 4,204 |

Summary of New Pension Benefit Recipients

Peace Officer / Firefighter

| | Years of Credited Service | | | | | | |
|------------------------------|---------------------------|----------|----------|----------|----------|----------|----------|
| | 0 - 4 | 5 - 9 | 10 - 14 | 15 - 19 | 20 - 24 | 25 - 29 | 30+ |
| Period 7/1/2020 – 6/30/2021: | | | | | | | |
| Average Monthly Pension | \$ 2,612 | \$ 767 | \$ 1,619 | \$ 3,711 | \$ 5,196 | \$ 6,960 | \$ 7,970 |
| Number of Recipients | 2 | 5 | 9 | 26 | 42 | 40 | 9 |
| Period 7/1/2019 – 6/30/2020: | | | | | | | |
| Average Monthly Pension | \$ 0 | \$ 694 | \$ 2,212 | \$ 3,626 | \$ 5,531 | \$ 6,829 | \$ 8,636 |
| Number of Recipients | 0 | 6 | 11 | 23 | 40 | 32 | 9 |
| Period 7/1/2018 – 6/30/2019: | | | | | | | |
| Average Monthly Pension | \$ 0 | \$ 651 | \$ 1,933 | \$ 3,362 | \$ 4,786 | \$ 6,196 | \$ 5,688 |
| Number of Recipients | 0 | 5 | 11 | 25 | 38 | 26 | 6 |
| Period 7/1/2017 – 6/30/2018: | | | | | | | |
| Average Monthly Pension | \$ 0 | \$ 1,063 | \$ 2,133 | \$ 3,747 | \$ 4,847 | \$ 6,024 | \$ 7,717 |
| Number of Recipients | 0 | 4 | 18 | 19 | 35 | 30 | 3 |
| Period 7/1/2016 – 6/30/2017: | | | | | | | |
| Average Monthly Pension | \$ 0 | \$ 686 | \$ 2,075 | \$ 3,234 | \$ 4,462 | \$ 5,151 | \$ 6,376 |
| Number of Recipients | 0 | 8 | 9 | 28 | 41 | 23 | 14 |
| Period 7/1/2015 – 6/30/2016: | | | | | | | |
| Average Monthly Pension | \$ 0 | \$ 958 | \$ 1,742 | \$ 3,347 | \$ 4,622 | \$ 5,778 | \$ 7,221 |
| Number of Recipients | 0 | 6 | 11 | 19 | 30 | 28 | 16 |
| Period 7/1/2014 – 6/30/2015: | | | | | | | |
| Average Monthly Pension | \$ 0 | \$ 1,173 | \$ 1,621 | \$ 3,632 | \$ 4,436 | \$ 5,457 | \$ 6,863 |
| Number of Recipients | 0 | 8 | 9 | 26 | 24 | 25 | 7 |
| Period 7/1/2013 – 6/30/2014: | | | | | | | |
| Average Monthly Pension | \$ 290 | \$ 1,423 | \$ 2,002 | \$ 2,902 | \$ 4,014 | \$ 5,464 | \$ 6,299 |
| Number of Recipients | 1 | 9 | 10 | 14 | 22 | 16 | 7 |
| Period 7/1/2012 – 6/30/2013: | | | | | | | |
| Average Monthly Pension | \$ 0 | \$ 865 | \$ 1,779 | \$ 2,762 | \$ 3,793 | \$ 4,983 | \$ 4,911 |
| Number of Recipients | 0 | 9 | 8 | 19 | 31 | 18 | 4 |
| Period 7/1/2011 – 6/30/2012: | | | | | | | |
| Average Monthly Pension | \$ 0 | \$ 1,159 | \$ 1,161 | \$ 3,142 | \$ 3,504 | \$ 4,673 | \$ 5,079 |
| Number of Recipients | 0 | 13 | 13 | 12 | 20 | 17 | 7 |

"Average Monthly Pension" includes postretirement pension adjustments and cost-of-living increases.

Beneficiaries are not included in the table above.

Summary of New Pension Benefit Recipients

Others

| During the Year Ending June 30 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|----------|----------|----------|----------|----------|
| Service | | | | | |
| 1. Number | 1,393 | 1,419 | 1,288 | 1,166 | 1,171 |
| 2. Average Age at Commencement | 61.40 | 62.19 | 61.38 | 61.70 | 62.03 |
| 3. Average Monthly Pension Benefit | \$ 2,404 | \$ 2,477 | \$ 2,540 | \$ 2,701 | \$ 2,693 |
| Survivor (including surviving spouse and DROs) | | | | | |
| 1. Number | 292 | 261 | 238 | 297 | 391 |
| 2. Average Age at Commencement | 67.12 | 70.38 | 69.25 | 72.09 | 72.34 |
| 3. Average Monthly Pension Benefit | \$ 1,150 | \$ 1,120 | \$ 1,249 | \$ 1,204 | \$ 1,265 |
| Disability | | | | | |
| 1. Number | 14 | 28 | 17 | 9 | 14 |
| 2. Average Age at Commencement | 52.43 | 53.80 | 52.95 | 54.21 | 53.39 |
| 3. Average Monthly Pension Benefit | \$ 2,405 | \$ 1,896 | \$ 2,313 | \$ 2,422 | \$ 2,587 |
| Total | | | | | |
| 1. Number | 1,699 | 1,708 | 1,543 | 1,472 | 1,576 |
| 2. Average Age at Commencement | 62.31 | 63.31 | 62.50 | 63.75 | 64.51 |
| 3. Average Monthly Pension Benefit | \$ 2,189 | \$ 2,260 | \$ 2,339 | \$ 2,397 | \$ 2,338 |

Summary of New Pension Benefit Recipients

Others

| | Years of Credited Service | | | | | | |
|------------------------------|---------------------------|--------|----------|----------|----------|----------|----------|
| | 0 - 4 | 5 - 9 | 10 - 14 | 15 - 19 | 20 - 24 | 25 - 29 | 30+ |
| Period 7/1/2020 – 6/30/2021: | | | | | | | |
| Average Monthly Pension | \$ 553 | \$ 628 | \$ 1,317 | \$ 2,213 | \$ 3,091 | \$ 4,607 | \$ 6,054 |
| Number of Recipients | 17 | 163 | 228 | 281 | 194 | 188 | 114 |
| Period 7/1/2019 – 6/30/2020: | | | | | | | |
| Average Monthly Pension | \$ 492 | \$ 601 | \$ 1,311 | \$ 2,065 | \$ 3,040 | \$ 4,686 | \$ 6,213 |
| Number of Recipients | 32 | 165 | 218 | 258 | 183 | 197 | 122 |
| Period 7/1/2018 – 6/30/2019: | | | | | | | |
| Average Monthly Pension | \$ 652 | \$ 646 | \$ 1,301 | \$ 2,071 | \$ 3,058 | \$ 4,596 | \$ 5,685 |
| Number of Recipients | 21 | 190 | 266 | 289 | 222 | 205 | 105 |
| Period 7/1/2017 – 6/30/2018: | | | | | | | |
| Average Monthly Pension | \$ 414 | \$ 607 | \$ 1,299 | \$ 1,982 | \$ 3,034 | \$ 4,475 | \$ 6,085 |
| Number of Recipients | 26 | 221 | 351 | 280 | 223 | 214 | 127 |
| Period 7/1/2016 – 6/30/2017: | | | | | | | |
| Average Monthly Pension | \$ 381 | \$ 640 | \$ 1,271 | \$ 2,067 | \$ 3,119 | \$ 4,579 | \$ 6,224 |
| Number of Recipients | 27 | 254 | 375 | 233 | 212 | 191 | 115 |
| Period 7/1/2015 – 6/30/2016: | | | | | | | |
| Average Monthly Pension | \$ 434 | \$ 660 | \$ 1,240 | \$ 2,017 | \$ 3,059 | \$ 4,158 | \$ 6,583 |
| Number of Recipients | 30 | 323 | 387 | 266 | 192 | 161 | 135 |
| Period 7/1/2014 – 6/30/2015: | | | | | | | |
| Average Monthly Pension | \$ 430 | \$ 685 | \$ 1,260 | \$ 2,008 | \$ 3,086 | \$ 4,544 | \$ 6,195 |
| Number of Recipients | 42 | 284 | 304 | 213 | 198 | 169 | 98 |
| Period 7/1/2013 – 6/30/2014: | | | | | | | |
| Average Monthly Pension | \$ 503 | \$ 700 | \$ 1,189 | \$ 2,065 | \$ 3,021 | \$ 4,439 | \$ 5,490 |
| Number of Recipients | 48 | 347 | 319 | 241 | 214 | 224 | 121 |
| Period 7/1/2012 – 6/30/2013: | | | | | | | |
| Average Monthly Pension | \$ 414 | \$ 650 | \$ 1,179 | \$ 1,925 | \$ 2,879 | \$ 4,356 | \$ 5,208 |
| Number of Recipients | 59 | 349 | 365 | 257 | 206 | 209 | 132 |
| Period 7/1/2011 – 6/30/2012: | | | | | | | |
| Average Monthly Pension | \$ 407 | \$ 610 | \$ 1,147 | \$ 1,931 | \$ 2,805 | \$ 4,214 | \$ 5,076 |
| Number of Recipients | 67 | 351 | 314 | 204 | 208 | 188 | 106 |

"Average Monthly Pension" includes postretirement pension adjustments and cost-of-living increases.

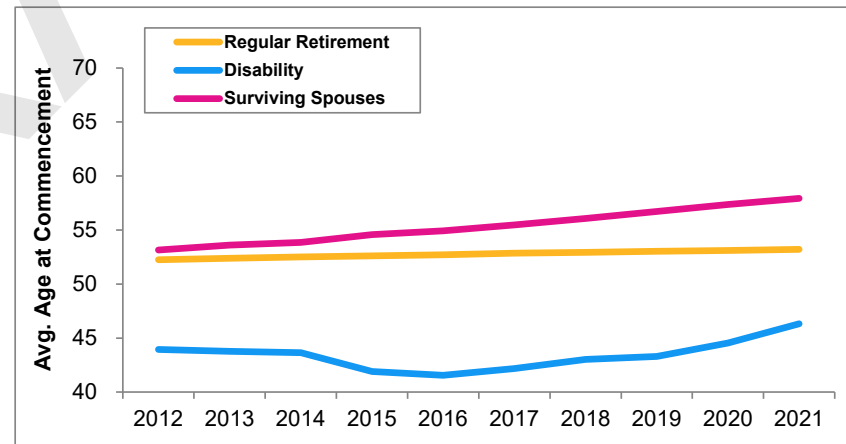
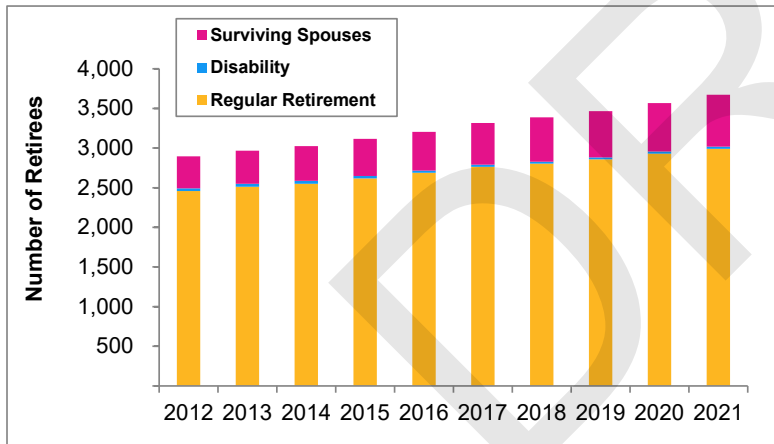
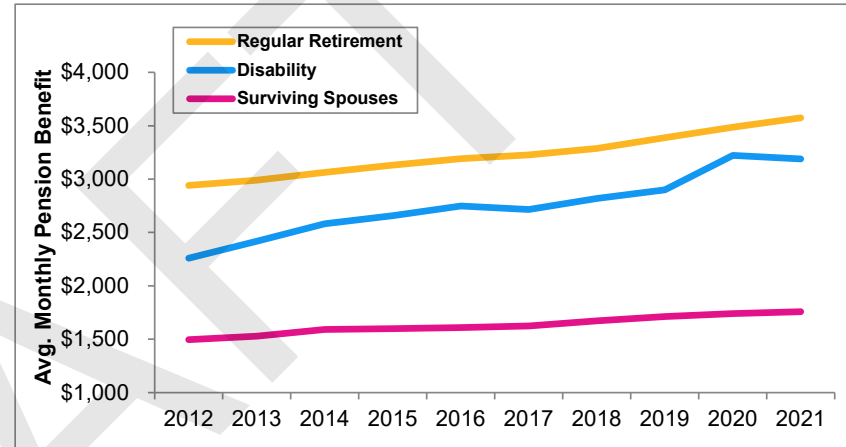
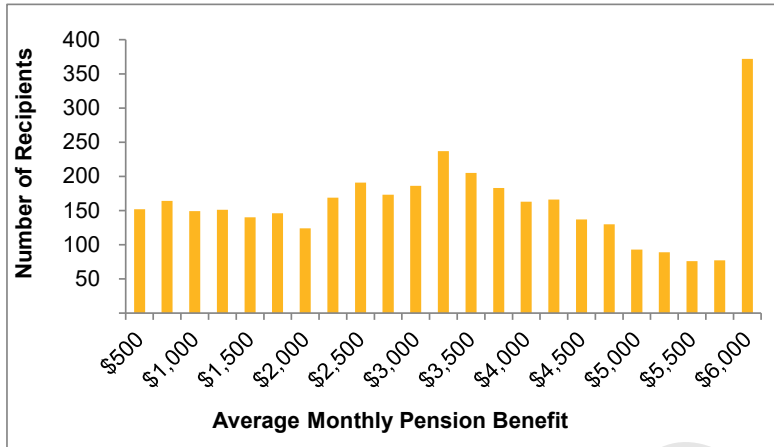
Beneficiaries are not included in the table above.

Section 4.7: Summary of All Pension Benefit Recipients

| | Peace Officer / Firefighter | Others |
|---|--------------------------------|----------|
| Service | | |
| 1. Number as of June 30, 2020 | 2,931 | 29,590 |
| 2. Net Change During FY21 | 60 | 419 |
| 3. Number as of June 30, 2021 | 2,991 | 30,009 |
| 4. Average Age at Commencement | 53.21 | 58.45 |
| 5. Average Current Age | 68.46 | 71.24 |
| 6. Average Monthly Pension Benefit | \$ 3,574 | \$ 2,057 |
| Survivors (including surviving spouses and DROs) | | |
| 1. Number as of June 30, 2020 | 611 | 3,825 |
| 2. Net Change During FY21 | 45 | 97 |
| 3. Number as of June 30, 2021 | 656 | 3,922 |
| 4. Average Age at Commencement | 57.93 | 63.52 |
| 5. Average Current Age | 69.52 | 73.48 |
| 6. Average Monthly Pension Benefit | \$ 1,758 | \$ 1,120 |
| Disability | | |
| 1. Number as of June 30, 2020 | 26 | 123 |
| 2. Net Change During FY21 | 0 | (10) |
| 3. Number as of June 30, 2021 | 26 | 113 |
| 4. Average Age at Commencement | 46.32 | 46.10 |
| 5. Average Current Age | 51.35 | 55.06 |
| 6. Average Monthly Pension Benefit | \$ 3,189 | \$ 1,970 |
| Total | | |
| 1. Number as of June 30, 2020 | 3,568 | 33,538 |
| 2. Net Change During FY21 | 105 | 506 |
| 3. Number as of June 30, 2021 | 3,673 | 34,044 |
| 4. Average Age at Commencement | 54.00 | 58.99 |
| 5. Average Current Age | 68.53 | 71.44 |
| 6. Average Monthly Pension Benefit | \$ 3,247 | \$ 1,949 |

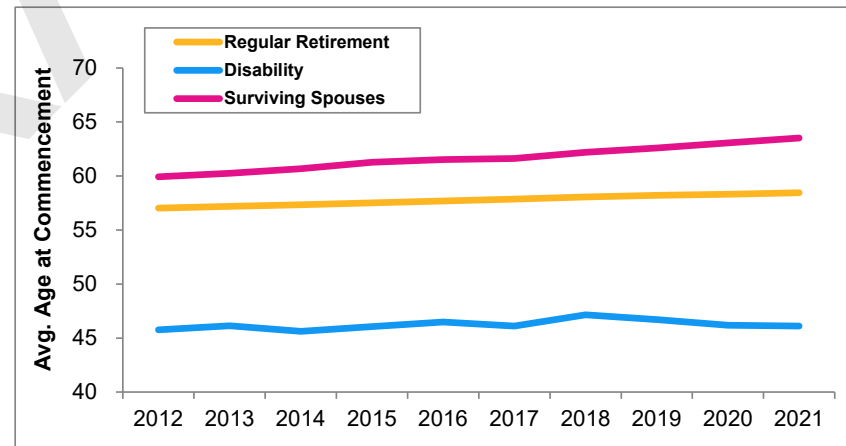
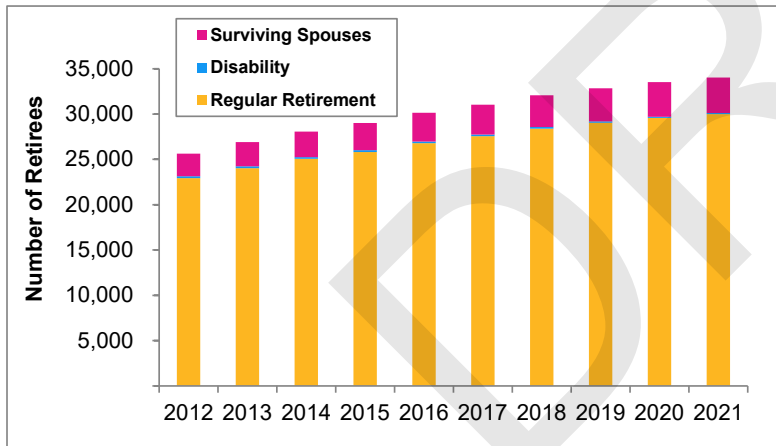
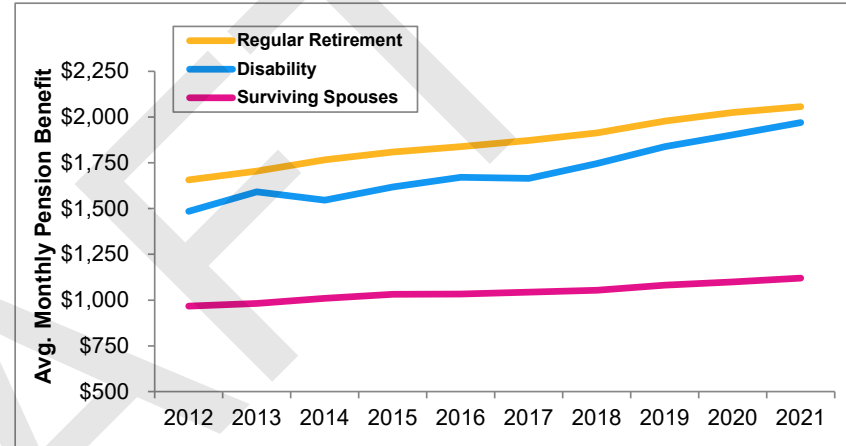
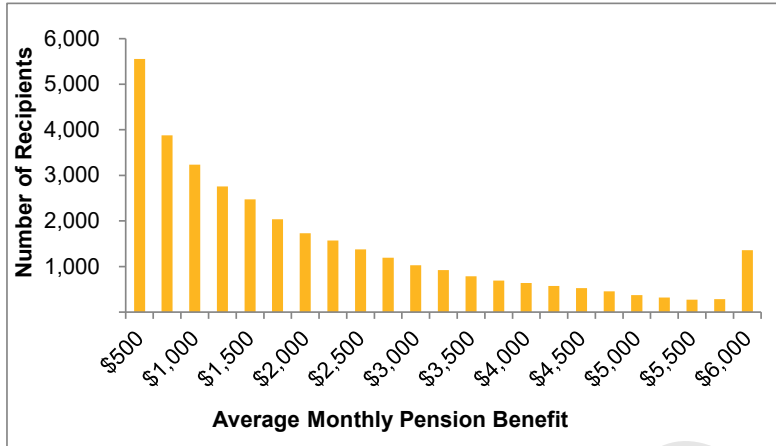
Summary of All Pension Benefit Recipients

Peace Officer / Firefighter



Summary of All Pension Benefit Recipients

Others



Summary of All Pension Benefit Recipients

Peace Officer / Firefighter

Annual Pension Benefit by Age

| Age | Number | Total Annual Pension Benefit | Average Annual Pension Benefit |
|--------------|--------------|------------------------------|--------------------------------|
| 0 - 19 | 0 | \$ 0 | \$ 0 |
| 20 - 24 | 0 | 0 | 0 |
| 25 - 29 | 0 | 0 | 0 |
| 30 - 34 | 0 | 0 | 0 |
| 35 - 39 | 1 | 57,465 | 57,465 |
| 40 - 44 | 13 | 583,451 | 44,881 |
| 45 - 49 | 78 | 4,380,328 | 56,158 |
| 50 - 54 | 215 | 12,336,820 | 57,381 |
| 55 - 59 | 324 | 16,323,478 | 50,381 |
| 60 - 64 | 607 | 23,982,868 | 39,510 |
| 65 - 69 | 777 | 27,706,706 | 35,659 |
| 70 - 74 | 803 | 28,357,790 | 35,315 |
| 75+ | 855 | 29,388,739 | 34,373 |
| Total | 3,673 | \$ 143,117,645 | \$ 38,965 |

Annual Pension Benefit by Years Since Commenced

| Years Since Comm. | Number | Total Annual Pension Benefit | Average Annual Pension Benefit |
|-------------------|--------------|------------------------------|--------------------------------|
| 0 | 200 | \$ 10,277,339 | \$ 51,387 |
| 1 | 155 | 8,093,071 | 52,213 |
| 2 | 152 | 6,797,168 | 44,718 |
| 3 | 133 | 6,097,594 | 45,847 |
| 4 | 169 | 7,165,651 | 42,400 |
| 0 - 4 | 809 | \$ 38,430,823 | \$ 47,504 |
| 5 - 9 | 581 | 23,847,931 | 41,046 |
| 10 - 14 | 545 | 16,936,288 | 31,076 |
| 15 - 19 | 630 | 20,887,127 | 33,154 |
| 20 - 24 | 621 | 22,321,128 | 35,944 |
| 25 - 29 | 203 | 7,853,908 | 38,689 |
| 30 - 34 | 212 | 9,808,110 | 46,265 |
| 35 - 39 | 45 | 2,108,485 | 46,855 |
| 40+ | 27 | 923,845 | 34,216 |
| Total | 3,673 | \$ 143,117,645 | \$ 38,965 |

Years Since Commencement by Age

| Age | Years Since Commencement | | | | | | | | | Total |
|--------------|--------------------------|------------|------------|------------|------------|------------|------------|-----------|-----------|--------------|
| | 0 - 4 | 5 - 9 | 10 - 14 | 15 - 19 | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40+ | |
| 0 - 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 - 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 - 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 - 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35 - 39 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 40 - 44 | 10 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 45 - 49 | 63 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 78 |
| 50 - 54 | 153 | 49 | 11 | 0 | 2 | 0 | 0 | 0 | 0 | 215 |
| 55 - 59 | 180 | 87 | 39 | 14 | 2 | 2 | 0 | 0 | 0 | 324 |
| 60 - 64 | 195 | 148 | 112 | 122 | 30 | 0 | 0 | 0 | 0 | 607 |
| 65 - 69 | 92 | 168 | 162 | 200 | 135 | 15 | 2 | 2 | 1 | 777 |
| 70 - 74 | 52 | 66 | 162 | 193 | 215 | 74 | 31 | 5 | 5 | 803 |
| 75+ | 63 | 48 | 56 | 101 | 237 | 112 | 179 | 38 | 21 | 855 |
| Total | 809 | 581 | 545 | 630 | 621 | 203 | 212 | 45 | 27 | 3,673 |

Summary of All Pension Benefit Recipients

Others

Annual Pension Benefit by Age

| Age | Number | Total Annual Pension Benefit | Average Annual Pension Benefit |
|--------------|---------------|------------------------------|--------------------------------|
| 0 - 19 | 0 | \$ 0 | \$ 0 |
| 20 - 24 | 0 | 0 | 0 |
| 25 - 29 | 0 | 0 | 0 |
| 30 - 34 | 2 | 70,193 | 35,097 |
| 35 - 39 | 5 | 75,774 | 15,155 |
| 40 - 44 | 9 | 130,847 | 14,539 |
| 45 - 49 | 34 | 450,340 | 13,245 |
| 50 - 54 | 158 | 4,979,060 | 31,513 |
| 55 - 59 | 1,196 | 38,955,221 | 32,571 |
| 60 - 64 | 5,770 | 162,252,318 | 28,120 |
| 65 - 69 | 8,778 | 215,609,089 | 24,562 |
| 70 - 74 | 8,228 | 183,341,302 | 22,283 |
| 75+ | 9,864 | 190,225,443 | 19,285 |
| Total | 34,044 | \$ 796,089,587 | \$ 23,384 |

Annual Pension Benefit by Years Since Commenced

| Years Since Comm. | Number | Total Annual Pension Benefit | Average Annual Pension Benefit |
|-------------------|---------------|------------------------------|--------------------------------|
| 0 | 1,681 | \$ 47,044,071 | \$ 27,986 |
| 1 | 1,416 | 41,473,469 | 29,289 |
| 2 | 1,516 | 42,241,297 | 27,864 |
| 3 | 1,469 | 40,628,509 | 27,657 |
| 4 | 1,617 | 43,823,763 | 27,102 |
| 0 - 4 | 7,699 | \$ 215,211,109 | \$ 27,953 |
| 5 - 9 | 7,894 | 200,110,996 | 25,350 |
| 10 - 14 | 6,483 | 144,288,042 | 22,256 |
| 15 - 19 | 5,276 | 109,883,248 | 20,827 |
| 20 - 24 | 3,850 | 76,656,753 | 19,911 |
| 25 - 29 | 1,381 | 24,178,292 | 17,508 |
| 30 - 34 | 1,155 | 21,111,290 | 18,278 |
| 35 - 39 | 249 | 3,779,040 | 15,177 |
| 40+ | 57 | 870,817 | 15,277 |
| Total | 34,044 | \$ 796,089,587 | \$ 23,384 |

Years Since Commencement by Age

| Age | Years Since Commencement | | | | | | | | | |
|--------------|--------------------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|-----------|---------------|
| | 0 - 4 | 5 - 9 | 10 - 14 | 15 - 19 | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40+ | Total |
| 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 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 35 - 39 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 40 - 44 | 4 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 45 - 49 | 17 | 10 | 5 | 2 | 0 | 0 | 0 | 0 | 0 | 34 |
| 50 - 54 | 108 | 25 | 15 | 7 | 2 | 1 | 1 | 0 | 0 | 159 |
| 55 - 59 | 869 | 248 | 47 | 13 | 14 | 3 | 1 | 0 | 0 | 1,195 |
| 60 - 64 | 3,342 | 1,780 | 569 | 51 | 11 | 12 | 4 | 0 | 1 | 5,770 |
| 65 - 69 | 1,924 | 3,385 | 2,545 | 849 | 55 | 12 | 6 | 2 | 0 | 8,778 |
| 70 - 74 | 759 | 1,671 | 2,176 | 2,580 | 1,005 | 17 | 13 | 5 | 2 | 8,228 |
| 75+ | 674 | 767 | 1,124 | 1,774 | 2,763 | 1,336 | 1,130 | 242 | 54 | 9,864 |
| Total | 7,699 | 7,894 | 6,483 | 5,276 | 3,850 | 1,381 | 1,155 | 249 | 57 | 34,044 |

Section 4.8: Pension Benefit Recipients by Type of Benefit and Option Elected

Peace Officer / Firefighter

| Amount of Monthly Pension Benefit | Number of Recipients | Type of Pension Benefit | | | Option Selected | | | | |
|-----------------------------------|----------------------|-------------------------|------------|-----------|-----------------|--------------|------------|------------|------------|
| | | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 |
| \$ 1 – 300 | 55 | 16 | 39 | 0 | 42 | 4 | 0 | 2 | 7 |
| 301 – 600 | 175 | 110 | 65 | 0 | 97 | 37 | 22 | 7 | 12 |
| 601 – 900 | 182 | 100 | 81 | 1 | 109 | 43 | 11 | 12 | 7 |
| 901 – 1,200 | 167 | 89 | 78 | 0 | 108 | 30 | 16 | 6 | 7 |
| 1,201 – 1,500 | 178 | 111 | 66 | 1 | 105 | 39 | 19 | 6 | 9 |
| 1,501 – 1,800 | 172 | 124 | 48 | 0 | 93 | 45 | 22 | 8 | 4 |
| 1,801 – 2,100 | 156 | 106 | 49 | 1 | 70 | 41 | 33 | 7 | 5 |
| 2,101 – 2,400 | 240 | 177 | 60 | 3 | 113 | 70 | 32 | 12 | 13 |
| 2,401 – 2,700 | 193 | 163 | 26 | 4 | 74 | 63 | 38 | 13 | 5 |
| 2,701 – 3,000 | 228 | 199 | 27 | 2 | 78 | 97 | 34 | 11 | 8 |
| 3,001 – 3,300 | 283 | 249 | 31 | 3 | 98 | 107 | 57 | 12 | 9 |
| 3,301 – 3,600 | 231 | 199 | 29 | 3 | 84 | 92 | 32 | 13 | 10 |
| 3,601 – 3,900 | 206 | 184 | 19 | 3 | 75 | 87 | 30 | 10 | 4 |
| 3,901 – 4,200 | 202 | 191 | 9 | 2 | 64 | 87 | 35 | 12 | 4 |
| 4,200+ | 1,005 | 972 | 30 | 3 | 271 | 479 | 179 | 67 | 9 |
| Total | 3,673 | 2,990 | 657 | 26 | 1,481 | 1,321 | 560 | 198 | 113 |

Type of Pension Benefit

1. Regular Retirement
2. Survivor Payment
3. Disability

Option Selected

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

Pension Benefit Recipients by Type of Benefit and Option Elected

Others

| Amount of Monthly Pension Benefit | Number of Recipients | Type of Pension Benefit | | | Option Selected | | | | |
|-----------------------------------|----------------------|-------------------------|--------------|------------|-----------------|--------------|--------------|--------------|--------------|
| | | 1 | 2 | 3 | 1 | 2 | 3 | 4 | 5 |
| \$ 1 – 300 | 2,112 | 1,553 | 558 | 1 | 1,038 | 386 | 282 | 62 | 344 |
| 301 – 600 | 5,102 | 4,260 | 836 | 6 | 2,709 | 1,170 | 814 | 256 | 153 |
| 601 – 900 | 4,240 | 3,530 | 700 | 10 | 2,238 | 1,030 | 675 | 181 | 116 |
| 901 – 1,200 | 3,491 | 3,004 | 480 | 7 | 1,738 | 843 | 669 | 160 | 81 |
| 1,201 – 1,500 | 2,972 | 2,587 | 368 | 17 | 1,480 | 750 | 563 | 109 | 70 |
| 1,501 – 1,800 | 2,378 | 2,113 | 254 | 11 | 1,103 | 672 | 462 | 84 | 57 |
| 1,801 – 2,100 | 2,049 | 1,836 | 197 | 16 | 951 | 550 | 396 | 93 | 59 |
| 2,101 – 2,400 | 1,759 | 1,599 | 149 | 11 | 781 | 504 | 348 | 81 | 45 |
| 2,401 – 2,700 | 1,475 | 1,357 | 101 | 17 | 648 | 415 | 307 | 57 | 48 |
| 2,701 – 3,000 | 1,270 | 1,181 | 86 | 3 | 552 | 392 | 254 | 41 | 31 |
| 3,001 – 3,300 | 1,084 | 1,026 | 56 | 2 | 429 | 352 | 233 | 42 | 28 |
| 3,301 – 3,600 | 918 | 877 | 38 | 3 | 365 | 288 | 202 | 45 | 18 |
| 3,601 – 3,900 | 791 | 762 | 27 | 2 | 313 | 273 | 156 | 34 | 15 |
| 3,901 – 4,200 | 717 | 690 | 27 | 0 | 284 | 229 | 158 | 30 | 16 |
| 4,200+ | 3,686 | 3,634 | 45 | 7 | 1,269 | 1,296 | 865 | 207 | 49 |
| Total | 34,044 | 30,009 | 3,922 | 113 | 15,898 | 9,150 | 6,384 | 1,482 | 1,130 |

Type of Pension Benefit

1. Regular Retirement
2. Survivor Payment
3. Disability

Option Selected

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

Section 4.9: Pension Benefit Recipients Added to and Removed from Rolls

Peace Officer / Firefighter

| Year Ended | Added to Rolls | | Removed from Rolls | | Rolls at End of Year | | Percent Increase in Annual Pension Benefits | Average Annual Pension Benefit |
|---------------|------------------|--------------------------------------|--------------------|--------------------------------------|----------------------|-------------------------|---|--------------------------------|
| | No. ¹ | Annual Pension Benefits ¹ | No. ¹ | Annual Pension Benefits ¹ | No. | Annual Pension Benefits | | |
| June 30, 2021 | 191 | \$ 9,635,568 | 86 | \$ 2,931,719 | 3,673 | \$ 143,117,645 | 4.9% | \$ 38,965 |
| June 30, 2020 | 164 | 8,472,240 | 61 | 1,078,932 | 3,568 | 136,413,796 | 5.7% | 38,233 |
| June 30, 2019 | 149 | 6,713,940 | 71 | 233,335 | 3,465 | 129,020,488 | 5.3% | 37,235 |
| June 30, 2018 | 153 | 7,002,504 | 81 | 2,573,694 | 3,387 | 122,539,883 | 3.7% | 36,179 |
| June 30, 2017 | 165 | 6,971,580 | 54 | 2,132,027 | 3,315 | 118,111,073 | 4.3% | 35,629 |
| June 30, 2016 | 137 | 6,618,744 | 49 | 1,594,394 | 3,204 | 113,271,520 | 4.6% | 35,353 |
| June 30, 2015 | 136 | 5,617,344 | 46 | 633,046 | 3,116 | 108,247,168 | 4.8% | 34,739 |
| June 30, 2014 | 109 | 4,270,620 | 50 | (145,771) | 3,026 | 103,262,870 | 4.5% | 34,125 |
| June 30, 2013 | 113 | 4,162,920 | 42 | 240,775 | 2,967 | 98,846,479 | 4.1% | 33,315 |
| June 30, 2012 | 179 | 5,246,271 | 41 | (177,568) | 2,896 | 94,924,334 | 6.1% | 32,778 |

¹ Numbers are estimated, and include other internal transfers.

Pension Benefit Recipients Added to and Removed from Rolls

Others

| Year Ended | Added to Rolls | | Removed from Rolls | | Rolls at End of Year | | Percent Increase in Annual Pension Benefits | Average Annual Pension Benefit |
|---------------|------------------|--------------------------------------|--------------------|--------------------------------------|----------------------|-------------------------|---|--------------------------------|
| | No. ¹ | Annual Pension Benefits ¹ | No. ¹ | Annual Pension Benefits ¹ | No. | Annual Pension Benefits | | |
| June 30, 2021 | 1,576 | \$ 44,216,256 | 1,070 | \$ 20,522,550 | 34,044 | \$ 796,089,587 | 3.1% | \$ 23,384 |
| June 30, 2020 | 1,472 | 42,340,608 | 779 | 9,911,423 | 33,538 | 772,395,881 | 4.4% | 23,030 |
| June 30, 2019 | 1,543 | 43,301,707 | 765 | 3,096,594 | 32,845 | 739,966,696 | 5.7% | 22,529 |
| June 30, 2018 | 1,708 | 46,316,673 | 673 | 10,533,376 | 32,067 | 699,761,583 | 5.4% | 21,823 |
| June 30, 2017 | 1,699 | 44,619,382 | 816 | 14,610,212 | 31,032 | 663,978,286 | 4.7% | 21,397 |
| June 30, 2016 | 1,780 | 44,409,702 | 660 | 12,099,362 | 30,149 | 633,969,116 | 5.4% | 21,028 |
| June 30, 2015 | 1,583 | 39,939,292 | 627 | 7,232,812 | 29,029 | 601,658,776 | 5.7% | 20,726 |
| June 30, 2014 | 1,778 | 44,823,611 | 603 | 3,011,383 | 28,073 | 568,952,296 | 7.9% | 20,267 |
| June 30, 2013 | 1,808 | 43,247,667 | 554 | 4,861,626 | 26,898 | 527,140,068 | 7.9% | 19,598 |
| June 30, 2012 | 1,679 | 37,855,250 | 636 | 5,344,239 | 25,644 | 488,754,027 | 7.1% | 19,059 |

¹ Numbers are estimated, and include other internal transfers.

Section 5: Basis of the Actuarial Valuation

Section 5.1: Summary of Plan Provisions

Effective Date

January 1, 1961, with amendments through June 30, 2021. Chapter 82, 1986 Session Laws of Alaska, created a two-tier retirement system. Members who were first hired under PERS before July 1, 1986 (Tier 1) are eligible for different benefits than members hired after June 30, 1986 (Tier 2). Chapter 4, 1996 Session Laws of Alaska created a third tier for members who were first hired after June 30, 1996 (Tier 3). Chapter 9, 2005 Session Laws of Alaska, closed the plan to new members hired after June 30, 2006.

Administration of Plan

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

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

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

Employers Included

Currently there are 151 employers participating in PERS, including the State of Alaska and 150 political subdivisions and public organizations. Two additional political subdivisions participate in PERS for healthcare benefits only.

Membership

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

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

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

Credited Service

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

Members may claim other types of service, including:

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

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

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

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

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

Employer Contributions

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

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

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

Employer rates cannot be less than the normal cost rate.

Pursuant to AS 39.35.255 effective July 1, 2008 and subsequently amended on July 1, 2021, each non-state PERS employer will pay a simple uniform contribution rate of 22% of non-state member payroll and

the State as an employer will pay the total contribution rate, adopted by the Board, of State member payroll.

Additional State Contributions

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

Member Contributions

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

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

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

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

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

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

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

Retirement Benefits

Eligibility

- a. Members, including deferred vested members, are eligible for normal retirement at age 55 or early retirement at age 50 if they were hired before July 1, 1986 (Tier 1), and age 60 or early retirement at age 55 if they were hired on or after July 1, 1986 (Tiers 2 & 3). Additionally, they must have at least:
 - (i) five years of paid-up PERS service;
 - (ii) 60 days of paid-up PERS service as employees of the legislature during each of five legislative sessions and they were first hired by the legislature before May 30, 1987;
 - (iii) 80 days of paid-up PERS service as employees of the legislature during each of five legislative sessions and they were first hired by the legislature after May 29, 1987;
 - (iv) two years of paid-up PERS service and they are vested in TRS; or
 - (v) two years of paid-up PERS service and a minimum three years of TRS service to qualify for a public service benefit.

- b. Members may retire at any age when they have:
 - (i) 20 paid-up years of PERS Peace Officer/Firefighter service; or
 - (ii) 30 paid-up years of PERS "all other" or "elected official" service.

Benefit Type

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

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

Benefit Calculations

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

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

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

Indebtedness

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

Reemployment of Retired Members

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

Members retired under the Retirement Incentive Programs (RIPs) who return to employment will:

- a. forfeit the three years of incentive credits that they received;
- b. owe PERS 150% of the benefits that they received for state and political subdivision members, and 110% for school district employees, under the 1996-2000 RIP, which may include costs for

health insurance, excluding amounts that they paid to participate for the 1986 and 1989 RIPs. Under prior RIPs, the penalty is 110% of the benefits received; and

- c. be charged 7% interest from the date that they are reemployed until their indebtedness is paid in full or they retire again. If the indebtedness is not completely paid, future benefits will be actuarially reduced for life.

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

Postemployment Healthcare Benefits

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

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

Starting in 2022, prior authorization will be required for certain specialty medications for all participants. There is no change to the medications that are covered by the plan.

Starting in 2022, certain preventive benefits for pre-Medicare participants will now be covered by the plan.

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

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

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

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

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

Disability Benefits

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

Occupational Disability

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

Non-occupational Disability

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

Death Benefits

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

Occupational Death

When an active member (vested or non-vested) dies from occupational causes, a monthly survivor's pension may be paid to the spouse. The pension equals 40% of the member's gross monthly compensation on the date of death or disability, if earlier. If there is no spouse, the pension may be paid to the member's dependent children. On the member's normal retirement date, the benefit converts to a normal retirement benefit. The normal benefit is based on the member's salary on the date of death and service, including service accumulated from the date of the member's death to the normal retirement date. Survivors of Peace Officer/Firefighter members receive the greater of 50% of the member's gross monthly compensation on the date of death or disability, or 75% of the member's monthly normal retirement benefit (including service projected to Normal Retirement). If the member is unmarried with no children, a refund of contributions is payable to the estate.

Death after Occupational Disability

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

Non-Occupational Death

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

Lump Sum Non-Occupational Death Benefit

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

Death After Retirement

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

Postretirement Pension Adjustments

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

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

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

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

Alaska Cost-of-Living Allowance (COLA)

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

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

Changes in Benefit Provisions Valued Since the Prior Valuation

Starting in 2022, prior authorization will be required for certain specialty medications for all participants, and certain preventive benefits for pre-Medicare participants will now be covered by the plan.

Under SB 55 that was effective July 1, 2021: (i) The State-as-an-Employer contributes the full actuarial contribution rate based on the DB/DCR payroll of its employees (which is approximately 50% of the total PERS DB/DCR payroll); (ii) Non-State employers continue to contribute 22% of their DB/DCR payroll; (iii) the Additional State Contributions are based on the excess of the DB actuarial contribution rate and the DB contributions made by non-State employers.

There were no other changes in benefit provisions since the prior valuation.

Section 5.2: Description of Actuarial Methods and Valuation Procedures

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

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

Actuarial Cost Method

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method, level percent of pay.

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

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

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

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

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

¹ Layer #1 is referred to as "initial amount" in Sections 1.2 and 1.3.

Valuation of Assets

The actuarial asset value was reinitialized to equal Fair Value of Assets as of June 30, 2014. Beginning in FY15, the asset valuation method recognizes 20% of the gain or loss each year, for a period of five years. All assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from financial statements audited by KPMG LLP.

Changes in Methods Since the Prior Valuation

There were no changes in the asset or valuation methods since the prior valuation.

Valuation of Retiree Medical and Prescription Drug Benefits

This section outlines the detailed methodology used in the internal model developed by Buck to calculate the initial per capita claims cost rates for the PERS postemployment healthcare plan. Note that the methodology reflects the results of our annual experience rate update for the period from July 1, 2020 to June 30, 2021.

Base claims cost rates are incurred healthcare costs expressed as a rate per member per year. Ideally, claims cost rates should be derived for each significant component of cost that can be expected to require differing projection assumptions or methods (i.e., medical claims, prescription drug claims, administrative costs, etc). Separate analysis is limited by the availability and historical credibility of cost and enrollment data for each component of cost. This valuation reflects non-prescription claims separated by Medicare status, including eligibility for free Part A coverage. Prescription costs are analyzed separately as in prior valuations. Administrative costs are assumed in the final per capita claims cost rates used for valuation purposes, as described below. Analysis to date on Medicare Part A coverage is limited since Part A claim data is not available by individual, nor is this status incorporated into historical claim data.

Benefits

Medical, prescription drug, dental, vision and audio coverage is provided through the AlaskaCare Retiree Health Plan and is available to employees of the State and subdivisions who meet retirement criteria based on the retirement plan tier in effect at their date of hire. Health plan provisions do not vary by retirement tier or age, except for Medicare coordination for those Medicare-eligible. Dental, vision and audio claims (DVA) are excluded from data analyzed for this valuation because those are retiree-pay all benefits where rates are assumed to be self-supporting. Buck relies upon rates set by a third-party for the DVA benefits. Buck reviewed historical rate-setting information and views contribution rate adjustments made are not unreasonable.

Administration and Data Sources

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

Claims incurred for the period from July 2019 through June 2021 (FY20 through FY21) were provided by the State of Alaska from reports extracted from their data warehouse, which separated claims by Medicare status. Monthly enrollment data for the same period was provided by Aetna.

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

Aetna provided a snapshot file as of July 1, 2021 of retirees and dependents that included a coverage level indicator. The monthly enrollment data includes double coverage participants. These are participants whereby both the retiree and spouse are retirees from the State and both are reflected with Couple coverage in the enrollment. In this case, such a couple would show up as four members in the

monthly enrollment (each would be both a retiree and a spouse). As a result, the snapshot census file was used to adjust the total member counts in the monthly enrollment reports to estimate the number of unique participants enrolled in coverage. Based on the snapshot files from the last two valuations, the total member count in the monthly enrollment reports needs to be reduced by approximately 13% to account for the number of participants with double coverage.

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

Methodology

Buck projected historical claim data to FY22 for retirees using the following summarized steps:

1. Develop historical annual incurred claim cost rates – an analysis of medical costs was completed based on claims information and enrollment data provided by the State of Alaska and Aetna for each year in the experience period of FY20 through FY21.
 - Costs for medical services and prescriptions were analyzed separately, and separate trend rates were developed to project expected future medical and prescription costs for the valuation year (e.g. from the experience period up through FY22).
 - Because the reports provided reflected incurred claims, no additional adjustment was needed to determine incurred claims to be used in the valuation.
 - An offset for costs expected to be reimbursed by Medicare was incorporated beginning at age 65. Alaska retirees who do not have 40 quarters of Medicare-covered compensation do not qualify for Medicare Part A coverage free of charge. This is a relatively small and closed group. Medicare was applied to State employment for all employees hired after March 31, 1986. For the “no-Part A” individuals who are required to enroll in Medicare Part B, the State is the primary payer for hospital bills and other Part A services. Claim experience is not available separately for participants with both Medicare Parts A and B and those with Part B only. For Medicare Part B only participants, a lower average claims cost was applied to retirees covered by both Medicare Part A and B vs. retirees covered only by Medicare Part B based upon manual rate models that estimate the Medicare covered proportion of medical costs. To the extent that no-Part A claims can be isolated and applied strictly to the appropriate closed group, actuarial accrued liability will be more accurate.
 - Based on census data received from Aetna, less than 1% of the current retiree population was identified as having coverage only under Medicare Part B. We assume that 5% of actives hired before April 1, 1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.
 - Based upon a reconciliation of valuation census data to the snapshot eligibility files provided by Aetna as of July 1, 2020, and July 1, 2021, Buck adjusted member counts used for duplicate records where participants have double coverage; i.e. primary coverage as a retiree and secondary coverage as the covered spouse of another retiree. This is to reflect the total cost per distinct individual/member which is then applied to distinct members in the valuation census.
 - Buck understands that pharmacy claims reported do not reflect rebates. Based on actual pharmacy rebate information provided by Optum, rebates were assumed to be 19.5% of prescription drug claims for FY20, 16.2% of pre-Medicare, and 14.3% of Medicare prescription drug claims for FY21.
2. Develop estimated EGWP reimbursements – Segal provided estimated 2022 EGWP subsidies, developed with the assistance of OptumRx. These amounts are applicable only to Medicare-eligible participants.

3. Adjust for claim fluctuation, anomalous experience, etc. – explicit adjustments are often made for anticipated large claims or other anomalous experience. FY19 and FY20 experience were compared to assess the impact of COVID-19 and whether an adjustment to FY20 claims was indicated for use in the June 30, 2020 valuation. A material decrease in medical claims during March 2020 to June 2020 was experienced due to COVID-19. Therefore, an adjustment was made for those months to adjust for the decrease that is not expected to continue in future years. There was an observed spike in prescription drug claims in March 2020; however, the FY20 prescription drug experience appears reasonable to use without adjustment for COVID-19. To adjust for the decrease in medical claims due to COVID-19 during the last 4 months of FY20, the per capita cost during the first 8 months was used as the basis for estimating claims that would have occurred in the absence of COVID-19. FY21 experience was also thoroughly reviewed to assess the impact of COVID-19 and whether an adjustment to FY21 claims was appropriate for use in the June 30, 2021 valuation. FY21 medical per capita claims were noticeably lower than expected, so a 4% load was added to the FY21 medical claims used in the per capita claims cost development to better reflect future expected long-term costs of the plan. Total prescription drug claims experience for FY21 was reasonable and consistent with FY19 and FY20 experience. Therefore no adjustment was made to FY21 prescription drug claims. Due to group size and demographics, we did not make any additional large claim adjustments. We do blend both Alaska plan-specific and national trend factors as described below. Buck compared data utilized to lag reports and quarterly plan experience presentations provided by the State and Aetna to assess accuracy and reasonableness of data.
4. Trend all data points to the projection period – project prior years’ experience forward to FY22 for retiree benefits on an incurred claim basis. Trend factors derived from historical Alaska-specific experience and national trend factors are shown in the table in item 5 below.
5. Apply credibility to prior experience – adjust prior year’s data by assigning weight to recent periods, as shown at the right of the table below. The Board approved a change in the weighting of experience periods beginning with the June 30, 2017 valuation as outlined below. Note also that for FY20 to FY21 medical and both years of prescription drugs 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. For FY21 to FY22 medical we applied 100% weight to national trends because the Alaska-specific trends were impacted by COVID-19:

| Alaska-Specific and National Average Weighted Trend from Experience Period to Valuation Year | | | |
|---|-----------------------------------|---------------------|--------------------------|
| Experience Period | Medical | Prescription | Weighting Factors |
| FY20 to FY21 | 6.3% Pre-Medicare / 5.2% Medicare | 7.6% | 50% |
| FY21 to FY22 | 8.1% Pre-Medicare / 4.8% Medicare | 8.0% | 50% |

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

6. Starting in 2022, prior authorization will be required for certain specialty medications. There is no change to the medications that are covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The DB base claims costs for pre-Medicare prescription drug, Medicare prescription drug, and EGWP were adjusted to reflect this change. Additionally, starting in 2022, certain preventive benefits for pre-Medicare participants will now be covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The DB base claims cost for pre-Medicare medical was adjusted to reflect this change.
7. Develop separate administration costs – no adjustments were made for internal administrative costs. Third party retiree plan administration fees for FY22 are based upon total fees projected to 2022 by Segal based on actual FY21 fees. The annual per participant per year administrative cost rate for medical and prescription benefits is \$493.

Healthcare Reform

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

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

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

The Further Consolidated Appropriations Act, 2020 passed in December 2019 repealed several healthcare-related taxes, including the Cadillac Tax.

The Tax Cuts and Jobs Act passed in December 2017 included the elimination of the individual mandate penalty and changed the inflation measure for purposes of determining the limits for the High Cost Excise Tax to use chained CPI. It is our understanding the law does not directly impact other provisions of the ACA. While the nullification of the ACA's individual mandate penalty does not directly impact employer group health plans, it could contribute to the destabilization of the individual market and increase the number of uninsured. Such destabilization could translate to increased costs for employers. We have considered this when setting our healthcare cost trend assumptions and will continue to monitor this issue.

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

Data

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:

- All records provided with retiree medical coverage on the Aetna data were included in this valuation and we relied on the Aetna data as the source of medical coverage for current retirees and their dependents.
- Some records in the Aetna data were duplicates due to the double coverage (i.e. coverage as a retiree and as a spouse of another retiree) allowed under the plan. Records were adjusted for these members so that each member was only valued once. Any additional value of the double coverage (due to coordination of benefits) is small and reflected in the per capita costs.
- Covered children included in the Aetna data were valued until age 23, unless disabled. We assumed that those dependents over 23 were only eligible and valued due to being disabled.
- For individuals included in the pension data expecting a future pension, we valued health benefits starting at the same point that the pension benefit is assumed to start.

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

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

| | Medical | | Prescription Drugs (Rx) | |
|---|----------------|---------------|-------------------------|----------------|
| | Pre-Medicare | Medicare | Pre-Medicare | Medicare |
| A. Fiscal 2020 | | | | |
| 1. Incurred Claims | \$ 229,531,664 | \$ 89,497,345 | \$ 64,442,660 | \$ 188,022,328 |
| 2. Adjustments for Rx Rebates | 0 | 0 | (12,566,319) | (36,664,354) |
| 3. Net incurred claims | \$ 229,531,664 | \$ 89,497,345 | \$ 51,876,341 | \$ 151,357,974 |
| 4. Average Enrollment | 19,354 | 44,965 | 19,354 | 44,965 |
| 5. Claim Cost Rate (3) / (4) | 11,860 | 1,990 | 2,680 | 3,366 |
| 6. Trend to Fiscal 2022 | 1.149 | 1.103 | 1.162 | 1.162 |
| 7. Fiscal 2022 Incurred Cost Rate (5) x (6) | \$ 13,630 | \$ 2,195 | \$ 3,116 | \$ 3,912 |

| | | | | |
|--|----------------|---------------|---------------|----------------|
| B. Fiscal 2021 | | | | |
| 1. Incurred Claims | \$ 196,566,470 | \$ 86,512,435 | \$ 60,691,609 | \$ 207,822,858 |
| 2. Adjustments for Rx Rebates and COVID (Medical only) | 7,862,659 | 3,460,497 | (9,832,041) | (29,718,669) |
| 3. Net incurred claims | \$ 204,429,129 | \$ 89,972,933 | \$ 50,859,568 | \$ 178,104,189 |
| 4. Average Enrollment | 18,106 | 47,025 | 18,106 | 47,025 |
| 5. Claim Cost Rate (3) / (4) | 11,291 | 1,913 | 2,809 | 3,787 |
| 6. Trend to Fiscal 2022 | 1.081 | 1.048 | 1.080 | 1.080 |
| 7. Fiscal 2022 Incurred Cost Rate (5) x (6) | \$ 12,205 | \$ 2,005 | \$ 3,034 | \$ 4,090 |

| | Medical | | Prescription Drugs (Rx) | |
|---|--------------|----------|-------------------------|----------|
| | Pre-Medicare | Medicare | Pre-Medicare | Medicare |
| C. Incurred Cost Rate by Fiscal Year | | | | |
| 1. Fiscal 2020 A.(7) | 13,630 | 2,195 | 3,116 | 3,912 |
| 2. Fiscal 2021 B.(7) | 12,205 | 2,005 | 3,034 | 4,090 |

| | | | | |
|------------------------------------|-----|-----|-----|-----|
| D. Weighting by Fiscal Year | | | | |
| 1. Fiscal 2020 | 50% | 50% | 50% | 50% |
| 2. Fiscal 2021 | 50% | 50% | 50% | 50% |

| | | | | |
|--|-----------|----------|----------|----------|
| E. Fiscal 2022 Incurred Cost Rate | | | | |
| 1. Rate at Average Age C x D | \$ 12,918 | \$ 2,100 | \$ 3,075 | \$ 4,001 |
| 2. Average Aging Factor | 0.822 | 1.271 | 0.832 | 1.124 |
| 3. Rate at Age 65 (1) / (2) | \$ 15,708 | \$ 1,652 | \$ 3,695 | \$ 3,560 |

F. Development of Part A&B and Part B Only Cost from Pooled Rate Above

| | |
|--|----------|
| 1. Part A&B Average Enrollment | 46,602 |
| 2. Part B Only Average Enrollment | 423 |
| 3. Total Medicare Average Enrollment B(4) | 47,025 |
| 4. Cost ratio for those with Part B only to those with Parts A&B | 3.300 |
| 5. Factor to determine cost for those with Parts A&B (2) / (3) x (4) + (1) / (3) x 1.00 | 1.021 |
| 6. Medicare per capita cost for all participants: E(3) | \$ 1,652 |
| 7. Cost for those eligible for Parts A&B: (6) / (5) | \$ 1,619 |
| 8. Cost for those eligible for Part B only: (7) x (4) | \$ 5,341 |

| | Medical | | Prescription Drugs (Rx) | |
|--|--------------|----------|-------------------------|----------|
| | Pre-Medicare | Medicare | Pre-Medicare | Medicare |
| 1. Rate at Age 65 | \$ 15,708 | \$ 1,619 | \$ 3,695 | \$ 3,560 |
| 2. Adjustment factor for plan changes | 1.39% | 0.00% | -8.67% | -2.41% |
| 3. Adjusted Rate at Age 65 (1) x [1 + (2)] | \$ 15,926 | \$ 1,619 | \$ 3,375 | \$ 3,474 |

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, 2021 through June 30, 2022**

| Age | Medical and Medicare Parts A & B | Medical and Medicare Part B Only | Prescription Drug | Medicare EGWP Subsidy |
|-----|----------------------------------|----------------------------------|-------------------|-----------------------|
| 45 | \$ 9,719 | \$ 9,719 | \$ 2,062 | \$ 0 |
| 50 | 10,996 | 10,996 | 2,449 | 0 |
| 55 | 12,441 | 12,441 | 2,908 | 0 |
| 60 | 14,076 | 14,076 | 3,133 | 0 |
| 65 | 1,619 | 5,341 | 3,474 | 1,131 |
| 70 | 1,877 | 6,192 | 3,836 | 1,249 |
| 75 | 2,176 | 7,178 | 4,235 | 1,379 |
| 80 | 2,402 | 7,925 | 4,130 | 1,345 |

Section 5.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2021 valuation are described below. Unless noted otherwise, these assumptions were adopted by the Board in January 2019 based on the experience study for the period July 1, 2013 to June 30, 2017.

Investment Return

7.38% per year, net of investment expenses.

Salary Scale

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

Inflation – 2.50% per year.

Productivity – 0.25% per year.

Payroll Growth

2.75% per year (inflation + productivity).

Total Inflation

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

Mortality (Pre-Commencement)

Mortality rates based upon the 2013-2017 actual experience.

RP-2014 employee table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Deaths are assumed to result from occupational causes 75% of the time for Peace Officer/Firefighters, and 40% of the time for Others.

Mortality (Post-Commencement)

Mortality rates based upon the 2013-2017 actual experience.

91% of male and 96% of female rates of RP-2014 healthy annuitant table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Turnover

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

Disability

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

Post-disability mortality in accordance with the RP-2014 disabled table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement. Disabilities are assumed to be occupational 75% of the time for Peace Officer/Firefighters, and 40% of the time for Others.

Retirement

Retirement rates based upon the 2013-2017 actual experience (see Tables 4a and 4b).

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

The modified cash refund annuity is valued as a three-year certain and life annuity.

Spouse Age Difference

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

Percent Married for Pension

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

Dependent Spouse Medical Coverage Election

Applies to members who do not have double medical coverage. For Others, 65% of male members and 60% of female members are assumed to be married and cover a dependent spouse. For Peace Officer/Firefighters, 75% of male members and 50% of female members are assumed to be married and cover a dependent spouse.

Dependent Children

- Pension: None
- Healthcare: Benefits for dependent children have been valued only for members currently covering their dependent children. These benefits are only valued through the dependent children's age 23 (unless the child is disabled).

Contribution Refunds

For Others, 5% of terminating members with vested benefits are assumed to have their contributions refunded.

For Peace Officers/Firefighters, 10% of terminating members with vested benefits are assumed to have their contributions refunded.

100% of those with non-vested benefits are assumed to have their contributions refunded.

Imputed Data

Data changes from the prior year which are deemed to have an immaterial impact on liabilities and contribution rates are assumed to be correct in the current year's client data. Non-vested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage.

Active Rehire Assumption

The Normal Cost used for determining contribution rates and in the projections includes a rehire assumption to account for anticipated rehires. The Normal Cost shown in the report includes the following assumptions (which were developed based on the five years of rehire loss experience through June 30, 2017). For projections, these assumptions were assumed to grade to zero uniformly over a 20-year period.

- Pension: 18.77%
- Healthcare: 17.09%

Re-Employment Option

All re-employed retirees are assumed to return to work under the Standard Option.

Active Data Adjustment

No adjustment was made to reflect participants who terminate employment before the valuation date and are subsequently rehired after the valuation date.

Alaska Cost-of-Living Adjustments (COLA)

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

Postretirement Pension Adjustment (PRPA)

50% and 75% of assumed inflation, or 1.25% and 1.875% respectively, is valued for the annual automatic PRPA as specified in the statute.

Expenses

The investment return assumption is net of investment expenses.

The Normal Cost as of June 30, 2021 was increased by the following amounts for administrative expenses (for projections, the percent increase was assumed to remain constant in future years):

- Pension: \$7,625,000
- Healthcare: \$5,531,000

Part-Time Status

Part-time employees are assumed to earn 1.00 years of credited service per year for Peace Officer/Firefighter and 0.75 years of credited service per year for Other members.

Service

Total credited service is provided by the State. This service is assumed to be the only service that should be used to calculate benefits. Additionally, the State provides claimed service (including Bureau of Indian Affairs Service). Claimed service is used for vesting and eligibility purposes as described in Section 5.1.

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 FY22 medical and prescription drugs are shown below. The prescription drug costs reflect the plan change to require prior authorization for certain specialty medications. The pre-Medicare medical cost reflects the coverage of additional preventive benefits.

| | Medical | Prescription Drugs |
|------------------------|-----------|--------------------|
| Pre-Medicare | \$ 15,926 | \$ 3,375 |
| Medicare Parts A & B | \$ 1,619 | \$ 3,474 |
| Medicare Part B Only | \$ 5,341 | \$ 3,474 |
| Medicare Part D – EGWP | N/A | \$ 1,131 |

Members are assumed to attain Medicare eligibility at age 65. All costs are for the 2022 fiscal year (July 1, 2021 – June 30, 2022).

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

Third Party Administrator Fees

\$493 per person per year; assumed to increase at 4.5% per year.

Medicare Part B Only

We assume that 5% of actives hired before April 1, 1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.

Healthcare Cost Trend

The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 6.3% is applied to the FY22 pre-Medicare medical claims costs to get the FY23 medical claims costs.

| | Medical Pre-65 | Medical Post-65 | Prescription Drugs / EGWP |
|-----------|-------------------|--------------------|------------------------------|
| FY22 | 6.3% | 5.4% | 7.1% |
| FY23 | 6.1% | 5.4% | 6.8% |
| FY24 | 5.9% | 5.4% | 6.4% |
| FY25 | 5.8% | 5.4% | 6.1% |
| FY26 | 5.6% | 5.4% | 5.7% |
| FY27-FY40 | 5.4% | 5.4% | 5.4% |
| FY41 | 5.3% | 5.3% | 5.3% |
| FY42 | 5.2% | 5.2% | 5.2% |
| FY43 | 5.1% | 5.1% | 5.1% |
| FY44 | 5.1% | 5.1% | 5.1% |
| FY45 | 5.0% | 5.0% | 5.0% |
| FY46 | 4.9% | 4.9% | 4.9% |
| FY47 | 4.8% | 4.8% | 4.8% |
| FY48 | 4.7% | 4.7% | 4.7% |
| FY49 | 4.6% | 4.6% | 4.6% |
| FY50+ | 4.5% | 4.5% | 4.5% |

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

Aging Factors

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

Retired Member Contributions for Medical Benefits

Currently contributions are required for PERS members who are under age 60 and have less than 30 years of service (25 for Peace Officer/Firefighter). Eligible Tier 1 members are exempt from contribution requirements. Annual FY22 contributions based on monthly rates shown below for calendar 2022 are assumed based on the coverage category for current retirees. The composite rate shown is used for current active and inactive members in Tier 2 or 3 who are assumed to retire prior to age 60 with less than 30 years of service and who are not disabled. For dependent children, we value 1/3 of the annual retiree contribution to estimate the per child rate based upon the assumed number of children in rates where children are covered.

| Coverage Category | Calendar 2022 Annual Contribution | Calendar 2022 Monthly Contribution | Calendar 2021 Monthly Contribution |
|------------------------|-----------------------------------|------------------------------------|------------------------------------|
| Retiree Only | \$ 8,448 | \$ 704 | \$ 704 |
| Retiree and Spouse | \$ 16,896 | \$ 1,408 | \$ 1,408 |
| Retiree and Child(ren) | \$ 11,940 | \$ 995 | \$ 995 |
| Retiree and Family | \$ 20,388 | \$ 1,699 | \$ 1,699 |
| Composite | \$ 12,552 | \$ 1,046 | \$ 1,046 |

Trend Rate for Retired Member Medical Contributions

The table below shows the rate used to project the retired member medical contributions from the shown fiscal year to the next fiscal year. For example, 0.0% is applied to the FY22 retired member medical contributions to get the FY23 retired member medical contributions.

| Trend Assumptions | |
|-------------------|------|
| FY22 | 0.0% |
| FY23+ | 4.0% |

Graded trend rates for retired member medical contributions are consistent with the rates used for the June 30, 2020 valuation. Actual FY22 retired member medical contributions are reflected in the valuation.

Healthcare Participation

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

Changes in Assumptions Since the Prior Valuation

Healthcare claim costs are updated annually as described in Section 5.2. The amounts included in the Normal Cost for administrative expenses were changed from \$7,223,000 to \$7,625,000 for pension, and from \$4,934,000 to \$5,531,000 for healthcare (based on the most recent two years of actual administrative expenses paid from plan assets).

DRAFT

Table 1: Salary Scales

| Peace Officer / Firefighter | | Others | |
|-----------------------------|------------------|------------------|------------------|
| Years of Service | Percent Increase | Years of Service | Percent Increase |
| 0 | 7.75% | 0 | 6.75% |
| 1 | 7.25% | 1 | 6.25% |
| 2 | 6.75% | 2 | 5.75% |
| 3 | 6.25% | 3 | 5.25% |
| 4 | 5.75% | 4 | 4.75% |
| 5 | 5.25% | 5 | 4.25% |
| 6 | 4.75% | 6 | 3.75% |
| 7 | 4.25% | 7 | 3.65% |
| 8 | 3.75% | 8 | 3.55% |
| 9 | 3.65% | 9 | 3.45% |
| 10 | 3.55% | 10 | 3.35% |
| 11 | 3.45% | 11 | 3.25% |
| 12 | 3.35% | 12 | 3.15% |
| 13 | 3.25% | 13 | 3.05% |
| 14 | 3.15% | 14 | 2.95% |
| 15 | 3.05% | 15 | 2.85% |
| 16 | 2.95% | 16 | 2.75% |
| 17 | 2.85% | 17 | 2.75% |
| 18+ | 2.75% | 18+ | 2.75% |

Table 2a: Turnover Rates for Peace Officer / Firefighter

Select Rates during the First 5 Years of Employment

| Years of Service | Male | Female |
|------------------|--------|--------|
| 0 | 15.00% | 15.00% |
| 1 | 12.00% | 8.00% |
| 2 | 7.20% | 6.40% |
| 3 | 5.67% | 5.60% |
| 4 | 6.48% | 7.20% |

Ultimate Rates after the First 5 Years of Employment

| Age | Male | Female | Age | Male | Female |
|------|-------|--------|-----|-------|--------|
| < 23 | 4.70% | 6.80% | 39 | 2.04% | 2.98% |
| 23 | 4.46% | 6.80% | 40 | 1.68% | 3.39% |
| 24 | 4.22% | 6.80% | 41 | 1.67% | 3.37% |
| 25 | 3.98% | 6.80% | 42 | 1.67% | 3.36% |
| 26 | 3.74% | 6.80% | 43 | 1.71% | 3.33% |
| 27 | 3.50% | 6.80% | 44 | 1.76% | 3.31% |
| 28 | 3.32% | 6.63% | 45 | 1.81% | 3.28% |
| 29 | 3.14% | 6.46% | 46 | 1.85% | 3.25% |
| 30 | 2.96% | 6.29% | 47 | 1.90% | 3.23% |
| 31 | 2.79% | 6.12% | 48 | 2.22% | 3.19% |
| 32 | 2.61% | 5.95% | 49 | 2.53% | 3.15% |
| 33 | 2.50% | 5.36% | 50 | 3.18% | 6.42% |
| 34 | 2.39% | 4.77% | 51 | 4.24% | 6.32% |
| 35 | 2.28% | 4.18% | 52 | 4.24% | 6.19% |
| 36 | 2.17% | 3.60% | 53 | 4.24% | 6.04% |
| 37 | 2.06% | 3.01% | 54 | 4.24% | 3.00% |
| 38 | 2.05% | 2.99% | 55+ | 3.00% | 2.00% |

Table 2b: Turnover Rates for Others

Select Rates during the First 5 Years of Employment

| Hire Age Under 35 | | | Hire Age Over 35 | | |
|-------------------|--------|--------|------------------|--------|--------|
| Years of Service | Male | Female | Years of Service | Male | Female |
| 0 | 29.00% | 29.00% | 0 | 20.00% | 20.00% |
| 1 | 16.25% | 20.00% | 1 | 12.00% | 15.00% |
| 2 | 13.00% | 16.00% | 2 | 10.00% | 12.50% |
| 3 | 10.40% | 12.80% | 3 | 8.50% | 10.00% |
| 4 | 8.45% | 10.40% | 4 | 8.50% | 9.00% |

Ultimate Rates after the First 5 Years of Employment

| Age | Male | Female | Age | Male | Female |
|------|--------|--------|-----|-------|--------|
| < 23 | 11.40% | 12.99% | 39 | 5.47% | 5.23% |
| 23 | 10.83% | 12.21% | 40 | 4.86% | 5.65% |
| 24 | 10.26% | 11.43% | 41 | 4.71% | 5.51% |
| 25 | 9.69% | 10.65% | 42 | 4.56% | 5.38% |
| 26 | 9.12% | 9.87% | 43 | 4.50% | 5.19% |
| 27 | 8.55% | 9.09% | 44 | 4.44% | 4.99% |
| 28 | 8.30% | 8.72% | 45 | 4.39% | 4.80% |
| 29 | 8.05% | 8.34% | 46 | 4.33% | 4.60% |
| 30 | 7.80% | 7.97% | 47 | 4.27% | 4.41% |
| 31 | 7.54% | 7.60% | 48 | 4.26% | 4.40% |
| 32 | 7.29% | 7.23% | 49 | 4.24% | 4.39% |
| 33 | 6.99% | 6.88% | 50 | 3.63% | 4.45% |
| 34 | 6.69% | 6.53% | 51 | 3.60% | 4.43% |
| 35 | 6.39% | 6.17% | 52 | 3.56% | 4.40% |
| 36 | 6.10% | 5.82% | 53 | 3.52% | 4.37% |
| 37 | 5.80% | 5.47% | 54 | 4.17% | 6.20% |
| 38 | 5.63% | 5.35% | 55+ | 3.00% | 5.00% |

Table 3: Disability Rates

| Age | Peace Officer / Firefighter | | Others | |
|------|-----------------------------|---------|---------|---------|
| | Male | Female | Male | Female |
| < 23 | 0.0179% | 0.0112% | 0.0327% | 0.0376% |
| 23 | 0.0244% | 0.0153% | 0.0360% | 0.0400% |
| 24 | 0.0310% | 0.0194% | 0.0392% | 0.0424% |
| 25 | 0.0374% | 0.0234% | 0.0425% | 0.0448% |
| 26 | 0.0440% | 0.0275% | 0.0456% | 0.0472% |
| 27 | 0.0505% | 0.0316% | 0.0489% | 0.0496% |
| 28 | 0.0526% | 0.0329% | 0.0501% | 0.0510% |
| 29 | 0.0548% | 0.0343% | 0.0513% | 0.0524% |
| 30 | 0.0570% | 0.0356% | 0.0524% | 0.0538% |
| 31 | 0.0591% | 0.0370% | 0.0536% | 0.0554% |
| 32 | 0.0612% | 0.0383% | 0.0548% | 0.0568% |
| 33 | 0.0634% | 0.0397% | 0.0566% | 0.0586% |
| 34 | 0.0657% | 0.0411% | 0.0584% | 0.0606% |
| 35 | 0.0679% | 0.0425% | 0.0602% | 0.0624% |
| 36 | 0.0702% | 0.0439% | 0.0620% | 0.0644% |
| 37 | 0.0724% | 0.0453% | 0.0638% | 0.0662% |
| 38 | 0.0757% | 0.0473% | 0.0669% | 0.0696% |
| 39 | 0.0789% | 0.0493% | 0.0701% | 0.0728% |
| 40 | 0.0822% | 0.0514% | 0.0734% | 0.0762% |
| 41 | 0.0854% | 0.0534% | 0.0765% | 0.0794% |
| 42 | 0.0886% | 0.0554% | 0.0797% | 0.0826% |
| 43 | 0.0977% | 0.0611% | 0.0879% | 0.0908% |
| 44 | 0.1066% | 0.0667% | 0.0962% | 0.0990% |
| 45 | 0.1157% | 0.0723% | 0.1043% | 0.1072% |
| 46 | 0.1247% | 0.0780% | 0.1125% | 0.1154% |
| 47 | 0.1337% | 0.0836% | 0.1208% | 0.1236% |
| 48 | 0.1462% | 0.0914% | 0.1329% | 0.1360% |
| 49 | 0.1588% | 0.0993% | 0.1451% | 0.1484% |
| 50 | 0.1714% | 0.1071% | 0.1572% | 0.1608% |
| 51 | 0.1839% | 0.1150% | 0.1694% | 0.1734% |
| 52 | 0.1965% | 0.1228% | 0.1815% | 0.1858% |
| 53 | 0.2294% | 0.1434% | 0.2132% | 0.2168% |
| 54 | 0.2624% | 0.1640% | 0.2450% | 0.2478% |

Table 4a: Retirement Rates for Peace Officer / Firefighter

| Age | Reduced | | Unreduced | |
|------|---------|--------|-----------|---------|
| | Male | Female | Male | Female |
| < 47 | N/A | N/A | 8.80% | 6.00% |
| 47 | N/A | N/A | 8.80% | 15.00% |
| 48 | N/A | N/A | 14.30% | 15.00% |
| 49 | N/A | N/A | 14.30% | 15.00% |
| 50 | 5.00% | 5.00% | 16.50% | 15.00% |
| 51 | 5.00% | 7.00% | 16.50% | 15.00% |
| 52 | 7.00% | 7.00% | 20.35% | 15.00% |
| 53 | 7.00% | 7.00% | 20.35% | 15.00% |
| 54 | 7.00% | 35.00% | 20.35% | 25.00% |
| 55 | 7.00% | 8.00% | 27.50% | 20.00% |
| 56 | 7.00% | 8.00% | 27.50% | 15.00% |
| 57 | 7.00% | 8.00% | 27.50% | 15.00% |
| 58 | 7.00% | 8.00% | 27.50% | 15.00% |
| 59 | 20.00% | 20.00% | 27.50% | 15.00% |
| 60 | N/A | N/A | 33.00% | 25.00% |
| 61 | N/A | N/A | 27.50% | 20.00% |
| 62 | N/A | N/A | 27.50% | 30.00% |
| 63 | N/A | N/A | 27.50% | 50.00% |
| 64 | N/A | N/A | 22.00% | 50.00% |
| 65 | N/A | N/A | 22.00% | 50.00% |
| 66 | N/A | N/A | 27.50% | 50.00% |
| 67 | N/A | N/A | 55.00% | 50.00% |
| 68 | N/A | N/A | 55.00% | 50.00% |
| 69 | N/A | N/A | 55.00% | 50.00% |
| 70+ | N/A | N/A | 100.00% | 100.00% |

Table 4b: Retirement Rates for Others

| Age | Reduced | | Unreduced | |
|------|---------|--------|-----------|---------|
| | Male | Female | Male | Female |
| < 50 | N/A | N/A | 11.00% | 11.00% |
| 50 | 6.00% | 8.00% | 33.00% | 38.50% |
| 51 | 6.00% | 8.00% | 35.75% | 38.50% |
| 52 | 9.00% | 8.00% | 35.75% | 38.50% |
| 53 | 6.00% | 8.00% | 35.75% | 38.50% |
| 54 | 20.00% | 15.00% | 38.50% | 38.50% |
| 55 | 6.00% | 6.00% | 33.00% | 33.00% |
| 56 | 6.00% | 6.00% | 22.00% | 22.00% |
| 57 | 6.00% | 6.00% | 22.00% | 19.80% |
| 58 | 6.00% | 6.00% | 22.00% | 19.80% |
| 59 | 15.00% | 20.00% | 22.00% | 19.80% |
| 60 | N/A | N/A | 22.00% | 23.10% |
| 61 | N/A | N/A | 22.00% | 22.00% |
| 62 | N/A | N/A | 22.00% | 22.00% |
| 63 | N/A | N/A | 22.00% | 22.00% |
| 64 | N/A | N/A | 22.00% | 22.00% |
| 65 | N/A | N/A | 24.75% | 28.60% |
| 66 | N/A | N/A | 27.50% | 28.60% |
| 67 | N/A | N/A | 22.00% | 24.20% |
| 68 | N/A | N/A | 24.75% | 24.20% |
| 69 | N/A | N/A | 27.50% | 24.20% |
| 70 | N/A | N/A | 27.50% | 24.20% |
| 71 | N/A | N/A | 27.50% | 24.20% |
| 72 | N/A | N/A | 27.50% | 27.50% |
| 73 | N/A | N/A | 27.50% | 27.50% |
| 74 | N/A | N/A | 27.50% | 38.50% |
| 75 | N/A | N/A | 55.00% | 55.00% |
| 76 | N/A | N/A | 55.00% | 55.00% |
| 77 | N/A | N/A | 55.00% | 55.00% |
| 78 | N/A | N/A | 55.00% | 55.00% |
| 79 | N/A | N/A | 55.00% | 55.00% |
| 80+ | N/A | N/A | 100.00% | 100.00% |

Section 6: Actuarial Standard of Practice No. 51

Funding future retirement benefits prior to when those benefits become due involves assumptions regarding future economic and demographic experience. These assumptions are applied to calculate actuarial liabilities, current contribution requirements, and the funded status of the plan. However, to the extent future experience deviates from the assumptions used, variations will occur in these calculated values. These variations create risk to the plan. Understanding the risks to the funding of the plan is important.

Actuarial Standard of Practice No. 51 (ASOP 51)¹ requires certain disclosures of potential risks to the plan and provides useful information for intended users of actuarial reports that determine plan contributions or evaluate the adequacy of specified contribution levels to support benefit provisions.

Under ASOP 51, risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience.

It is important to note that not all risk is negative, but all risk should be understood and accepted based on knowledge, judgement, and educated decisions. Future measurements may deviate in ways that produce positive or negative financial impacts to the plan.

In the actuary's professional judgment, the following risks may reasonably be anticipated to significantly affect the pension plan's future financial condition and contribution requirements.

- Investment Risk – potential that the investment return will be different than the 7.38% expected in the actuarial valuation
- Contribution Risk – potential that the contribution actually made will be different than the actuarially determined contribution
- Long-Term Return on Investment Risk – potential that changes in long-term capital market assumptions or the plan's asset allocation will create the need to update the long-term return on investment assumption
- Longevity Risk – potential that participants live longer than expected compared to the valuation mortality assumptions
- Salary Increase Risk – potential that future salaries will be different than expected in the actuarial valuation
- Inflation Risk – potential that the consumer price index (CPI) for urban wage earners and clerical workers for Anchorage is different than the 2.5% assumed in the valuation
- Other Demographic Risk – potential that other demographic experience will be different than expected

The following information is provided to comply with ASOP 51 and furnish beneficial information on potential risks to the plan. **This list is not all-inclusive**; it is an attempt to identify the more significant risks and how those risks might affect the results shown in this report.

Note that ASOP 51 does not require the actuary to evaluate the ability or willingness of the plan sponsor to make contributions to the plan when due, or to assess the likelihood or consequences of potential future changes in law. In addition, this valuation report is not intended to provide investment advice or to provide guidance on the management or reduction of risk.

¹ ASOP 51 does not apply to the healthcare portion of the plan. Accordingly, all figures in this section relate to the pension portion.

Assessment of Risks

Investment Risk

Plan costs are very sensitive to the market return.

- Any return on assets lower than assumed will increase costs.
- The plan uses an actuarial value of assets that smooths gains and losses on market returns over a five-year period to help control some of the volatility in costs due to investment risk.
- Historical experience of actual returns is shown in Section 2.4 of this report. This historical experience illustrates how returns can vary over time.

Contribution Risk

There is a risk to the plan when the employer's and/or State's actual contribution amount and the actuarially determined contribution differ.

- If the actual contribution is lower than the actuarially determined contribution, the plan may not be sustainable in the long term.
- Any underpayment of the contribution will increase future contribution amounts to help pay off the additional Unfunded Actuarial Accrued Liability associated with the underpayment(s).
- As long as the Board consistently adopts the actuarially determined contributions, this risk is mitigated due to Alaska statutes requiring the State to contribute additional funds necessary to pay the total contributions adopted by the Board.

Long-Term Return on Investment Risk

Inherent in the long-term return on investment assumption is the expectation that the current rate will be used until the last benefit payment of the plan is made. There is a risk that sustained changes in economic conditions, changes in long-term future capital market assumptions, or changes to the plan's asset allocation will necessitate an update to the long-term return on investment assumption used.

- Under a lower long-term return on investment assumption, less investment return is available to pay plan benefits. This may lead to a need for increased employer contributions.
- The liabilities will be higher at a lower assumed rate of return because future benefits will have a lower discount rate applied when calculating the present value.
- A 1% decrease in the long-term return on investment assumption will increase actuarial accrued liability by approximately 11%.
- This risk may be increased due to the plan being closed to new entrants. As the plan continues to mature, the magnitude of negative cash flow discussed in the Plan Maturity Measures later in this section will grow, thereby creating a need for more liquid assets that may not garner the same long-term return as currently assumed.

Longevity Risk

Plan costs will be increased as participants are expected to live longer.

- Benefits are paid over a longer lifetime when life expectancy is expected to increase. The longer duration of payments leads to higher liabilities.
- Health care has been improving, which affects the life expectancy of participants. As health care improves, leading to longer life expectancies, costs to the plan could increase.

- The mortality assumption for the plan mitigates this risk by assuming future improvement in mortality. However, any improvement in future mortality greater than that expected by the current mortality assumption would lead to increased costs for the plan.
- The Postretirement Pension Adjustments and Alaska Cost-of-Living Allowance increase longevity risk because members who live longer than expected will incur more benefit payment increases than expected and therefore increase costs.

Salary Increase Risk

Plan costs will be increased if actual salary increases are larger than expected.

- Higher-than-expected salary increases will produce higher benefits.
- The higher benefits may be partially offset by increased employee contributions due to higher salaries.
- If future payroll grows at a rate different than assumed, contributions as a percentage of payroll will be affected.

Inflation Risk

Plan costs will be increased if the actual CPI for Anchorage is greater than the 2.5% assumed in the valuation.

- Retirement benefits will be greater than expected if the CPI is greater than the assumed rate, which will increase costs.
- This risk is mitigated by the 75% and 50% of CPI provisions and the 9% and 6% maximums.
- This risk is also mitigated by the age and time in payment requirements to receive an increase.
- Inflation risk may be associated with the interaction of inflation with other assumptions, but this is not significant as a standalone assumption, and therefore is considered as part of the associated assumption risk instead of being discussed here.

Other Demographic Risk

The plan is subject to risks associated with other demographic assumptions (e.g., retirement, termination, and retired members remaining in Alaska assumptions). Differences between actual and expected experience for these assumptions tend to have less impact on the overall costs of the plan. The demographic assumptions used in the valuation are re-evaluated regularly as part of the four-year experience studies to ensure the assumptions are consistent with long-term expectations.

Historical Information

Monitoring certain information over time may help understand risks faced by the plan. Historical information is included throughout this report. Some examples are:

- Funded Ratio History shown in the Executive Summary illustrates how the plan's funded status (comparison of actuarial accrued liabilities to actuarial value of assets) has changed over time.
- Section 1.6 shows historical analysis of financial experience including how contribution rates have changed over time.
- Section 2.4 shows the volatility of asset returns over time.
- Section 4 includes various historical information showing how member census data has changed over time.

Plan Maturity Measures

There are certain measures that may aid in understanding the significant risks to the plan.

| Ratio of Retired Liability to Total Liability (\$'s in \$000's) | June 30, 2020 | June 30, 2021 |
|---|---------------|---------------|
| 1. Retiree and Beneficiary Accrued Liability | \$ 10,472,466 | \$ 10,774,140 |
| 2. Total Accrued Liability | \$ 15,279,525 | \$ 15,419,975 |
| 3. Ratio, (1) ÷ (2) | 68.5% | 69.9% |

A high percentage of liability concentrated on participants in pay status indicates a mature plan (often a ratio above 60% - 65%). Because the plan was closed to new entrants in 2006, we expect the percentage in item #3 to continue to increase over time. An increasing percentage may indicate a need for a less risky asset allocation, which may lead to a lower long-term return on asset assumption and increased costs. Higher percentages may also indicate greater investment risk as benefit payments may be greater than contributions creating an increased reliance on investment returns. This ratio should be monitored each year in the future.

| Ratio of Cash Flow to Assets (\$'s in \$000's) | FYE June 30, 2020 | FYE June 30, 2021 |
|--|-------------------|-------------------|
| 1. Contributions | \$ 504,029 | \$ 586,737 |
| 2. Benefit Payments | <u>895,523</u> | <u>930,006</u> |
| 3. Cash Flow, (1) - (2) | \$ (391,494) | \$ (343,269) |
| 4. Fair Value of Assets | \$ 9,469,161 | \$ 11,912,309 |
| 5. Ratio, (3) ÷ (4) | (4.1%) | (2.9%) |

When this cash flow ratio is negative, more cash is being paid out than deposited in the trust. Negative cash flow indicates the trust needs to rely on investment returns to cover benefit payments and / or may need to invest in more liquid assets to cover the benefit payments. More liquid assets may not generate the same returns as less liquid assets, which can increase the investment risk. Currently, the low magnitude of the ratio implies there may already be enough liquid assets to cover the benefit payments, less investment return is needed to cover the shortfall, or only a small portion of assets will need to be converted to cash. Therefore, the investment risk is likely not amplified at this time. However, due to the plan being closed, we expect this measure to become increasingly negative over time. This maturity measure should be monitored in the future.

| Contribution Volatility (\$'s in \$000's) | June 30, 2020 | June 30, 2021 |
|---|---------------|---------------|
| 1. Fair Value of Assets | \$ 9,469,161 | \$ 11,912,309 |
| 2. DB/DCR Payroll | \$ 2,373,078 | \$ 2,406,757 |
| 3. Asset to Payroll Ratio, (1) ÷ (2) | 399.0% | 495.0% |
| 4. Accrued Liability | \$ 15,279,525 | \$ 15,419,975 |
| 5. Liability to Payroll Ratio, (4) ÷ (2) | 643.9% | 640.7% |

Plans that have higher asset-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with an asset-to-payroll ratio of 10% may experience twice the contribution volatility due to investment return volatility than a plan with an asset-to-payroll ratio of 5%. Plans that have higher liability-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to changes in liability. For example, if an assumption change increases the liability of two plans by the same percent, the plan with a liability-to-payroll ratio of 10% may experience twice the contribution volatility than a plan with a liability-to-payroll ratio of 5%.

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.

GASB 67 and 68

Governmental Accounting Standards Board Statement Number 67 amends Number 25 effective for the fiscal year beginning after June 15, 2013 and defines new financial reporting requirements for public pension plans.

Governmental Accounting Standards Board Statement Number 68 amends Number 27 effective for fiscal years beginning after June 15, 2014 and defines new accounting and financial reporting requirements for employers sponsoring public pension plans.

GASB 74 and 75

Governmental Accounting Standards Board Statement Number 74 amends Number 43 effective for the fiscal year beginning after June 15, 2016 and defines new financial reporting requirements for public postemployment benefit plans.

Governmental Accounting Standards Board Statement Number 75 amends Number 45 effective for fiscal years beginning after June 15, 2017 and defines new accounting and financial reporting requirements for employers sponsoring public postemployment benefit plans.

Normal Cost

That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.

Rate Payroll

Members' earnings used to determine contribution rates.

Unfunded Actuarial Accrued Liability (UAAL)

The portion of the actuarial accrued liability not offset by plan assets.

Valuation Payroll

Members' earnings used to determine Normal Cost and Actuarial Accrued Liability.

Vested Benefits

Benefits which are unconditionally guaranteed regardless of employment.

DRAFT



State of Alaska

Teachers' Retirement System

Actuarial Valuation Report
As of June 30, 2021

January 2022

DRAFT



January 26, 2022

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, 2021 performed by Buck Global, LLC (Buck).

The actuarial valuation is based on financial information provided in the financial statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2021. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities, and other factors under TRS were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Buck is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of TRS as of June 30, 2021.

TRS is funded by Employer, State, and Member Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board) and as required by Alaska state statutes. The funding objective for TRS is to pay required contributions that remain level as a percent of total TRS compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability (UAAL) as a level percentage of total TRS compensation over a closed 25-year period as required by Alaska state statutes. The closed 25-year period was originally established effective June 30, 2014. Effective June 30, 2018, the Board adopted a 25-year layered UAAL amortization method as described in Section 5.2. The UAAL amortization continues to be on a level percent of pay basis. The compensation used to determine required contributions is the total compensation of all active members in TRS, including those hired after July 1, 2006 who are members of the Defined Contribution Retirement (DCR) Plan. This objective is currently being met and is projected to continue to be met. Absent future gains/losses, actuarially determined contributions are expected to remain level as a percent of pay and the overall funded status (on a combined pension/healthcare basis) is expected to increase to 100% in FY24 (the funded status of the pension trust is expected to increase to 100% in FY33).

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

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

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2013 to June 30, 2017. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2018 valuation to better reflect expected future experience. Based on our annual analysis of recent claims experience, changes were made to the per capita claim cost rates effective June 30, 2021 to better reflect expected future healthcare experience. A summary of the actuarial assumptions and methods used in this actuarial valuation is shown in Sections 5.2 and 5.3. We certify that the assumptions and methods described in Sections 5.2 and 5.3 of this report meet the requirements of all applicable Actuarial Standards of Practice.

Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB 67) was effective for TRS beginning with fiscal year ending June 30, 2014, and Statement No. 74 (GASB 74) was effective for TRS beginning with fiscal year ending June 30, 2017. Separate GASB 67 and GASB 74 reports as of June 30, 2021 have been prepared. We have also prepared the member data tables shown in Section 4 of this report for the Statistical Section of the ACFR, as well as the summary of actuarial assumptions and analysis of financial experience for the Actuarial Section of the ACFR. Please see our separate GASB 67 and GASB 74 reports for other information needed for the ACFR.

Assessment of Risks

Actuarial Standard of Practice No. 51 (ASOP 51) applies to actuaries performing funding calculations related to a pension plan. ASOP 51 does not apply to actuaries performing services in connection with other post-employment benefits, such as medical benefits. Accordingly, ASOP 51 does not apply to the healthcare portion of TRS. See Section 6 of this report for further details regarding ASOP 51.

Use of Models

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under

the funding methods specified in this report. The output from the third-party vendor software is used as input to internally developed models that apply applicable funding methods and policies to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal models are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal models, extra checking and review are completed. Significant changes to the internal models that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

Additional models used in valuing health benefits are described later in the report.

COVID-19

The potential impact of the ongoing COVID-19 pandemic on costs and liabilities was considered and an adjustment was made in setting the medical per capita claims cost assumption. FY20 medical claims were adjusted for a COVID-19 related decline in claims during the last four months (March – June) of FY20. FY21 medical claims were adjusted for a COVID-19 related decline in those claims during the fiscal year. A more detailed explanation on these adjustments is shown in Section 5.2.

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

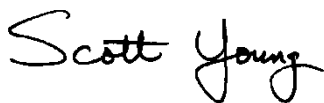
I am available to discuss this report with you at your convenience. I can be reached at 602-803-6174.

Respectfully submitted,



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

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



Scott Young, FSA, EA, MAAA, FCA
Director
Buck

Contents

| | |
|---|-----------|
| Executive Summary | 1 |
| Section 1: Actuarial Funding Results | 9 |
| Section 1.1: Actuarial Liabilities and Normal Cost | 9 |
| Section 1.2: Actuarial Contributions as of June 30, 2021 | 11 |
| Section 1.3: Roll-Forward Contribution Rate Calculation for FY24 | 13 |
| Section 1.4: Actuarial Gain/(Loss) for FY21 | 17 |
| Section 1.5: Development of Change in Unfunded Liability During FY21 | 18 |
| Section 1.6: Analysis of Financial Experience | 19 |
| Section 1.7: History of Unfunded Liability and Funded Ratio | 22 |
| Section 2: Plan Assets | 23 |
| Section 2.1: Summary of Fair Value of Assets | 23 |
| Section 2.2: Changes in Fair Value of Assets During FY21 | 24 |
| Section 2.3: Development of Actuarial Value of Assets | 25 |
| Section 2.4: Historical Asset Rates of Return | 27 |
| Section 3: Projections | 28 |
| Section 3.1: Projection Assumptions and Methods | 28 |
| Section 3.2: Membership Projection | 29 |
| Section 3.3: Projected Employer/State Contribution Rates | 32 |
| Section 3.4: Projected Employer/State Contribution Amounts | 33 |
| Section 3.5: Projection of Funded Ratios | 34 |
| Section 3.6: Table of Projected Actuarial Results | 35 |
| Section 3.7: Projected Pension Benefit Recipients and Amounts | 39 |
| Section 4: Member Data | 40 |
| Section 4.1: Summary of Members Included | 40 |
| Section 4.2: Age and Service Distribution of Active Members | 44 |
| Section 4.3: Member Data Reconciliation | 45 |
| Section 4.4: Schedule of Active Member Data | 47 |
| Section 4.5: Active Member Payroll Reconciliation | 48 |
| Section 4.6: Summary of New Pension Benefit Recipients | 49 |
| Section 4.7: Summary of All Pension Benefit Recipients | 51 |
| Section 4.8: Pension Benefit Recipients by Type of Benefit and Option Elected | 54 |
| Section 4.9: Pension Benefit Recipients Added to and Removed from Rolls | 55 |

| | |
|--|-----------|
| Section 5: Basis of the Actuarial Valuation | 56 |
| Section 5.1: Summary of Plan Provisions..... | 56 |
| Section 5.2: Description of Actuarial Methods and Valuation Procedures | 63 |
| Section 5.3: Summary of Actuarial Assumptions | 70 |
| Section 6: Actuarial Standard of Practice No. 51 | 81 |
| Glossary of Terms | 85 |

DRAFT

Executive Summary

Overview

The State of Alaska Teachers' Retirement System (TRS) provides pension and postemployment healthcare benefits to teachers and other eligible participants. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of TRS as of the valuation date of June 30, 2021.

Purpose

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

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

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

Actuarial projections are also performed to provide a long-term view of the expected future funded status and contribution patterns (see Section 3). The future funded status and contribution patterns would be different than those shown in Section 3 if future experience does not match the actuarial assumptions used in the projections.

Retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements.

Funded Status

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

Funded Status as of June 30 (\$'s in 000's)
2020
2021
Pension

| | | |
|--|------------------|------------------|
| a. Actuarial Accrued Liability | \$ 7,447,036 | \$ 7,471,887 |
| b. Valuation Assets | <u>5,587,064</u> | <u>5,910,369</u> |
| c. Unfunded Actuarial Accrued Liability, (a) - (b) | \$ 1,859,972 | \$ 1,561,518 |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a) | 75.0% | 79.1% |
| e. Fair Value of Assets | \$ 5,444,799 | \$ 6,731,481 |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 73.1% | 90.1% |

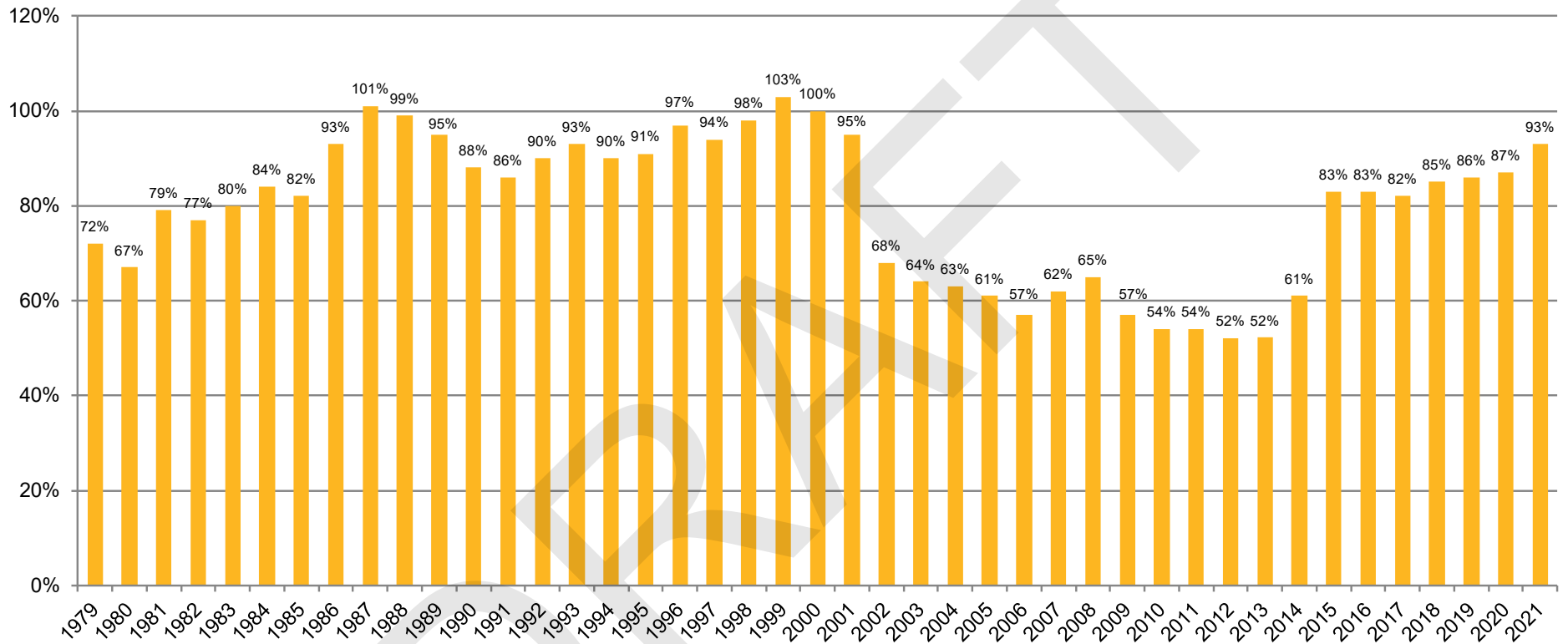
Healthcare

| | | |
|--|------------------|------------------|
| a. Actuarial Accrued Liability | \$ 2,489,675 | \$ 2,439,603 |
| b. Valuation Assets | <u>3,021,283</u> | <u>3,267,737</u> |
| c. Unfunded Actuarial Accrued Liability, (a) - (b) | \$ (531,608) | \$ (828,134) |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a) | 121.4% | 133.9% |
| e. Fair Value of Assets | \$ 2,953,461 | \$ 3,723,031 |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 118.6% | 152.6% |

Total

| | | |
|--|------------------|------------------|
| a. Actuarial Accrued Liability | \$ 9,936,711 | \$ 9,911,490 |
| b. Valuation Assets | <u>8,608,347</u> | <u>9,178,106</u> |
| c. Unfunded Actuarial Accrued Liability, (a) - (b) | \$ 1,328,364 | \$ 733,384 |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a) | 86.6% | 92.6% |
| e. Fair Value of Assets | \$ 8,398,260 | \$ 10,454,512 |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 84.5% | 105.5% |

Funded Ratio History (Based on Valuation Assets)



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

1. Investment Experience

The actuarial asset value was reinitialized to equal fair value of assets as of June 30, 2014. Beginning in FY15, the asset valuation method recognizes 20% of the investment gain or loss each year, for a period of five years. The FY21 investment return based on fair value of assets was approximately 30.1% compared to the expected investment return of 7.38% (net of investment expenses). This resulted in a market asset gain of approximately \$1,856 million. Due to the recognition of investment gains and losses over a 5-year period, the FY21 investment return based on actuarial value of assets was approximately 11.6%, which resulted in an actuarial asset gain of approximately \$354 million.

2. Salary Increases

Salary increases for continuing active members during FY21 were higher than expected based on the valuation assumptions, resulting in a liability loss of approximately \$29 million.

3. Demographic Experience

Section 4 provides statistics on active and inactive participants. The number of active participants decreased 10.4% from 3,789 at June 30, 2020 to 3,396 at June 30, 2021 due to active members exiting the plan during the year (due to retirement, termination, death, and disability) and the closure of the plan to new entrants as of July 1, 2006. The average age of active participants increased from 51.92 to 52.14 and average credited service increased from 19.76 to 20.31 years.

The number of benefit recipients increased 2.1% from 13,689 to 13,972, and their average age increased from 71.85 to 72.26. The number of vested terminated participants decreased 4.8% from 764 to 727. Their average age increased from 52.37 to 52.68.

The overall effect of the demographic experience during FY21 was a liability loss of approximately \$7 million (pension) and a liability gain of approximately \$3¹ million (healthcare).

4. COLA / PRPA Experience

The cost-of-living increases (COLA) for benefit recipients during FY21 were less than expected based on the valuation assumptions, resulting in a liability gain of approximately \$0.3 million. The postretirement pension adjustments (PRPA) were also less than expected, resulting in a liability gain of approximately \$81 million.

5. Retiree Medical Claims Experience

As described in Section 5.2, recent medical claims experience and changes in healthcare enrollment data provided to us for the June 30, 2021 valuation generated a liability gain of approximately \$97 million. Reduced claims during FY21, largely attributable to medical claims impacted by COVID-19, generated a liability gain of approximately \$11 million.

¹ Includes the effects of changes in dependent coverage elections and Medicare Part B only experience.

6. Changes in Methods Since the Prior Valuation

There were no changes in actuarial methods since the prior valuation.

7. Changes in Assumptions Since the Prior Valuation

Healthcare claim costs are updated annually as described in Section 5.2. The amounts included in the Normal Cost for administrative expenses were updated based on the last two years of actual administrative expenses paid from plan assets. There were no other changes in actuarial assumptions since the prior valuation.

8. Changes in Benefit Provisions Since the Prior Valuation

Starting in 2022, prior authorization will be required for certain specialty medications for all participants, and certain preventive benefits for pre-Medicare participants will now be covered by the plan. These changes created an actuarial gain of approximately \$22 million. There have been no other changes in benefit provisions valued since the prior valuation.

Projections

Absent future asset (and/or liability) losses, changes in plan provisions or actuarial assumptions, the \$1,856 million FY21 market asset gain has a significant impact on the projections shown in Section 3. For example, the pension trust is currently projected to reach a funded status of 100% in FY33. Based on the 2020 valuation projections, the funded status of the pension trust was projected to be only 80% in FY33.

Once the pension trust is projected to reach a funded status of 100%, it may be reasonable to assume that all remaining pension unfunded liability layered amortization amounts should be reduced to zero. Since the healthcare trust is currently more than 100% funded, the healthcare unfunded liability amortization amounts would also be reduced to zero if the Board decides to implement this change (this does not impact the projections shown in Section 3.6 since the healthcare Normal Cost is assumed to be contributed as a minimum in all years after FY23 per Alaska state statutes).

We have shown the table of projected figures in Section 3.6 two ways:

- a) Section 3.6A – No changes to the pension unfunded liability layered amortization amounts. In this case, Additional State Contributions totaling approximately \$553 million are projected for FY33 through FY39, even though the pension trust is projected to be 100% funded by FY33.
- b) Section 3.6B – Eliminate the pension unfunded liability layered amortization amounts when the pension trust is projected to be 100% funded. In this case, the Additional State Contributions are projected to be zero after FY32.

The pros and cons of these two methods can be discussed further upon request.

In both cases, the pension Normal Cost is assumed to be contributed as a minimum based on Alaska state statutes. (The healthcare trust is currently over 100% funded, so the healthcare Normal Cost is also assumed to be contributed as a minimum based on Alaska state statutes.)

Sections 3.3 through 3.5 are based on the projections shown in Section 3.6A.

Comparative Summary of Contribution Rates

| Pension | Actual FY 2023 | Estimated FY 2024 |
|--|-------------------|----------------------|
| a. Normal Cost Rate Net of Member Contributions | 2.24% | 2.05% |
| b. Past Service Cost Rate | <u>15.66%</u> | <u>12.90%</u> |
| c. Total Employer/State Contribution Rate, (a) + (b), not less than (a) ¹ | 17.90% | 14.95% |

| Healthcare | Actual FY 2023 | Estimated FY 2024 |
|--|-------------------|----------------------|
| a. Normal Cost Rate | 2.72% | 2.41% |
| b. Past Service Cost Rate | <u>(7.93)%</u> | <u>(11.03)%</u> |
| c. Total Employer/State Contribution Rate, (a) + (b), not less than (a) ¹ | 2.72% | 2.41% |

| Total | Actual FY 2023 | Estimated FY 2024 |
|--|---------------------|----------------------|
| a. Normal Cost Rate Net of Member Contributions | 4.96% | 4.46% |
| b. Past Service Cost Rate | <u>15.66%</u> | <u>12.90%</u> |
| c. Total Employer/State Contribution Rate, (a) + (b) ¹ | 20.62% | 17.36% |
| d. Board Adopted Total Employer/State Contribution Rate | 17.90% ² | TBD |
| e. Defined Contribution Retirement (DCR) Rate Paid by Employers | <u>6.72%</u> | <u>7.03%</u> |
| f. Board Adopted Total Rate, Including DCR Rate Paid by Employers, (d) + (e) | 24.62% | TBD |

Contribution rates are based on total (DB and DCR) payroll. The contribution rates shown above for FY24 are estimated assuming no actuarial gains/losses during FY22 and FY23. Actual FY24 contribution rates will be adopted by the Board in September 2022 reflecting FY22 asset experience.

Contribution rates include Employer contribution rates as limited by Alaska state statutes and the Additional State Contribution required under SB 125.

¹ Beginning with the June 30, 2014 valuation, contribution rates for FY17 and beyond are determined using new methodology in accordance with 2014 legislation under HB 385 and SB 119, 2014 Alaska Laws, which changed the amortization methodology to a closed 25-year period as a level percentage of pay, and eliminated the time lag on the contribution rate calculation by using a 2-year "roll-forward" approach assuming 0% population growth. Investment gains and losses are recognized over a 5-year period beginning in FY15. Beginning with the June 30, 2018 valuation, the UAAL amortization was changed as described in Section 5.2.

² The FY23 contribution rates adopted by the Board in October 2021 were 17.90% for Pension and 0.00% for Healthcare.

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

The following table summarizes the sources of change in the total Employer/State contribution rate as of June 30, 2020 and June 30, 2021 based on DB and DCR payroll combined:

| | Pension | Healthcare | Total |
|--|--------------|----------------|----------------|
| 1. Total Employer/State Contribution Rate as of June 30, 2020 | 21.73% | 3.30% | 25.03% |
| 2. Change due to: | | | |
| a. Health Claims Experience | N/A | (0.11)% | (0.11)% |
| b. Salary Increases | 0.25% | N/A | 0.25% |
| c. Investment Experience | (1.95)% | 0.00% | (1.95)% |
| d. Demographic Experience and Miscellaneous ¹ | (0.68)% | (0.23)% | (0.91)% |
| e. Actual vs Expected Contributions | (0.03)% | 0.00% | (0.03)% |
| f. Assumption/Method Changes | 0.00% | 0.00% | 0.00% |
| g. Plan Changes | <u>0.00%</u> | <u>(0.02)%</u> | <u>(0.02)%</u> |
| h. Total Change, (a) + (b) + (c) + (d) + (e) + (f) + (g) | (2.41)% | (0.36)% | (2.77)% |
| 3. Total Employer/State Contribution Rate as of June 30, 2021, (1) + (2)(h) | 19.32% | 2.94% | 22.26% |

The following table shows the FY21 gain/(loss) on actuarial accrued liability as of June 30, 2021 (\$'s in 000's):

| | Pension | Healthcare | Total |
|--|----------------|----------------|-----------------|
| Retirement Experience | \$ 4,502 | \$ (2,282) | \$ 2,220 |
| Termination Experience | (7,088) | (2,979) | (10,067) |
| Disability Experience | (103) | 220 | 117 |
| Active Mortality Experience | 311 | (2,709) | (2,398) |
| Inactive Mortality Experience | (5,089) | 269 | (4,820) |
| Salary Increases | (29,192) | N/A | (29,192) |
| Rehires (Net of Rehire Load) | 3,085 | 3,476 | 6,561 |
| COLA Increases | 293 | N/A | 293 |
| PRPA Increases | 81,362 | N/A | 81,362 |
| Benefit Payments Different than Expected | 14,033 | 10,592 | 24,625 |
| Per Capita Claims Cost | N/A | 96,861 | 96,861 |
| Medical and Prescription Drug Plan Changes | N/A | 21,763 | 21,763 |
| Medicare Part B Only Experience | N/A | 1,278 | 1,278 |
| Changes in Dependent Coverage Elections | N/A | 9,126 | 9,126 |
| Programming Changes ² | (227) | N/A | (227) |
| Miscellaneous ³ | <u>(6,320)</u> | <u>(4,278)</u> | <u>(10,598)</u> |
| Total | \$ 55,567 | \$ 131,337 | \$ 186,904 |

¹ Includes the effects of census data changes between the two valuations.

² Includes the adjustment to the COLA for Tier 2 disabilities to commence immediately.

³ Includes the effects of various data changes that are typical when new census data is received for the annual valuation, as well as other items that do not fit neatly into any of the other categories.

The rehire gain/(loss) amount shown on the previous page is the difference between (i) the increase in Actuarial Accrued Liability at June 30, 2021 due to rehires during the most recent plan year, and (ii) the load that was added to the June 30, 2020 Normal Cost based on the rehire load assumption used in the June 30, 2020 valuation. The development of the FY21 rehire gain/(loss) amount is shown in the table below (\$'s in 000's):

| | Pension | Healthcare | Total |
|---|----------|------------|----------|
| 1. Increase/(Decrease) in Actuarial Accrued Liability at June 30, 2021 due to Rehires | \$ 3,917 | \$ (817) | \$ 3,100 |
| 2. June 30, 2020 Normal Cost Rehire Load, with interest to June 30, 2021 | \$ 7,002 | \$ 2,659 | \$ 9,661 |
| 3. Rehire Gain/(Loss), (2) - (1) | \$ 3,085 | \$ 3,476 | \$ 6,561 |

DRAFT

Section 1: Actuarial Funding Results

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

| As of June 30, 2021 | Present Value of Projected Benefits | Actuarial Accrued (Past Service) Liability |
|---|--|--|
| Active Members | | |
| Retirement Benefits | \$ 1,842,511 | \$ 1,682,831 |
| Termination Benefits | 24,805 | 5,215 |
| Disability Benefits | 1,745 | (1,845) |
| Death Benefits | 12,117 | 10,274 |
| Return of Contributions | 2,130 | (31,947) |
| Medical and Prescription Drug Benefits | 863,878 | 743,380 |
| Medicare Part D Subsidy | (95,180) | (82,422) |
| Indebtedness | (26,453) | (26,453) |
| Subtotal | <u>\$ 2,625,553</u> | <u>\$ 2,299,033</u> |
| Inactive Members | | |
| Not Vested | \$ 39,268 | \$ 39,268 |
| Vested Terminations | | |
| - Retirement Benefits | 141,625 | 141,625 |
| - Medical and Prescription Drug Benefits | 261,528 | 261,528 |
| - Medicare Part D Subsidy | (29,859) | (29,859) |
| - Indebtedness | (4,137) | (4,137) |
| Retirees & Beneficiaries | | |
| - Retirement Benefits | 5,657,056 | 5,657,056 |
| - Medical and Prescription Drug Benefits | 1,836,116 | 1,836,116 |
| - Medicare Part D Subsidy | (289,140) | (289,140) |
| Subtotal | <u>\$ 7,612,457</u> | <u>\$ 7,612,457</u> |
| Total | \$ 10,238,010 | \$ 9,911,490 |
| Total Pension | \$ 7,690,667 | \$ 7,471,887 |
| Total Medical, Net of Part D Subsidy | \$ 2,547,343 | \$ 2,439,603 |
| Total Medical, Gross of Part D Subsidy | \$ 2,961,522 | \$ 2,841,024 |

| As of June 30, 2021 | Present Value of Projected Benefits | Actuarial Accrued (Past Service) Liability |
|----------------------------------|--|--|
| By Tier | | |
| Tier 1 | | |
| - Pension | \$ 4,372,747 | \$ 4,366,405 |
| - Medical, Net of Part D Subsidy | 1,077,186 | 1,074,462 |
| Tier 2 | | |
| - Pension | 3,317,920 | 3,105,482 |
| - Medical, Net of Part D Subsidy | 1,470,157 | 1,365,141 |
| Total | \$ 10,238,010 | \$ 9,911,490 |

| As of June 30, 2021 | Normal Cost |
|---|------------------|
| Active Members | |
| Retirement Benefits | \$ 28,231 |
| Termination Benefits | 3,445 |
| Disability Benefits | 628 |
| Death Benefits | 344 |
| Return of Contributions | 6,053 |
| Medical and Prescription Drug Benefits | 20,441 |
| Medicare Part D Subsidy | (2,209) |
| Rehire Assumption (Pension) | 6,026 |
| Rehire Assumption (Medical) | 2,193 |
| Administrative Expenses (Pension) | 3,217 |
| Administrative Expenses (Medical) | 1,604 |
| Total | \$ 69,973 |
| Total Pension | \$ 47,944 |
| Total Medical, Net of Part D Subsidy | \$ 22,029 |
| Total Medical, Gross of Part D Subsidy | \$ 24,238 |

| | |
|----------------------------------|------------------|
| By Tier | |
| Tier 1 | |
| - Pension | \$ 2,260 |
| - Medical, Net of Part D Subsidy | 903 |
| Tier 2 | |
| - Pension | 45,684 |
| - Medical, Net of Part D Subsidy | 21,126 |
| Total | \$ 69,973 |

Section 1.2: Actuarial Contributions as of June 30, 2021 (\$'s in 000's)

| Normal Cost Rate | Pension | Healthcare | Total |
|--|-----------|------------|-----------|
| 1. Total Normal Cost | \$ 47,944 | \$ 22,029 | \$ 69,973 |
| 2. DB Rate Payroll Projected for FY22 | 326,551 | 326,551 | 326,551 |
| 3. DCR Rate Payroll Projected for FY22 | 423,783 | 423,783 | 423,783 |
| 4. Total Rate Payroll Projected for FY22 | 750,334 | 750,334 | 750,334 |
| 5. Normal Cost Rate | | | |
| a. Based on DB Rate Payroll, (1) ÷ (2) | 14.68% | 6.75% | 21.43% |
| b. Based on Total Rate Payroll, (1) ÷ (4) | 6.39% | 2.94% | 9.33% |
| 6. Average Member Contribution Rate ¹ | 3.76% | 0.00% | 3.76% |
| 7. Employer Normal Cost, (5)(b) - (6) | 2.63% | 2.94% | 5.57% |

| Past Service Rate | Pension | Healthcare | Total |
|---|---------------|--------------|---------------|
| 1. Actuarial Accrued Liability | \$ 7,471,887 | \$ 2,439,603 | \$ 9,911,490 |
| 2. Valuation Assets | 5,910,369 | 3,267,737 | 9,178,106 |
| 3. Unfunded Actuarial Accrued Liability, (1) - (2) | \$ 1,561,518 | \$ (828,134) | \$ 733,384 |
| 4. Funded Ratio, (2) ÷ (1) | 79.1% | 133.9% | 92.6% |
| 5. Past Service Cost Amortization Payment | 125,231 | (55,785) | 69,446 |
| 6. Total Rate Payroll Projected for FY22 | 750,334 | 750,334 | 750,334 |
| 7. Past Service Rate, (5) ÷ (6) | 16.69% | (7.43%) | 9.26% |
| Total Employer / State Contribution Rate, not less than Normal Cost Rate | 19.32% | 2.94% | 22.26% |
| Normal Cost Rate by Tier (Total Employer and Member)² | | | |
| Tier 1 | 15.35% | 6.13% | 21.49% |
| Tier 2 | 14.65% | 6.77% | 21.42% |

¹ 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.

² Rates determined considering the payroll for members in each tier. DCR payroll is excluded from these calculations.

Schedule of Past Service Cost Amortizations - Pension (\$'s in 000's)

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|-----------------------|---------------------|-----------------|--------------|---------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Amount | 6/30/2018 | 18 | \$ 1,720,344 | \$ 1,693,026 | \$ 133,291 |
| Change in Assumptions | 6/30/2018 | 22 | 14,346 | 14,467 | 1,005 |
| FY19 Loss | 6/30/2019 | 23 | 94,314 | 95,008 | 6,430 |
| FY20 Loss | 6/30/2020 | 24 | 44,395 | 44,593 | 2,945 |
| FY21 Gain | 6/30/2021 | 25 | (285,576) | (285,576) | (18,440) |
| Total | | | | \$ 1,561,518 | \$ 125,231 |

Schedule of Past Service Cost Amortizations - Healthcare (\$'s in 000's)

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--|---------------------|-----------------|-------------|---------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Amount | 6/30/2018 | 18 | \$ (48,285) | \$ (47,519) | \$ (3,741) |
| Change in Assumptions/Methods/EGWP | 6/30/2018 | 22 | (166,274) | (167,686) | (11,647) |
| FY19 Gain | 6/30/2019 | 23 | (213,757) | (215,328) | (14,572) |
| FY20 Gain | 6/30/2020 | 24 | (101,507) | (101,961) | (6,735) |
| Medical/Prescription Drug Plan Changes | 6/30/2021 | 25 | (21,763) | (21,763) | (1,405) |
| FY21 Gain | 6/30/2021 | 25 | (273,877) | (273,877) | (17,685) |
| Total | | | | \$ (828,134) | \$ (55,785) |

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--|---------------------|-----------------|--------------|-------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Amount | 6/30/2018 | 18 | \$ 1,672,059 | \$ 1,645,507 | \$ 129,550 |
| Change in Assumptions/Methods/EGWP | 6/30/2018 | 22 | (151,928) | (153,219) | (10,642) |
| FY19 Gain | 6/30/2019 | 23 | (119,443) | (120,320) | (8,142) |
| FY20 Gain | 6/30/2020 | 24 | (57,112) | (57,368) | (3,790) |
| Medical/Prescription Drug Plan Changes | 6/30/2021 | 25 | (21,763) | (21,763) | (1,405) |
| FY21 Gain | 6/30/2021 | 25 | (559,453) | (559,453) | (36,125) |
| Total | | | | \$ 733,384 | \$ 69,446 |

Section 1.3: Roll-Forward Contribution Rate Calculation for FY24 (\$'s in 000's)

| | Pension | Healthcare | Total |
|--|---------------------|-----------------------|----------------------|
| 1. Liability Roll Forward | | | |
| a. Actuarial Accrued Liability as of June 30, 2021 | \$ 7,471,887 | \$ 2,439,603 | \$ 9,911,490 |
| b. Normal Cost | 44,727 | 20,425 | 65,152 |
| c. Interest on (a) and (b) at 7.38% | 554,726 | 181,550 | 736,276 |
| d. Estimated Benefit Payments | (523,901) | (134,643) | (658,544) |
| e. Interest on (d) at 7.38%, adjusted for timing | (20,601) | (4,880) | (25,481) |
| f. Expected Actuarial Accrued Liability as of June 30, 2022 | \$ 7,526,838 | \$ 2,502,055 | \$ 10,028,893 |
| g. Projected Normal Cost | 40,486 | 18,726 | 59,212 |
| h. Interest on (f) and (g) at 7.38% | 558,469 | 186,034 | 744,503 |
| i. Estimated Benefit Payments | (541,571) | (140,701) | (682,272) |
| j. Interest on (i) at 7.38%, adjusted for timing | (21,296) | (5,099) | (26,395) |
| k. Expected Actuarial Accrued Liability as of June 30, 2023 | \$ 7,562,926 | \$ 2,561,015 | \$ 10,123,941 |
| 2. Asset Roll Forward | | | |
| a. Actuarial Value of Assets as of June 30, 2021 | \$ 5,910,369 | \$ 3,267,737 | \$ 9,178,106 |
| b. Interest on (a) at 7.38% | 436,185 | 241,159 | 677,344 |
| c. Employee Contributions | 31,383 | 0 | 31,383 |
| d. Employer Contributions | 24,161 | 22,360 | 46,521 |
| e. State Assistance Contributions | 142,665 | 0 | 142,665 |
| f. Interest on (c) thru (e) at 7.38%, adjusted for timing* | 12,542 | 810 | 13,352 |
| g. Estimated Benefit Payments | (523,901) | (134,643) | (658,544) |
| h. Administrative Expenses | (3,217) | (1,604) | (4,821) |
| i. Interest on (g) and (h) at 7.38%, adjusted for timing | (20,717) | (4,938) | (25,655) |
| j. AVA Adjustments | 250,511 | 140,417 | 390,928 |
| k. Expected Actuarial Value of Assets as of June 30, 2022 | \$ 6,259,981 | \$ 3,531,298 | \$ 9,791,279 |
| l. Interest on (k) at 7.38% | 461,987 | 260,610 | 722,597 |
| m. Employee Contributions | 29,220 | 0 | 29,220 |
| n. Employer Contributions | 44,104 | 0 | 44,104 |
| o. State Assistance Contributions** | 91,029 | 0 | 91,029 |
| p. Interest on (m) thru (o) at 7.38%, adjusted for timing* | 9,375 | 0 | 9,375 |
| q. Estimated Benefit Payments | (541,571) | (140,701) | (682,272) |
| r. Administrative Expenses | (2,932) | (1,478) | (4,410) |
| s. Interest on (q) and (r) at 7.38%, adjusted for timing | (21,402) | (5,153) | (26,555) |
| t. AVA Adjustments | 233,895 | 130,611 | 364,506 |
| u. Expected Actuarial Value of Assets as of June 30, 2023 | \$ 6,563,686 | \$ 3,775,187 | \$ 10,338,873 |
| 3. Expected Unfunded Actuarial Accrued Liability as of June 30, 2023, 1(k) - 2(u) | \$ 999,240 | \$ (1,214,172) | \$ (214,932) |

* Employee and Employer Contributions are paid throughout the year. State Assistance Contributions are assumed to be paid on July 1, 2021 for FY22, and July 1, 2022 for FY23.

** The FY23 State Assistance Contribution is expected to be contributed 100% to pension.

| | Pension | Healthcare | Total |
|---|---------------|-----------------|-------------------|
| 4. Expected Annual Rate Payroll for FY24 | | | |
| a. Defined Benefit Members | | | \$ 270,617 |
| b. Defined Contribution Retirement Members | | | 491,467 |
| c. Total Rate Payroll | | | \$ 762,084 |
| 5. Expected FY24 Contribution Rate Calculation | | | |
| a. Projected Normal Cost for FY24 | \$ 39,024 | \$ 18,394 | \$ 57,418 |
| b. Projected Normal Cost Rate for FY24 | 5.12% | 2.41% | 7.53% |
| c. Expected Member Contribution Rate for FY24 | (3.07%) | 0.00% | (3.07%) |
| d. Expected Employer Normal Cost Rate for FY24 | 2.05% | 2.41% | 4.46% |
| e. Expected Unfunded Liability as of June 30, 2023 | \$ 999,240 | \$ (1,214,172) | \$ (214,932) |
| f. FY24 Layered Amortization of Expected Unfunded Liability | 98,310 | (84,064) | 14,246 |
| g. Expected Past Service Cost Contribution Rate for FY24 | 12.90% | (11.03%) | 12.90% |
| h. Expected Total Contribution Rate for FY24, not less than Normal Cost Rate | 14.95% | 2.41% | 17.36% |

The components of the expected FY24 amortization amounts are shown below (totals may not add due to rounding):

Expected FY24 Schedule of Past Service Cost Amortizations - Pension (\$'s in 000's)

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment for FY24 |
|-----------------------|---------------------|----------------------------|--------------|------------------------|------------------------------------|
| | Date Created | Years Remaining at 6/30/23 | Initial | Outstanding at 6/30/23 | |
| Initial Amount | 6/30/2018 | 16 | \$ 1,720,344 | \$ 1,651,383 | \$ 140,722 |
| Change in Assumptions | 6/30/2018 | 20 | 14,346 | 14,414 | 1,061 |
| FY19 Loss | 6/30/2019 | 21 | 94,314 | 95,041 | 6,788 |
| FY20 Loss | 6/30/2020 | 22 | 44,395 | 44,772 | 3,110 |
| FY21 Gain | 6/30/2021 | 23 | (285,576) | (287,675) | (19,468) |
| Expected FY22 Gain | 6/30/2022 | 24 | (275,429) | (276,658) | (18,274) |
| Expected FY23 Gain | 6/30/2023 | 25 | (242,037) | (242,037) | (15,629) |
| Total | | | | \$ 999,240 | \$ 98,310 |

Expected FY24 Schedule of Past Service Cost Amortizations - Healthcare (\$'s in 000's)

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment for FY24 |
|--|---------------------|----------------------------|-------------|------------------------|------------------------------------|
| | Date Created | Years Remaining at 6/30/23 | Initial | Outstanding at 6/30/23 | |
| Initial Amount | 6/30/2018 | 16 | \$ (48,285) | \$ (46,351) | \$ (3,950) |
| Change in Assumptions/Methods/EGWP | 6/30/2018 | 20 | (166,274) | (167,070) | (12,296) |
| FY19 Gain | 6/30/2019 | 21 | (213,757) | (215,403) | (15,385) |
| FY20 Gain | 6/30/2020 | 22 | (101,507) | (102,370) | (7,110) |
| Medical/Prescription Drug Plan Changes | 6/30/2021 | 23 | (21,763) | (21,923) | (1,484) |
| FY21 Gain | 6/30/2021 | 23 | (273,877) | (275,889) | (18,671) |
| Expected FY22 Gain | 6/30/2022 | 24 | (199,895) | (200,787) | (13,262) |
| Expected FY23 Gain | 6/30/2023 | 25 | (184,379) | (184,379) | (11,906) |
| Total | | | | \$ (1,214,172) | \$ (84,064) |

The components of the expected FY24 amortization amounts are shown below (totals may not add due to rounding):

Expected FY24 Schedule of Past Service Cost Amortizations - Total (\$'s in 000's)

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment for FY24 |
|--|---------------------|----------------------------|--------------|------------------------|------------------------------------|
| | Date Created | Years Remaining at 6/30/23 | Initial | Outstanding at 6/30/23 | |
| Initial Amount | 6/30/2018 | 16 | \$ 1,672,059 | \$ 1,605,032 | \$ 136,772 |
| Change in Assumptions/Methods/EGWP | 6/30/2018 | 20 | (151,928) | (152,656) | (11,235) |
| FY19 Gain | 6/30/2019 | 21 | (119,443) | (120,362) | (8,597) |
| FY20 Gain | 6/30/2020 | 22 | (57,112) | (57,598) | (4,000) |
| Medical/Prescription Drug Plan Changes | 6/30/2021 | 23 | (21,763) | (21,923) | (1,484) |
| FY21 Gain | 6/30/2021 | 23 | (559,453) | (563,564) | (38,139) |
| Expected FY22 Gain | 6/30/2022 | 24 | (475,324) | (477,445) | (31,536) |
| Expected FY23 Gain | 6/30/2023 | 25 | (426,416) | (426,416) | (27,535) |
| Total | | | | \$ (214,932) | \$ 14,246 |

Section 1.4: Actuarial Gain/(Loss) for FY21 (\$'s in 000's)

| | Pension | Healthcare | Total |
|--|-------------------|-------------------|-------------------|
| 1. Expected Actuarial Accrued Liability | | | |
| a. Actuarial Accrued Liability as of June 30, 2020 | \$ 7,447,036 | \$ 2,489,675 | \$ 9,936,711 |
| b. Normal Cost | 48,401 | 23,057 | 71,458 |
| c. Interest on (a) and (b) at 7.38% | 553,163 | 185,440 | 738,603 |
| d. Employer Group Waiver Plan | 0 | 18,355 | 18,355 |
| e. Benefit Payments | (499,942) | (141,137) | (641,079) |
| f. Refund of Contributions | (1,487) | 0 | (1,487) |
| g. Interest on (d) thru (f) at 7.38%, adjusted for timing | (19,717) | (4,450) | (24,167) |
| h. Assumptions/Methods Changes | 0 | 0 | 0 |
| i. Expected Actuarial Accrued Liability as of June 30, 2021 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) | \$ 7,527,454 | \$ 2,570,940 | \$ 10,098,394 |
| 2. Actual Actuarial Accrued Liability as of June 30, 2021 | 7,471,887 | 2,439,603 | 9,911,490 |
| 3. Liability Gain/(Loss), (1)(i) - (2) | \$ 55,567 | \$ 131,337 | \$ 186,904 |
| 4. Expected Actuarial Asset Value | | | |
| a. Actuarial Value of Assets as of June 30, 2020 | \$ 5,587,064 | \$ 3,021,283 | \$ 8,608,347 |
| b. Interest on (a) at 7.38% | 412,325 | 222,971 | 635,296 |
| c. Employee Contributions | 33,342 | 0 | 33,342 |
| d. Employer Contributions | 28,430 | 24,700 | 53,130 |
| e. State Assistance Contributions | 134,976 | 0 | 134,976 |
| f. Employer Group Waiver Plan | 0 | 18,355 | 18,355 |
| g. Interest on (c) thru (f) at 7.38%, adjusted for timing | 12,200 | 1,560 | 13,760 |
| h. Benefit Payments | (499,942) | (141,137) | (641,079) |
| i. Refund of Contributions | (1,487) | 0 | (1,487) |
| j. Administrative Expenses | (3,446) | (1,836) | (5,282) |
| k. Interest on (h) thru (j) at 7.38%, adjusted for timing | (19,842) | (5,182) | (25,024) |
| l. Expected Actuarial Asset Value as of June 30, 2021 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) + (i) + (j) + (k) | \$ 5,683,620 | \$ 3,140,714 | \$ 8,824,334 |
| 5. Actual Actuarial Asset Value as of June 30, 2021 | 5,910,369 | 3,267,737 | 9,178,106 |
| 6. Actuarial Asset Value Gain/(Loss), (5) - (4)(l) | \$ 226,749 | \$ 127,023 | \$ 353,772 |
| 7. Total Actuarial Gain/(Loss), (3) + (6) | \$ 282,316 | \$ 258,360 | \$ 540,676 |
| 8. Contribution Gain/(Loss) | \$ 3,606 | \$ 37,720 | \$ 41,326 |
| 9. Administrative Expense Gain/(Loss) | \$ (346) | \$ (440) | \$ (786) |
| 10. FY21 Gain/(Loss), (7) + (8) + (9) | \$ 285,576 | \$ 295,640 | \$ 581,216 |

Section 1.5: Development of Change in Unfunded Liability During FY21 (\$'s in 000's)

| | Pension | Healthcare | Total |
|---|------------------|------------------|------------------|
| 1. 2020 Unfunded Liability | \$ 1,859,972 | \$ (531,608) | \$ 1,328,364 |
| a. Interest on Unfunded Liability at 7.38% | \$ 137,266 | \$ (39,233) | \$ 98,033 |
| b. Normal Cost | 48,401 | 23,057 | 71,458 |
| c. Employee Contributions | (33,342) | 0 | (33,342) |
| d. Employer Contributions | (28,430) | (24,700) | (53,130) |
| e. State Assistance Contributions | (134,976) | 0 | (134,976) |
| f. Administrative Expenses | 3,446 | 1,836 | 5,282 |
| g. Interest on (b) thru (f) at 7.38%, adjusted for timing | (8,503) | 874 | (7,629) |
| h. Assumptions/Methods Changes | 0 | 0 | 0 |
| i. Expected Change in Unfunded Liability During FY21 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) | \$ (16,138) | \$ (38,166) | \$ (54,304) |
| 2. Expected 2021 Unfunded Liability, (1) + (1)(i) | \$ 1,843,834 | \$ (569,774) | \$ 1,274,060 |
| a. Liability (Gain)/Loss During FY21 | \$ (55,567) | \$ (131,337) | \$ (186,904) |
| b. Actuarial Assets (Gain)/Loss During FY21 | <u>(226,749)</u> | <u>(127,023)</u> | <u>(353,772)</u> |
| c. Total Actuarial (Gain)/Loss During FY21 | \$ (282,316) | \$ (258,360) | \$ (540,676) |
| 3. Actual 2021 Unfunded Liability, (2) + (2)(c) | \$ 1,561,518 | \$ (828,134) | \$ 733,384 |

Section 1.6: Analysis of Financial Experience

Pension

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

| Type of (Gain) or Loss | Change in Employer / State Contribution Rate During Fiscal Year | | | | |
|---|---|----------------|----------------|----------------|----------------|
| | Pension | | | | |
| | 2017 | 2018 | 2019 | 2020 | 2021 |
| 1. Health Claims | N/A | N/A | N/A | N/A | N/A |
| 2. Salary Experience | (0.34%) | (0.39%) | (0.06%) | (0.06%) | 0.25% |
| 3. Investment Experience | 1.12% | 0.91% | 0.93% | 0.83% | (1.95%) |
| 4. Demographic Experience and Miscellaneous | (0.47%) | 0.37% | 0.75% | (0.28%) | (0.68%) |
| 5. Actual vs Expected Contributions | <u>(0.07%)</u> | <u>(0.03%)</u> | <u>(0.15%)</u> | <u>(0.17%)</u> | <u>(0.03%)</u> |
| 6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5) | 0.24% | 0.86% | 1.47% | 0.32% | (2.41%) |
| 7. Assumptions / Method Changes | 0.00% | (0.32%) | 0.00% | 0.00% | 0.00% |
| 8. Plan Changes | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> |
| 9. Composite (Gain) or Loss During Year, (6) + (7) + (8) | 0.24% | 0.54% | 1.47% | 0.32% | (2.41%) |
| 10. Beginning Total Employer / State Contribution Rate | <u>19.16%</u> | <u>19.40%</u> | <u>19.94%</u> | <u>21.41%</u> | <u>21.73%</u> |
| 11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10) | 19.40% | 19.94% | 21.41% | 21.73% | 19.32% |
| 12. Fiscal Year Rates Adopted by ARMB | | | | | |
| a. Fiscal Year Employer / State Contribution Rate | 20.71% | 20.94% | 22.51% | 17.90% | 14.95% * |
| b. Fiscal Year for which Rate Applies | FY20 | FY21 | FY22 | FY23 | FY24 |

* Expected rate. Actual rate to be determined

Healthcare

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

| Type of (Gain) or Loss | Change in Employer / State Contribution Rate During Fiscal Year | | | | |
|---|---|--------------|----------------|----------------|----------------|
| | Healthcare | | | | |
| | 2017 | 2018 | 2019 | 2020 | 2021 |
| 1. Health Claims | (2.32%) | (1.58%) | (2.51%) | (0.95%) | (0.11%) |
| 2. Salary Experience | N/A | N/A | N/A | N/A | N/A |
| 3. Investment Experience | 0.56% | 0.45% | 0.45% | 0.38% | 0.00% |
| 4. Demographic Experience and Miscellaneous | (0.71%) | 1.49% | 1.60% | 0.49% | (0.23%) |
| 5. Actual vs Expected Contributions | <u>(0.11%)</u> | <u>0.05%</u> | <u>(0.02%)</u> | <u>(0.19%)</u> | <u>0.00%</u> |
| 6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5) | (2.58%) | 0.41% | (0.48%) | (0.27%) | (0.34%) |
| 7. Assumptions / Method Changes | 3.41% | 0.24% | 0.00% | 0.00% | 0.00% |
| 8. Plan Changes | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> | <u>(0.02%)</u> |
| 9. Composite (Gain) or Loss During Year, (6) + (7) + (8) | 0.83% | 0.65% | (0.48%) | (0.27%) | (0.36%) |
| 10. Beginning Total Employer / State Contribution Rate | <u>2.57%</u> | <u>3.40%</u> | <u>4.05%</u> | <u>3.57%</u> | <u>3.30%</u> |
| 11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10) | 3.40% | 4.05% | 3.57% | 3.30% | 2.94% |
| 12. Fiscal Year Rates Adopted by ARMB | | | | | |
| a. Fiscal Year Employer / State Contribution Rate | 3.91% | 3.40% | 2.98% | 0.00% | 2.41% * |
| b. Fiscal Year for which Rate Applies | FY20 | FY21 | FY22 | FY23 | FY24 |

* Expected rate. Actual rate to be determined

Total
Change in Employer / State Contribution Rate as of Valuation Date
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 | | | | |
|---|---|---------------|----------------|----------------|----------------|
| | 2017 | 2018 | 2019 | 2020 | 2021 |
| 1. Health Claims | (2.32%) | (1.58%) | (2.51%) | (0.95%) | (0.11%) |
| 2. Salary Experience | (0.34%) | (0.39%) | (0.06%) | (0.06%) | 0.25% |
| 3. Investment Experience | 1.68% | 1.36% | 1.38% | 1.21% | (1.95%) |
| 4. Demographic Experience and Miscellaneous | (1.18%) | 1.86% | 2.35% | 0.21% | (0.91%) |
| 5. Actual vs Expected Contributions | <u>(0.18%)</u> | <u>0.02%</u> | <u>(0.17%)</u> | <u>(0.36%)</u> | <u>(0.03%)</u> |
| 6. (Gain) or Loss During Year From Experience, (1) + (2) + (3) + (4) + (5) | (2.34%) | 1.27% | 0.99% | 0.05% | (2.75%) |
| 7. Assumptions / Method Changes | 3.41% | (0.08%) | 0.00% | 0.00% | 0.00% |
| 8. Plan Changes | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> | <u>(0.02%)</u> |
| 9. Composite (Gain) or Loss During Year, (6) + (7) + (8) | 1.07% | 1.19% | 0.99% | 0.05% | (2.77%) |
| 10. Beginning Total Employer / State Contribution Rate | <u>21.73%</u> | <u>22.80%</u> | <u>23.99%</u> | <u>24.98%</u> | <u>25.03%</u> |
| 11. Ending Valuation Year Employer / State Contribution Rate, (9) + (10) | 22.80% | 23.99% | 24.98% | 25.03% | 22.26% |
| 12. Fiscal Year Rates Adopted by ARMB | | | | | |
| a. Fiscal Year Employer / State Contribution Rate | 24.62% | 24.34% | 25.49% | 17.90% | 17.36% * |
| b. Fiscal Year for which Rate Applies | FY20 | FY21 | FY22 | FY23 | FY24 |

* Expected rate. 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 |
| June 30, 2017 | 10,144,618 | 8,313,637 | 82.0% | 1,830,981 |
| June 30, 2018 | 9,960,440 | 8,440,309 | 84.7% | 1,520,131 |
| June 30, 2019 | 9,906,664 | 8,511,493 | 85.9% | 1,395,171 |
| June 30, 2020 | 9,936,711 | 8,608,347 | 86.6% | 1,328,364 |
| June 30, 2021 | 9,911,490 | 9,178,106 | 92.6% | 733,384 |

Section 2: Plan Assets

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

| As of June 30, 2021 | Pension | Healthcare | Total | Allocation Percent |
|--|-----------------|-----------------|-----------------|--------------------|
| Cash and Short-Term Investments | | | | |
| - Cash and Cash Equivalents | \$ 72,735 | \$ 38,232 | \$ 110,967 | 1.1% |
| - Subtotal | \$ 72,735 | \$ 38,232 | \$ 110,967 | 1.1% |
| Fixed Income Investments | | | | |
| - Domestic Fixed Income Pool | \$ 1,365,542 | \$ 758,389 | \$ 2,123,931 | 20.3% |
| - International Fixed Income Pool | 0 | 0 | 0 | 0.0% |
| - Tactical Fixed Income Pool | 0 | 0 | 0 | 0.0% |
| - High Yield Pool | 0 | 0 | 0 | 0.0% |
| - Treasury Inflation Protection Pool | 0 | 0 | 0 | 0.0% |
| - Emerging Debt Pool | 0 | 0 | 0 | 0.0% |
| - Subtotal | \$ 1,365,542 | \$ 758,389 | \$ 2,123,931 | 20.3% |
| Equity Investments | | | | |
| - Domestic Equity Pool | \$ 1,847,616 | \$ 1,026,121 | \$ 2,873,737 | 27.4% |
| - International Equity Pool | 1,018,255 | 565,514 | 1,583,769 | 15.1% |
| - Private Equity Pool | 1,001,964 | 556,466 | 1,558,430 | 14.9% |
| - Emerging Markets Equity Pool | 216,313 | 120,135 | 336,448 | 3.2% |
| - Alternative Equity Strategies | 393,518 | 218,551 | 612,069 | 5.8% |
| - Subtotal | \$ 4,477,666 | \$ 2,486,787 | \$ 6,964,453 | 66.4% |
| Other Investments | | | | |
| - Real Estate Pool | \$ 414,283 | \$ 230,449 | \$ 644,732 | 6.1% |
| - Other Investments Pool | 414,089 | 229,975 | 644,064 | 6.1% |
| - Absolute Return Pool | 0 | 0 | 0 | 0.0% |
| - Other Assets | 0 | 318 | 318 | 0.0% |
| - Subtotal | \$ 828,372 | \$ 460,742 | \$ 1,289,114 | 12.2% |
| Total Cash and Investments | \$ 6,744,315 | \$ 3,744,150 | \$ 10,488,465 | 100.0% |
| Net Accrued Receivables | <u>(12,834)</u> | <u>(21,119)</u> | <u>(33,953)</u> | |
| Net Assets | \$ 6,731,481 | \$ 3,723,031 | \$ 10,454,512 | |

Section 2.2: Changes in Fair Value of Assets During FY21 (\$'s in 000's)

| Fiscal Year 2021 | Pension | Healthcare | Total |
|--|----------------|-------------------|---------------|
| 1. Fair Value of Assets as of June 30, 2020 | \$ 5,444,799 | \$ 2,953,461 | \$ 8,398,260 |
| 2. Additions: | | | |
| a. Employee Contributions | \$ 33,342 | \$ 0 | \$ 33,342 |
| b. Employer Contributions | 28,430 | 24,700 | 53,130 |
| c. State Assistance Contributions | 134,976 | 0 | 134,976 |
| d. Interest and Dividend Income | 75,824 | 41,567 | 117,391 |
| e. Net Appreciation / Depreciation in Fair Value of Investments | 1,534,132 | 835,912 | 2,370,044 |
| f. Employer Group Waiver Plan | 0 | 18,355 | 18,355 |
| g. Other | <u>273</u> | <u>247</u> | <u>520</u> |
| h. Total Additions | \$ 1,806,977 | \$ 920,781 | \$ 2,727,758 |
| 3. Deductions: | | | |
| a. Medical Benefits | \$ 0 | \$ 141,137 | \$ 141,137 |
| b. Retirement Benefits | 499,942 | 0 | 499,942 |
| c. Refund of Contributions | 1,487 | 0 | 1,487 |
| d. Investment Expenses | 15,420 | 8,238 | 23,658 |
| e. Administrative Expenses | <u>3,446</u> | <u>1,836</u> | <u>5,282</u> |
| f. Total Deductions | \$ 520,295 | \$ 151,211 | \$ 671,506 |
| 4. Fair Value of Assets as of June 30, 2021 | \$ 6,731,481 | \$ 3,723,031 | \$ 10,454,512 |
| 5. Approximate Fair Value Investment Return Rate during FY21 Net of Investment Expenses | 30.1% | 29.9% | 30.1% |

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

The actuarial value of asset was set equal to the fair value as of 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 FY21 | | | |
| a. Fair Value of Assets as of June 30, 2020 | \$ 5,444,799 | \$ 2,953,461 | \$ 8,398,260 |
| b. Contributions | 196,748 | 24,700 | 221,448 |
| c. Employer Group Waiver Plan | 0 | 18,355 | 18,355 |
| d. Benefit Payments | 501,429 | 141,137 | 642,566 |
| e. Administrative Expenses | 3,446 | 1,836 | 5,282 |
| f. Actual Investment Return (net of investment expenses) | 1,594,809 | 869,488 | 2,464,297 |
| g. Expected Return Rate (net of investment expenses) | 7.38% | 7.38% | 7.38% |
| h. Expected Return, Weighted for Timing | 394,184 | 214,344 | 608,528 |
| i. Investment Gain / (Loss) for the Year, (f) - (h) | 1,200,625 | 655,144 | 1,855,769 |
| 2. Actuarial Value as of June 30, 2021 | | | |
| a. Fair Value as of June 30, 2021 | \$ 6,731,481 | \$ 3,723,031 | \$ 10,454,512 |
| b. Deferred Investment Gain / (Loss) | 821,112 | 455,294 | 1,276,406 |
| c. Actuarial Value as of June 30, 2021, (a) - (b) | 5,910,369 | 3,267,737 | 9,178,106 |
| 3. Ratio of Actuarial Value of Assets to Fair Value of Assets | | | |
| | 87.8% | 87.8% | 87.8% |
| 4. Approximate Actuarial Value Investment Return Rate during FY21 Net of Investment Expenses | | | |
| | 11.6% | 11.7% | 11.6% |

The tables below show the development of the gains/(losses) to be recognized in the current year (\$'s in 000's):

| Pension | | | | |
|---------------------------|----------------------------|--|---|---|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 236,679 | \$ 189,344 | \$ 47,335 | \$ 0 |
| June 30, 2018 | 13,001 | 7,800 | 2,600 | 2,601 |
| June 30, 2019 | (82,246) | (32,898) | (16,449) | (32,899) |
| June 30, 2020 | (181,816) | (36,363) | (36,363) | (109,090) |
| June 30, 2021 | <u>1,200,625</u> | <u>0</u> | <u>240,125</u> | <u>960,500</u> |
| Total | \$ 1,186,243 | \$ 127,883 | \$ 237,248 | \$ 821,112 |

| Healthcare | | | | |
|---------------------------|----------------------------|--|---|---|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 126,053 | \$ 100,843 | \$ 25,210 | \$ 0 |
| June 30, 2018 | 9,619 | 5,772 | 1,924 | 1,923 |
| June 30, 2019 | (38,309) | (15,324) | (7,662) | (15,323) |
| June 30, 2020 | (92,367) | (18,473) | (18,473) | (55,421) |
| June 30, 2021 | <u>655,144</u> | <u>0</u> | <u>131,029</u> | <u>524,115</u> |
| Total | \$ 660,140 | \$ 72,818 | \$ 132,028 | \$ 455,294 |

| Total | | | | |
|---------------------------|----------------------------|--|---|---|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 362,732 | \$ 290,187 | \$ 72,545 | \$ 0 |
| June 30, 2018 | 22,620 | 13,572 | 4,524 | 4,524 |
| June 30, 2019 | (120,555) | (48,222) | (24,111) | (48,222) |
| June 30, 2020 | (274,183) | (54,836) | (54,836) | (164,511) |
| June 30, 2021 | <u>1,855,769</u> | <u>0</u> | <u>371,154</u> | <u>1,484,615</u> |
| Total | \$ 1,846,383 | \$ 200,701 | \$ 369,276 | \$ 1,276,406 |

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% | 7.1% | (0.7%) | 5.9% |
| June 30, 2017 | 5.6% | 6.9% | 12.9% | 6.4% |
| June 30, 2018 | 6.2% | 6.9% | 8.2% | 6.6% |
| June 30, 2019 | 5.5% | 6.8% | 5.9% | 6.5% |
| June 30, 2020 | 5.8% | 6.7% | 4.1% | 6.4% |
| June 30, 2021 | 11.6% | 7.0% | 30.1% | 7.6% |

* Cumulative since fiscal year ending June 30, 2005

Section 3: Projections

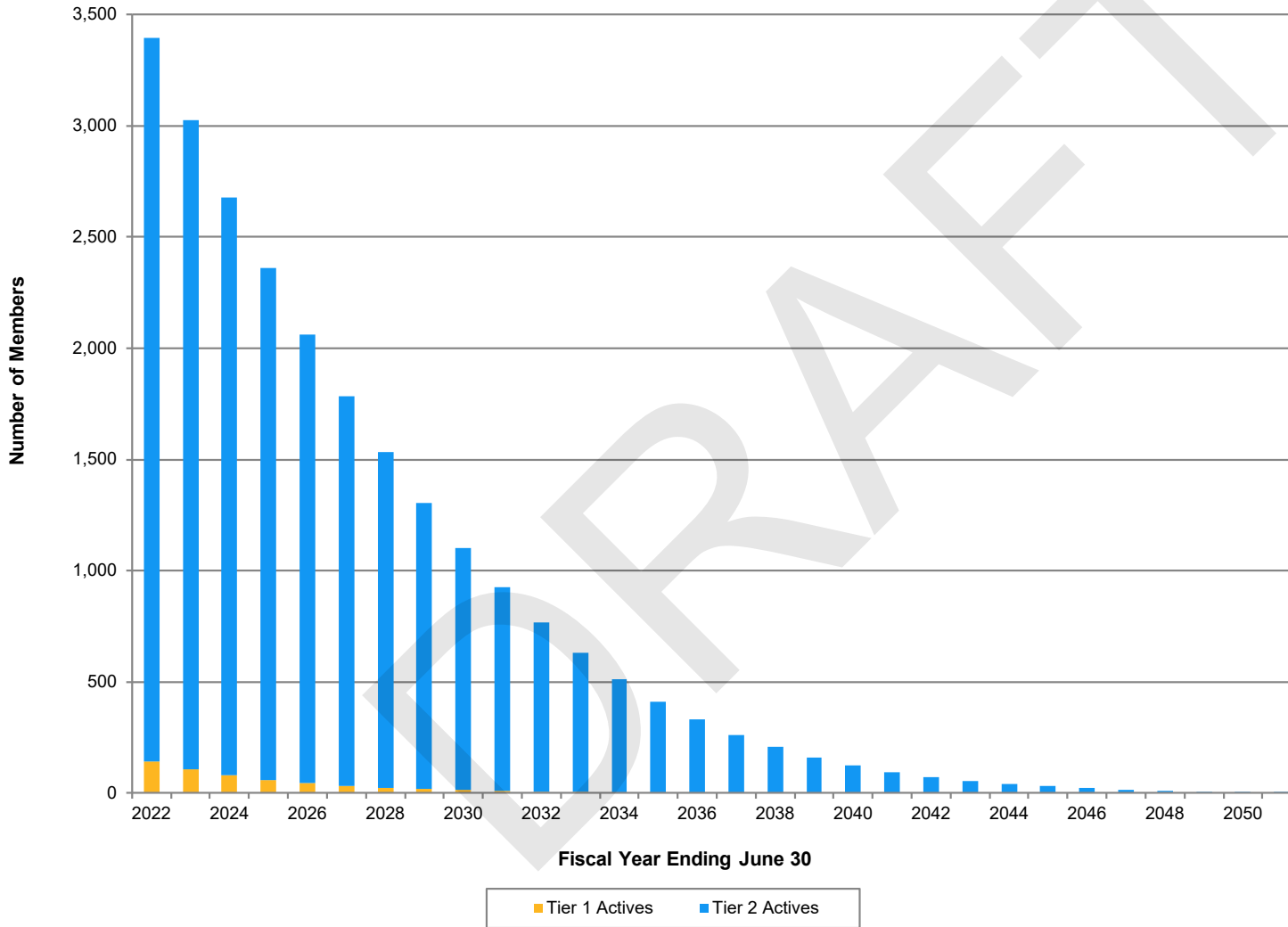
Section 3.1: Projection Assumptions and Methods

Key Assumptions

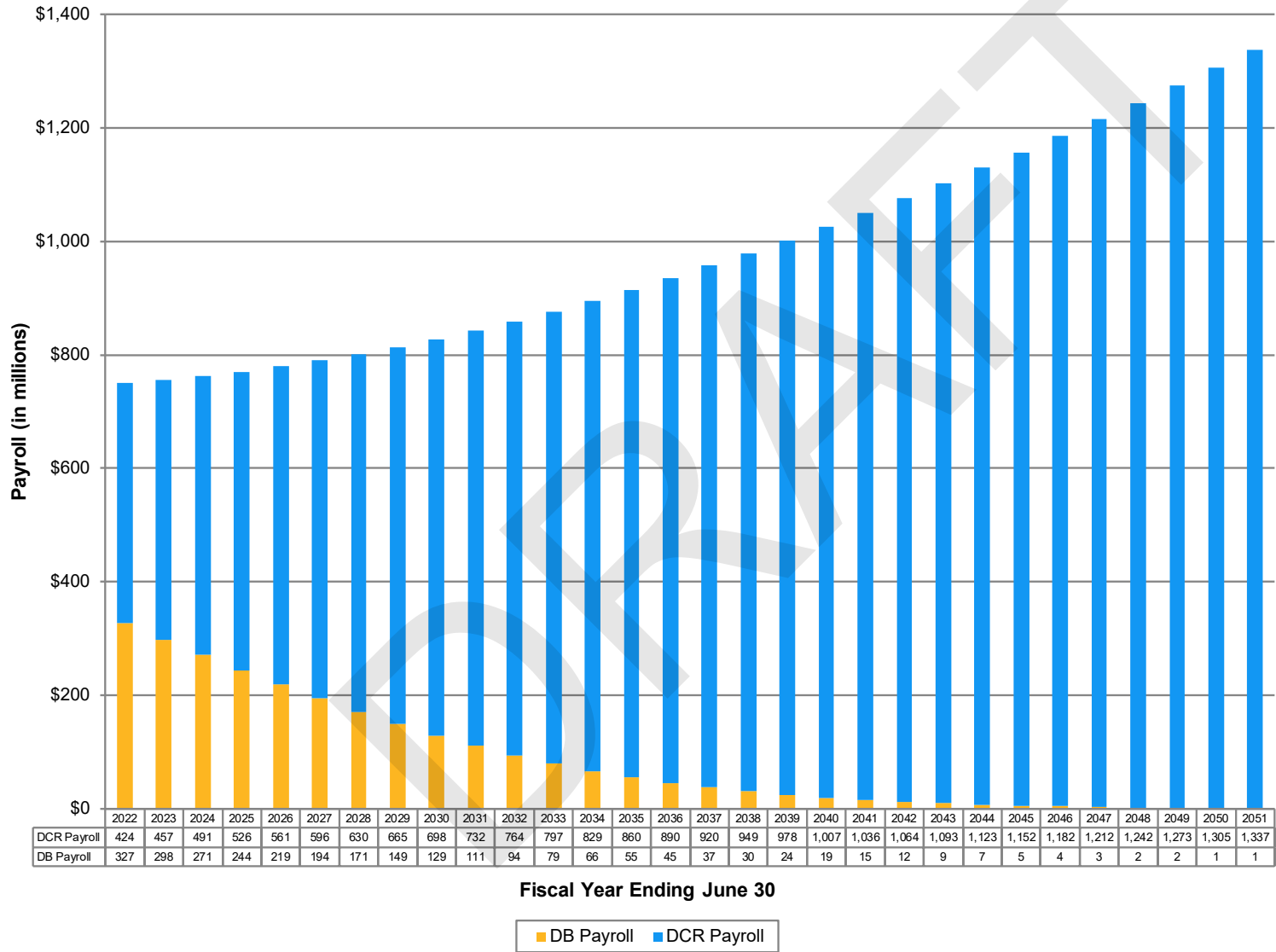
- 7.38% investment return (net of investment expenses) on the Fair Value of Assets in all future years.
- The Actuarial Value of Assets was re-initialized to Fair Value as of June 30, 2014. The Actuarial Value of Assets after June 30, 2014 reflects the deferred gains and losses generated by the smoothing method. The current deferred amount is recognized in the first four years of the projections.
- Actuarial assumptions and methods as described in Section 5. No actuarial gains/losses are assumed after June 30, 2021.
- The actuarially calculated contribution rate using a two-year roll-forward approach is adopted each year.
- Projections assume a 0% increase in the total active member population. All new members are expected to enter the DCR plan.
- Contribution rates are determined as a percent of total DB and DCR payroll.
- The DCR contribution rate determined as of June 30, 2021 is assumed to remain constant in all future years.
- The active rehire assumption shown in Section 5 is assumed to grade to zero on a uniform basis over 20 years.
- The Normal Cost is increased by the administrative expenses shown in Section 5. For future years, the percent increase is assumed to remain constant.
- In Section 3.6B, we assumed all remaining pension unfunded liability layered amortization amounts would be zero after the pension trust is projected to reach a funded status of 100%.

Section 3.2: Membership Projection

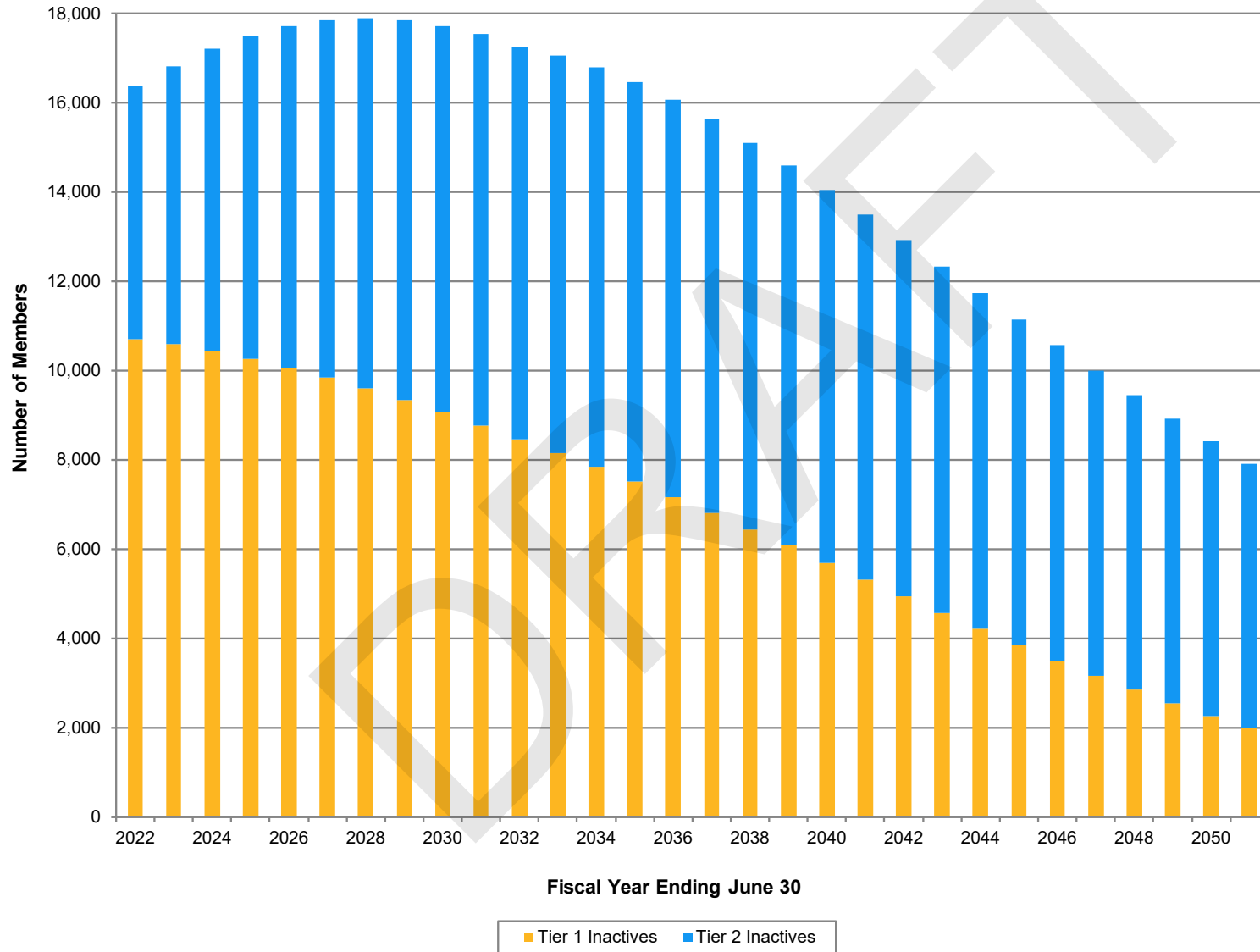
Projected Active Member Count



Projected DB and DCR Payroll

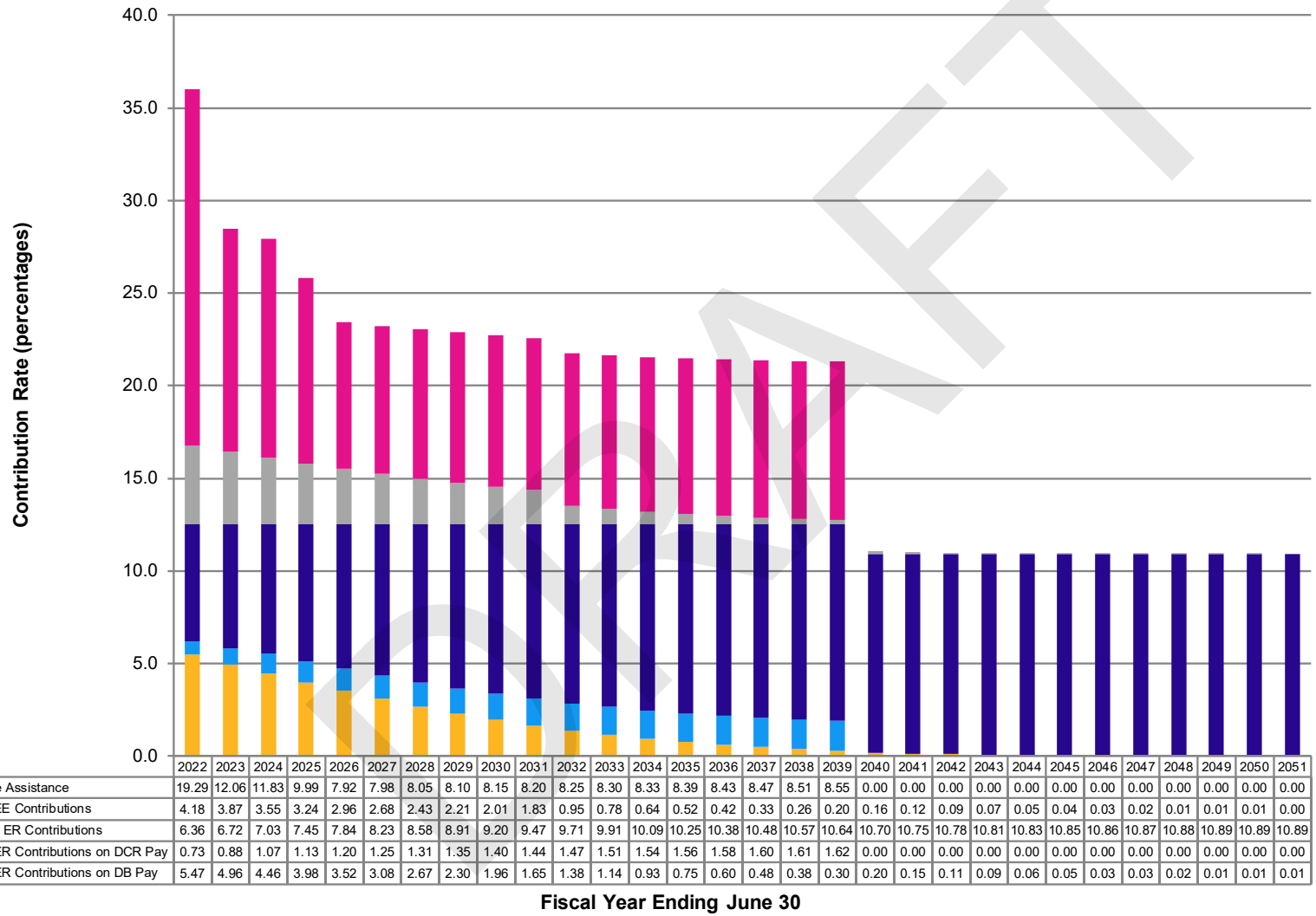


Projected Inactive Member Count



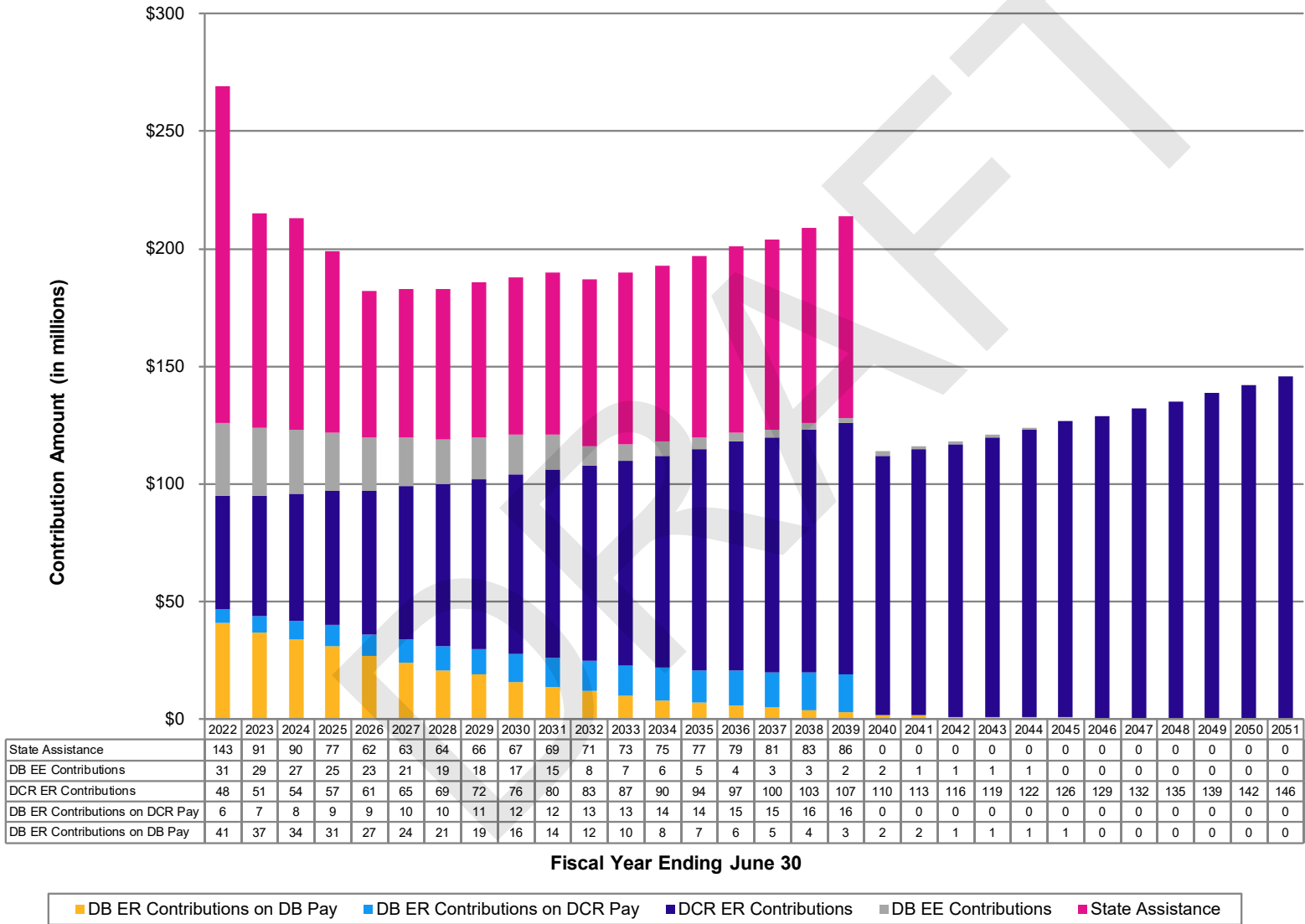
Section 3.3: Projected Employer/State Contribution Rates

Based on Total DB and DCR Payroll

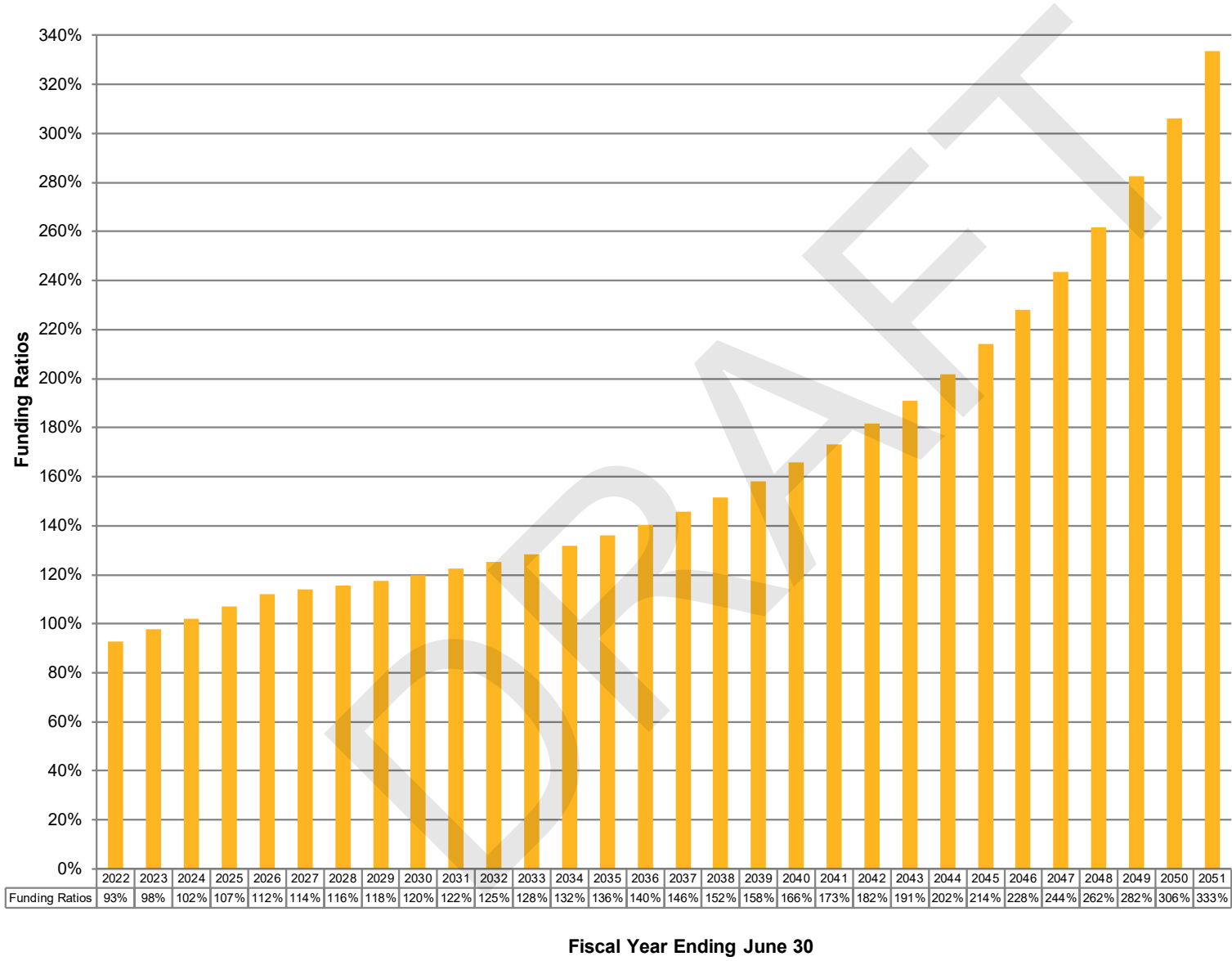


■ DB ER Contributions on DB Pay
 ■ DB ER Contributions on DCR Pay
 ■ DCR ER Contributions
 ■ DB EE Contributions
 ■ State Assistance

Section 3.4: Projected Employer/State Contribution Amounts



Section 3.5: Projection of Funded Ratios



Section 3.6A: Table of Projected Actuarial Results (\$'s in 000's)

| Fiscal Year End | Valuation Amounts on July 1 (Beginning of FY) | | | | Cash Flow Amounts during Following 12 Months | | | | | | | | Deferred Asset Gain / (Loss) | |
|-----------------|---|-------------------|---------------|--------------------------------|--|--------------------------|--------|--------|-------------------|---------------------|-------------------|---------------------|------------------------------|------------------|
| | Actuarial Assets | Accrued Liability | Funding Ratio | Unfunded Liability / (Surplus) | Total Salaries | Actuarial Contrib. Rates | | | DB Contributions | | | | | Benefit Payments |
| | | | | | | DB | DCR | Total | Employer | State Assistance | Employee | Total | | |
| 2022 | \$ 9,178,106 | \$ 9,911,490 | 92.6% | \$ 733,384 | \$ 750,334 | 25.49% | 6.36% | 31.85% | \$ 46,521 | \$ 142,665 | \$ 31,383 | \$ 220,569 | \$ 658,544 | \$ 979,677 |
| 2023 | 9,791,279 | 10,028,893 | 97.6% | 237,614 | 755,203 | 17.90% | 6.72% | 24.62% | 44,104 | 91,029 | 29,220 | 164,353 | 682,272 | 687,471 |
| 2024 | 10,338,873 | 10,123,941 | 102.1% | (214,932) | 762,084 | 17.36% | 7.03% | 24.39% | 42,143 | 90,155 | 27,025 | 159,323 | 706,663 | 371,154 |
| 2025 | 10,899,272 | 10,193,784 | 106.9% | (705,488) | 770,330 | 15.10% | 7.45% | 22.55% | 39,364 | 76,956 | 24,990 | 141,310 | 730,156 | 0 |
| 2026 | 11,489,368 | 10,240,200 | 112.2% | (1,249,168) | 779,629 | 12.64% | 7.84% | 20.48% | 36,799 | 61,747 | 23,100 | 121,646 | 753,067 | 0 |
| 2027 | 11,680,120 | 10,261,023 | 113.8% | (1,419,097) | 789,757 | 12.31% | 8.23% | 20.54% | 34,197 | 63,023 | 21,189 | 118,409 | 774,027 | 0 |
| 2028 | 11,860,260 | 10,256,329 | 115.6% | (1,603,931) | 801,009 | 12.03% | 8.58% | 20.61% | 31,880 | 64,481 | 19,496 | 115,857 | 795,147 | 0 |
| 2029 | 12,029,532 | 10,225,194 | 117.6% | (1,804,338) | 813,553 | 11.75% | 8.91% | 20.66% | 29,695 | 65,898 | 17,944 | 113,537 | 815,453 | 0 |
| 2030 | 12,188,201 | 10,166,564 | 119.9% | (2,021,637) | 827,298 | 11.51% | 9.20% | 20.71% | 27,797 | 67,425 | 16,615 | 111,837 | 833,857 | 0 |
| 2031 | 12,338,080 | 10,080,920 | 122.4% | (2,257,160) | 842,250 | 11.29% | 9.47% | 20.76% | 26,025 | 69,065 | 15,430 | 110,520 | 850,139 | 0 |
| 2032 | 12,481,100 | 9,969,584 | 125.2% | (2,511,516) | 858,486 | 11.10% | 9.71% | 20.81% | 24,466 | 70,825 | 8,156 | 103,447 | 858,425 | 0 |
| 2033 | 12,619,080 | 9,832,428 | 128.3% | (2,786,652) | 876,187 | 10.95% | 9.91% | 20.86% | 23,219 | 72,724 | 6,834 | 102,777 | 870,267 | 0 |
| 2034 | 12,754,565 | 9,669,875 | 131.9% | (3,084,690) | 894,739 | 10.80% | 10.09% | 20.89% | 22,100 | 74,532 | 5,726 | 102,358 | 878,203 | 0 |
| 2035 | 12,891,657 | 9,484,401 | 135.9% | (3,407,256) | 914,255 | 10.70% | 10.25% | 20.95% | 21,119 | 76,706 | 4,754 | 102,579 | 882,220 | 0 |
| 2036 | 13,035,192 | 9,278,669 | 140.5% | (3,756,523) | 934,724 | 10.61% | 10.38% | 20.99% | 20,377 | 78,797 | 3,926 | 103,100 | 883,293 | 0 |
| 2037 | 13,188,986 | 9,054,611 | 145.7% | (4,134,375) | 956,215 | 10.55% | 10.48% | 21.03% | 19,889 | 80,991 | 3,156 | 104,036 | 881,551 | 0 |
| 2038 | 13,357,129 | 8,814,138 | 151.5% | (4,542,991) | 978,629 | 10.50% | 10.57% | 21.07% | 19,475 | 83,281 | 2,544 | 105,300 | 876,734 | 0 |
| 2039 | 13,544,196 | 8,559,463 | 158.2% | (4,984,733) | 1,001,616 | 10.47% | 10.64% | 21.11% | 19,231 | 85,638 | 2,003 | 106,872 | 870,111 | 0 |
| 2040 | 13,753,765 | 8,291,660 | 165.9% | (5,462,105) | 1,025,544 | 0.20% | 10.70% | 10.90% | 2,051 | 0 | 1,641 | 3,692 | 861,473 | 0 |
| 2041 | 13,877,722 | 8,012,059 | 173.2% | (5,865,663) | 1,050,331 | 0.15% | 10.75% | 10.90% | 1,575 | 0 | 1,260 | 2,835 | 848,623 | 0 |
| 2042 | 14,023,350 | 7,724,346 | 181.5% | (6,299,004) | 1,075,968 | 0.11% | 10.78% | 10.89% | 1,183 | 0 | 968 | 2,151 | 832,948 | 0 |
| 2043 | 14,195,351 | 7,431,010 | 191.0% | (6,764,341) | 1,102,329 | 0.09% | 10.81% | 10.90% | 992 | 0 | 772 | 1,764 | 813,044 | 0 |
| 2044 | 14,400,354 | 7,136,152 | 201.8% | (7,264,202) | 1,129,431 | 0.06% | 10.83% | 10.89% | 678 | 0 | 565 | 1,243 | 791,506 | 0 |
| 2045 | 14,642,346 | 6,841,474 | 214.0% | (7,800,872) | 1,157,134 | 0.05% | 10.85% | 10.90% | 578 | 0 | 463 | 1,041 | 767,682 | 0 |
| 2046 | 14,926,751 | 6,549,448 | 227.9% | (8,377,303) | 1,185,529 | 0.03% | 10.86% | 10.89% | 356 | 0 | 356 | 712 | 744,305 | 0 |
| 2047 | 15,256,103 | 6,259,887 | 243.7% | (8,996,216) | 1,214,554 | 0.03% | 10.87% | 10.90% | 364 | 0 | 243 | 607 | 720,850 | 0 |
| 2048 | 15,634,029 | 5,973,113 | 261.7% | (9,660,916) | 1,244,336 | 0.02% | 10.88% | 10.90% | 248 | 0 | 124 | 372 | 698,677 | 0 |
| 2049 | 16,062,648 | 5,688,055 | 282.4% | (10,374,593) | 1,274,685 | 0.01% | 10.89% | 10.90% | 127 | 0 | 127 | 254 | 676,267 | 0 |
| 2050 | 16,546,068 | 5,405,124 | 306.1% | (11,140,944) | 1,305,812 | 0.01% | 10.89% | 10.90% | 131 | 0 | 131 | 262 | 654,115 | 0 |
| 2051 | 17,088,195 | 5,124,249 | 333.5% | (11,963,946) | 1,337,788 | 0.01% | 10.89% | 10.90% | 134 | 0 | 0 | 134 | 631,192 | 0 |
| Total | | | | | | | | | \$ 536,818 | \$ 1,415,938 | \$ 270,141 | \$ 2,222,897 | | |

Pension unfunded liability layered amortization amounts are maintained after the pension trust is projected to be 100% funded.

Section 3.6A: Table of Projected Actuarial Results (\$'s in 000's) (continued)

| Fiscal Year End | Valuation Amounts on July 1 (Beginning of FY) | | | | | |
|-----------------|---|------------|--------|--------------------------------|--------------|--------------|
| | Funding Ratio | | | Unfunded Liability / (Surplus) | | |
| | Pension | Healthcare | Total | Pension | Healthcare | Total |
| 2022 | 79.1% | 133.9% | 92.6% | \$ 1,561,518 | \$ (828,134) | \$ 733,384 |
| 2023 | 83.2% | 141.1% | 97.6% | 1,266,857 | (1,029,243) | 237,614 |
| 2024 | 86.8% | 147.4% | 102.1% | 999,240 | (1,214,172) | (214,932) |
| 2025 | 90.3% | 155.1% | 106.9% | 733,329 | (1,438,817) | (705,488) |
| 2026 | 94.2% | 163.5% | 112.2% | 437,124 | (1,686,292) | (1,249,168) |
| 2027 | 94.8% | 167.2% | 113.8% | 392,379 | (1,811,476) | (1,419,097) |
| 2028 | 95.5% | 171.2% | 115.6% | 342,345 | (1,946,276) | (1,603,931) |
| 2029 | 96.2% | 175.8% | 117.6% | 286,499 | (2,090,837) | (1,804,338) |
| 2030 | 97.0% | 180.9% | 119.9% | 224,495 | (2,246,132) | (2,021,637) |
| 2031 | 97.9% | 186.6% | 122.4% | 155,794 | (2,412,954) | (2,257,160) |
| 2032 | 98.9% | 192.9% | 125.2% | 79,928 | (2,591,444) | (2,511,516) |
| 2033 | 100.1% | 200.1% | 128.3% | (3,860) | (2,782,792) | (2,786,652) |
| 2034 | 101.4% | 208.2% | 131.9% | (96,549) | (2,988,141) | (3,084,690) |
| 2035 | 102.9% | 217.3% | 135.9% | (198,734) | (3,208,522) | (3,407,256) |
| 2036 | 104.7% | 227.5% | 140.5% | (311,256) | (3,445,267) | (3,756,523) |
| 2037 | 106.8% | 239.0% | 145.7% | (434,961) | (3,699,414) | (4,134,375) |
| 2038 | 109.2% | 251.9% | 151.5% | (570,605) | (3,972,386) | (4,542,991) |
| 2039 | 112.0% | 266.4% | 158.2% | (719,254) | (4,265,479) | (4,984,733) |
| 2040 | 115.2% | 282.9% | 165.9% | (881,936) | (4,580,169) | (5,462,105) |
| 2041 | 117.0% | 301.5% | 173.2% | (947,493) | (4,918,170) | (5,865,663) |
| 2042 | 119.0% | 322.4% | 181.5% | (1,017,888) | (5,281,116) | (6,299,004) |
| 2043 | 121.3% | 346.1% | 191.0% | (1,093,557) | (5,670,784) | (6,764,341) |
| 2044 | 124.0% | 372.4% | 201.8% | (1,174,895) | (6,089,307) | (7,264,202) |
| 2045 | 127.0% | 401.6% | 214.0% | (1,262,219) | (6,538,653) | (7,800,872) |
| 2046 | 130.5% | 434.0% | 227.9% | (1,356,129) | (7,021,174) | (8,377,303) |
| 2047 | 134.5% | 470.0% | 243.7% | (1,456,929) | (7,539,287) | (8,996,216) |
| 2048 | 139.1% | 510.1% | 261.7% | (1,565,199) | (8,095,717) | (9,660,916) |
| 2049 | 144.5% | 555.4% | 282.4% | (1,681,447) | (8,693,146) | (10,374,593) |
| 2050 | 150.7% | 606.6% | 306.1% | (1,806,230) | (9,334,714) | (11,140,944) |
| 2051 | 157.9% | 665.0% | 333.5% | (1,940,279) | (10,023,667) | (11,963,946) |

Pension unfunded liability layered amortization amounts are maintained after the pension trust is projected to be 100% funded.

Section 3.6B: Table of Projected Actuarial Results (\$'s in 000's)

| Fiscal Year End | Valuation Amounts on July 1 (Beginning of FY) | | | | Cash Flow Amounts during Following 12 Months | | | | | | | | Deferred Asset Gain / (Loss) | |
|-----------------|---|-------------------|---------------|--------------------------------|--|--------------------------|--------|--------|-------------------|-------------------|-------------------|---------------------|------------------------------|------------------|
| | Actuarial Assets | Accrued Liability | Funding Ratio | Unfunded Liability / (Surplus) | Total Salaries | Actuarial Contrib. Rates | | | DB Contributions | | | | | Benefit Payments |
| | | | | | | DB | DCR | Total | Employer | State Assistance | Employee | Total | | |
| 2022 | \$ 9,178,106 | \$ 9,911,490 | 92.6% | \$ 733,384 | \$ 750,334 | 25.49% | 6.36% | 31.85% | \$ 46,521 | \$ 142,665 | \$ 31,383 | \$ 220,569 | \$ 658,544 | \$ 979,677 |
| 2023 | 9,791,279 | 10,028,893 | 97.6% | 237,614 | 755,203 | 17.90% | 6.72% | 24.62% | 44,104 | 91,029 | 29,220 | 164,353 | 682,272 | 687,471 |
| 2024 | 10,338,873 | 10,123,941 | 102.1% | (214,932) | 762,084 | 17.36% | 7.03% | 24.39% | 42,143 | 90,155 | 27,025 | 159,323 | 706,663 | 371,154 |
| 2025 | 10,899,272 | 10,193,784 | 106.9% | (705,488) | 770,330 | 15.10% | 7.45% | 22.55% | 39,364 | 76,956 | 24,990 | 141,310 | 730,156 | 0 |
| 2026 | 11,489,368 | 10,240,200 | 112.2% | (1,249,168) | 779,629 | 12.64% | 7.84% | 20.48% | 36,799 | 61,747 | 23,100 | 121,646 | 753,067 | 0 |
| 2027 | 11,680,120 | 10,261,023 | 113.8% | (1,419,097) | 789,757 | 12.31% | 8.23% | 20.54% | 34,197 | 63,023 | 21,189 | 118,409 | 774,027 | 0 |
| 2028 | 11,860,260 | 10,256,329 | 115.6% | (1,603,931) | 801,009 | 12.03% | 8.58% | 20.61% | 31,880 | 64,481 | 19,496 | 115,857 | 795,147 | 0 |
| 2029 | 12,029,532 | 10,225,194 | 117.6% | (1,804,338) | 813,553 | 11.75% | 8.91% | 20.66% | 29,695 | 65,898 | 17,944 | 113,537 | 815,453 | 0 |
| 2030 | 12,188,201 | 10,166,564 | 119.9% | (2,021,637) | 827,298 | 11.51% | 9.20% | 20.71% | 27,797 | 67,425 | 16,615 | 111,837 | 833,857 | 0 |
| 2031 | 12,338,080 | 10,080,920 | 122.4% | (2,257,160) | 842,250 | 11.29% | 9.47% | 20.76% | 26,025 | 69,065 | 15,430 | 110,520 | 850,139 | 0 |
| 2032 | 12,481,100 | 9,969,584 | 125.2% | (2,511,516) | 858,486 | 11.10% | 9.71% | 20.81% | 24,466 | 70,825 | 8,156 | 103,447 | 858,425 | 0 |
| 2033 | 12,619,080 | 9,832,428 | 128.3% | (2,786,652) | 876,187 | 1.05% | 9.91% | 10.96% | 9,200 | 0 | 6,834 | 16,034 | 870,267 | 0 |
| 2034 | 12,661,947 | 9,669,875 | 130.9% | (2,992,072) | 894,739 | 0.84% | 10.09% | 10.93% | 7,516 | 0 | 5,726 | 13,242 | 878,203 | 0 |
| 2035 | 12,697,059 | 9,484,401 | 133.9% | (3,212,658) | 914,255 | 0.68% | 10.25% | 10.93% | 6,217 | 0 | 4,754 | 10,971 | 882,220 | 0 |
| 2036 | 12,728,424 | 9,278,669 | 137.2% | (3,449,755) | 934,724 | 0.53% | 10.38% | 10.91% | 4,954 | 0 | 3,926 | 8,880 | 883,293 | 0 |
| 2037 | 12,758,984 | 9,054,611 | 140.9% | (3,704,373) | 956,215 | 0.43% | 10.48% | 10.91% | 4,112 | 0 | 3,156 | 7,268 | 881,551 | 0 |
| 2038 | 12,792,076 | 8,814,138 | 145.1% | (3,977,938) | 978,629 | 0.33% | 10.57% | 10.90% | 3,229 | 0 | 2,544 | 5,773 | 876,734 | 0 |
| 2039 | 12,831,180 | 8,559,463 | 149.9% | (4,271,717) | 1,001,616 | 0.26% | 10.64% | 10.90% | 2,605 | 0 | 2,003 | 4,608 | 870,111 | 0 |
| 2040 | 12,878,942 | 8,291,660 | 155.3% | (4,587,282) | 1,025,544 | 0.20% | 10.70% | 10.90% | 2,051 | 0 | 1,641 | 3,692 | 861,473 | 0 |
| 2041 | 12,938,337 | 8,012,059 | 161.5% | (4,926,278) | 1,050,331 | 0.15% | 10.75% | 10.90% | 1,575 | 0 | 1,260 | 2,835 | 848,623 | 0 |
| 2042 | 13,014,639 | 7,724,346 | 168.5% | (5,290,293) | 1,075,968 | 0.11% | 10.78% | 10.89% | 1,183 | 0 | 968 | 2,151 | 832,948 | 0 |
| 2043 | 13,112,197 | 7,431,010 | 176.5% | (5,681,187) | 1,102,329 | 0.09% | 10.81% | 10.90% | 992 | 0 | 772 | 1,764 | 813,044 | 0 |
| 2044 | 13,237,264 | 7,136,152 | 185.5% | (6,101,112) | 1,129,431 | 0.06% | 10.83% | 10.89% | 678 | 0 | 565 | 1,243 | 791,506 | 0 |
| 2045 | 13,393,420 | 6,841,474 | 195.8% | (6,551,946) | 1,157,134 | 0.05% | 10.85% | 10.90% | 578 | 0 | 463 | 1,041 | 767,682 | 0 |
| 2046 | 13,585,654 | 6,549,448 | 207.4% | (7,036,206) | 1,185,529 | 0.03% | 10.86% | 10.89% | 356 | 0 | 356 | 712 | 744,305 | 0 |
| 2047 | 13,816,033 | 6,259,887 | 220.7% | (7,556,146) | 1,214,554 | 0.03% | 10.87% | 10.90% | 364 | 0 | 243 | 607 | 720,850 | 0 |
| 2048 | 14,087,681 | 5,973,113 | 235.9% | (8,114,568) | 1,244,336 | 0.02% | 10.88% | 10.90% | 248 | 0 | 124 | 372 | 698,677 | 0 |
| 2049 | 14,402,180 | 5,688,055 | 253.2% | (8,714,125) | 1,274,685 | 0.01% | 10.89% | 10.90% | 127 | 0 | 127 | 254 | 676,267 | 0 |
| 2050 | 14,763,057 | 5,405,124 | 273.1% | (9,357,933) | 1,305,812 | 0.01% | 10.89% | 10.90% | 131 | 0 | 131 | 262 | 654,115 | 0 |
| 2051 | 15,173,598 | 5,124,249 | 296.1% | (10,049,349) | 1,337,788 | 0.01% | 10.89% | 10.90% | 134 | 0 | 0 | 134 | 631,192 | 0 |
| Total | | | | | | | | | \$ 429,241 | \$ 863,269 | \$ 270,141 | \$ 1,562,651 | | |

Pension unfunded liability layered amortization amounts are reduced to zero when the pension trust is projected to be 100% funded. The healthcare unfunded liability amortization amounts would also be reduced to zero since the healthcare trust is currently more than 100% funded.

Section 3.6B: Table of Projected Actuarial Results (\$'s in 000's) (continued)

| Fiscal Year End | Valuation Amounts on July 1 (Beginning of FY) | | | | | |
|-----------------|---|------------|--------|--------------------------------|--------------|--------------|
| | Funding Ratio | | | Unfunded Liability / (Surplus) | | |
| | Pension | Healthcare | Total | Pension | Healthcare | Total |
| 2022 | 79.1% | 133.9% | 92.6% | \$ 1,561,518 | \$ (828,134) | \$ 733,384 |
| 2023 | 83.2% | 141.1% | 97.6% | 1,266,857 | (1,029,243) | 237,614 |
| 2024 | 86.8% | 147.4% | 102.1% | 999,240 | (1,214,172) | (214,932) |
| 2025 | 90.3% | 155.1% | 106.9% | 733,329 | (1,438,817) | (705,488) |
| 2026 | 94.2% | 163.5% | 112.2% | 437,124 | (1,686,292) | (1,249,168) |
| 2027 | 94.8% | 167.2% | 113.8% | 392,379 | (1,811,476) | (1,419,097) |
| 2028 | 95.5% | 171.2% | 115.6% | 342,345 | (1,946,276) | (1,603,931) |
| 2029 | 96.2% | 175.8% | 117.6% | 286,499 | (2,090,837) | (1,804,338) |
| 2030 | 97.0% | 180.9% | 119.9% | 224,495 | (2,246,132) | (2,021,637) |
| 2031 | 97.9% | 186.6% | 122.4% | 155,794 | (2,412,954) | (2,257,160) |
| 2032 | 98.9% | 192.9% | 125.2% | 79,928 | (2,591,444) | (2,511,516) |
| 2033 | 100.1% | 200.1% | 128.3% | (3,860) | (2,782,792) | (2,786,652) |
| 2034 | 100.1% | 208.2% | 130.9% | (3,931) | (2,988,141) | (2,992,072) |
| 2035 | 100.1% | 217.3% | 133.9% | (4,136) | (3,208,522) | (3,212,658) |
| 2036 | 100.1% | 227.5% | 137.2% | (4,488) | (3,445,267) | (3,449,755) |
| 2037 | 100.1% | 239.0% | 140.9% | (4,959) | (3,699,414) | (3,704,373) |
| 2038 | 100.1% | 251.9% | 145.1% | (5,552) | (3,972,386) | (3,977,938) |
| 2039 | 100.1% | 266.4% | 149.9% | (6,238) | (4,265,479) | (4,271,717) |
| 2040 | 100.1% | 282.9% | 155.3% | (7,113) | (4,580,169) | (4,587,282) |
| 2041 | 100.1% | 301.5% | 161.5% | (8,108) | (4,918,170) | (4,926,278) |
| 2042 | 100.2% | 322.4% | 168.5% | (9,177) | (5,281,116) | (5,290,293) |
| 2043 | 100.2% | 346.1% | 176.5% | (10,403) | (5,670,784) | (5,681,187) |
| 2044 | 100.2% | 372.4% | 185.5% | (11,805) | (6,089,307) | (6,101,112) |
| 2045 | 100.3% | 401.6% | 195.8% | (13,293) | (6,538,653) | (6,551,946) |
| 2046 | 100.3% | 434.0% | 207.4% | (15,032) | (7,021,174) | (7,036,206) |
| 2047 | 100.4% | 470.0% | 220.7% | (16,859) | (7,539,287) | (7,556,146) |
| 2048 | 100.5% | 510.1% | 235.9% | (18,851) | (8,095,717) | (8,114,568) |
| 2049 | 100.6% | 555.4% | 253.2% | (20,979) | (8,693,146) | (8,714,125) |
| 2050 | 100.7% | 606.6% | 273.1% | (23,219) | (9,334,714) | (9,357,933) |
| 2051 | 100.8% | 665.0% | 296.1% | (25,682) | (10,023,667) | (10,049,349) |

Pension unfunded liability layered amortization amounts are reduced to zero when the pension trust is projected to be 100% funded. The healthcare unfunded liability amortization amounts would also be reduced to zero since the healthcare trust is currently more than 100% funded.

Section 3.7: Projected Pension Benefit Recipients and Amounts (\$'s in 000's)

| Fiscal Year End | Pension | | Fiscal Year End | Pension | |
|-----------------|------------------|-----------------|-----------------|------------------|-----------------|
| | Recipient Counts | Benefit Amounts | | Recipient Counts | Benefit Amounts |
| 2022 | 13,972 | \$ 523,901 | 2061 | 3,322 | \$ 247,589 |
| 2023 | 14,475 | 541,571 | 2062 | 3,032 | 230,176 |
| 2024 | 14,931 | 558,743 | 2063 | 2,757 | 213,153 |
| 2025 | 15,322 | 574,804 | 2064 | 2,498 | 196,552 |
| 2026 | 15,654 | 589,941 | 2065 | 2,253 | 180,409 |
| 2027 | 15,927 | 603,906 | 2066 | 2,023 | 164,764 |
| 2028 | 16,120 | 616,957 | 2067 | 1,808 | 149,662 |
| 2029 | 16,245 | 628,371 | 2068 | 1,607 | 135,141 |
| 2030 | 16,289 | 638,195 | 2069 | 1,419 | 121,258 |
| 2031 | 16,267 | 646,049 | 2070 | 1,246 | 108,058 |
| 2032 | 16,156 | 646,045 | 2071 | 1,085 | 95,589 |
| 2033 | 15,986 | 649,844 | 2072 | 938 | 83,897 |
| 2034 | 15,736 | 651,554 | 2073 | 805 | 73,022 |
| 2035 | 15,417 | 651,076 | 2074 | 684 | 62,995 |
| 2036 | 15,036 | 648,676 | 2075 | 577 | 53,829 |
| 2037 | 14,618 | 644,278 | 2076 | 481 | 45,531 |
| 2038 | 14,136 | 638,247 | 2077 | 397 | 38,093 |
| 2039 | 13,640 | 630,181 | 2078 | 324 | 31,501 |
| 2040 | 13,127 | 620,418 | 2079 | 261 | 25,726 |
| 2041 | 12,587 | 609,059 | 2080 | 208 | 20,732 |
| 2042 | 12,032 | 596,090 | 2081 | 164 | 16,473 |
| 2043 | 11,460 | 581,732 | 2082 | 128 | 12,898 |
| 2044 | 10,885 | 566,218 | 2083 | 97 | 9,943 |
| 2045 | 10,317 | 549,623 | 2084 | 74 | 7,541 |
| 2046 | 9,759 | 532,176 | 2085 | 54 | 5,622 |
| 2047 | 9,212 | 514,031 | 2086 | 39 | 4,118 |
| 2048 | 8,685 | 495,291 | 2087 | 28 | 2,963 |
| 2049 | 8,174 | 476,108 | 2088 | 20 | 2,092 |
| 2050 | 7,678 | 456,645 | 2089 | 14 | 1,450 |
| 2051 | 7,195 | 437,031 | 2090 | 10 | 987 |
| 2052 | 6,728 | 417,362 | 2091 | 7 | 659 |
| 2053 | 6,277 | 397,718 | 2092 | 4 | 434 |
| 2054 | 5,844 | 378,168 | 2093 | 3 | 281 |
| 2055 | 5,429 | 358,769 | 2094 | 2 | 180 |
| 2056 | 5,032 | 339,565 | 2095 | 2 | 114 |
| 2057 | 4,655 | 320,596 | 2096 | 1 | 73 |
| 2058 | 4,295 | 301,889 | 2097 | 1 | 45 |
| 2059 | 3,953 | 283,470 | 2098 | 0 | 0 |
| 2060 | 3,629 | 265,363 | 2099 | 0 | 0 |

Counts include retirees, disability recipients, and beneficiaries.

Section 4: Member Data

Section 4.1: Summary of Members Included

| As of June 30 | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|---------------|---------------|---------------|---------------|--------------------|
| Active Members | | | | | |
| 1. Number | 4,772 | 4,418 | 4,044 | 3,789 | 3,396 ¹ |
| 2. Average Age | 50.86 | 51.13 | 51.48 | 51.92 | 52.14 |
| 3. Average Credited Service | 18.12 | 18.62 | 19.21 | 19.76 | 20.31 |
| 4. Average Entry Age | 32.74 | 32.51 | 32.27 | 32.16 | 31.83 |
| 5. Average Annual Earnings | \$ 86,327 | \$ 87,374 | \$ 88,879 | \$ 90,564 | \$ 94,143 |
| 6. Number Vested | 4,772 | 4,418 | 4,044 | 3,789 | 3,396 |
| 7. Percent Who Are Vested | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Retirees, Disabilitants, and Beneficiaries | | | | | |
| 1. Number | 12,983 | 13,277 | 13,491 | 13,689 | 13,972 |
| 2. Average Age | 70.36 | 70.78 | 71.30 | 71.85 | 72.26 |
| 3. Average Years Since Retirement | 14.13 | 14.40 | 14.74 | 15.06 | 15.24 |
| 4. Average Monthly Pension Benefit | | | | | |
| a. Base | \$ 2,228 | \$ 2,273 | \$ 2,303 | \$ 2,330 | \$ 2,363 |
| b. COLA ² | 128 | 128 | 126 | 126 | 125 |
| c. PRPA ² | 506 | 488 | 518 | 519 | 491 |
| d. Adjustment | 0 | 0 | 0 | 0 | (1) |
| e. Sick | 62 | 65 | 67 | 68 | 70 |
| f. Total | \$ 2,924 | \$ 2,954 | \$ 3,014 | \$ 3,043 | \$ 3,048 |
| Vested Terminations (vested at termination, not refunded contributions, or commenced benefit) | | | | | |
| 1. Number | 876 | 797 | 812 | 764 | 727 |
| 2. Average Age | 50.82 | 51.01 | 51.71 | 52.37 | 52.68 |
| 3. Average Monthly Pension Benefit | \$ 1,441 | \$ 1,350 | \$ 1,534 | \$ 1,579 | \$ 1,635 |
| Non-Vested Terminations (not vested at termination, not refunded contributions) | | | | | |
| 1. Number | 1,994 | 1,900 | 1,810 | 1,744 | 1,679 |
| 2. Average Account Balance | \$ 20,290 | \$ 20,872 | \$ 21,612 | \$ 22,591 | \$ 23,388 |
| Total Number of Members | 20,625 | 20,392 | 20,157 | 19,986 | 19,774 |

¹ Includes 1,060 male active members and 2,336 female active members.

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

Summary of Members Included

| As of June 30, 2021 | DB | | | DCR Tier 3 | Grand Total |
|-----------------------------|---------------|----------------|----------------|----------------|----------------|
| | Tier 1 | Tier 2 | Total | | |
| Active Members | | | | | |
| 1. Number | 142 | 3,254 | 3,396 | 5,521 | 8,917 |
| 2. Average Age | 63.37 | 51.65 | 52.14 | 41.90 | 45.80 |
| 3. Average Credited Service | 30.23 | 19.88 | 20.31 | 6.34 | 11.66 |
| 4. Average Entry Age | 33.14 | 31.77 | 31.83 | 35.56 | 34.14 |
| 5. Annual Earnings | | | | | |
| a. Total | \$ 14,388,684 | \$ 305,322,636 | \$ 319,711,320 | \$ 408,804,718 | \$ 728,516,038 |
| b. Average | \$ 101,329 | \$ 93,830 | \$ 94,143 | \$ 74,045 | \$ 81,700 |

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

| As of June 30, 2021 | Tier 1 | Tier 2 | Total |
|---|----------|----------|----------|
| Retirees, Disabilitants, and Beneficiaries | | | |
| 1. Number | 10,454 | 3,518 | 13,972 |
| 2. Average Age | 74.32 | 66.14 | 72.26 |
| 3. Average Years Since Retirement | 18.30 | 6.14 | 15.24 |
| 4. Average Monthly Pension Benefit | | | |
| a. Base | \$ 2,375 | \$ 2,329 | \$ 2,363 |
| b. COLA | 148 | 57 | 125 |
| c. PRPA | 630 | 77 | 491 |
| d. Adjustment | (1) | (1) | (1) |
| e. Sick | 69 | 71 | 70 |
| f. Total | \$ 3,221 | \$ 2,533 | \$ 3,048 |

Summary of Members Included

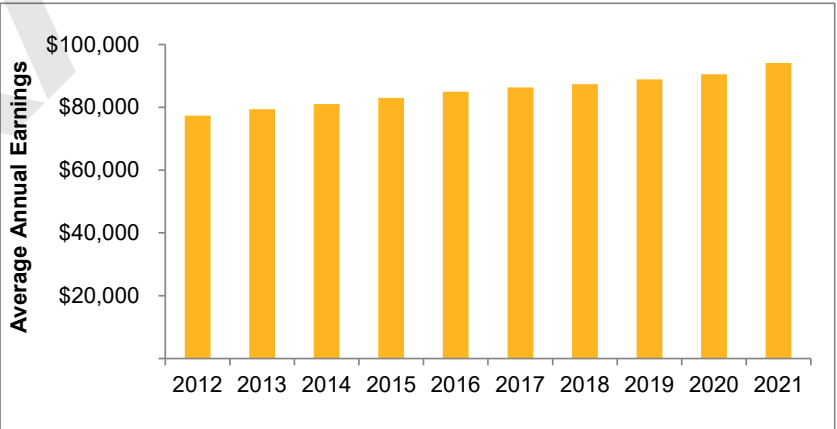
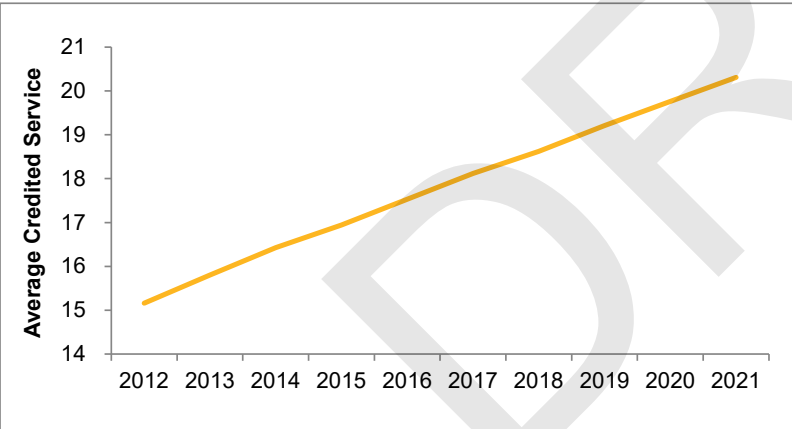
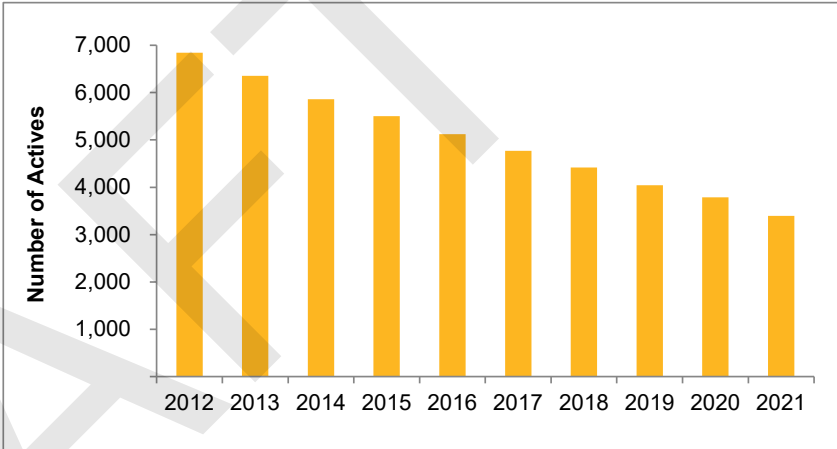
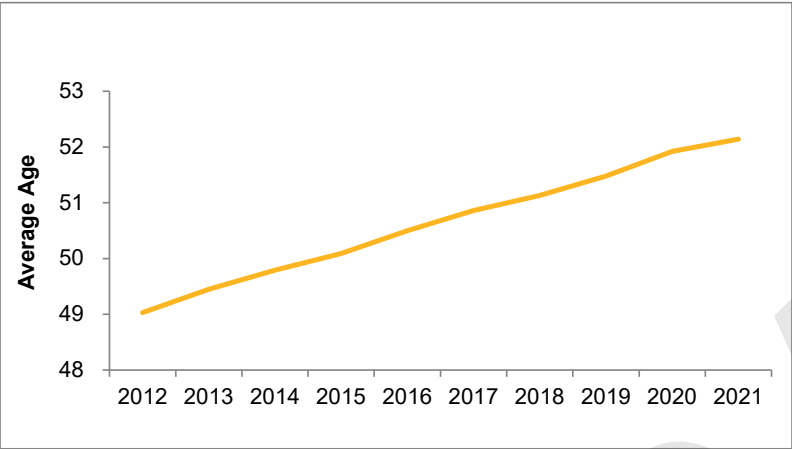
| As of June 30, 2021 | Inactive Members | | | | | Total Inactive Members |
|-------------------------------------|------------------|----------|-----------------|-------------------------------|----------|------------------------|
| | Active Members | Retirees | Covered Spouses | Covered Children / Dependents | Deferred | |
| Retiree Medical Participants | | | | | | |
| 1. Retiree Coverage Only | 3,366 | 7,679 | 0 | 0 | 369 | 8,048 |
| 2. Retiree + Spouse | 0 | 3,935 | 3,935 | 0 | 602 | 8,472 |
| 3. Retiree + Children / Dependents | 0 | 193 | 0 | 179 | 0 | 372 |
| 4. Family | 0 | 331 | 331 | 482 | 0 | 1,144 |
| 5. Total | 3,366 | 12,138 | 4,266 | 661 | 971 | 18,036 |

| As of June 30, 2021 | Retirees | Covered Spouses | Covered Children / Dependents | Deferred | Total Inactive Members |
|-------------------------------------|----------|-----------------|-------------------------------|----------|------------------------|
| Retiree Medical Participants | | | | | |
| 1. Pre-Medicare | 2,243 | 1,274 | 661 | 954 | 5,132 |
| 2. Medicare Part A & B | 9,685 | 2,960 | 0 | 17 | 12,662 |
| 3. Medicare Part B Only | 210 | 32 | 0 | 0 | 242 |
| 4. Total | 12,138 | 4,266 | 661 | 971 | 18,036 |

| As of June 30, 2021 | Retirees |
|---|----------|
| Summary of Retiree Medical Data Received | |
| 1. Retiree records on pension data | 13,972 |
| 2. Remove duplicates on pension data | (528) |
| 3. Valued in a different retiree healthcare plan ¹ | (837) |
| 4. Records without medical coverage | (506) |
| 5. Medical only retirees | 37 |
| 6. Total | 12,138 |

¹ Each member's retiree medical benefits are valued in the plan indicated in the data from Aetna

Summary of Members Included - Active Members at June 30



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

Section 4.2: 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 | 0 | 0 | 0 |
| 35 - 39 | 53 | 4,432,577 | 83,634 |
| 40 - 44 | 530 | 47,463,436 | 89,554 |
| 45 - 49 | 858 | 80,163,262 | 93,430 |
| 50 - 54 | 902 | 86,221,152 | 95,589 |
| 55 - 59 | 582 | 55,038,876 | 94,569 |
| 60 - 64 | 295 | 28,816,905 | 97,684 |
| 65 - 69 | 111 | 11,205,958 | 100,955 |
| 70 - 74 | 48 | 4,616,849 | 96,184 |
| 75+ | 17 | 1,752,305 | 103,077 |

Total 3,396 \$319,711,320 \$ 94,143

Annual Earnings by Credited Service

| Years of Service | Number | Total Annual Earnings | Average Annual Earnings |
|------------------|-----------|-----------------------|-------------------------|
| 0 | 0 | \$ 0 | \$ 0 |
| 1 | 3 | 158,220 | 52,740 |
| 2 | 1 | 44,803 | 44,803 |
| 3 | 7 | 484,633 | 69,233 |
| 4 | 12 | 801,689 | 66,807 |
| 0 - 4 | 23 | \$ 1,489,345 | \$ 64,754 |
| 5 - 9 | 89 | 6,523,824 | 73,301 |
| 10 - 14 | 252 | 21,173,526 | 84,022 |
| 15 - 19 | 1,262 | 116,203,267 | 92,079 |
| 20 - 24 | 1,208 | 116,732,875 | 96,633 |
| 25 - 29 | 397 | 40,101,280 | 101,011 |
| 30 - 34 | 129 | 13,459,854 | 104,340 |
| 35 - 39 | 24 | 2,701,868 | 112,578 |
| 40+ | 12 | 1,325,481 | 110,457 |

Total 3,396 \$319,711,320 \$ 94,143

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 | 0 |
| 20 - 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 - 29 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 - 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35 - 39 | 0 | 3 | 13 | 36 | 1 | 0 | 0 | 0 | 0 | 0 | 53 |
| 40 - 44 | 5 | 30 | 83 | 349 | 63 | 0 | 0 | 0 | 0 | 0 | 530 |
| 45 - 49 | 1 | 25 | 69 | 346 | 381 | 36 | 0 | 0 | 0 | 0 | 858 |
| 50 - 54 | 11 | 18 | 46 | 265 | 405 | 141 | 16 | 0 | 0 | 0 | 902 |
| 55 - 59 | 2 | 9 | 20 | 149 | 204 | 136 | 58 | 4 | 0 | 0 | 582 |
| 60 - 64 | 3 | 2 | 15 | 72 | 105 | 61 | 29 | 6 | 2 | 2 | 295 |
| 65 - 69 | 0 | 2 | 4 | 29 | 33 | 13 | 20 | 9 | 1 | 1 | 111 |
| 70 - 74 | 1 | 0 | 1 | 10 | 13 | 8 | 5 | 4 | 6 | 6 | 48 |
| 75+ | 0 | 0 | 1 | 6 | 3 | 2 | 1 | 1 | 3 | 3 | 17 |

Total 23 89 252 1,262 1,208 397 129 24 12 3,396

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

Section 4.3: Member Data Reconciliation

Pension

| | Inactive Members | | | | | | Total |
|----------------------------|------------------|--------------|-------------------|-----------------|------------------|---------------|---------------|
| | Active Members | Due a Refund | Deferred Benefits | Retired Members | Disabled Members | Beneficiaries | |
| As of June 30, 2020 | 3,789 | 1,744 | 764 | 12,267 | 20 | 1,402 | 19,986 |
| Vested Terminations | (116) | (3) | 119 | 0 | 0 | 0 | 0 |
| Non-Vested Terminations | (3) | 3 | 0 | 0 | 0 | 0 | 0 |
| Refund of Contributions | (1) | (41) | (3) | 0 | 0 | 0 | (45) |
| Disability Retirements | (1) | 0 | 0 | 0 | 1 | 0 | 0 |
| Age Retirements | (326) | (7) | (113) | 447 | (1) | 0 | 0 |
| Deaths With Beneficiary | (1) | 0 | (2) | (127) | 0 | 130 | 0 |
| Deaths Without Beneficiary | (2) | (4) | (2) | (124) | 0 | (46) | (178) |
| Data Corrections | 0 | (1) | 1 | 0 | 0 | (8) | (8) |
| Transfers In/Out | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Rehires | 57 | (16) | (37) | (4) | 0 | 0 | 0 |
| Pick Ups* | 0 | 4 | 0 | 0 | 0 | 15 | 19 |
| Net Change | (393) | (65) | (37) | 192 | 0 | 91 | (212) |
| As of June 30, 2021 | 3,396 | 1,679 | 727 | 12,459 | 20 | 1,493 | 19,774 |

* Pickup beneficiaries are primarily new DROs.

Healthcare

| | Inactive Members | | | | | Total Inactive Members |
|----------------------------------|------------------|---------------|-----------------|-------------------------------|------------|------------------------|
| | Active Members | Retirees | Covered Spouses | Covered Children / Dependents | Deferred | |
| As of June 30, 2020 | 3,746 | 12,019 | 4,220 | 669 | 952 | 17,860 |
| Vested Terminations | (87) | 0 | 0 | 0 | 87 | 87 |
| Non-Vested Terminations | (2) | 0 | 0 | 0 | 0 | 0 |
| Refund of Contributions | (1) | 0 | 0 | 0 | (3) | (3) |
| Disability Retirements | (1) | 1 | 0 | 0 | 0 | 1 |
| Age Retirements | (257) | 257 | 131 | 53 | 0 | 441 |
| Deferred Retirements | 0 | 51 | 28 | 10 | (51) | 38 |
| Retired without Medical Coverage | (82) | 0 | 0 | 0 | 82 | 82 |
| Deceased | (3) | (259) | (28) | (3) | (8) | (298) |
| New Beneficiaries | 0 | 40 | (40) | 0 | 0 | 0 |
| Added Retiree Medical Coverage | 0 | 40 | 13 | 1 | (40) | 14 |
| Added Dependent Coverage | 0 | 0 | 41 | 27 | 0 | 68 |
| Dropped Retiree Medical Coverage | 0 | (6) | (1) | (1) | 6 | (2) |
| Dropped Dependent Coverage | 0 | 0 | (97) | (94) | 0 | (191) |
| Rehires | 55 | (3) | (1) | (1) | (52) | (57) |
| Transfers In/Out | (2) | (2) | 0 | 0 | (2) | (4) |
| Net Change | (380) | 119 | 46 | (8) | 19 | 176 |
| As of June 30, 2021 | 3,366 | 12,138 | 4,266 | 661 | 971 | 18,036 |

Section 4.4: Schedule of Active Member Data

| Valuation Date | Number | Annual Earnings (000's) | Annual Average Earnings | Percent Increase in Average Earnings | Number of Participating Employers |
|----------------|--------|-------------------------|-------------------------|--------------------------------------|-----------------------------------|
| June 30, 2021 | 3,396 | \$ 319,711 | \$ 94,143 | 4.0% | 56 |
| June 30, 2020 | 3,789 | 343,146 | 90,564 | 1.9% | 56 |
| June 30, 2019 | 4,044 | 359,426 | 88,879 | 1.7% | 56 |
| June 30, 2018 | 4,418 | 386,016 | 87,373 | 1.2% | 56 |
| June 30, 2017 | 4,772 | 411,951 | 86,327 | 1.6% | 57 |
| June 30, 2016 | 5,123 | 435,222 | 84,955 | 2.4% | 57 |
| June 30, 2015 | 5,502 | 456,636 | 82,995 | 2.4% | 58 |
| June 30, 2014 | 5,861 | 474,873 | 81,023 | 2.1% | 58 |
| June 30, 2013 | 6,352 | 504,260 | 79,386 | 2.6% | 58 |
| June 30, 2012 | 6,845 | 529,468 | 77,351 | 3.6% | 58 |

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

Section 4.5: Active Member Payroll Reconciliation

| Payroll Field | Payroll Data (000's) |
|--|----------------------|
| a) DRB actual reported salaries FY21 in employer list | \$ 806,609 |
| b) DRB actual reported salaries FY21 in valuation data | 719,382 |
| c) Annualized valuation data | 728,516 |
| d) Valuation payroll as of June 30, 2021 | 756,805 |
| e) Rate payroll for FY22 | 750,334 |
| f) Rate payroll for FY24 | 762,084 |

- a) Actual reported salaries from DRB employer listing showing all payroll paid during FY21, including those who were not active as of June 30, 2021
- b) Payroll from valuation data for people who are in active status as of June 30, 2021
- c) Payroll from (b) annualized for both new entrants and part-timers
- d) Payroll from (c) with one year of salary scale applied to estimate salaries payable for the upcoming year
- e) Payroll from (d) with the part-timer annualization removed
- f) Payroll from (e) with two years of assumed decrements and salary scale, and 0% population growth

Section 4.6: Summary of New Pension Benefit Recipients

| During the Year Ending June 30 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|----------|----------|----------|----------|----------|
| Service | | | | | |
| 1. Number | 376 | 465 | 367 | 331 | 447 |
| 2. Average Age at Commencement | 59.77 | 59.98 | 59.87 | 59.71 | 59.79 |
| 3. Average Monthly Pension Benefit | \$ 3,300 | \$ 3,527 | \$ 3,562 | \$ 3,693 | \$ 3,593 |
| Survivor (including surviving spouse and DROs) | | | | | |
| 1. Number | 108 | 87 | 96 | 127 | 145 |
| 2. Average Age at Commencement | 70.57 | 71.61 | 74.36 | 74.16 | 76.80 |
| 3. Average Monthly Pension Benefit | \$ 1,643 | \$ 2,022 | \$ 1,795 | \$ 1,903 | \$ 1,951 |
| Disability | | | | | |
| 1. Number | 3 | 3 | 5 | 2 | 1 |
| 2. Average Age at Commencement | 43.30 | 49.92 | 51.51 | 53.65 | 54.35 |
| 3. Average Monthly Pension Benefit | \$ 3,678 | \$ 3,625 | \$ 4,182 | \$ 3,019 | \$ 4,886 |
| Total | | | | | |
| 1. Number | 487 | 555 | 468 | 460 | 593 |
| 2. Average Age at Commencement | 62.06 | 61.75 | 62.75 | 63.67 | 63.94 |
| 3. Average Monthly Pension Benefit | \$ 2,935 | \$ 3,292 | \$ 3,206 | \$ 3,196 | \$ 3,194 |

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 7/1/2020 – 6/30/2021: | | | | | | | |
| Average Monthly Pension | \$ 451 | \$ 764 | \$ 1,509 | \$ 2,684 | \$ 3,625 | \$ 4,659 | \$ 6,090 |
| Number of Recipients | 8 | 24 | 33 | 83 | 142 | 112 | 46 |
| Period 7/1/2019 – 6/30/2020: | | | | | | | |
| Average Monthly Pension | \$ 243 | \$ 1,054 | \$ 1,647 | \$ 2,600 | \$ 3,616 | \$ 4,874 | \$ 6,772 |
| Number of Recipients | 8 | 19 | 26 | 72 | 90 | 78 | 40 |
| Period 7/1/2018 – 6/30/2019: | | | | | | | |
| Average Monthly Pension | \$ 334 | \$ 891 | \$ 1,540 | \$ 2,760 | \$ 3,567 | \$ 4,666 | \$ 6,777 |
| Number of Recipients | 4 | 23 | 39 | 87 | 93 | 85 | 41 |
| Period 7/1/2017 – 6/30/2018: | | | | | | | |
| Average Monthly Pension | \$ 204 | \$ 899 | \$ 1,583 | \$ 2,583 | \$ 3,422 | \$ 4,580 | \$ 6,083 |
| Number of Recipients | 5 | 21 | 61 | 85 | 109 | 130 | 57 |
| Period 7/1/2016 – 6/30/2017: | | | | | | | |
| Average Monthly Pension | \$ 426 | \$ 795 | \$ 1,626 | \$ 2,433 | \$ 3,549 | \$ 4,536 | \$ 6,351 |
| Number of Recipients | 10 | 22 | 60 | 75 | 100 | 64 | 48 |
| Period 7/1/2015 – 6/30/2016: | | | | | | | |
| Average Monthly Pension | \$ 245 | \$ 1,002 | \$ 1,535 | \$ 2,540 | \$ 3,445 | \$ 4,472 | \$ 6,168 |
| Number of Recipients | 11 | 31 | 82 | 69 | 105 | 74 | 54 |
| Period 7/1/2014 – 6/30/2015: | | | | | | | |
| Average Monthly Pension | \$ 349 | \$ 1,041 | \$ 1,342 | \$ 2,205 | \$ 3,267 | \$ 4,220 | \$ 5,900 |
| Number of Recipients | 11 | 33 | 70 | 67 | 137 | 125 | 94 |
| Period 7/1/2013 – 6/30/2014: | | | | | | | |
| Average Monthly Pension | \$ 235 | \$ 904 | \$ 1,435 | \$ 2,398 | \$ 3,016 | \$ 4,073 | \$ 7,485 |
| Number of Recipients | 8 | 31 | 31 | 28 | 22 | 18 | 12 |
| Period 7/1/2012 – 6/30/2013: | | | | | | | |
| Average Monthly Pension | \$ 253 | \$ 1,030 | \$ 1,496 | \$ 2,450 | \$ 3,281 | \$ 4,384 | \$ 6,052 |
| Number of Recipients | 10 | 57 | 67 | 90 | 101 | 79 | 64 |
| Period 7/1/2011 – 6/30/2012: | | | | | | | |
| Average Monthly Pension | \$ 353 | \$ 1,064 | \$ 1,512 | \$ 2,241 | \$ 3,276 | \$ 4,320 | \$ 5,739 |
| Number of Recipients | 11 | 43 | 62 | 61 | 118 | 81 | 58 |

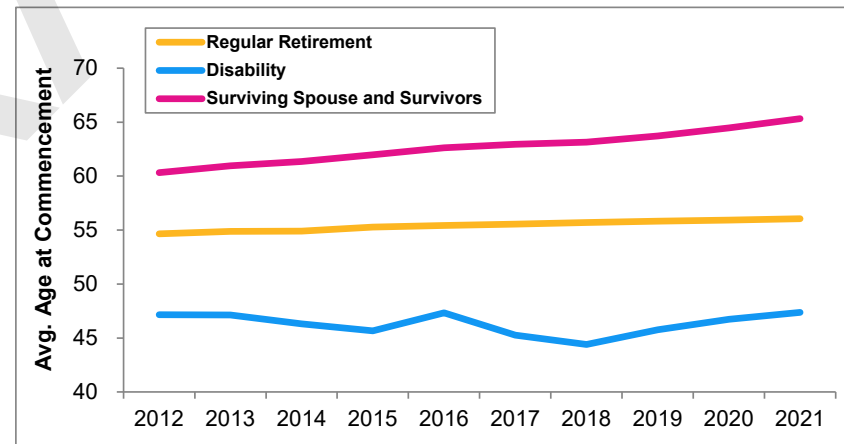
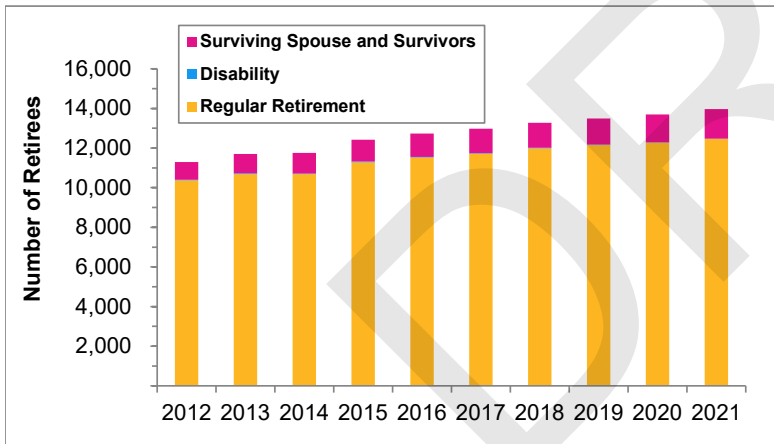
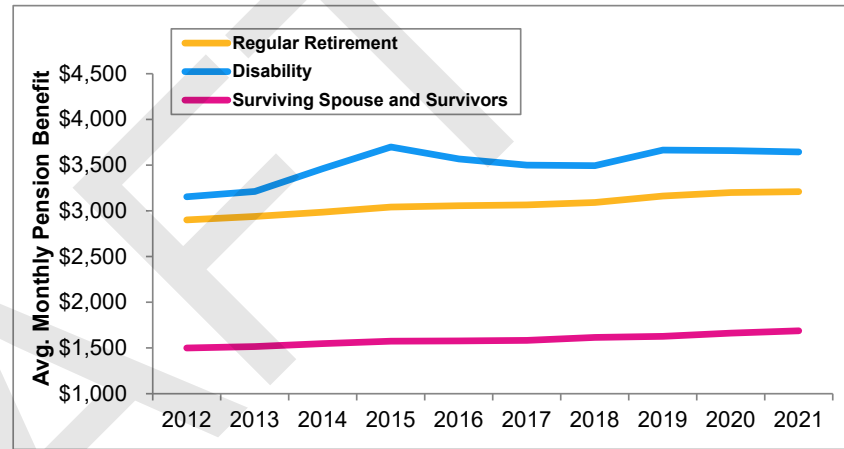
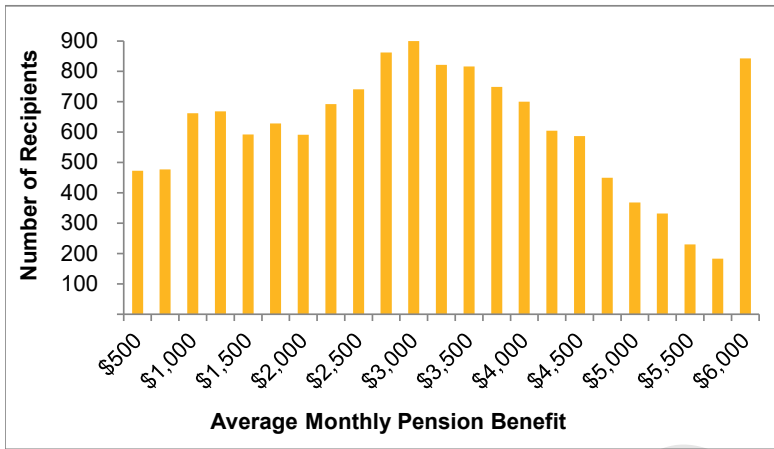
“Average Monthly Pension” includes postretirement pension adjustments and cost-of-living increases.

Beneficiaries are not included in the table above.

Section 4.7: Summary of All Pension Benefit Recipients

| As of June 30 | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|----------|----------|----------|----------|----------|
| Service | | | | | |
| 1. Number, Fiscal Year Start | 11,527 | 11,716 | 11,988 | 12,147 | 12,267 |
| 2. Net Change | 189 | 272 | 159 | 120 | 192 |
| 3. Number, Fiscal Year End | 11,716 | 11,988 | 12,147 | 12,267 | 12,459 |
| 4. Average Age at Commencement | 55.55 | 55.70 | 55.82 | 55.93 | 56.05 |
| 5. Average Current Age | 70.09 | 70.50 | 70.99 | 71.50 | 71.85 |
| 6. Average Monthly Pension Benefit | \$ 3,064 | \$ 3,093 | \$ 3,161 | \$ 3,199 | \$ 3,210 |
| Surviving Spouse (including DROs) | | | | | |
| 1. Number, Fiscal Year Start | 1,168 | 1,237 | 1,261 | 1,315 | 1,400 |
| 2. Net Change | 69 | 24 | 54 | 85 | 93 |
| 3. Number, Fiscal Year End | 1,237 | 1,261 | 1,315 | 1,400 | 1,493 |
| 4. Average Age at Commencement | 62.98 | 63.16 | 63.73 | 64.49 | 65.32 |
| 5. Average Current Age | 73.42 | 73.90 | 74.65 | 75.26 | 75.97 |
| 6. Average Monthly Pension Benefit | \$ 1,584 | \$ 1,618 | \$ 1,629 | \$ 1,665 | \$ 1,688 |
| Survivor (other than spouse) | | | | | |
| 1. Number, Fiscal Year Start | 3 | 3 | 3 | 3 | 2 |
| 2. Net Change | 0 | 0 | 0 | (1) | (2) |
| 3. Number, Fiscal Year End | 3 | 3 | 3 | 2 | 0 |
| 4. Average Age at Commencement | 52.81 | 53.85 | 53.85 | 53.94 | 0.00 |
| 5. Average Current Age | 58.22 | 60.65 | 61.65 | 61.56 | 0.00 |
| 6. Average Monthly Pension Benefit | \$ 746 | \$ 749 | \$ 765 | \$ 705 | \$ 0 |
| Disability | | | | | |
| 1. Number, Fiscal Year Start | 28 | 27 | 25 | 26 | 20 |
| 2. Net Change | (1) | (2) | 1 | (6) | 0 |
| 3. Number, Fiscal Year End | 27 | 25 | 26 | 20 | 20 |
| 4. Average Age at Commencement | 45.25 | 44.40 | 45.75 | 46.74 | 47.37 |
| 5. Average Current Age | 50.34 | 50.02 | 51.08 | 51.73 | 52.85 |
| 6. Average Monthly Pension Benefit | \$ 3,500 | \$ 3,494 | \$ 3,666 | \$ 3,658 | \$ 3,643 |
| Total | | | | | |
| 1. Number, Fiscal Year Start | 12,726 | 12,983 | 13,277 | 13,491 | 13,689 |
| 2. Net Change | 257 | 294 | 214 | 198 | 283 |
| 3. Number, Fiscal Year End | 12,983 | 13,277 | 13,491 | 13,689 | 13,972 |
| 4. Average Age at Commencement | 56.24 | 56.38 | 56.56 | 56.79 | 57.02 |
| 5. Average Current Age | 70.36 | 70.78 | 71.30 | 71.85 | 72.26 |
| 6. Average Monthly Pension Benefit | \$ 2,924 | \$ 2,954 | \$ 3,014 | \$ 3,043 | \$ 3,048 |

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 | 0 | 0 | 0 |
| 40 - 44 | 6 | 194,721 | 32,454 |
| 45 - 49 | 55 | 1,913,518 | 34,791 |
| 50 - 54 | 258 | 11,082,589 | 42,956 |
| 55 - 59 | 703 | 30,350,083 | 43,172 |
| 60 - 64 | 1,729 | 63,061,790 | 36,473 |
| 65 - 69 | 2,797 | 98,633,289 | 35,264 |
| 70 - 74 | 3,393 | 118,070,449 | 34,798 |
| 75+ | 5,031 | 187,776,040 | 37,324 |
| Total | 13,972 | \$511,082,479 | \$ 36,579 |

Annual Pension Benefit by Years Since Commenced

| Years Since Comm. | Number | Total Annual Pension Benefit | Average Annual Pension Benefit |
|-------------------|---------------|------------------------------|--------------------------------|
| 0 | 514 | \$ 19,547,143 | \$ 38,029 |
| 1 | 471 | 18,221,267 | 38,686 |
| 2 | 474 | 18,533,172 | 39,100 |
| 3 | 488 | 19,918,428 | 40,816 |
| 4 | 487 | 18,219,745 | 37,412 |
| 0 - 4 | 2,434 | \$ 94,439,755 | \$ 38,800 |
| 5 - 9 | 2,517 | 94,156,710 | 37,408 |
| 10 - 14 | 2,129 | 72,087,821 | 33,860 |
| 15 - 19 | 2,184 | 70,007,604 | 32,055 |
| 20 - 24 | 2,175 | 76,417,673 | 35,135 |
| 25 - 29 | 1,222 | 48,723,567 | 39,872 |
| 30 - 34 | 916 | 39,327,726 | 42,934 |
| 35 - 39 | 299 | 12,721,955 | 42,548 |
| 40+ | 96 | 3,199,668 | 33,330 |
| Total | 13,972 | \$511,082,479 | \$ 36,579 |

Years Since Commencement by Age

| Age | Years Since Commencement | | | | | | | | | |
|--------------|--------------------------|--------------|--------------|--------------|--------------|--------------|------------|------------|-----------|---------------|
| | 0 - 4 | 5 - 9 | 10 - 14 | 15 - 19 | 20 - 24 | 25 - 29 | 30 - 34 | 35 - 39 | 40+ | Total |
| 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 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40 - 44 | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 45 - 49 | 52 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55 |
| 50 - 54 | 202 | 49 | 5 | 0 | 2 | 0 | 0 | 0 | 0 | 258 |
| 55 - 59 | 416 | 192 | 73 | 20 | 2 | 0 | 0 | 0 | 0 | 703 |
| 60 - 64 | 777 | 501 | 274 | 140 | 33 | 3 | 1 | 0 | 0 | 1,729 |
| 65 - 69 | 430 | 953 | 693 | 462 | 231 | 26 | 1 | 0 | 1 | 2,797 |
| 70 - 74 | 237 | 514 | 699 | 932 | 720 | 227 | 60 | 2 | 2 | 3,393 |
| 75+ | 317 | 303 | 384 | 630 | 1,187 | 966 | 854 | 297 | 93 | 5,031 |
| Total | 2,434 | 2,517 | 2,129 | 2,184 | 2,175 | 1,222 | 916 | 299 | 96 | 13,972 |

Section 4.8: Pension Benefit Recipients by Type of 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 | 240 | 165 | 75 | 0 | 148 | 46 | 39 | 7 |
| 301 – 600 | 405 | 276 | 129 | 0 | 228 | 71 | 84 | 22 |
| 601 – 900 | 666 | 510 | 156 | 0 | 366 | 135 | 126 | 39 |
| 901 – 1,200 | 831 | 651 | 180 | 0 | 496 | 158 | 143 | 34 |
| 1,201 – 1,500 | 730 | 560 | 170 | 0 | 406 | 155 | 148 | 21 |
| 1,501 – 1,800 | 735 | 561 | 174 | 0 | 415 | 159 | 138 | 23 |
| 1,801 – 2,100 | 757 | 598 | 159 | 0 | 406 | 155 | 169 | 27 |
| 2,101 – 2,400 | 846 | 714 | 132 | 0 | 383 | 203 | 227 | 33 |
| 2,401 – 2,700 | 999 | 900 | 99 | 0 | 451 | 237 | 281 | 30 |
| 2,701 – 3,000 | 1,079 | 1,002 | 72 | 5 | 466 | 256 | 324 | 33 |
| 3,001 – 3,300 | 990 | 944 | 42 | 4 | 395 | 244 | 326 | 25 |
| 3,301 – 3,600 | 955 | 919 | 35 | 1 | 392 | 208 | 328 | 27 |
| 3,601 – 3,900 | 874 | 854 | 18 | 2 | 342 | 186 | 320 | 26 |
| 3,901 – 4,200 | 757 | 735 | 17 | 5 | 312 | 163 | 261 | 21 |
| 4,200+ | 3,108 | 3,070 | 35 | 3 | 1,173 | 555 | 1,277 | 103 |
| Total | 13,972 | 12,459 | 1,493 | 20 | 6,379 | 2,931 | 4,191 | 471 |

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 4.9: Pension Benefit Recipients Added to and Removed from Rolls

| Year Ended | Added to Rolls | | Removed from Rolls | | Rolls at End of Year | | Percent Increase in Annual Pension Benefits | Average Annual Pension Benefit |
|---------------|------------------|--------------------------------------|--------------------|--------------------------------------|----------------------|-------------------------|---|--------------------------------|
| | No. ¹ | Annual Pension Benefits ¹ | No. ¹ | Annual Pension Benefits ¹ | No. | Annual Pension Benefits | | |
| June 30, 2021 | 593 | \$ 22,728,504 | 310 | \$ 11,391,465 | 13,972 | \$ 511,082,479 | 2.3% | \$ 36,579 |
| June 30, 2020 | 460 | 17,641,920 | 262 | 5,527,983 | 13,689 | 499,745,440 | 2.5% | 36,507 |
| June 30, 2019 | 468 | 18,004,896 | 254 | 871,684 | 13,491 | 487,631,503 | 3.6% | 36,145 |
| June 30, 2018 | 555 | 21,924,986 | 261 | 6,926,129 | 13,277 | 470,498,291 | 3.3% | 35,437 |
| June 30, 2017 | 487 | 17,151,684 | 230 | 7,736,025 | 12,983 | 455,499,434 | 2.1% | 35,084 |
| June 30, 2016 | 530 | 18,364,581 | 222 | 6,144,109 | 12,726 | 446,083,775 | 2.8% | 35,053 |
| June 30, 2015 | 888 | 34,120,658 | 220 | 3,531,501 | 12,418 | 433,863,303 | 7.6% | 34,938 |
| June 30, 2014 | 226 | 5,964,256 | 181 | (1,150,187) | 11,750 | 403,274,146 | 1.8% | 34,321 |
| June 30, 2013 | 576 | 19,387,542 | 172 | 1,652,575 | 11,705 | 396,159,703 | 4.7% | 33,845 |
| June 30, 2012 | 473 | 17,104,564 | 188 | (617,561) | 11,301 | 378,424,736 | 4.9% | 33,486 |

¹ Numbers are estimated, and include other internal transfers.

Section 5: Basis of the Actuarial Valuation

Section 5.1: Summary of Plan Provisions

Effective Date

July 1, 1955, with amendments through June 30, 2021. Chapter 97, 1990 Session Laws of Alaska, created a two-tier retirement system. Members who were first hired under TRS before July 1, 1990 (Tier 1) are eligible for different benefits than members hired after June 30, 1990 (Tier 2). Chapter 9, 2005 Session Laws of Alaska, closed the plan to new members hired after June 30, 2006.

Administration of Plan

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

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

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

Employers Included

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

Membership

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

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

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

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

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

Credited Service

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

Members may claim other types of service, including:

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

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

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

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

Employer Contributions

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

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

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

Employer rates cannot be less than the normal cost rate.

Pursuant to AS14.25.070 effective July 1, 2008, each TRS employer will pay a simple uniform contribution rate of 12.56% of member payroll.

Additional State Contributions

Pursuant to AS14.25.085 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 of 12.56%, will be sufficient to pay the total contribution rate adopted by the Board.

Member Contributions

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

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

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

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

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

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

Retirement Benefits

Eligibility

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

Benefit Type

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

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

Benefit Calculations

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

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

Indebtedness

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

Reemployment of Retired Members

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

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

Members retired under the Retirement Incentive Programs (RIPs) who return to employment will:

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

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

Postemployment Healthcare Benefits

When pension benefits begin, major medical benefits are provided by TRS to (1) all employees first hired before July 1, 1990 (Tier 1) and their surviving spouses and (2) members and their surviving spouses who have 25 years of membership service, are disabled or age 60 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 60 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.

Starting in 2022, prior authorization will be required for certain specialty medications for all participants. There is no change to the medications that are covered by the plan.

Starting in 2022, certain preventive benefits for pre-Medicare participants will now be covered by the plan.

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

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

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

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

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

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.

Death Benefits

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

Occupational Death

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

Non-Occupational Death

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

Lump Sum Benefit

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

Supplemental Contributions Provision

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

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

Death After Retirement

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

Postretirement Pension Adjustments

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

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

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

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

Alaska Cost-of-Living Allowance (COLA)

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

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

Changes in Benefit Provisions Valued Since the Prior Valuation

Starting in 2022, prior authorization will be required for certain specialty medications for all participants, and certain preventive benefits for pre-Medicare participants will now be covered by the plan. There were no other changes in benefit provisions since the prior valuation.

Section 5.2: Description of Actuarial Methods and Valuation Procedures

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

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

Actuarial Cost Method

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method, level percent of pay.

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

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

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

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

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

¹ Layer #1 is referred to as "initial amount" in Sections 1.2 and 1.3.

Valuation of Assets

The actuarial asset value was reinitialized to equal Fair Value of Assets as of June 30, 2014. Beginning in FY15, the asset valuation method recognizes 20% of the gain or loss each year, for a period of five years. All assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from financial statements audited by KPMG LLP.

Changes in Methods Since the Prior Valuation

There were no changes in the asset or valuation methods since the prior valuation.

Valuation of Retiree Medical and Prescription Drug Benefits

This section outlines the detailed methodology used in the internal model developed by Buck to calculate the initial per capita claims cost rates for the TRS postemployment healthcare plan. Note that the methodology reflects the results of our annual experience rate update for the period from July 1, 2020 to June 30, 2021.

Base claims cost rates are incurred healthcare costs expressed as a rate per member per year. Ideally, claims cost rates should be derived for each significant component of cost that can be expected to require differing projection assumptions or methods (i.e., medical claims, prescription drug claims, administrative costs, etc.). Separate analysis is limited by the availability and historical credibility of cost and enrollment data for each component of cost. This valuation reflects non-prescription claims separated by Medicare status, including eligibility for free Part A coverage. Prescription costs are analyzed separately as in prior valuations. Administrative costs are assumed in the final per capita claims cost rates used for valuation purposes, as described below. Analysis to date on Medicare Part A coverage is limited since Part A claim data is not available by individual, nor is this status incorporated into historical claim data.

Benefits

Medical, prescription drug, dental, vision and audio coverage is provided through the AlaskaCare Retiree Health Plan and is available to employees of the State and subdivisions who meet retirement criteria based on the retirement plan tier in effect at their date of hire. Health plan provisions do not vary by retirement tier or age, except for Medicare coordination for those Medicare-eligible. Dental, vision and audio claims (DVA) are excluded from data analyzed for this valuation because those are retiree-pay all benefits where rates are assumed to be self-supporting. Buck relies upon rates set by a third-party for the DVA benefits. Buck reviewed historical rate-setting information and views contribution rate adjustments made are not unreasonable.

Administration and Data Sources

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

Claims incurred for the period from July 2019 through June 2021 (FY20 through FY21) were provided by the State of Alaska from reports extracted from their data warehouse, which separated claims by Medicare status. Monthly enrollment data for the same period was provided by Aetna.

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

Aetna provided a snapshot file as of July 1, 2021 of retirees and dependents that included a coverage level indicator. The monthly enrollment data includes double coverage participants. These are participants whereby both the retiree and spouse are retirees from the State and both are reflected with Couple coverage in the enrollment. In this case, such a couple would show up as four members in the

monthly enrollment (each would be both a retiree and a spouse). As a result, the snapshot census file was used to adjust the total member counts in the monthly enrollment reports to estimate the number of unique participants enrolled in coverage. Based on the snapshot files from the last two valuations, the total member count in the monthly enrollment reports needs to be reduced by approximately 13% to account for the number of participants with double coverage.

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

Methodology

Buck projected historical claim data to FY22 for retirees using the following summarized steps:

1. Develop historical annual incurred claim cost rates – an analysis of medical costs was completed based on claims information and enrollment data provided by the State of Alaska and Aetna for each year in the experience period of FY20 through FY21.
 - Costs for medical services and prescriptions were analyzed separately, and separate trend rates were developed to project expected future medical and prescription costs for the valuation year (e.g. from the experience period up through FY22).
 - Because the reports provided reflected incurred claims, no additional adjustment was needed to determine incurred claims to be used in the valuation.
 - An offset for costs expected to be reimbursed by Medicare was incorporated beginning at age 65. Alaska retirees who do not have 40 quarters of Medicare-covered compensation do not qualify for Medicare Part A coverage free of charge. This is a relatively small and closed group. Medicare was applied to State employment for all employees hired after March 31, 1986. For the “no-Part A” individuals who are required to enroll in Medicare Part B, the State is the primary payer for hospital bills and other Part A services. Claim experience is not available separately for participants with both Medicare Parts A and B and those with Part B only. For Medicare Part B only participants, a lower average claims cost was applied to retirees covered by both Medicare Part A and B vs. retirees covered only by Medicare Part B based upon manual rate models that estimate the Medicare covered proportion of medical costs. To the extent that no-Part A claims can be isolated and applied strictly to the appropriate closed group, actuarial accrued liability will be more accurate.
 - Based on census data received from Aetna, less than 1% of the current retiree population was identified as having coverage only under Medicare Part B. We assume that 5% of actives hired before April 1, 1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.
 - Based upon a reconciliation of valuation census data to the snapshot eligibility files provided by Aetna as of July 1, 2020, and July 1, 2021, Buck adjusted member counts used for duplicate records where participants have double coverage; i.e. primary coverage as a retiree and secondary coverage as the covered spouse of another retiree. This is to reflect the total cost per distinct individual/member which is then applied to distinct members in the valuation census.
 - Buck understands that pharmacy claims reported do not reflect rebates. Based on actual pharmacy rebate information provided by Optum, rebates were assumed to be 19.5% of prescription drug claims for FY20, 16.2% of pre-Medicare, and 14.3% of Medicare prescription drug claims for FY21.
2. Develop estimated EGWP reimbursements – Segal provided estimated 2022 EGWP subsidies, developed with the assistance of OptumRx. These amounts are applicable only to Medicare-eligible participants.

3. Adjust for claim fluctuation, anomalous experience, etc. – explicit adjustments are often made for anticipated large claims or other anomalous experience. FY19 and FY20 experience were compared to assess the impact of COVID-19 and whether an adjustment to FY20 claims was indicated for use in the June 30, 2020 valuation. A material decrease in medical claims during March 2020 to June 2020 was experienced due to COVID-19. Therefore, an adjustment was made for those months to adjust for the decrease that is not expected to continue in future years. There was an observed spike in prescription drug claims in March 2020; however, the FY20 prescription drug experience appears reasonable to use without adjustment for COVID-19. To adjust for the decrease in medical claims due to COVID-19 during the last 4 months of FY20, the per capita cost during the first 8 months was used as the basis for estimating claims that would have occurred in the absence of COVID-19. FY21 experience was also thoroughly reviewed to assess the impact of COVID-19 and whether an adjustment to FY21 claims was appropriate for use in the June 30, 2021 valuation. FY21 medical per capita claims were noticeably lower than expected, so a 4% load was added to the FY21 medical claims used in the per capita claims cost development to better reflect future expected long-term costs of the plan. Total prescription drug claims experience for FY21 was reasonable and consistent with FY19 and FY20 experience. Therefore, no adjustment was made to FY21 prescription drug claims. Due to group size and demographics, we did not make any additional large claim adjustments. We do blend both Alaska plan-specific and national trend factors as described below. Buck compared data utilized to lag reports and quarterly plan experience presentations provided by the State and Aetna to assess accuracy and reasonableness of data.
4. Trend all data points to the projection period – project prior years’ experience forward to FY22 for retiree benefits on an incurred claim basis. Trend factors derived from historical Alaska-specific experience and national trend factors are shown in the table in item 5 below.
5. Apply credibility to prior experience – adjust prior year’s data by assigning weight to recent periods, as shown at the right of the table below. The Board approved a change in the weighting of experience periods beginning with the June 30, 2017 valuation as outlined below. Note also that for FY20 to FY21 medical and both years of prescription drugs 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. For FY21 to FY22 medical we applied 100% weight to national trends because the Alaska-specific trends were impacted by COVID-19:

| Alaska-Specific and National Average Weighted Trend from Experience Period to Valuation Year | | | |
|---|-----------------------------------|--------------|-------------------|
| Experience Period | Medical | Prescription | Weighting Factors |
| FY20 to FY21 | 6.3% Pre-Medicare / 5.2% Medicare | 7.6% | 50% |
| FY21 to FY22 | 8.1% Pre-Medicare / 4.8% Medicare | 8.0% | 50% |

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

6. Starting in 2022, prior authorization will be required for certain specialty medications. There is no change to the medications that are covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The DB base claims costs for pre-Medicare prescription drug, Medicare prescription drug, and EGWP were adjusted to reflect this change. Additionally, starting in 2022, certain preventive benefits for pre-Medicare participants will now be covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The DB base claims cost for pre-Medicare medical was adjusted to reflect this change.
7. Develop separate administration costs – no adjustments were made for internal administrative costs. Third party retiree plan administration fees for FY22 are based upon total fees projected to 2022 by Segal based on actual FY21 fees. The annual per participant per year administrative cost rate for medical and prescription benefits is \$493.

Healthcare Reform

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

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

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

The Further Consolidated Appropriations Act, 2020 passed in December 2019 repealed several healthcare-related taxes, including the Cadillac Tax.

The Tax Cuts and Jobs Act passed in December 2017 included the elimination of the individual mandate penalty and changed the inflation measure for purposes of determining the limits for the High Cost Excise Tax to use chained CPI. It is our understanding the law does not directly impact other provisions of the ACA. While the nullification of the ACA's individual mandate penalty does not directly impact employer group health plans, it could contribute to the destabilization of the individual market and increase the number of uninsured. Such destabilization could translate to increased costs for employers. We have considered this when setting our healthcare cost trend assumptions and will continue to monitor this issue.

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

Data

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:

- All records provided with retiree medical coverage on the Aetna data were included in this valuation and we relied on the Aetna data as the source of medical coverage for current retirees and their dependents.
- Some records in the Aetna data were duplicates due to the double coverage (i.e. coverage as a retiree and as a spouse of another retiree) allowed under the plan. Records were adjusted for these members so that each member was only valued once. Any additional value of the double coverage (due to coordination of benefits) is small and reflected in the per capita costs.
- Covered children included in the Aetna data were valued until age 23, unless disabled. We assumed that those dependents over 23 were only eligible and valued due to being disabled.
- For individuals included in the pension data expecting a future pension, we valued health benefits starting at the same point that the pension benefit is assumed to start.

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

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

| | Medical | | Prescription Drugs (Rx) | |
|---|----------------|---------------|-------------------------|----------------|
| | Pre-Medicare | Medicare | Pre-Medicare | Medicare |
| A. Fiscal 2020 | | | | |
| 1. Incurred Claims | \$ 229,531,664 | \$ 89,497,345 | \$ 64,442,660 | \$ 188,022,328 |
| 2. Adjustments for Rx Rebates | 0 | 0 | (12,566,319) | (36,664,354) |
| 3. Net incurred claims | \$ 229,531,664 | \$ 89,497,345 | \$ 51,876,341 | \$ 151,357,974 |
| 4. Average Enrollment | 19,354 | 44,965 | 19,354 | 44,965 |
| 5. Claim Cost Rate (3) / (4) | 11,860 | 1,990 | 2,680 | 3,366 |
| 6. Trend to Fiscal 2022 | 1.149 | 1.103 | 1.162 | 1.162 |
| 7. Fiscal 2022 Incurred Cost Rate (5) x (6) | \$ 13,630 | \$ 2,195 | \$ 3,116 | \$ 3,912 |

| | | | | |
|--|----------------|---------------|---------------|----------------|
| B. Fiscal 2021 | | | | |
| 1. Incurred Claims | \$ 196,566,470 | \$ 86,512,435 | \$ 60,691,609 | \$ 207,822,858 |
| 2. Adjustments for Rx Rebates and COVID (Medical only) | 7,862,659 | 3,460,497 | (9,832,041) | (29,718,669) |
| 3. Net incurred claims | \$ 204,429,129 | \$ 89,972,933 | \$ 50,859,568 | \$ 178,104,189 |
| 4. Average Enrollment | 18,106 | 47,025 | 18,106 | 47,025 |
| 5. Claim Cost Rate (3) / (4) | 11,291 | 1,913 | 2,809 | 3,787 |
| 6. Trend to Fiscal 2022 | 1.081 | 1.048 | 1.080 | 1.080 |
| 7. Fiscal 2022 Incurred Cost Rate (5) x (6) | \$ 12,205 | \$ 2,005 | \$ 3,034 | \$ 4,090 |

| | Medical | | Prescription Drugs (Rx) | |
|---|--------------|----------|-------------------------|----------|
| | Pre-Medicare | Medicare | Pre-Medicare | Medicare |
| C. Incurred Cost Rate by Fiscal Year | | | | |
| 1. Fiscal 2020 A.(7) | 13,630 | 2,195 | 3,116 | 3,912 |
| 2. Fiscal 2021 B.(7) | 12,205 | 2,005 | 3,034 | 4,090 |

| | | | | |
|------------------------------------|-----|-----|-----|-----|
| D. Weighting by Fiscal Year | | | | |
| 1. Fiscal 2020 | 50% | 50% | 50% | 50% |
| 2. Fiscal 2021 | 50% | 50% | 50% | 50% |

| | | | | |
|--|-----------|----------|----------|----------|
| E. Fiscal 2022 Incurred Cost Rate | | | | |
| 1. Rate at Average Age C x D | \$ 12,918 | \$ 2,100 | \$ 3,075 | \$ 4,001 |
| 2. Average Aging Factor | 0.822 | 1.271 | 0.832 | 1.124 |
| 3. Rate at Age 65 (1) / (2) | \$ 15,708 | \$ 1,652 | \$ 3,695 | \$ 3,560 |

F. Development of Part A&B and Part B Only Cost from Pooled Rate Above

| | |
|--|----------|
| 1. Part A&B Average Enrollment | 46,602 |
| 2. Part B Only Average Enrollment | 423 |
| 3. Total Medicare Average Enrollment B(4) | 47,025 |
| 4. Cost ratio for those with Part B only to those with Parts A&B | 3.300 |
| 5. Factor to determine cost for those with Parts A&B (2) / (3) x (4) + (1) / (3) x 1.00 | 1.021 |
| 6. Medicare per capita cost for all participants: E(3) | \$ 1,652 |
| 7. Cost for those eligible for Parts A&B: (6) / (5) | \$ 1,619 |
| 8. Cost for those eligible for Part B only: (7) x (4) | \$ 5,341 |

| | Medical | | Prescription Drugs (Rx) | |
|--|--------------|----------|-------------------------|----------|
| | Pre-Medicare | Medicare | Pre-Medicare | Medicare |
| 1. Rate at Age 65 | \$ 15,708 | \$ 1,619 | \$ 3,695 | \$ 3,560 |
| 2. Adjustment factor for plan changes | 1.39% | 0.00% | -8.67% | -2.41% |
| 3. Adjusted Rate at Age 65 (1) x [1 + (2)] | \$ 15,926 | \$ 1,619 | \$ 3,375 | \$ 3,474 |

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, 2021 through June 30, 2022**

| Age | Medical and Medicare Parts A & B | Medical and Medicare Part B Only | Prescription Drug | Medicare EGWP Subsidy |
|-----|----------------------------------|----------------------------------|-------------------|-----------------------|
| 45 | \$ 9,719 | \$ 9,719 | \$ 2,062 | \$ 0 |
| 50 | 10,996 | 10,996 | 2,449 | 0 |
| 55 | 12,441 | 12,441 | 2,908 | 0 |
| 60 | 14,076 | 14,076 | 3,133 | 0 |
| 65 | 1,619 | 5,341 | 3,474 | 1,131 |
| 70 | 1,877 | 6,192 | 3,836 | 1,249 |
| 75 | 2,176 | 7,178 | 4,235 | 1,379 |
| 80 | 2,402 | 7,925 | 4,130 | 1,345 |

Section 5.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2021 valuation are described below. Unless noted otherwise, these assumptions were adopted by the Board in January 2019 based on the experience study for the period July 1, 2013 to June 30, 2017.

Investment Return

7.38% per year, net of investment expenses.

Salary Scale

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

Inflation – 2.50% per year.

Productivity – 0.25% per year.

Payroll Growth

2.75% per year (inflation + productivity).

Total Inflation

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

Mortality (Pre-Commencement)

Mortality rates based upon the 2013-2017 actual experience.

RP-2014 white-collar employee table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Deaths are assumed to result from occupational causes 15% of the time.

Mortality (Post-Commencement)

Mortality rates based upon the 2013-2017 actual experience.

93% of male and 90% of female rates of RP-2014 white-collar healthy annuitant table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Turnover

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

Disability

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

Post-disability mortality in accordance with the RP-2014 disabled table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Retirement

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

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

The modified cash refund annuity is valued as a three-year certain and life annuity.

Spouse Age Difference

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

Percent Married for Pension

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

Dependent Spouse Medical Coverage Election

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

Dependent Children

- Pension: For the participants who are assumed to be married, those between ages 25 and 45 are assumed to have two dependent children.
- Healthcare: 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

0% of terminating members with vested benefits are assumed to have their contributions refunded. 100% of those with non-vested benefits are assumed to have their contributions refunded.

Imputed Data

Data changes from the prior year which are deemed to have an immaterial impact on liabilities and contribution rates are assumed to be correct in the current year's client data. Non-vested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage.

Active Rehire Assumption

The Normal Cost used for determining contribution rates and in the projections includes a rehire assumption to account for anticipated rehires. The Normal Cost shown in the report includes the following assumptions (which were developed based on the five years of rehire loss experience through June 30, 2017). For projections, these assumptions were assumed to grade to zero uniformly over a 20-year period.

- Pension: 15.57%
- Healthcare: 12.03%

Re-Employment Option

All re-employed retirees are assumed to return to work under the Standard Option.

Active Data Adjustment

No adjustment was made to reflect participants who terminate employment before the valuation date and are subsequently rehired after the valuation date.

Alaska Cost-of-Living Adjustments (COLA)

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

Postretirement Pension Adjustment (PRPA)

50% and 75% of assumed inflation, or 1.25% and 1.875% respectively, is valued for the annual automatic PRPA as specified in the statute.

Expenses

The investment return assumption is net of investment expenses.

The Normal Cost as of June 30, 2021 was increased by the following amounts for administrative expenses (for projections, the percent increase was assumed to remain constant in future years):

- Pension: \$3,217,000
- Healthcare: \$1,604,000

Part-Time Status

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

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.

Service

Total credited service is provided by the State. This service is assumed to be the only service that should be used to calculate benefits. Additionally, the State provides claimed service (including Bureau of Indian Affairs Service). Claimed service is used for vesting and eligibility purposes as described in Section 5.1.

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 FY22 medical and prescription drugs are shown below. The prescription drug costs reflect the plan change to require prior authorization for certain specialty medications. The pre-Medicare medical cost reflects the coverage of additional preventive benefits.

| | Medical | Prescription Drugs |
|------------------------|-----------|--------------------|
| Pre-Medicare | \$ 15,926 | \$ 3,375 |
| Medicare Parts A & B | \$ 1,619 | \$ 3,474 |
| Medicare Part B Only | \$ 5,341 | \$ 3,474 |
| Medicare Part D – EGWP | N/A | \$ 1,131 |

Members are assumed to attain Medicare eligibility at age 65. All costs are for the 2022 fiscal year (July 1, 2021 – June 30, 2022).

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

Third Party Administrator Fees

\$493 per person per year; assumed to increase at 4.5% per year.

Medicare Part B Only

We assume that 5% of actives hired before April 1, 1986 and current retirees who are not yet Medicare eligible will not be eligible for Medicare Part A.

Healthcare Cost Trend

The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 6.3% is applied to the FY22 pre-Medicare medical claims costs to get the FY23 medical claims costs.

| | Medical Pre-65 | Medical Post-65 | Prescription Drugs / EGWP |
|-----------|-------------------|--------------------|------------------------------|
| FY22 | 6.3% | 5.4% | 7.1% |
| FY23 | 6.1% | 5.4% | 6.8% |
| FY24 | 5.9% | 5.4% | 6.4% |
| FY25 | 5.8% | 5.4% | 6.1% |
| FY26 | 5.6% | 5.4% | 5.7% |
| FY27-FY40 | 5.4% | 5.4% | 5.4% |
| FY41 | 5.3% | 5.3% | 5.3% |
| FY42 | 5.2% | 5.2% | 5.2% |
| FY43 | 5.1% | 5.1% | 5.1% |
| FY44 | 5.1% | 5.1% | 5.1% |
| FY45 | 5.0% | 5.0% | 5.0% |
| FY46 | 4.9% | 4.9% | 4.9% |
| FY47 | 4.8% | 4.8% | 4.8% |
| FY48 | 4.7% | 4.7% | 4.7% |
| FY49 | 4.6% | 4.6% | 4.6% |
| FY50+ | 4.5% | 4.5% | 4.5% |

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

Aging Factors

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

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 FY22 contributions based on monthly rates shown below for calendar 2022 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 2022 Annual Contribution | Calendar 2022 Monthly Contribution | Calendar 2021 Monthly Contribution |
|------------------------|-----------------------------------|------------------------------------|------------------------------------|
| Retiree Only | \$ 8,448 | \$ 704 | \$ 704 |
| Retiree and Spouse | \$ 16,896 | \$ 1,408 | \$ 1,408 |
| Retiree and Child(ren) | \$ 11,940 | \$ 995 | \$ 995 |
| Retiree and Family | \$ 20,388 | \$ 1,699 | \$ 1,699 |
| Composite | \$ 12,552 | \$ 1,046 | \$ 1,046 |

Trend Rate for Retired Member Medical Contributions

The table below shows the rate used to project the retired member medical contributions from the shown fiscal year to the next fiscal year. For example, 0.0% is applied to the FY22 retired member medical contributions to get the FY23 retired member medical contributions.

| Trend Assumptions | |
|-------------------|------|
| FY22 | 0.0% |
| FY23+ | 4.0% |

Graded trend rates for retired member medical contributions are consistent with the rates used for the June 30, 2020 valuation. Actual FY22 retired member medical contributions are reflected in the valuation.

Healthcare Participation

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

Changes in Assumptions Since the Prior Valuation

Healthcare claim costs are updated annually as described in Section 5.2. The amounts included in the Normal Cost for administrative expenses were changed from \$3,003,000 to \$3,217,000 for pension, and from \$1,362,000 to \$1,604,000 for healthcare (based on the most recent two years of actual administrative expenses paid from plan assets).

DRAFT

Table 1: Salary Scale

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

Table 2: Turnover Rates

Select Rates during the First 8 Years of Employment

| Years of Service | Male | Female |
|------------------|--------|--------|
| 0 | 20.40% | 17.00% |
| 1 | 20.40% | 17.00% |
| 2 | 16.80% | 14.00% |
| 3 | 14.40% | 12.00% |
| 4 | 12.00% | 10.00% |
| 5 | 10.80% | 9.00% |
| 6 | 9.00% | 7.50% |
| 7 | 7.20% | 6.00% |

Ultimate Rates after the First 8 Years of Employment

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

Table 3: Disability Rates

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

Table 4: Retirement Rates

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

Section 6: Actuarial Standard of Practice No. 51

Funding future retirement benefits prior to when those benefits become due involves assumptions regarding future economic and demographic experience. These assumptions are applied to calculate actuarial liabilities, current contribution requirements, and the funded status of the plan. However, to the extent future experience deviates from the assumptions used, variations will occur in these calculated values. These variations create risk to the plan. Understanding the risks to the funding of the plan is important.

Actuarial Standard of Practice No. 51 (ASOP 51)¹ requires certain disclosures of potential risks to the plan and provides useful information for intended users of actuarial reports that determine plan contributions or evaluate the adequacy of specified contribution levels to support benefit provisions.

Under ASOP 51, risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience.

It is important to note that not all risk is negative, but all risk should be understood and accepted based on knowledge, judgement, and educated decisions. Future measurements may deviate in ways that produce positive or negative financial impacts to the plan.

In the actuary's professional judgment, the following risks may reasonably be anticipated to significantly affect the pension plan's future financial condition and contribution requirements.

- Investment Risk – potential that the investment return will be different than the 7.38% expected in the actuarial valuation
- Contribution Risk – potential that the contribution actually made will be different than the actuarially determined contribution
- Long-Term Return on Investment Risk – potential that changes in long-term capital market assumptions or the plan's asset allocation will create the need to update the long-term return on investment assumption
- Longevity Risk – potential that participants live longer than expected compared to the valuation mortality assumptions
- Salary Increase Risk – potential that future salaries will be different than expected in the actuarial valuation
- Inflation Risk – potential that the consumer price index (CPI) for urban wage earners and clerical workers for Anchorage is different than the 2.5% assumed in the valuation
- Other Demographic Risk – potential that other demographic experience will be different than expected

The following information is provided to comply with ASOP 51 and furnish beneficial information on potential risks to the plan. **This list is not all-inclusive**; it is an attempt to identify the more significant risks and how those risks might affect the results shown in this report.

Note that ASOP 51 does not require the actuary to evaluate the ability or willingness of the plan sponsor to make contributions to the plan when due, or to assess the likelihood or consequences of potential future changes in law. In addition, this valuation report is not intended to provide investment advice or to provide guidance on the management or reduction of risk.

¹ ASOP 51 does not apply to the healthcare portion of the plan. Accordingly, all figures in this section relate to the pension portion.

Assessment of Risks

Investment Risk

Plan costs are very sensitive to the market return.

- Any return on assets lower than assumed will increase costs.
- The plan uses an actuarial value of assets that smooths gains and losses on market returns over a five-year period to help control some of the volatility in costs due to investment risk.
- Historical experience of actual returns is shown in Section 2.4 of this report. This historical experience illustrates how returns can vary over time.

Contribution Risk

There is a risk to the plan when the employer's and/or State's actual contribution amount and the actuarially determined contribution differ.

- If the actual contribution is lower than the actuarially determined contribution, the plan may not be sustainable in the long term.
- Any underpayment of the contribution will increase future contribution amounts to help pay off the additional Unfunded Actuarial Accrued Liability associated with the underpayment(s).
- As long as the Board consistently adopts the actuarially determined contributions, this risk is mitigated due to Alaska statutes requiring the State to contribute additional funds necessary to pay the total contributions adopted by the Board.

Long-Term Return on Investment Risk

Inherent in the long-term return on investment assumption is the expectation that the current rate will be used until the last benefit payment of the plan is made. There is a risk that sustained changes in economic conditions, changes in long-term future capital market assumptions, or changes to the plan's asset allocation will necessitate an update to the long-term return on investment assumption used.

- Under a lower long-term return on investment assumption, less investment return is available to pay plan benefits. This may lead to a need for increased employer contributions.
- The liabilities will be higher at a lower assumed rate of return because future benefits will have a lower discount rate applied when calculating the present value.
- A 1% decrease in the long-term return on investment assumption will increase actuarial accrued liability by approximately 11%.
- This risk may be increased due to the plan being closed to new entrants. As the plan continues to mature, the magnitude of negative cash flow discussed in the Plan Maturity Measures later in this section will grow, thereby creating a need for more liquid assets that may not garner the same long-term return as currently assumed.

Longevity Risk

Plan costs will be increased as participants are expected to live longer.

- Benefits are paid over a longer lifetime when life expectancy is expected to increase. The longer duration of payments leads to higher liabilities.
- Health care has been improving, which affects the life expectancy of participants. As health care improves, leading to longer life expectancies, costs to the plan could increase.

- The mortality assumption for the plan mitigates this risk by assuming future improvement in mortality. However, any improvement in future mortality greater than that expected by the current mortality assumption would lead to increased costs for the plan.
- The Postretirement Pension Adjustments and Alaska Cost-of-Living Allowance increase longevity risk because members who live longer than expected will incur more benefit payment increases than expected and therefore increase costs.

Salary Increase Risk

Plan costs will be increased if actual salary increases are larger than expected.

- Higher-than-expected salary increases will produce higher benefits.
- The higher benefits may be partially offset by increased employee contributions due to higher salaries.
- If future payroll grows at a rate different than assumed, contributions as a percentage of payroll will be affected.

Inflation Risk

Plan costs will be increased if the actual CPI for Anchorage is greater than the 2.5% assumed in the valuation.

- Retirement benefits will be greater than expected if the CPI is greater than the assumed rate, which will increase costs.
- This risk is mitigated by the 75% and 50% of CPI provisions and the 9% and 6% maximums.
- This risk is also mitigated by the age and time in payment requirements to receive an increase.
- Inflation risk may be associated with the interaction of inflation with other assumptions, but this is not significant as a standalone assumption, and therefore is considered as part of the associated assumption risk instead of being discussed here.

Other Demographic Risk

The plan is subject to risks associated with other demographic assumptions (e.g., retirement, termination, and retired members remaining in Alaska assumptions). Differences between actual and expected experience for these assumptions tend to have less impact on the overall costs of the plan. The demographic assumptions used in the valuation are re-evaluated regularly as part of the four-year experience studies to ensure the assumptions are consistent with long-term expectations.

Historical Information

Monitoring certain information over time may help understand risks faced by the plan. Historical information is included throughout this report. Some examples are:

- Funded Ratio History shown in the Executive Summary illustrates how the plan's funded status (comparison of actuarial accrued liabilities to actuarial value of assets) has changed over time.
- Section 1.6 shows historical analysis of financial experience including how contribution rates have changed over time.
- Section 2.4 shows the volatility of asset returns over time.
- Section 4 includes various historical information showing how member census data has changed over time.

Plan Maturity Measures

There are certain measures that may aid in understanding the significant risks to the plan.

| Ratio of Retired Liability to Total Liability (\$'s in \$000's) | June 30, 2020 | June 30, 2021 |
|---|---------------|---------------|
| 1. Retiree and Beneficiary Accrued Liability | \$ 5,570,625 | \$ 5,657,056 |
| 2. Total Accrued Liability | \$ 7,447,036 | \$ 7,471,887 |
| 3. Ratio, (1) ÷ (2) | 74.8% | 75.7% |

A high percentage of liability concentrated on participants in pay status indicates a mature plan (often a ratio above 60% - 65%). Because the plan was closed to new entrants in 2006, we expect the percentage in item #3 to continue to increase over time. An increasing percentage may indicate a need for a less risky asset allocation, which may lead to a lower long-term return on asset assumption and increased costs. Higher percentages may also indicate greater investment risk as benefit payments may be greater than contributions creating an increased reliance on investment returns. This ratio should be monitored each year in the future.

| Ratio of Cash Flow to Assets (\$'s in \$000's) | FYE June 30, 2020 | FYE June 30, 2021 |
|--|-------------------|-------------------|
| 1. Contributions | \$ 207,899 | \$ 196,748 |
| 2. Benefit Payments | <u>490,447</u> | <u>501,429</u> |
| 3. Cash Flow, (1) - (2) | \$ (282,548) | \$ (304,681) |
| 4. Fair Value of Assets | \$ 5,444,799 | \$ 6,731,481 |
| 5. Ratio, (3) ÷ (4) | (5.2%) | (4.5%) |

When this cash flow ratio is negative, more cash is being paid out than deposited in the trust. Negative cash flow indicates the trust needs to rely on investment returns to cover benefit payments and / or may need to invest in more liquid assets to cover the benefit payments. More liquid assets may not generate the same returns as less liquid assets, which can increase the investment risk. Currently, the low magnitude of the ratio implies there may already be enough liquid assets to cover the benefit payments, less investment return is needed to cover the shortfall, or only a small portion of assets will need to be converted to cash. Therefore, the investment risk is likely not amplified at this time. However, due to the plan being closed, we expect this measure to become increasingly negative over time. This maturity measure should be monitored in the future.

| Contribution Volatility (\$'s in \$000's) | June 30, 2020 | June 30, 2021 |
|---|---------------|---------------|
| 1. Fair Value of Assets | \$ 5,444,799 | \$ 6,731,481 |
| 2. DB/DCR Payroll | \$ 741,090 | \$ 750,334 |
| 3. Asset to Payroll Ratio, (1) ÷ (2) | 734.7% | 897.1% |
| 4. Accrued Liability | \$ 7,447,036 | \$ 7,471,887 |
| 5. Liability to Payroll Ratio, (4) ÷ (2) | 1,004.9% | 995.8% |

Plans that have higher asset-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to investment return. For example, a plan with an asset-to-payroll ratio of 10% may experience twice the contribution volatility due to investment return volatility than a plan with an asset-to-payroll ratio of 5%. Plans that have higher liability-to-payroll ratios experience more volatile employer contributions (as a percentage of payroll) due to changes in liability. For example, if an assumption change increases the liability of two plans by the same percent, the plan with a liability-to-payroll ratio of 10% may experience twice the contribution volatility than a plan with a liability-to-payroll ratio of 5%.

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.

GASB 67 and 68

Governmental Accounting Standards Board Statement Number 67 amends Number 25 effective for the fiscal year beginning after June 15, 2013 and defines new financial reporting requirements for public pension plans.

Governmental Accounting Standards Board Statement Number 68 amends Number 27 effective for fiscal years beginning after June 15, 2014 and defines new accounting and financial reporting requirements for employers sponsoring public pension plans.

GASB 74 and 75

Governmental Accounting Standards Board Statement Number 74 amends Number 43 effective for the fiscal year beginning after June 15, 2016 and defines new financial reporting requirements for public postemployment benefit plans.

Governmental Accounting Standards Board Statement Number 75 amends Number 45 effective for fiscal years beginning after June 15, 2017 and defines new accounting and financial reporting requirements for employers sponsoring public postemployment benefit plans.

Normal Cost

That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.

Rate Payroll

Members' earnings used to determine contribution rates.

Unfunded Actuarial Accrued Liability (UAAL)

The portion of the actuarial accrued liability not offset by plan assets.

Valuation Payroll

Members' earnings used to determine Normal Cost and Actuarial Accrued Liability.

Vested Benefits

Benefits which are unconditionally guaranteed regardless of employment.

DRAFT



State of Alaska

Public Employees' Retirement System Defined Contribution Retirement Plan

For Occupational Death & Disability
and Retiree Medical Benefits

Actuarial Valuation Report
As of June 30, 2021

January 2022

DRAFT



January 7, 2022

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

Certification of Actuarial Valuation

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

This report summarizes the annual actuarial valuation results of the State of Alaska Public Employees' Retirement System Defined Contribution Retirement (PERS DCR) Plan as of June 30, 2021 performed by Buck Global, LLC (Buck).

The actuarial valuation is based on financial information provided in the financial statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2021. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities and other factors under PERS DCR were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Buck is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of PERS DCR as of June 30, 2021.

PERS DCR is funded by Employer Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board). The funding objective for PERS DCR is to pay required contributions that remain level as a percent of PERS DCR compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability as a level percent of PERS DCR compensation over closed layered 25-year periods. This objective is currently being met and is projected to continue to be met as required by the Alaska State statutes. Absent future gains/losses, actuarially determined contributions are expected to remain level as a percent of pay and the overall funded status is expected to remain at or above 100%.

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

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

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2013 to June 30, 2017. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2018 valuation to better reflect expected future experience. Based on our annual analysis of recent claims experience, changes were made to the per capita claims cost rates effective June 30, 2021 to better reflect expected future healthcare experience. A summary of the actuarial assumptions and methods used in this actuarial valuation is shown in Sections 4.2 and 4.3. We certify that the assumptions and methods described in Sections 4.2 and 4.3 of this report meet the requirements of all applicable Actuarial Standards of Practice.

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

Assessment of Risks

Actuarial Standard of Practice No. 51 (ASOP 51) applies to actuaries performing funding calculations related to a pension plan. ASOP 51 does not apply to actuaries performing services in connection with other post-employment benefits, such as medical benefits. Accordingly, ASOP 51 does not apply to the retiree medical portion of PERS DCR. We also believe ASOP 51 does not apply to the occupational death & disability portion of PERS DCR. Therefore, information related to ASOP 51 is not included in this report. However, it may be beneficial to review the ASOP 51 information provided in the PERS valuation report for information on risks that may also relate to the occupational death & disability benefits provided by this plan.

Use of Models

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under the funding methods specified in this report. The output from the third-party vendor software is used as input to an internally developed model that applies applicable funding methods and policies to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal model are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts

within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed. Significant changes to the internal model that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

Buck used manual rate models to determine relative plan values for the defined benefit (DB) retiree medical plan and the DCR retiree medical plan, and to reflect the different Medicare coordination methods between the two plans. The manual rate models are intended to provide benchmark data and pricing capabilities, calculate per capita costs, and calculate actuarial values of different commercial health plans. Buck relied on the models, which were developed using industry data by actuaries and consultants at OptumInsight.

COVID-19

The potential impact of the ongoing COVID-19 pandemic on costs and liabilities was considered and an adjustment was made in setting the medical per capita claims cost assumption. FY20 medical claims were adjusted for a COVID-19 related decline in claims during the last four months (March – June) of FY20. FY21 medical claims were adjusted for a COVID-19 related decline in those claims during the fiscal year. A more detailed explanation on these adjustments is shown in Sections 4.2 and 4.3 and in the valuation report for the DB plan.

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

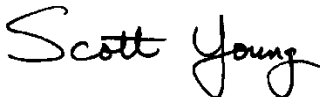
I am available to discuss this report with you at your convenience. I can be reached at 602-803-6174.

Respectfully submitted,



Principal
Buck

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



Scott Young, FSA, EA, MAAA, FCA
Director
Buck

Contents

| | |
|--|-----------|
| Executive Summary | 1 |
| Section 1: Actuarial Funding Results | 5 |
| Section 1.1: Actuarial Liabilities and Normal Cost | 5 |
| Section 1.2: Actuarial Contributions as of June 30, 2021 for FY24 | 8 |
| Section 1.3: Actuarial Gain/(Loss) for FY21 | 20 |
| Section 1.4: History of Unfunded Liability and Funded Ratio | 21 |
| Section 2: Plan Assets | 22 |
| Section 2.1: Summary of Fair Value of Assets | 22 |
| Section 2.2: Changes in Fair Value of Assets During FY21 | 23 |
| Section 2.3: Development of Actuarial Value of Assets | 24 |
| Section 2.4: Historical Asset Rates of Return | 26 |
| Section 3: Member Data | 27 |
| Section 3.1: Summary of Members Included | 27 |
| Section 3.2: Age and Service Distribution of Active Members | 28 |
| Section 3.3: Member Data Reconciliation | 29 |
| Section 3.4: Schedule of Active Member Data | 30 |
| Section 3.5: Active Member Payroll Reconciliation | 31 |
| Section 4: Basis of the Actuarial Valuation | 32 |
| Section 4.1: Summary of Plan Provisions | 32 |
| Section 4.2: Description of Actuarial Methods and Valuation Procedures | 36 |
| Section 4.3: Summary of Actuarial Assumptions | 39 |
| Glossary of Terms | 50 |

Executive Summary

Overview

The State of Alaska Public Employees' Retirement System Defined Contribution Retirement (PERS DCR) Plan provides occupational death & disability and retiree medical benefits to eligible members hired after June 30, 2006 or who have elected participation in this plan. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of PERS DCR as of the valuation date of June 30, 2021.

Purpose

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

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

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

Funded Status

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

| Funded Status as of June 30 (\$'s in 000's) | 2020 | 2021 |
|--|---------------|---------------|
| Occupational Death & Disability | | |
| a. Actuarial Accrued Liability | \$ 10,634 | \$ 11,740 |
| b. Valuation Assets | <u>43,029</u> | <u>53,075</u> |
| c. Unfunded Actuarial Accrued Liability, (a) - (b) | \$ (32,395) | \$ (41,335) |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a) | 404.6% | 452.1% |
| e. Fair Value of Assets | \$ 42,091 | \$ 60,145 |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 395.8% | 512.3% |

| Funded Status as of June 30 (\$'s in 000's) | 2020 | 2021 |
|---|------|------|
|---|------|------|

Retiree Medical

| | | |
|--|----------------|----------------|
| a. Actuarial Accrued Liability | \$ 150,701 | \$ 168,472 |
| b. Valuation Assets | <u>144,747</u> | <u>180,536</u> |
| c. Unfunded Actuarial Accrued Liability, (a) - (b) | \$ 5,954 | \$ (12,064) |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a) | 96.0% | 107.2% |
| e. Fair Value of Assets | \$ 141,569 | \$ 204,555 |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 93.9% | 121.4% |

Total

| | | |
|--|----------------|----------------|
| a. Actuarial Accrued Liability | \$ 161,335 | \$ 180,212 |
| b. Valuation Assets | <u>187,776</u> | <u>233,611</u> |
| c. Unfunded Actuarial Accrued Liability, (a) - (b) | \$ (26,441) | \$ (53,399) |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a) | 116.4% | 129.6% |
| e. Fair Value of Assets | \$ 183,660 | \$ 264,700 |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 113.8% | 146.9% |

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

1. Investment Experience

The approximate FY21 investment return based on fair value of assets was 29.6% compared to the expected investment return of 7.38% (net of investment expenses of approximately 0.29%). This resulted in a gain of approximately \$43,414,000 to the plan from investment experience. The asset valuation method recognizes 20% of this gain (\$8,683,000) this year and an additional 20% in each of the next 4 years. In addition, 20% of the FY17 investment gain, 20% of the FY18 investment loss, 20% of the FY19 investment loss, and 20% of the FY20 investment loss were recognized this year. The approximate FY21 asset return based on actuarial value of assets was 11.3% compared to the expected asset return of 7.38% (net of investment expenses).

2. Salary Increases

Salary increases for continuing active members during FY21 were higher than anticipated based on the valuation assumptions, resulting in a liability loss of approximately \$8,000.

3. Demographic Experience

The number of active members increased 4.4% from 22,923 at June 30, 2020 to 23,933 at June 30, 2021. The average age of active members increased from 41.21 to 41.26 and average credited service increased from 4.66 to 4.93 years.

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

4. Retiree Medical Claims Experience

Please refer to the State of Alaska Public Employees' Retirement System (PERS) Defined Benefit Plan Actuarial Valuation Report as of June 30, 2021 for a full description of the assumptions and costs of the retiree medical plan. Adjustments to these costs and assumptions are described in this report.

The recent claims experience described in Section 4.2 of this report (Section 5.2 of the PERS report) created an actuarial gain of approximately \$7,066,000.

5. Changes in Methods Since the Prior Valuation

There were no changes in actuarial methods since the prior valuation.

6. Changes in Assumptions Since the Prior Valuation

Healthcare claim costs are updated annually as described in Section 4.2. The amounts included in Normal Cost for administrative expenses were updated based on the last two years of actual administrative expenses paid from plan assets. There were no other changes in actuarial assumptions since the prior valuation.

7. Changes in Benefit Provisions Since the Prior Valuation

Starting in 2022, prior authorization will be required for certain specialty medications. This change created an actuarial gain of approximately \$2,029,000. There have been no other changes in benefit provisions valued since the prior valuation.

Comparative Summary of Contribution Rates

| Occupational Death & Disability | FY 2023 | FY 2024 |
|---|----------------|----------------|
| <u>Peace Officer/Firefighter</u> | | |
| a. Employer Normal Cost Rate | 0.68% | 0.68% |
| b. Past Service Cost Rate | <u>(0.19)%</u> | <u>(0.24)%</u> |
| c. Total Employer Contribution Rate, (a) + (b), not less than (a) | 0.68% | 0.68% |
| <u>Others</u> | | |
| a. Employer Normal Cost Rate | 0.30% | 0.30% |
| b. Past Service Cost Rate | <u>(0.16)%</u> | <u>(0.19)%</u> |
| c. Total Employer Contribution Rate, (a) + (b), not less than (a) | 0.30% | 0.30% |
| Retiree Medical | FY 2023 | FY 2024 |
| a. Employer Normal Cost Rate | 1.05% | 1.01% |
| b. Past Service Cost Rate | <u>0.05%</u> | <u>(0.02)%</u> |
| c. Total Employer Contribution Rate, (a) + (b), not less than (a) | 1.10% | 1.01% |
| Total | FY 2023 | FY 2024 |
| <u>Peace Officer/Firefighter</u> | | |
| a. Employer Normal Cost Rate | 1.73% | 1.69% |
| b. Past Service Cost Rate | <u>0.05%</u> | <u>(0.02)%</u> |
| c. Total Employer Contribution Rate, (a) + (b), not less than (a) | 1.78% | 1.69% |
| <u>Others</u> | | |
| a. Employer Normal Cost Rate | 1.35% | 1.31% |
| b. Past Service Cost Rate | <u>0.05%</u> | <u>(0.02)%</u> |
| c. Total Employer Contribution Rate, (a) + (b), not less than (a) | 1.40% | 1.31% |

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

| Total Employer Contribution Rate | | | | |
|---|--------------------|--|------------------------|----------------------------|
| Valuation Date | Fiscal Year | Occupational Death & Disability (PF / Others) | Retiree Medical | Total (PF / Others) |
| June 30, 2008 | FY11 | 1.18% / 0.31% | 0.55% | 1.73% / 0.86% |
| June 30, 2009 | FY12 | 0.97% / 0.11% | 0.51% | 1.48% / 0.62% |
| June 30, 2010 | FY13 | 0.99% / 0.14% | 0.48% | 1.47% / 0.62% |
| June 30, 2011 | FY14 | 1.14% / 0.20% | 0.48% | 1.62% / 0.68% |
| June 30, 2012 | FY15 | 1.06% / 0.22% | 1.66% | 2.72% / 1.88% |
| June 30, 2013 | FY16 | 1.05% / 0.22% | 1.68% | 2.73% / 1.90% |
| June 30, 2014 | FY17 | 0.49% / 0.17% | 1.18% | 1.67% / 1.35% |
| June 30, 2015 | FY18 | 0.43% / 0.16% | 1.03% | 1.46% / 1.19% |
| June 30, 2016 | FY19 | 0.76% / 0.26% | 0.94% | 1.70% / 1.20% |
| June 30, 2017 | FY20 | 0.72% / 0.26% | 1.32% | 2.04% / 1.58% |
| June 30, 2018 | FY21 | 0.70% / 0.31% | 1.27% | 1.97% / 1.58% |
| June 30, 2019 | FY22 | 0.68% / 0.31% | 1.07% | 1.75% / 1.38% |
| June 30, 2020 | FY23 | 0.68% / 0.30% | 1.10% | 1.78% / 1.40% |
| June 30, 2021 | FY24 | TBD | TBD | TBD |

Summary of Actuarial Accrued Liability Gain/(Loss)

The following table shows the FY21 gain/(loss) on actuarial accrued liability as of June 30, 2021 (\$'s in 000's):

| | Occupational Death & Disability | Retiree Medical | Total |
|--|--|------------------------|--------------|
| Retirement Experience | \$ 0 | \$ (521) | \$ (521) |
| Termination Experience | (90) | 2,669 | 2,579 |
| Disability Experience | 3,346 | 341 | 3,687 |
| Active Mortality Experience | 1,900 | 104 | 2,004 |
| Inactive Mortality Experience | (21) | 432 | 411 |
| Salary Increases | (8) | N/A | (8) |
| New Entrants | (89) | (1,320) | (1,409) |
| Rehires | (47) | (3,068) | (3,115) |
| Transfers Between P/F and Others | (31) | (52) | (83) |
| Benefit Payments Different than Expected | 145 | 209 | 354 |
| Per Capita Claims Costs | N/A | 7,066 | 7,066 |
| Prescription Drug Plan Changes | N/A | 2,029 | 2,029 |
| Miscellaneous ¹ | <u>(362)</u> | <u>1,560</u> | <u>1,198</u> |
| Total | \$ 4,743 | \$ 9,449 | \$ 14,192 |

¹ Includes the effects of various data changes that are typical when new census data is received for the annual valuation, as well as other items that do not fit neatly into any of the other categories.

Section 1: Actuarial Funding Results

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

Peace Officer / Firefighter

| As of June 30, 2021 | Present Value of Projected Benefits | Actuarial Accrued (Past Service) Liability |
|---|--|--|
| Active Members | | |
| Occupational Death Benefits | \$ 3,705 | \$ (12) |
| Occupational Disability Benefits | 12,254 | 3,750 |
| Medical and Prescription Drug Benefits | 43,037 | 22,460 |
| Medicare Part D Subsidy | <u>(8,159)</u> | <u>(4,294)</u> |
| Subtotal | \$ 50,837 | \$ 21,904 |
| Benefit Recipients | | |
| Survivor Benefits | \$ 323 | \$ 323 |
| Disability Benefits | 4,865 | 4,865 |
| Medical and Prescription Drug Benefits | 788 | 788 |
| Medicare Part D Subsidy | <u>(138)</u> | <u>(138)</u> |
| Subtotal | \$ 5,838 | \$ 5,838 |
| Total | \$ 56,675 | \$ 27,742 |
| Total Occupational Death & Disability | \$ 21,147 | \$ 8,926 |
| Total Retiree Medical, Net of Part D Subsidy | \$ 35,528 | \$ 18,816 |
| Total Retiree Medical, Gross of Part D Subsidy | \$ 43,825 | \$ 23,248 |

| As of June 30, 2021 | Normal Cost |
|---|-----------------|
| Active Members | |
| Occupational Death Benefits | \$ 485 |
| Occupational Disability Benefits | 1,019 |
| Medical and Prescription Drug Benefits | 2,300 |
| Medicare Part D Subsidy | <u>(434)</u> |
| Subtotal | \$ 3,370 |
| Administrative Expense Load | |
| Occupational Death & Disability | \$ 4 |
| Retiree Medical | <u>7</u> |
| Subtotal | \$ 11 |
| Total | \$ 3,381 |
| Total Occupational Death & Disability | \$ 1,508 |
| Total Retiree Medical, Net of Part D Subsidy | \$ 1,873 |
| Total Retiree Medical, Gross of Part D Subsidy | \$ 2,307 |

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

Others

| As of June 30, 2021 | Present Value of Projected Benefits | Actuarial Accrued (Past Service) Liability |
|---|--|--|
| Active Members | | |
| Occupational Death Benefits | \$ 9,151 | \$ 641 |
| Occupational Disability Benefits | 16,372 | 1,618 |
| Medical and Prescription Drug Benefits | 286,967 | 182,893 |
| Medicare Part D Subsidy | <u>(59,007)</u> | <u>(37,778)</u> |
| Subtotal | \$ 253,483 | \$ 147,374 |
| Benefit Recipients | | |
| Survivor Benefits | \$ 0 | \$ 0 |
| Disability Benefits | 555 | 555 |
| Medical and Prescription Drug Benefits | 5,746 | 5,746 |
| Medicare Part D Subsidy | <u>(1,205)</u> | <u>(1,205)</u> |
| Subtotal | \$ 5,096 | \$ 5,096 |
| Total | \$ 258,579 | \$ 152,470 |
| Total Occupational Death & Disability | \$ 26,078 | \$ 2,814 |
| Total Retiree Medical, Net of Part D Subsidy | \$ 232,501 | \$ 149,656 |
| Total Retiree Medical, Gross of Part D Subsidy | \$ 292,713 | \$ 188,639 |

| As of June 30, 2021 | Normal Cost |
|---|------------------|
| Active Members | |
| Occupational Death Benefits | \$ 1,449 |
| Occupational Disability Benefits | 2,503 |
| Medical and Prescription Drug Benefits | 17,248 |
| Medicare Part D Subsidy | <u>(3,527)</u> |
| Subtotal | \$ 17,673 |
| Administrative Expense Load | |
| Occupational Death & Disability | \$ 12 |
| Retiree Medical | <u>17</u> |
| Subtotal | \$ 29 |
| Total | \$ 17,702 |
| Total Occupational Death & Disability | \$ 3,964 |
| Total Retiree Medical, Net of Part D Subsidy | \$ 13,738 |
| Total Retiree Medical, Gross of Part D Subsidy | \$ 17,265 |

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

All Members

| As of June 30, 2021 | Present Value of Projected Benefits | Actuarial Accrued (Past Service) Liability |
|---|--|--|
| Active Members | | |
| Occupational Death Benefits | \$ 12,856 | \$ 629 |
| Occupational Disability Benefits | 28,626 | 5,368 |
| Medical and Prescription Drug Benefits | 330,004 | 205,353 |
| Medicare Part D Subsidy | <u>(67,166)</u> | <u>(42,072)</u> |
| Subtotal | \$ 304,320 | \$ 169,278 |
| Benefit Recipients | | |
| Survivor Benefits | \$ 323 | \$ 323 |
| Disability Benefits | 5,420 | 5,420 |
| Medical and Prescription Drug Benefits | 6,534 | 6,534 |
| Medicare Part D Subsidy | <u>(1,343)</u> | <u>(1,343)</u> |
| Subtotal | \$ 10,934 | \$ 10,934 |
| Total | \$ 315,254 | \$ 180,212 |
| Total Occupational Death & Disability | \$ 47,225 | \$ 11,740 |
| Total Retiree Medical, Net of Part D Subsidy | \$ 268,029 | \$ 168,472 |
| Total Retiree Medical, Gross of Part D Subsidy | \$ 336,538 | \$ 211,887 |

| As of June 30, 2021 | Normal Cost |
|---|------------------|
| Active Members | |
| Occupational Death Benefits | \$ 1,934 |
| Occupational Disability Benefits | 3,522 |
| Medical and Prescription Drug Benefits | 19,548 |
| Medicare Part D Subsidy | <u>(3,961)</u> |
| Subtotal | \$ 21,043 |
| Administrative Expense Load | |
| Occupational Death & Disability | \$ 16 |
| Retiree Medical | <u>24</u> |
| Subtotal | \$ 40 |
| Total | \$ 21,083 |
| Total Occupational Death & Disability | \$ 5,472 |
| Total Retiree Medical, Net of Part D Subsidy | \$ 15,611 |
| Total Retiree Medical, Gross of Part D Subsidy | \$ 19,572 |

Section 1.2: Actuarial Contributions as of June 30, 2021 for FY24 (\$'s in 000's)

Peace Officer / Firefighter

| Normal Cost Rate | Occupational Death & Disability | Retiree Medical | Total |
|---|---------------------------------------|--------------------|--------------|
| 1. Total Normal Cost | \$ 1,508 | \$ 1,873 | \$ 3,381 |
| 2. DCR Plan Rate Payroll Projected for FY22 | 220,974 | 220,974 | 220,974 |
| 3. Employer Normal Cost Rate, (1) ÷ (2) | 0.68% | 0.85% | 1.53% |
| Past Service Rate | | | |
| 1. Actuarial Accrued Liability | \$ 8,926 | \$ 18,816 | \$ 27,742 |
| 2. Valuation Assets | 15,959 | 20,163 | 36,122 |
| 3. Unfunded Actuarial Accrued Liability, (1) - (2) | \$ (7,033) | \$ (1,347) | \$ (8,380) |
| 4. Funded Ratio based on Valuation Assets | 178.8% | 107.2% | 130.2% |
| 5. Past Service Cost Amortization Payment | (522) | (47) | (569) |
| 6. DCR Plan Rate Payroll Projected for FY22 | 220,974 | 220,974 | 220,974 |
| 7. Past Service Cost Rate, (5) ÷ (6) | (0.24%) | (0.02%) | (0.26%) |
| Total Employer Contribution Rate, not less than Normal Cost Rate | 0.68% | 0.85% | 1.53% |

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

| Total Employer Contribution Rate as Percent of Total Payroll | Occupational Death & Disability | Retiree Medical | Total |
|---|---------------------------------------|--------------------|--------------|
| 1. Total Normal Cost | \$ 1,508 | \$ 1,873 | \$ 3,381 |
| 2. Total DB and DCR Plan Rate Payroll Projected for FY22 | 368,713 | 368,713 | 368,713 |
| 3. Employer Normal Cost Rate, (1) ÷ (2) | 0.41% | 0.51% | 0.92% |
| 4. Past Service Cost Amortization Payment | (522) | (47) | (569) |
| 5. Past Service Cost Rate, (4) ÷ (2) | (0.14%) | (0.01%) | (0.15%) |
| Total Employer Contribution Rate, not less than Normal Cost Rate | 0.41% | 0.51% | 0.92% |

Peace Officer / Firefighter

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|----------------------------|---------------------|-----------------|----------|-------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Unfunded Liability | 06/30/2007 | 11 | \$ (100) | \$ (93) | \$ (10) |
| FY08 Gain | 06/30/2008 | 12 | (586) | (555) | (58) |
| Change in Assumptions | 06/30/2009 | 13 | (104) | (101) | (10) |
| FY09 Loss | 06/30/2009 | 13 | 446 | 433 | 43 |
| Change in Assumptions | 06/30/2010 | 14 | 79 | 77 | 7 |
| FY10 Gain | 06/30/2010 | 14 | (282) | (280) | (26) |
| FY11 Loss | 06/30/2011 | 15 | 73 | 70 | 6 |
| FY12 Gain | 06/30/2012 | 16 | (349) | (354) | (30) |
| FY13 Gain | 06/30/2013 | 17 | (204) | (207) | (17) |
| Change in Assumptions | 06/30/2014 | 18 | (1,274) | (1,303) | (103) |
| PRPA Modification | 06/30/2014 | 18 | (91) | (92) | (7) |
| FY14 Gain | 06/30/2014 | 18 | (95) | (98) | (8) |
| FY15 Gain | 06/30/2015 | 19 | (664) | (679) | (52) |
| FY16 Loss | 06/30/2016 | 20 | 4 | 4 | 0 |
| FY17 Gain | 06/30/2017 | 21 | (525) | (534) | (38) |
| FY18 Gain | 06/30/2018 | 22 | (262) | (264) | (18) |
| Change in Assumptions | 06/30/2018 | 22 | (633) | (639) | (44) |
| FY19 Loss | 06/30/2019 | 23 | 219 | 220 | 15 |
| FY20 Gain | 06/30/2020 | 24 | (792) | (796) | (53) |
| FY21 Gain | 06/30/2021 | 25 | (1,842) | (1,842) | (119) |
| Total | | | | \$ (7,033) | \$ (522) |

Peace Officer / Firefighter

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--------------------------------|---------------------|-----------------|----------|-------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Unfunded Liability | 06/30/2007 | 11 | \$ (21) | \$ (23) | \$ (3) |
| Change in Assumptions | 06/30/2008 | 12 | 17 | 15 | 2 |
| FY08 Gain | 06/30/2008 | 12 | (62) | (59) | (6) |
| Change in Assumptions | 06/30/2009 | 13 | (8) | (8) | (1) |
| FY09 Gain | 06/30/2009 | 13 | (38) | (38) | (4) |
| Change in Assumptions | 06/30/2010 | 14 | 41 | 40 | 4 |
| FY10 Gain | 06/30/2010 | 14 | (46) | (42) | (4) |
| FY11 Loss | 06/30/2011 | 15 | 70 | 68 | 6 |
| Change in Assumptions | 06/30/2012 | 16 | 3,085 | 3,122 | 266 |
| FY12 Gain | 06/30/2012 | 16 | (273) | (275) | (23) |
| FY13 Loss | 06/30/2013 | 17 | 880 | 897 | 73 |
| Change in Assumptions | 06/30/2014 | 18 | (3,034) | (3,100) | (244) |
| FY14 Loss | 06/30/2014 | 18 | 1,213 | 1,240 | 98 |
| FY15 Gain | 06/30/2015 | 19 | (712) | (727) | (55) |
| EGWP Gain | 06/30/2016 | 20 | (1,675) | (1,711) | (126) |
| FY16 Loss | 06/30/2016 | 20 | 1,116 | 1,140 | 84 |
| Change in Assumptions | 06/30/2017 | 21 | 2,244 | 2,280 | 163 |
| FY17 Gain | 06/30/2017 | 21 | (50) | (52) | (4) |
| FY18 Gain | 06/30/2018 | 22 | (231) | (233) | (16) |
| Change in Assumptions/Methods | 06/30/2018 | 22 | (649) | (654) | (45) |
| FY19 Gain | 06/30/2019 | 23 | (1,291) | (1,300) | (88) |
| Change in Assumptions | 06/30/2020 | 24 | 1,116 | 1,121 | 74 |
| FY20 Gain | 06/30/2020 | 24 | (1,082) | (1,087) | (72) |
| Prescription Drug Plan Changes | 06/30/2021 | 25 | (235) | (235) | (15) |
| FY21 Gain | 06/30/2021 | 25 | (1,726) | (1,726) | (111) |
| Total | | | | \$ (1,347) | \$ (47) |

Peace Officer / Firefighter

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

| Layer | Amortization Period | | Balances | | |
|--------------------------------|---------------------|-----------------|----------|-------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | Beginning-of-Year Payment |
| Initial Unfunded Liability | 06/30/2007 | 11 | \$ (121) | \$ (116) | \$ (13) |
| Change in Assumptions | 06/30/2008 | 12 | 17 | 15 | 2 |
| FY08 Gain | 06/30/2008 | 12 | (648) | (614) | (64) |
| Change in Assumptions | 06/30/2009 | 13 | (112) | (109) | (11) |
| FY09 Loss | 06/30/2009 | 13 | 408 | 395 | 39 |
| Change in Assumptions | 06/30/2010 | 14 | 120 | 117 | 11 |
| FY10 Gain | 06/30/2010 | 14 | (328) | (322) | (30) |
| FY11 Loss | 06/30/2011 | 15 | 143 | 138 | 12 |
| Change in Assumptions | 06/30/2012 | 16 | 3,085 | 3,122 | 266 |
| FY12 Gain | 06/30/2012 | 16 | (622) | (629) | (53) |
| FY13 Loss | 06/30/2013 | 17 | 676 | 690 | 56 |
| Change in Assumptions | 06/30/2014 | 18 | (4,308) | (4,403) | (347) |
| PRPA Modification | 06/30/2014 | 18 | (91) | (92) | (7) |
| FY14 Loss | 06/30/2014 | 18 | 1,118 | 1,142 | 90 |
| FY15 Gain | 06/30/2015 | 19 | (1,376) | (1,406) | (107) |
| EGWP Gain | 06/30/2016 | 20 | (1,675) | (1,711) | (126) |
| FY16 Loss | 06/30/2016 | 20 | 1,120 | 1,144 | 84 |
| Change in Assumptions | 06/30/2017 | 21 | 2,244 | 2,280 | 163 |
| FY17 Gain | 06/30/2017 | 21 | (575) | (586) | (42) |
| FY18 Gain | 06/30/2018 | 22 | (493) | (497) | (34) |
| Change in Assumptions/Methods | 06/30/2018 | 22 | (1,282) | (1,293) | (89) |
| FY19 Gain | 06/30/2019 | 23 | (1,072) | (1,080) | (73) |
| Change in Assumptions | 06/30/2020 | 24 | 1,116 | 1,121 | 74 |
| FY20 Gain | 06/30/2020 | 24 | (1,874) | (1,883) | (125) |
| Prescription Drug Plan Changes | 06/30/2021 | 25 | (235) | (235) | (15) |
| FY21 Gain | 06/30/2021 | 25 | (3,568) | (3,568) | (230) |
| Total | | | | \$ (8,380) | \$ (569) |

Section 1.2: Actuarial Contributions as of June 30, 2021 for FY24 (\$'s in 000's)

Others

| Normal Cost Rate | Occupational Death & Disability | Retiree Medical | Total |
|---|---------------------------------------|--------------------|--------------|
| 1. Total Normal Cost | \$ 3,964 | \$ 13,738 | \$ 17,702 |
| 2. DCR Plan Rate Payroll Projected for FY22 | 1,327,142 | 1,327,142 | 1,327,142 |
| 3. Employer Normal Cost Rate, (1) ÷ (2) | 0.30% | 1.03% | 1.33% |
| Past Service Rate | | | |
| 1. Actuarial Accrued Liability | \$ 2,814 | \$ 149,656 | \$ 152,470 |
| 2. Valuation Assets | 37,116 | 160,373 | 197,489 |
| 3. Unfunded Actuarial Accrued Liability, (1) - (2) | \$ (34,302) | \$ (10,717) | \$ (45,019) |
| 4. Funded Ratio based on Valuation Assets | 1,319.0% | 107.2% | 129.5% |
| 5. Past Service Cost Amortization Payment | (2,515) | (323) | (2,838) |
| 6. DCR Plan Rate Payroll Projected for FY22 | 1,327,142 | 1,327,142 | 1,327,142 |
| 7. Past Service Cost Rate, (5) ÷ (6) | (0.19%) | (0.02%) | (0.21%) |
| Total Employer Contribution Rate, not less than Normal Cost Rate | 0.30% | 1.03% | 1.33% |

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

| Total Employer Contribution Rate as Percent of Total Payroll | Occupational Death & Disability | Retiree Medical | Total |
|---|---------------------------------------|--------------------|--------------|
| 1. Total Normal Cost | \$ 3,964 | \$ 13,738 | \$ 17,702 |
| 2. Total DB and DCR Plan Rate Payroll Projected for FY22 | 2,038,044 | 2,038,044 | 2,038,044 |
| 3. Employer Normal Cost Rate, (1) ÷ (2) | 0.19% | 0.68% | 0.87% |
| 4. Past Service Cost Amortization Payment | (2,515) | (323) | (2,838) |
| 5. Past Service Cost Rate, (4) ÷ (2) | (0.12%) | (0.02%) | (0.14%) |
| Total Employer Contribution Rate, not less than Normal Cost Rate | 0.19% | 0.68% | 0.87% |

Others

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|----------------------------|---------------------|-----------------|----------|--------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Unfunded Liability | 06/30/2007 | 11 | \$ (40) | \$ (38) | \$ (5) |
| FY08 Gain | 06/30/2008 | 12 | (318) | (303) | (32) |
| Change in Assumptions | 06/30/2009 | 13 | (92) | (89) | (9) |
| FY09 Gain | 06/30/2009 | 13 | (1,924) | (1,865) | (185) |
| Change in Assumptions | 06/30/2010 | 14 | 24 | 25 | 3 |
| FY10 Gain | 06/30/2010 | 14 | (994) | (982) | (92) |
| FY11 Gain | 06/30/2011 | 15 | (1,184) | (1,182) | (105) |
| FY12 Gain | 06/30/2012 | 16 | (1,233) | (1,246) | (106) |
| FY13 Gain | 06/30/2013 | 17 | (779) | (794) | (65) |
| Change in Assumptions | 06/30/2014 | 18 | (51) | (51) | (4) |
| PRPA Modification | 06/30/2014 | 18 | (27) | (28) | (2) |
| FY14 Gain | 06/30/2014 | 18 | (2,003) | (2,044) | (161) |
| FY15 Gain | 06/30/2015 | 19 | (1,850) | (1,890) | (143) |
| FY16 Gain | 06/30/2016 | 20 | (2,361) | (2,409) | (177) |
| FY17 Gain | 06/30/2017 | 21 | (2,377) | (2,413) | (172) |
| FY18 Gain | 06/30/2018 | 22 | (2,590) | (2,613) | (182) |
| Change in Assumptions | 06/30/2018 | 22 | (272) | (275) | (19) |
| FY19 Gain | 06/30/2019 | 23 | (3,984) | (4,013) | (272) |
| FY20 Gain | 06/30/2020 | 24 | (4,803) | (4,824) | (318) |
| FY21 Gain | 06/30/2021 | 25 | (7,268) | (7,268) | (469) |
| Total | | | | \$ (34,302) | \$ (2,515) |

Others

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--------------------------------|---------------------|-----------------|----------|--------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Unfunded Liability | 06/30/2007 | 11 | \$ (335) | \$ (308) | \$ (34) |
| Change in Assumptions | 06/30/2008 | 12 | 165 | 157 | 16 |
| FY08 Gain | 06/30/2008 | 12 | (702) | (664) | (70) |
| Change in Assumptions | 06/30/2009 | 13 | (122) | (118) | (11) |
| FY09 Gain | 06/30/2009 | 13 | (438) | (425) | (42) |
| Change in Assumptions | 06/30/2010 | 14 | (572) | (564) | (53) |
| FY10 Loss | 06/30/2010 | 14 | 579 | 567 | 53 |
| FY11 Loss | 06/30/2011 | 15 | 820 | 823 | 73 |
| Change in Assumptions | 06/30/2012 | 16 | 25,180 | 25,475 | 2,171 |
| FY12 Loss | 06/30/2012 | 16 | 1,451 | 1,466 | 124 |
| FY13 Loss | 06/30/2013 | 17 | 9,974 | 10,159 | 831 |
| Change in Assumptions | 06/30/2014 | 18 | (21,822) | (22,303) | (1,756) |
| FY14 Loss | 06/30/2014 | 18 | 7,002 | 7,157 | 563 |
| FY15 Gain | 06/30/2015 | 19 | (8,726) | (8,923) | (679) |
| EGWP Gain | 06/30/2016 | 20 | (17,884) | (18,239) | (1,342) |
| FY16 Loss | 06/30/2016 | 20 | 10,367 | 10,573 | 778 |
| Change in Assumptions | 06/30/2017 | 21 | 21,288 | 21,613 | 1,544 |
| FY17 Gain | 06/30/2017 | 21 | (1,658) | (1,682) | (120) |
| FY18 Loss | 06/30/2018 | 22 | 118 | 119 | 8 |
| Change in Assumptions/Methods | 06/30/2018 | 22 | (8,993) | (9,070) | (630) |
| FY19 Gain | 06/30/2019 | 23 | (10,841) | (10,922) | (739) |
| Change in Assumptions | 06/30/2020 | 24 | 6,369 | 6,398 | 423 |
| FY20 Gain | 06/30/2020 | 24 | (6,288) | (6,316) | (417) |
| Prescription Drug Plan Changes | 06/30/2021 | 25 | (1,794) | (1,794) | (116) |
| FY21 Gain | 06/30/2021 | 25 | (13,896) | (13,896) | (898) |
| Total | | | | \$ (10,717) | \$ (323) |

Others

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--------------------------------|---------------------|-----------------|----------|--------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Unfunded Liability | 06/30/2007 | 11 | \$ (375) | \$ (346) | \$ (39) |
| Change in Assumptions | 06/30/2008 | 12 | 165 | 157 | 16 |
| FY08 Gain | 06/30/2008 | 12 | (1,020) | (967) | (102) |
| Change in Assumptions | 06/30/2009 | 13 | (214) | (207) | (20) |
| FY09 Gain | 06/30/2009 | 13 | (2,362) | (2,290) | (227) |
| Change in Assumptions | 06/30/2010 | 14 | (548) | (539) | (50) |
| FY10 Gain | 06/30/2010 | 14 | (415) | (415) | (39) |
| FY11 Gain | 06/30/2011 | 15 | (364) | (359) | (32) |
| Change in Assumptions | 06/30/2012 | 16 | 25,180 | 25,475 | 2,171 |
| FY12 Loss | 06/30/2012 | 16 | 218 | 220 | 18 |
| FY13 Loss | 06/30/2013 | 17 | 9,195 | 9,365 | 766 |
| Change in Assumptions | 06/30/2014 | 18 | (21,873) | (22,354) | (1,760) |
| PRPA Modification | 06/30/2014 | 18 | (27) | (28) | (2) |
| FY14 Loss | 06/30/2014 | 18 | 4,999 | 5,113 | 402 |
| FY15 Gain | 06/30/2015 | 19 | (10,576) | (10,813) | (822) |
| EGWP Gain | 06/30/2016 | 20 | (17,884) | (18,239) | (1,342) |
| FY16 Loss | 06/30/2016 | 20 | 8,006 | 8,164 | 601 |
| Change in Assumptions | 06/30/2017 | 21 | 21,288 | 21,613 | 1,544 |
| FY17 Gain | 06/30/2017 | 21 | (4,035) | (4,095) | (292) |
| FY18 Gain | 06/30/2018 | 22 | (2,472) | (2,494) | (174) |
| Change in Assumptions/Methods | 06/30/2018 | 22 | (9,265) | (9,345) | (649) |
| FY19 Gain | 06/30/2019 | 23 | (14,825) | (14,935) | (1,011) |
| Change in Assumptions | 06/30/2020 | 24 | 6,369 | 6,398 | 423 |
| FY20 Gain | 06/30/2020 | 24 | (11,091) | (11,140) | (735) |
| Prescription Drug Plan Changes | 06/30/2021 | 25 | (1,794) | (1,794) | (116) |
| FY21 Gain | 06/30/2021 | 25 | (21,164) | (21,164) | (1,367) |
| Total | | | | \$ (45,019) | \$ (2,838) |

Section 1.2: Actuarial Contributions as of June 30, 2021 for FY24 (\$'s in 000's)

All Members

| Normal Cost Rate | Occupational Death & Disability | Retiree Medical | Total |
|---|---------------------------------------|--------------------|--------------|
| 1. Total Normal Cost | \$ 5,472 | \$ 15,611 | \$ 21,083 |
| 2. DCR Plan Rate Payroll Projected for FY22 | 1,548,116 | 1,548,116 | 1,548,116 |
| 3. Employer Normal Cost Rate, (1) ÷ (2) | 0.35% | 1.01% | 1.36% |
| Past Service Rate | | | |
| 1. Actuarial Accrued Liability | \$ 11,740 | \$ 168,472 | \$ 180,212 |
| 2. Valuation Assets | 53,075 | 180,536 | 233,611 |
| 3. Unfunded Actuarial Accrued Liability, (1) - (2) | \$ (41,335) | \$ (12,064) | \$ (53,399) |
| 4. Funded Ratio based on Valuation Assets | 452.1% | 107.2% | 129.6% |
| 5. Past Service Cost Amortization Payment | (3,037) | (370) | (3,407) |
| 6. DCR Plan Rate Payroll Projected for FY22 | 1,548,116 | 1,548,116 | 1,548,116 |
| 7. Past Service Cost Rate, (5) ÷ (6) | (0.20%) | (0.02%) | (0.22%) |
| Total Employer Contribution Rate, not less than Normal Cost Rate | 0.35% | 1.01% | 1.36% |

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

| Total Employer Contribution Rate as Percent of Total Payroll | Occupational Death & Disability | Retiree Medical | Total |
|---|---------------------------------------|--------------------|--------------|
| 1. Total Normal Cost | \$ 5,472 | \$ 15,611 | \$ 21,083 |
| 2. Total DB and DCR Plan Rate Payroll Projected for FY22 | 2,406,757 | 2,406,757 | 2,406,757 |
| 3. Employer Normal Cost Rate, (1) ÷ (2) | 0.23% | 0.65% | 0.88% |
| 4. Past Service Cost Amortization Payment | (3,037) | (370) | (3,407) |
| 5. Past Service Cost Rate, (4) ÷ (2) | (0.13%) | (0.01%) | (0.14%) |
| Total Employer Contribution Rate, not less than Normal Cost Rate | 0.23% | 0.65% | 0.88% |

All Members

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|----------------------------|---------------------|-----------------|----------|--------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Unfunded Liability | 06/30/2007 | 11 | \$ (140) | \$ (131) | \$ (15) |
| FY08 Gain | 06/30/2008 | 12 | (904) | (858) | (90) |
| Change in Assumptions | 06/30/2009 | 13 | (196) | (190) | (19) |
| FY09 Gain | 06/30/2009 | 13 | (1,478) | (1,432) | (142) |
| Change in Assumptions | 06/30/2010 | 14 | 103 | 102 | 10 |
| FY10 Gain | 06/30/2010 | 14 | (1,276) | (1,262) | (118) |
| FY11 Gain | 06/30/2011 | 15 | (1,111) | (1,112) | (99) |
| FY12 Gain | 06/30/2012 | 16 | (1,582) | (1,600) | (136) |
| FY13 Gain | 06/30/2013 | 17 | (983) | (1,001) | (82) |
| Change in Assumptions | 06/30/2014 | 18 | (1,325) | (1,354) | (107) |
| PRPA Modification | 06/30/2014 | 18 | (118) | (120) | (9) |
| FY14 Gain | 06/30/2014 | 18 | (2,098) | (2,142) | (169) |
| FY15 Gain | 06/30/2015 | 19 | (2,514) | (2,569) | (195) |
| FY16 Gain | 06/30/2016 | 20 | (2,357) | (2,405) | (177) |
| FY17 Gain | 06/30/2017 | 21 | (2,902) | (2,947) | (210) |
| FY18 Gain | 06/30/2018 | 22 | (2,852) | (2,877) | (200) |
| Change in Assumptions | 06/30/2018 | 22 | (905) | (914) | (63) |
| FY19 Gain | 06/30/2019 | 23 | (3,765) | (3,793) | (257) |
| FY20 Gain | 06/30/2020 | 24 | (5,595) | (5,620) | (371) |
| FY21 Gain | 06/30/2021 | 25 | (9,110) | (9,110) | (588) |
| Total | | | | \$ (41,335) | \$ (3,037) |

All Members

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--------------------------------|---------------------|-----------------|----------|--------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Unfunded Liability | 06/30/2007 | 11 | \$ (356) | \$ (331) | \$ (37) |
| Change in Assumptions | 06/30/2008 | 12 | 182 | 172 | 18 |
| FY08 Gain | 06/30/2008 | 12 | (764) | (723) | (76) |
| Change in Assumptions | 06/30/2009 | 13 | (130) | (126) | (12) |
| FY09 Gain | 06/30/2009 | 13 | (476) | (463) | (46) |
| Change in Assumptions | 06/30/2010 | 14 | (531) | (524) | (49) |
| FY10 Loss | 06/30/2010 | 14 | 533 | 525 | 49 |
| FY11 Loss | 06/30/2011 | 15 | 890 | 891 | 79 |
| Change in Assumptions | 06/30/2012 | 16 | 28,265 | 28,597 | 2,437 |
| FY12 Loss | 06/30/2012 | 16 | 1,178 | 1,191 | 101 |
| FY13 Loss | 06/30/2013 | 17 | 10,854 | 11,056 | 904 |
| Change in Assumptions | 06/30/2014 | 18 | (24,856) | (25,403) | (2,000) |
| FY14 Loss | 06/30/2014 | 18 | 8,215 | 8,397 | 661 |
| FY15 Gain | 06/30/2015 | 19 | (9,438) | (9,650) | (734) |
| EGWP Gain | 06/30/2016 | 20 | (19,559) | (19,950) | (1,468) |
| FY16 Loss | 06/30/2016 | 20 | 11,483 | 11,713 | 862 |
| Change in Assumptions | 06/30/2017 | 21 | 23,532 | 23,893 | 1,707 |
| FY17 Gain | 06/30/2017 | 21 | (1,708) | (1,734) | (124) |
| FY18 Gain | 06/30/2018 | 22 | (113) | (114) | (8) |
| Change in Assumptions/Methods | 06/30/2018 | 22 | (9,642) | (9,724) | (675) |
| FY19 Gain | 06/30/2019 | 23 | (12,132) | (12,222) | (827) |
| Change in Assumptions | 06/30/2020 | 24 | 7,485 | 7,519 | 497 |
| FY20 Gain | 06/30/2020 | 24 | (7,370) | (7,403) | (489) |
| Prescription Drug Plan Changes | 06/30/2021 | 25 | (2,029) | (2,029) | (131) |
| FY21 Gain | 06/30/2021 | 25 | (15,622) | (15,622) | (1,009) |
| Total | | | | \$ (12,064) | \$ (370) |

All Members

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--------------------------------|---------------------|-----------------|----------|--------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Unfunded Liability | 06/30/2007 | 11 | \$ (496) | \$ (462) | \$ (52) |
| Change in Assumptions | 06/30/2008 | 12 | 182 | 172 | 18 |
| FY08 Gain | 06/30/2008 | 12 | (1,668) | (1,581) | (166) |
| Change in Assumptions | 06/30/2009 | 13 | (326) | (316) | (31) |
| FY09 Gain | 06/30/2009 | 13 | (1,954) | (1,895) | (188) |
| Change in Assumptions | 06/30/2010 | 14 | (428) | (422) | (39) |
| FY10 Gain | 06/30/2010 | 14 | (743) | (737) | (69) |
| FY11 Gain | 06/30/2011 | 15 | (221) | (221) | (20) |
| Change in Assumptions | 06/30/2012 | 16 | 28,265 | 28,597 | 2,437 |
| FY12 Gain | 06/30/2012 | 16 | (404) | (409) | (35) |
| FY13 Loss | 06/30/2013 | 17 | 9,871 | 10,055 | 822 |
| Change in Assumptions | 06/30/2014 | 18 | (26,181) | (26,757) | (2,107) |
| PRPA Modification | 06/30/2014 | 18 | (118) | (120) | (9) |
| FY14 Loss | 06/30/2014 | 18 | 6,117 | 6,255 | 492 |
| FY15 Gain | 06/30/2015 | 19 | (11,952) | (12,219) | (929) |
| EGWP Gain | 06/30/2016 | 20 | (19,559) | (19,950) | (1,468) |
| FY16 Loss | 06/30/2016 | 20 | 9,126 | 9,308 | 685 |
| Change in Assumptions | 06/30/2017 | 21 | 23,532 | 23,893 | 1,707 |
| FY17 Gain | 06/30/2017 | 21 | (4,610) | (4,681) | (334) |
| FY18 Gain | 06/30/2018 | 22 | (2,965) | (2,991) | (208) |
| Change in Assumptions/Methods | 06/30/2018 | 22 | (10,547) | (10,638) | (738) |
| FY19 Gain | 06/30/2019 | 23 | (15,897) | (16,015) | (1,084) |
| Change in Assumptions | 06/30/2020 | 24 | 7,485 | 7,519 | 497 |
| FY20 Gain | 06/30/2020 | 24 | (12,965) | (13,023) | (860) |
| Prescription Drug Plan Changes | 06/30/2021 | 25 | (2,029) | (2,029) | (131) |
| FY21 Gain | 06/30/2021 | 25 | (24,732) | (24,732) | (1,597) |
| Total | | | | \$ (53,399) | \$ (3,407) |

Section 1.3: Actuarial Gain/(Loss) for FY21 (\$'s in 000's)

| | Occupational Death & Disability | Retiree Medical | Total |
|--|---------------------------------------|--------------------|-------------------|
| 1. Expected Actuarial Accrued Liability | | | |
| a. Actuarial Accrued Liability as of June 30, 2020 | \$ 10,634 | \$ 150,701 | \$ 161,335 |
| b. Normal Cost | 5,133 | 15,162 | 20,295 |
| c. Interest on (a) and (b) at 7.38% | 1,164 | 12,241 | 13,405 |
| d. Employer Group Waiver Plan | 0 | 60 | 60 |
| e. Benefit Payments | (431) | (237) | (668) |
| f. Interest on (d) and (e) at 7.38%, adjusted for timing | (17) | (6) | (23) |
| g. Assumption/Method Changes | 0 | 0 | 0 |
| h. Expected Actuarial Accrued Liability as of June 30, 2021 (a) + (b) + (c) + (d) + (e) + (f) + (g) | <u>\$ 16,483</u> | <u>\$ 177,921</u> | <u>\$ 194,404</u> |
| 2. Actual Actuarial Accrued Liability as of June 30, 2021 | <u>11,740</u> | <u>168,472</u> | <u>180,212</u> |
| 3. Liability Gain/(Loss), (1)(h) - (2) | \$ 4,743 | \$ 9,449 | \$ 14,192 |
| 4. Expected Actuarial Asset Value | | | |
| a. Actuarial Asset Value as of June 30, 2020 | \$ 43,029 | \$ 144,747 | \$ 187,776 |
| b. Interest on (a) at 7.38% | 3,176 | 10,682 | 13,858 |
| c. Employer Contributions | 5,334 | 18,559 | 23,893 |
| d. Employer Group Waiver Plan | 0 | 60 | 60 |
| e. Interest on (c) and (d) at 7.38%, adjusted for timing | 193 | 675 | 868 |
| f. Benefit Payments | (431) | (237) | (668) |
| g. Administrative Expenses | (32) | (22) | (54) |
| h. Interest on (f) and (g) at 7.38%, adjusted for timing | (18) | (9) | (27) |
| i. Expected Actuarial Asset Value as of June 30, 2021 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) | <u>\$ 51,251</u> | <u>\$ 174,455</u> | <u>\$ 225,706</u> |
| 5. Actuarial Asset Value as of June 30, 2021 | <u>53,075</u> | <u>180,536</u> | <u>233,611</u> |
| 6. Actuarial Asset Gain/(Loss), (5) - (4)(i) | \$ 1,824 | \$ 6,081 | \$ 7,905 |
| 7. Total Actuarial Gain/(Loss), (3) + (6) | \$ 6,567 | \$ 15,530 | \$ 22,097 |
| 8. Contribution Gain/(Loss) | \$ 2,575 | \$ 2,122 | \$ 4,697 |
| 9. Administrative Expense Gain/(Loss) | \$ (32) | \$ (1) | \$ (33) |
| 10. FY21 Gain/(Loss), (7) + (8) + (9) | \$ 9,110 | \$ 17,651 | \$ 26,761 |

Section 1.4: 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, 2007 | \$ 759 | \$ 1,255 | 165.3% | \$ (496) |
| June 30, 2008 | 2,018 | 4,007 | 198.6% | (1,989) |
| June 30, 2009 | 4,316 | 8,613 | 199.6% | (4,297) |
| June 30, 2010 | 8,038 | 13,568 | 168.8% | (5,530) |
| June 30, 2011 | 13,251 | 19,058 | 143.8% | (5,807) |
| June 30, 2012 | 46,921 | 24,915 | 53.1% | 22,006 |
| June 30, 2013 | 63,885 | 31,709 | 49.6% | 32,176 |
| June 30, 2014 | 53,844 | 41,461 | 77.0% | 12,383 |
| June 30, 2015 | 63,732 | 63,202 | 99.2% | 530 |
| June 30, 2016 | 77,052 | 87,027 | 112.9% | (9,975) |
| June 30, 2017 | 117,243 | 108,503 | 92.5% | 8,740 |
| June 30, 2018 | 126,311 | 131,058 | 103.8% | (4,747) |
| June 30, 2019 | 134,720 | 155,484 | 115.4% | (20,764) |
| June 30, 2020 | 161,335 | 187,776 | 116.4% | (26,441) |
| June 30, 2021 | 180,212 | 233,611 | 129.6% | (53,399) |

Section 2: Plan Assets

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

| As of June 30, 2021 | Occupational Death & Disability | Retiree Medical | Total | Allocation Percent |
|--|---------------------------------------|--------------------|-------------------|-----------------------|
| Cash and Short-Term Investments | | | | |
| - Cash and Cash Equivalents | \$ 772 | \$ 2,614 | \$ 3,386 | 1.3% |
| - Subtotal | \$ 772 | \$ 2,614 | \$ 3,386 | 1.3% |
| Fixed Income Investments | | | | |
| - Domestic Fixed Income Pool | \$ 12,129 | \$ 41,250 | \$ 53,379 | 20.2% |
| - International Fixed Income Pool | 0 | 0 | 0 | 0.0% |
| - Tactical Fixed Income Pool | 0 | 0 | 0 | 0.0% |
| - High Yield Pool | 0 | 0 | 0 | 0.0% |
| - Treasury Inflation Protection Pool | 0 | 0 | 0 | 0.0% |
| - Emerging Debt Pool | 0 | 0 | 0 | 0.0% |
| - Subtotal | \$ 12,129 | \$ 41,250 | \$ 53,379 | 20.2% |
| Equity Investments | | | | |
| - Domestic Equity Pool | \$ 16,411 | \$ 55,812 | \$ 72,223 | 27.3% |
| - International Equity Pool | 9,045 | 30,759 | 39,804 | 15.1% |
| - Private Equity Pool | 8,900 | 30,267 | 39,167 | 14.8% |
| - Emerging Markets Equity Pool | 1,921 | 6,534 | 8,455 | 3.3% |
| - Alternative Equity Strategies | 3,495 | 11,886 | 15,381 | 5.8% |
| - Subtotal | \$ 39,772 | \$ 135,258 | \$ 175,030 | 66.3% |
| Other Investments | | | | |
| - Real Estate Pool | \$ 3,686 | \$ 12,534 | \$ 16,220 | 6.1% |
| - Other Investments Pool | 3,679 | 12,508 | 16,187 | 6.1% |
| - Absolute Return Pool | 0 | 0 | 0 | 0.0% |
| - Other Assets | 0 | 0 | 0 | 0.0% |
| - Subtotal | \$ 7,365 | \$ 25,042 | \$ 32,407 | 12.2% |
| Total Cash and Investments | \$ 60,038 | \$ 204,164 | \$ 264,202 | 100.0% |
| Net Accrued Receivables | 107 | 391 | 498 | |
| Net Assets | \$ 60,145 | \$ 204,555 | \$ 264,700 | |
| | | | | |
| Peace Officer / Firefighter | \$ 18,085 | N/A | N/A | |
| Others | 42,060 | N/A | N/A | |
| All Members | \$ 60,145 | \$ 204,555 | \$ 264,700 | |

Section 2.2: Changes in Fair Value of Assets During FY21 (\$'s in 000's)

| Fiscal Year 2021 | Occupational Death & Disability | Retiree Medical | Total |
|--|---------------------------------------|--------------------|------------|
| 1. Fair Value of Assets as of June 30, 2020 | \$ 42,091 | \$ 141,569 | \$ 183,660 |
| 2. Additions: | | | |
| a. Member Contributions | \$ 0 | \$ 0 | \$ 0 |
| b. Employer Contributions | 5,334 | 18,559 | 23,893 |
| c. Interest and Dividend Income | 626 | 2,120 | 2,746 |
| d. Net Appreciation/(Depreciation) in Fair Value of Investments | 12,678 | 42,913 | 55,591 |
| e. Employer Group Waiver Plan | 0 | 60 | 60 |
| f. Other | 2 | 7 | 9 |
| g. Total Additions | \$ 18,640 | \$ 63,659 | \$ 82,299 |
| 3. Deductions: | | | |
| a. Medical Benefits | \$ 0 | \$ 237 | \$ 237 |
| b. Death & Disability Benefits | 431 | 0 | 431 |
| c. Investment Expenses | 123 | 414 | 537 |
| d. Administrative Expenses | 32 | 22 | 54 |
| e. Total Deductions | \$ 586 | \$ 673 | \$ 1,259 |
| 4. Fair Value of Assets as of June 30, 2021 | \$ 60,145 | \$ 204,555 | \$ 264,700 |
| 5. Approximate Fair Value Investment Return Rate during FY21 Net of Investment Expenses | 29.6% | 29.6% | 29.6% |

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

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

| | Occupational Death & Disability | Retiree Medical | Total |
|---|---------------------------------------|--------------------|------------|
| 1. Investment Gain/(Loss) for FY21 | | | |
| a. Fair Value as of June 30, 2020 | \$ 42,091 | \$ 141,569 | \$ 183,660 |
| b. Contributions | 5,334 | 18,559 | 23,893 |
| c. Employer Group Waiver Plan | 0 | 60 | 60 |
| d. Benefit Payments | 431 | 237 | 668 |
| e. Administrative Expenses | 32 | 22 | 54 |
| f. Actual Investment Return (net of investment expenses) | 13,183 | 44,626 | 57,809 |
| g. Expected Return Rate (net of investment expenses) | 7.38% | 7.38% | 7.38% |
| h. Expected Return | 3,282 | 11,113 | 14,395 |
| i. Investment Gain/(Loss) for the Year (f) - (h) | 9,901 | 33,513 | 43,414 |
| 2. Actuarial Value as of June 30, 2021 | | | |
| a. Fair Value as of June 30, 2021 | \$ 60,145 | \$ 204,555 | \$ 264,700 |
| b. Deferred Investment Gain/(Loss) | 7,070 | 24,019 | 31,089 |
| c. Preliminary Actuarial Value as of June 30, 2021, (a) - (b) | 53,075 | 180,536 | 233,611 |
| d. Upper Limit: 120% of Fair Value as of June 30, 2021 | 72,174 | 245,466 | 317,640 |
| e. Lower Limit: 80% of Fair Value as of June 30, 2021 | 48,116 | 163,644 | 211,760 |
| f. Actuarial Value at June 30, 2021, (c) limited by (d) and (e) | 53,075 | 180,536 | 233,611 |
| 3. Ratio of Actuarial Value of Assets to Fair Value of Assets | | | |
| | 88.2% | 88.3% | 88.3% |
| 4. Approximate Actuarial Value Investment Return Rate during FY21 Net of Investment Expenses | | | |
| | 11.4% | 11.3% | 11.3% |
| 5. Actuarial Value Allocation¹ | | | |
| a. Peace Officer / Firefighter | \$ 15,959 | \$ 20,163 | \$ 36,122 |
| b. Others | 37,116 | 160,373 | 197,489 |
| c. All Members | \$ 53,075 | \$ 180,536 | \$ 233,611 |

¹ Occupational death & disability allocated using fair value of assets. Retiree medical allocated based on retiree medical actuarial accrued liability.

The tables below show the development of the gains/(losses) to be recognized in the current year (\$'s in 000's):

| Occupational Death & Disability | | | | |
|--|----------------------------|--|---|---|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 1,090 | \$ 872 | \$ 218 | \$ 0 |
| June 30, 2018 | 23 | 15 | 5 | 3 |
| June 30, 2019 | (370) | (148) | (74) | (148) |
| June 30, 2020 | (1,178) | (236) | (236) | (706) |
| June 30, 2021 | <u>9,901</u> | <u>0</u> | <u>1,980</u> | <u>7,921</u> |
| Total | \$ 9,466 | \$ 503 | \$ 1,893 | \$ 7,070 |

| Retiree Medical | | | | |
|---------------------------|----------------------------|--|---|---|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 3,156 | \$ 2,524 | \$ 632 | \$ 0 |
| June 30, 2018 | (58) | (36) | (12) | (10) |
| June 30, 2019 | (1,212) | (484) | (242) | (486) |
| June 30, 2020 | (3,825) | (765) | (765) | (2,295) |
| June 30, 2021 | <u>33,513</u> | <u>0</u> | <u>6,703</u> | <u>26,810</u> |
| Total | \$ 31,574 | \$ 1,239 | \$ 6,316 | \$ 24,019 |

| Total | | | | |
|---------------------------|----------------------------|--|---|---|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 4,246 | \$ 3,396 | \$ 850 | \$ 0 |
| June 30, 2018 | (35) | (21) | (7) | (7) |
| June 30, 2019 | (1,582) | (632) | (316) | (634) |
| June 30, 2020 | (5,003) | (1,001) | (1,001) | (3,001) |
| June 30, 2021 | <u>43,414</u> | <u>0</u> | <u>8,683</u> | <u>34,731</u> |
| Total | \$ 41,040 | \$ 1,742 | \$ 8,209 | \$ 31,089 |

Section 2.4: Historical Asset Rates of Return

| Year Ending | Actuarial Value | | Fair Value | |
|---------------|-----------------|-------------|------------|-------------|
| | Annual | Cumulative* | Annual | Cumulative* |
| June 30, 2008 | 5.0% | 5.0% | (7.1%) | (7.1%) |
| June 30, 2009 | 2.4% | 3.7% | (13.0%) | (10.1%) |
| June 30, 2010 | 3.9% | 3.8% | 6.6% | (4.8%) |
| June 30, 2011 | 7.3% | 4.6% | 19.2% | 0.7% |
| June 30, 2012 | 6.9% | 5.1% | 2.0% | 0.9% |
| June 30, 2013 | 7.9% | 5.5% | 11.8% | 2.7% |
| June 30, 2014 | 10.9% | 6.3% | 18.0% | 4.7% |
| June 30, 2015 | 9.5% | 6.7% | 3.3% | 4.6% |
| June 30, 2016 | 6.7% | 6.7% | 0.2% | 4.1% |
| June 30, 2017 | 7.8% | 6.8% | 12.6% | 4.9% |
| June 30, 2018 | 7.9% | 6.9% | 7.9% | 5.2% |
| June 30, 2019 | 6.6% | 6.9% | 6.2% | 5.2% |
| June 30, 2020 | 6.4% | 6.8% | 4.3% | 5.2% |
| June 30, 2021 | 11.3% | 7.2% | 29.6% | 6.7% |

* Cumulative since fiscal year ending June 30, 2008

Section 3: Member Data

Section 3.1: Summary of Members Included

| As of June 30 | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|---------------|---------------|---------------|---------------|---------------------|
| Active Members - Peace Officer / Firefighter | | | | | |
| 1. Number | 1,701 | 1,905 | 2,038 | 2,228 | 2,350 ¹ |
| 2. Average Age | 35.59 | 35.63 | 35.76 | 35.92 | 36.40 |
| 3. Average Credited Service | 4.65 | 4.83 | 5.09 | 5.36 | 5.71 |
| 4. Average Entry Age | 30.94 | 30.80 | 30.67 | 30.56 | 30.69 |
| 5. Average Annual Earnings | \$ 77,800 | \$ 78,603 | \$ 84,593 | \$ 87,365 | \$ 90,022 |
| Active Members - Others | | | | | |
| 1. Number | 17,470 | 18,473 | 19,864 | 20,695 | 21,583 ² |
| 2. Average Age | 41.22 | 41.34 | 41.49 | 41.78 | 41.79 |
| 3. Average Credited Service | 3.83 | 4.08 | 4.25 | 4.59 | 4.84 |
| 4. Average Entry Age | 37.39 | 37.26 | 37.24 | 37.19 | 36.95 |
| 5. Average Annual Earnings | \$ 56,100 | \$ 57,349 | \$ 58,223 | \$ 59,603 | \$ 61,129 |
| Active Members - Total | | | | | |
| 1. Number | 19,171 | 20,378 | 21,902 | 22,923 | 23,933 ³ |
| 2. Average Age | 40.72 | 40.80 | 40.96 | 41.21 | 41.26 |
| 3. Average Credited Service | 3.90 | 4.15 | 4.33 | 4.66 | 4.93 |
| 4. Average Entry Age | 36.82 | 36.65 | 36.63 | 36.55 | 36.33 |
| 5. Average Annual Earnings | \$ 58,025 | \$ 59,336 | \$ 60,676 | \$ 62,302 | \$ 63,966 |
| Disabilitants and Beneficiaries (Occupational Death & Disability) | | | | | |
| 1. Number | 14 | 15 | 16 | 15 | 14 |
| 2. Average Age | 42.37 | 43.66 | 42.28 | 44.66 | 47.27 |
| 3. Average Monthly Death & Disability Benefit | \$ 2,199 | \$ 2,285 | \$ 2,404 | \$ 2,698 | \$ 2,601 |
| Retirees, Surviving Spouses, and Dependent Spouses (Retiree Medical) | | | | | |
| 1. Number | 9 | 23 | 43 | 66 | 93 |
| 2. Average Age | 70.76 | 69.97 | 69.72 | 68.85 | 69.75 |
| Total Number of Members | 19,194 | 20,416 | 21,961 | 23,004 | 24,040 |

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

¹ Includes 1,966 male active members and 384 female active members.

² Includes 9,309 male active members and 12,274 female active members.

³ Includes 11,275 male active members and 12,658 female active members.

Section 3.2: Age and Service Distribution of Active Members

Annual Earnings by Age

| Age | Number | Total Annual Earnings | Average Annual Earnings |
|--------------|---------------|------------------------|-------------------------|
| 0 - 19 | 118 | \$ 4,365,252 | \$ 36,994 |
| 20 - 24 | 1,300 | 59,848,610 | 46,037 |
| 25 - 29 | 3,113 | 178,588,359 | 57,369 |
| 30 - 34 | 3,947 | 253,180,514 | 64,145 |
| 35 - 39 | 3,912 | 268,741,119 | 68,697 |
| 40 - 44 | 3,031 | 206,711,466 | 68,199 |
| 45 - 49 | 2,518 | 165,069,623 | 65,556 |
| 50 - 54 | 2,178 | 143,486,833 | 65,880 |
| 55 - 59 | 1,845 | 121,517,531 | 65,863 |
| 60 - 64 | 1,361 | 89,532,606 | 65,784 |
| 65 - 69 | 457 | 30,885,212 | 67,583 |
| 70 - 74 | 118 | 7,109,810 | 60,253 |
| 75+ | 35 | 1,868,090 | 53,374 |
| Total | 23,933 | \$1,530,905,025 | \$ 63,966 |

Annual Earnings by Credited Service

| Years of Service | Number | Total Annual Earnings | Average Annual Earnings |
|------------------|---------------|------------------------|-------------------------|
| 0 | 4,026 | \$ 200,461,317 | \$ 49,792 |
| 1 | 3,075 | 165,422,602 | 53,796 |
| 2 | 2,898 | 169,417,994 | 58,460 |
| 3 | 2,274 | 138,590,119 | 60,946 |
| 4 | 1,768 | 113,814,667 | 64,375 |
| 0 - 4 | 14,041 | \$ 787,706,699 | \$ 56,100 |
| 5 - 9 | 6,695 | 478,308,411 | 71,443 |
| 10 - 14 | 3,192 | 264,443,776 | 82,846 |
| 15 - 19 | 5 | 446,141 | 89,228 |
| 20 - 24 | 0 | 0 | 0 |
| 25 - 29 | 0 | 0 | 0 |
| 30 - 34 | 0 | 0 | 0 |
| 35 - 39 | 0 | 0 | 0 |
| 40+ | 0 | 0 | 0 |
| Total | 23,933 | \$1,530,905,027 | \$ 63,966 |

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 | 118 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 118 |
| 20 - 24 | 1,293 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,300 |
| 25 - 29 | 2,673 | 435 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 3,113 |
| 30 - 34 | 2,528 | 1,190 | 229 | 0 | 0 | 0 | 0 | 0 | 0 | 3,947 |
| 35 - 39 | 2,029 | 1,244 | 639 | 0 | 0 | 0 | 0 | 0 | 0 | 3,912 |
| 40 - 44 | 1,511 | 924 | 594 | 2 | 0 | 0 | 0 | 0 | 0 | 3,031 |
| 45 - 49 | 1,248 | 793 | 476 | 1 | 0 | 0 | 0 | 0 | 0 | 2,518 |
| 50 - 54 | 1,038 | 738 | 402 | 0 | 0 | 0 | 0 | 0 | 0 | 2,178 |
| 55 - 59 | 777 | 652 | 416 | 0 | 0 | 0 | 0 | 0 | 0 | 1,845 |
| 60 - 64 | 596 | 483 | 282 | 0 | 0 | 0 | 0 | 0 | 0 | 1,361 |
| 65 - 69 | 168 | 171 | 116 | 2 | 0 | 0 | 0 | 0 | 0 | 457 |
| 70 - 74 | 49 | 41 | 28 | 0 | 0 | 0 | 0 | 0 | 0 | 118 |
| 75+ | 13 | 17 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| Total | 14,041 | 6,695 | 3,192 | 5 | 0 | 0 | 0 | 0 | 0 | 23,933 |

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

Section 3.3: Member Data Reconciliation

| | Actives | Retirees and Surviving Spouses | Dependent Spouses | OD&D Disabilitants | OD&D Beneficiaries | Total |
|---|---------------|---|----------------------|-----------------------|-----------------------|---------------|
| As of June 30, 2020 ¹ | 22,923 | 50 | 16 | 13 | 2 | 23,004 |
| New Entrants | 3,809 | 0 | 0 | 0 | 0 | 3,809 |
| Rehires | 635 | 0 | 0 | 0 | 0 | 635 |
| Vested Terminations | (633) | 0 | 0 | 0 | 0 | (633) |
| Non-Vested Terminations | (2,174) | 0 | 0 | 0 | 0 | (2,174) |
| Refund of Contributions | (590) | 0 | 0 | 0 | 0 | (590) |
| Disability Retirements | 0 | 0 | 0 | 0 | 0 | 0 |
| Age Retirements | (24) | 24 | 10 | 0 | 0 | 10 |
| Deaths With Beneficiary | (29) | (1) | 0 | 0 | 0 | (30) |
| Deaths Without Beneficiary | 0 | (1) | 0 | 0 | 0 | (1) |
| Converted To/From DB Plan | 0 | 0 | 0 | 0 | 0 | 0 |
| Added Dependent Coverage | 0 | 0 | 1 | 0 | 0 | 1 |
| Dropped Dependent Coverage | 0 | 0 | 0 | 0 | 0 | 0 |
| Transfers In/Out | 16 | (5) | 0 | 0 | 0 | 11 |
| Data Corrections | 0 | 0 | (1) | 0 | (1) | (2) |
| Net Change | 1,010 | 17 | 10 | 0 | (1) | 1,036 |
| As of June 30, 2021 ² | 23,933 | 67 | 26 | 13 | 1 | 24,040 |

¹ 114 participants are expected to receive retiree medical benefits in a different plan and are included for OD&D benefits only.

² 89 participants are expected to receive retiree medical benefits in a different plan and are included for OD&D benefits only.

Section 3.4: Schedule of Active Member Data

| Valuation Date | Number | Annual Earnings (000's) | Annual Average Earnings | Percent Increase in Average Earnings | Number of Participating Employers |
|----------------|--------|-------------------------|-------------------------|--------------------------------------|-----------------------------------|
| June 30, 2021 | 23,933 | \$ 1,530,905 | \$ 63,966 | 2.7% | 151 |
| June 30, 2020 | 22,923 | 1,428,140 | 62,302 | 2.7% | 153 |
| June 30, 2019 | 21,902 | 1,328,934 | 60,676 | 2.3% | 155 |
| June 30, 2018 | 20,378 | 1,209,152 | 59,336 | 2.3% | 155 |
| June 30, 2017 | 19,171 | 1,112,398 | 58,025 | 1.5% | 157 |
| June 30, 2016 | 18,215 | 1,041,437 | 57,175 | 3.4% | 157 |
| June 30, 2015 | 17,098 | 945,496 | 55,299 | 1.9% | 159 |
| June 30, 2014 | 15,800 | 857,150 | 54,250 | 3.7% | 159 |
| June 30, 2013 | 14,316 | 748,658 | 52,295 | 4.7% | 159 |
| June 30, 2012 | 12,597 | 629,128 | 49,943 | 4.5% | 160 |

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

Section 3.5: Active Member Payroll Reconciliation

| Payroll Field | Payroll Data (000's) |
|--|----------------------|
| a) DRB actual reported salaries FY21 in employer list | \$ 1,427,348 |
| b) DRB actual reported salaries FY21 in valuation data | 1,357,501 |
| c) Annualized valuation data | 1,530,905 |
| d) Valuation payroll as of June 30, 2021 | 1,603,885 |
| e) Rate payroll for FY22 | 1,548,116 |

-
- a) Actual reported salaries from DRB employer listing showing all payroll paid during FY21, including those who were not active as of June 30, 2021
 - b) Payroll from valuation data for people who are in active status as of June 30, 2021
 - c) Payroll from (b) annualized for both new entrants and part-timers
 - d) Payroll from (c) with one year of salary scale applied to estimate salaries payable for the upcoming year
 - e) Payroll from (d) with the part-timer annualization removed

Section 4: Basis of the Actuarial Valuation

Section 4.1: Summary of Plan Provisions

Effective Date

July 1, 2006, with amendments through June 30, 2021.

Administration of Plan

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

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

Employers Included

Currently there are 151 employers participating in PERS DCR, including the State of Alaska, and 150 political subdivisions and public organizations.

Membership

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

- Permanent full-time or part-time employees of the State of Alaska, participating political subdivisions or public organizations. An employee must be regularly scheduled to work 30 or more hours per week to be considered full-time by the PERS. An employee must be regularly scheduled to work 15 or more hours per week but less than 30 hours to be considered a part-time employee for PERS purposes.
- Elected state officials.
- Elected municipal officials who are compensated and receive at least \$2,001.00 per month.

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

Member Contributions

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

Retiree Medical Benefits

- Member must retire directly from the plan to be eligible for retiree medical coverage. Normal retirement eligibility is the earlier of a) 25 years of service as a peace officer or firefighter and 30 years of service for any other employee or b) Medicare eligible and 10 years of service.
- No subsidized retiree medical benefits are provided until normal retirement eligibility. The member's and any covered dependent's premium is 100% until the member is Medicare eligible. Upon the member's Medicare-eligibility, the required contribution will follow the service-based schedule shown below.
- Coverage cannot be denied except for failure to pay premium.
- Members who are receiving disability benefits or survivors who are receiving monthly survivor benefits are not eligible until the member meets, or would have met if he/she had lived, the normal retirement eligibility requirements.
- The following is a summary of the medical benefit design adopted in July 2016. The plan description below is used for valuation purposes and indicates participant cost-sharing. Please refer to the benefit handbook for more details.

| Plan Design Feature | In-Network ¹ | Out-of-Network ^{1 2} |
|---|--|-------------------------------|
| Deductible (single / family) | \$300 / \$600 | |
| Medical services (participant share) | 20% | 40% |
| Emergency Room Copay (non-emergent use) | \$100 | \$100 |
| Medical Out-of-Pocket Maximum (single / family, including deductible) | \$1,500 / \$3,000 | \$3,000 / \$6,000 |
| Medicare Coordination | Exclusion | Exclusion |
| Pharmacy | No Deductible | No Deductible |
| Retail Generic (per 30-day fill) | 20% \$10 min / \$50 max | |
| Retail Non-Formulary Brand (per 30-day fill) | 25% \$25 min / \$75 max | 40% |
| Retail Formulary Brand (per 30-day fill) | 35% \$80 min / \$150 max | |
| Mail-Order Generic | \$20 copay | |
| Mail-Order Non-Formulary Brand | \$50 copay | 40% |
| Mail-Order Formulary Brand | \$100 copay | |
| Pharmacy Out-of-Pocket Max (single / family) | \$1,000 / \$2,000 | |
| Medicare Pharmacy Arrangement | Retiree Drug Subsidy / Employer Group Waiver Plan effective 1/1/2019 | |
| Wellness / Preventative | 100% covered, not subject to deductible | 20%, after deductible |

¹ Section 1.1 of the AlaskaCare Defined Contribution Retiree Benefit Plan states that this health plan shall be updated from time to time to reflect changes in benefits, including annual adjustments to the premium, deductible, coinsurance, medical out-of-pocket limit, and prescription drug out-of-pocket limit.

² OON applies only to non-Medicare eligible participants.

- Buck used manual rate models to determine relative plan values for the defined benefit (DB) retiree medical plan and the DCR retiree medical plan outlined above. We applied the ratio of the DCR retiree medical plan value to the DB retiree medical plan value to the per capita costs determined for each of pre/post-Medicare medical and pharmacy benefits to estimate corresponding values for the DCR retiree medical plan design. These factors are noted in Section 4.3. We further adjusted the Medicare medical manual rate to reflect the Medicare coordination method adopted. The estimated 2022 reimbursements under EGWP were provided by Segal Consulting (who worked with the EGWP administrator, Optum, to develop those estimates). We reflect estimated discounts and pharmacy rebates in the defined benefit medical cost so no further adjustment was needed for the DCR retiree medical plan. The medical network differential is reflected in the relative plan value adjustments.
- Starting in 2022, prior authorization will be required for certain specialty medications. There is no change to the medications that are covered by the plan.
- The retiree medical plan's coverage is supplemental to Medicare. Medicare coordination is described in the DCR Plan Handbook, referred to in the industry as exclusion coordination: Medicare payment is deducted from the Medicare allowable expense and plan parameters are applied to the remaining amount. Starting in 2019, the prescription drug coverage is through a Medicare Part D EGWP arrangement.
- The premium for Medicare-eligible retirees will be based on the member's years of service. The percentage of premium paid by the member is as follows:

| Years of Service | Percent of Premium Paid by Member |
|------------------|-----------------------------------|
| < 15 | 30% |
| 15 – 19 | 25% |
| 20 – 24 | 20% |
| 25 – 29 | 15% |
| 30+ | 10% |

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

Occupational Disability Benefits

- Benefit is 40% of salary at date of disability.
- For Peace Officer and Firefighters there is a Disability Benefit Adjustment such that:
 - The disability benefit is increased by 75% of the cost of living increase in the preceding calendar year or 9%, whichever is less.
 - At the time the disabled member retires, the retirement benefit will be increased by a percentage equal to the total cumulative percentage that has been applied to the disability benefit. Monthly annuity payments are made from the member's contribution balance until the fund is exhausted, at which the plan pays all remaining payments.
- For Others, there is no increase in the occupational disability benefit after commencement.
- Member earns service while on occupational disability.
- Benefits cease when the member becomes eligible for normal retirement at Medicare-eligible age and 10 years of service, or at any age with 30 years of service for Others members or 25 years of service for Peace Officer/Firefighter members.
- Peace Officer/Firefighter members may select the defined contribution account or the monthly benefit payable as if they were retiring under Tier 3 (service continues during disability, final average salary is as of date of disability), but with payments first made from the member's DC account until it's exhausted.
- No subsidized retiree medical benefits are provided until normal retirement eligibility. The member's premium is 100% of the estimated cost until they are Medicare eligible. Medicare-eligible premiums follow the service-based schedule above.

Occupational Death Benefits

- Benefit is 40% of salary for Others members and 50% of salary for Peace Officer/Firefighter members.
- Survivor's Pension Adjustment: A survivor's pension is increased by 50% of the cost of living increase in the preceding calendar year or 6%, whichever is less, if the recipient is at least age 60 on July 1, or under age 60 if the recipient has been receiving PERS benefits for at least 5 years as of July 1.
- Benefits cease when the member would have become eligible for normal retirement.
- The period during which the survivor is receiving benefits is counted as service credit toward retiree medical benefits.
- No subsidized retiree medical benefits are provided until the member would have been eligible for normal retirement. The surviving spouse's premium is 100% of the estimated cost until the member would have been Medicare eligible. Medicare-eligible premiums follow the service-based schedule above.

Changes Since the Prior Valuation

Starting in 2022, prior authorization will be required for certain specialty medications. There have been no other changes in PERS DCR benefit provisions valued since the prior valuation.

Section 4.2: Description of Actuarial Methods and Valuation Procedures

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

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

Actuarial Cost Method

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method, level percent of pay. Each year's difference between actual and expected unfunded actuarial accrued liability is amortized over 25 years as a level percentage of expected payroll.

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

The actuarial accrued liability for beneficiaries and disabled members currently receiving benefits (if any) was determined as the actuarial present value of the benefits expected to be paid. No future normal costs are payable for these members.

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

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

Valuation of Assets

Effective June 30, 2006, the asset valuation method recognizes 20% of the investment gain or loss in each of the current and preceding four years. This method was phased in over five years. Fair Value of Assets was \$0 as of June 30, 2006. All assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from financial statements audited by KPMG LLP. Valuation assets are constrained to a range of 80% to 120% of the fair value of assets.

Changes in Methods Since the Prior Valuation

There were no changes in the asset or valuation methods since the prior valuation.

Valuation of Retiree Medical and Prescription Drug Benefits

The methodology used for the valuation of the retiree medical benefits is described in Section 5.2 of the State of Alaska Public Employees' Retirement System Defined Benefit Plan Actuarial Valuation Report as of June 30, 2021.

Starting in 2022, prior authorization will be required for certain specialty medications. There is no change to the medications that are covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The DB base claims costs for pre-Medicare prescription drug, Medicare prescription drug, and EGWP were adjusted to reflect this change. Those base claims costs were used for the DCR valuation with further adjustments as noted below. Additionally, starting in 2022, certain common preventive benefits will be covered for the DB plan. However, preventive benefits are already covered under the DCR plan so no adjustment is needed for that change. Therefore, the base claims cost for the DB plan prior to reflecting the addition of preventive benefits was used for the DCR valuation with further adjustments as noted below.

Due to the lack of experience for the DCR retiree medical plan, base claims costs are based on those described in the actuarial valuation as of June 30, 2021 for the Defined Benefit (DB) retiree medical plan covering TRS and PERS. The DB rates were used with some adjustments. The claims costs were adjusted to reflect the differences between the DCR medical plan and the DB medical plan. These differences include network steerage, different coverage levels, different Medicare coordination for medical benefits, and an indexing of the retiree out-of-pocket dollar amounts. To account for higher initial copays, deductibles and out-of-pocket limits, projected FY22 claims costs were reduced 3.1% for medical claims, and 8.9% for prescription drugs. In addition, to account for the difference in Medicare coordination, projected FY22 medical claims costs for Medicare eligible retirees were further reduced 29.5%.

To adjust for the decrease in medical claims due to COVID-19 during the last 4 months of FY20, the per capita cost during the first 8 months was used as the basis for estimating claims that would have occurred in the absence of COVID-19. FY21 experience was also thoroughly reviewed to assess the impact of COVID-19 and whether an adjustment to FY21 claims was appropriate for use in the June 30, 2021 valuation. FY21 medical per capita claims were noticeably lower than expected, so a 4% load was added to the FY21 medical claims used in the per capita claims cost development to better reflect future expected long-term costs of the plan.

No implicit subsidies are assumed. Employees projected to retire with 30 years of service (25 years of service for Peace/Fire) prior to Medicare are valued with commencement deferred to Medicare eligibility because those members will be required to pay the full plan premium prior to Medicare. Explicit subsidies for disabled and normal retirement are determined using the plan-defined percentages of age-related total projected plan costs, again with no implicit subsidy assumed.

The State transitioned to an Employer Group Waiver Program (EGWP) for DCR participants effective January 1, 2019. The estimated 2022 reimbursements under EGWP were provided by Segal Consulting (who worked with the EGWP administrator, Optum, to develop those estimates).

Healthcare Reform

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

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

The Further Consolidated Appropriations Act, 2020 passed in December 2019 repealed several healthcare-related taxes, including the Cadillac Tax.

The Tax Cuts and Jobs Act passed in December 2017 included the elimination of the individual mandate penalty and changed the inflation measure for purposes of determining the limits for the High Cost Excise Tax to use chained CPI. It is our understanding the law does not directly impact other provisions of the ACA. While the nullification of the ACA's individual mandate penalty does not directly impact employer group health plans, it could contribute to the destabilization of the individual market and increase the number of uninsured. Such destabilization could translate to increased costs for employers. We have considered this when setting our healthcare cost trend assumptions and will continue to monitor this issue.

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

DRAFT

Section 4.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2021 valuation are described below. Unless noted otherwise, these assumptions were adopted by the Board in January 2019 based on the experience study for the period July 1, 2013 to June 30, 2017.

Investment Return

7.38% per year, net of investment expenses.

Salary Scale

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

Inflation – 2.50% per year.

Productivity – 0.25% per year.

Payroll Growth

2.75% per year (inflation + productivity).

Total Inflation

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

Mortality (Pre-Commencement)

Mortality rates based upon the 2013-2017 actual experience.

100% (male and female) of RP-2014 employee table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Deaths are assumed to result from occupational causes 75% of the time for Peace Officer/Firefighters, and 40% of the time for Others.

Mortality (Post-Commencement)

Mortality rates based upon the 2013-2017 actual experience.

91% of male and 96% of female rates of RP-2014 healthy annuitant table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Turnover

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

Disability

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

Disabilities are assumed to be occupational 75% of the time for Peace Officer/Firefighters, and 40% of the time for Others. For Peace Officer/Firefighters, members are assumed to take the monthly annuity 100% of the time.

Post-disability mortality in accordance with the RP-2014 disabled table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Retirement

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

Spouse Age Difference

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

Percent Married for Occupational Death & Disability

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

Dependent Spouse Medical Coverage Election

Applies to members who do not have double medical coverage. For Others, 65% of male members and 60% of female members are assumed to be married and cover a dependent spouse. For Peace Officer/Firefighters, 75% of male members and 50% of female members are assumed to be married and cover a dependent spouse.

Part-Time Status

Part-time employees are assumed to earn 1.00 years of credited service per year for Peace Officer/Firefighter and 0.75 years of credited service per year for Other members.

Peace Officer / Firefighter Occupational Disability Retirement Benefit Commencement

The occupational disability retirement benefit is assumed to be first payable from the member's DC account and the retirement benefit payable from the occupational death & disability trust will commence five years later.

Per Capita Claims Cost

Sample claims cost rates (before base claims cost adjustments described below) adjusted to age 65 for FY22 medical and prescription drugs are shown below. The prescription drug costs reflect the plan change to require prior authorization for certain specialty medications.

| | Medical | Prescription Drugs |
|------------------------|----------------|---------------------------|
| Pre-Medicare | \$ 15,708 | \$ 3,375 |
| Medicare Parts A & B | \$ 1,619 | \$ 3,474 |
| Medicare Part D – EGWP | N/A | \$ 1,131 |

Members are assumed to attain Medicare eligibility at age 65. All costs are for the 2022 fiscal year (July 1, 2021 – June 30, 2022).

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

Third Party Administrator Fees

\$493 per person per year; assumed to increase at 4.5% per year.

Base Claims Cost Adjustments

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

- 0.969 for the pre-Medicare plan.
- 0.674 for both the Medicare medical plan and Medicare coordination method (3.1% reduction for the medical plan and 29.5% reduction for the coordination method).
- 0.911 for the prescription drug plan.

Administrative Expenses

Beginning with the June 30, 2018 valuation, the Normal Cost is increased for administrative expenses expected to be paid from plan assets during the year. The amounts included in the June 30, 2021 Normal Cost, which are based on the average of actual administrative expenses during the last two fiscal years, are \$16,000 for occupational death & disability and \$24,000 for retiree medical.

Healthcare Cost Trend

The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 6.3% is applied to the FY22 pre-Medicare medical claims costs to get the FY23 medical claims costs.

| | Medical Pre-65 | Medical Post-65 | Prescription Drugs / EGWP |
|-----------|----------------|-----------------|---------------------------|
| FY22 | 6.3% | 5.4% | 7.1% |
| FY23 | 6.1% | 5.4% | 6.8% |
| FY24 | 5.9% | 5.4% | 6.4% |
| FY25 | 5.8% | 5.4% | 6.1% |
| FY26 | 5.6% | 5.4% | 5.7% |
| FY27-FY40 | 5.4% | 5.4% | 5.4% |
| FY41 | 5.3% | 5.3% | 5.3% |
| FY42 | 5.2% | 5.2% | 5.2% |
| FY43 | 5.1% | 5.1% | 5.1% |
| FY44 | 5.1% | 5.1% | 5.1% |
| FY45 | 5.0% | 5.0% | 5.0% |
| FY46 | 4.9% | 4.9% | 4.9% |
| FY47 | 4.8% | 4.8% | 4.8% |
| FY48 | 4.7% | 4.7% | 4.7% |
| FY49 | 4.6% | 4.6% | 4.6% |
| FY50+ | 4.5% | 4.5% | 4.5% |

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

Aging Factors

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

Retiree Medical Participation

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

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

Imputed Data

Data changes from the prior year which are deemed to have immaterial impact on liabilities and contribution rates are assumed to be correct in the current year's client data. Non-vested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage.

Changes in Assumptions Since the Prior Valuation

The amounts included in the Normal Cost for administrative expenses were changed from \$1,000 to \$16,000 for occupational death & disability, and from \$20,000 to \$24,000 for retiree medical (based on the most recent two years of actual administrative expenses paid from plan assets). The per capita claims cost assumption is updated annually.

DRAFT

Table 1: Salary Scales

| Peace Officer / Firefighter | | Others | |
|-----------------------------|------------------|------------------|------------------|
| Years of Service | Percent Increase | Years of Service | Percent Increase |
| 0 | 7.75% | 0 | 6.75% |
| 1 | 7.25% | 1 | 6.25% |
| 2 | 6.75% | 2 | 5.75% |
| 3 | 6.25% | 3 | 5.25% |
| 4 | 5.75% | 4 | 4.75% |
| 5 | 5.25% | 5 | 4.25% |
| 6 | 4.75% | 6 | 3.75% |
| 7 | 4.25% | 7 | 3.65% |
| 8 | 3.75% | 8 | 3.55% |
| 9 | 3.65% | 9 | 3.45% |
| 10 | 3.55% | 10 | 3.35% |
| 11 | 3.45% | 11 | 3.25% |
| 12 | 3.35% | 12 | 3.15% |
| 13 | 3.25% | 13 | 3.05% |
| 14 | 3.15% | 14 | 2.95% |
| 15 | 3.05% | 15 | 2.85% |
| 16 | 2.95% | 16 | 2.75% |
| 17 | 2.85% | 17 | 2.75% |
| 18+ | 2.75% | 18+ | 2.75% |

Table 2a: Turnover Rates for Peace Officer / Firefighter

Select Rates during the First 5 Years of Employment

| Years of Service | Male | Female |
|------------------|--------|--------|
| 0 | 18.90% | 20.63% |
| 1 | 14.18% | 16.50% |
| 2 | 10.50% | 13.75% |
| 3 | 9.45% | 12.38% |
| 4 | 8.40% | 11.00% |

Ultimate Rates after the First 5 Years of Employment

| Age | Male | Female | Age | Male | Female |
|------|-------|--------|-----|--------|--------|
| < 23 | 5.52% | 11.97% | 44 | 5.78% | 11.09% |
| 23 | 5.65% | 11.97% | 45 | 5.71% | 11.03% |
| 24 | 5.78% | 11.97% | 46 | 5.64% | 10.98% |
| 25 | 5.91% | 11.97% | 47 | 5.57% | 10.92% |
| 26 | 6.04% | 11.97% | 48 | 6.01% | 10.84% |
| 27 | 6.16% | 11.97% | 49 | 6.45% | 10.75% |
| 28 | 6.16% | 11.94% | 50 | 6.89% | 10.67% |
| 29 | 6.15% | 11.91% | 51 | 7.32% | 10.58% |
| 30 | 6.14% | 11.88% | 52 | 7.76% | 10.50% |
| 31 | 6.14% | 11.84% | 53 | 7.97% | 10.66% |
| 32 | 6.12% | 11.81% | 54 | 8.18% | 10.82% |
| 33 | 6.11% | 11.79% | 55 | 8.38% | 10.98% |
| 34 | 6.09% | 11.77% | 56 | 8.59% | 11.15% |
| 35 | 6.08% | 11.75% | 57 | 8.80% | 11.31% |
| 36 | 6.07% | 11.72% | 58 | 9.03% | 11.47% |
| 37 | 6.05% | 11.70% | 59 | 9.25% | 11.63% |
| 38 | 6.03% | 11.60% | 60 | 9.48% | 11.79% |
| 39 | 6.00% | 11.50% | 61 | 9.71% | 11.95% |
| 40 | 5.98% | 11.40% | 62 | 9.94% | 12.12% |
| 41 | 5.95% | 11.30% | 63 | 12.37% | 12.28% |
| 42 | 5.93% | 11.20% | 64 | 14.81% | 12.44% |
| 43 | 5.85% | 11.14% | 65+ | 17.25% | 12.60% |

Table 2b: Turnover Rates for Others

Select Rates during the First 5 Years of Employment

| Years of Service | Male | Female |
|------------------|--------|--------|
| 0 | 24.36% | 27.98% |
| 1 | 21.00% | 22.31% |
| 2 | 16.80% | 17.85% |
| 3 | 13.44% | 14.28% |
| 4 | 9.45% | 12.34% |

Ultimate Rates after the First 5 Years of Employment

| Age | Male | Female | Age | Male | Female |
|------|--------|--------|-----|--------|--------|
| < 23 | 13.71% | 16.50% | 44 | 7.83% | 8.22% |
| 23 | 13.71% | 16.51% | 45 | 7.72% | 7.90% |
| 24 | 13.71% | 16.51% | 46 | 7.60% | 7.58% |
| 25 | 13.71% | 16.52% | 47 | 7.48% | 7.26% |
| 26 | 13.71% | 16.53% | 48 | 7.68% | 7.23% |
| 27 | 13.71% | 16.54% | 49 | 7.87% | 7.20% |
| 28 | 13.41% | 15.94% | 50 | 8.07% | 7.17% |
| 29 | 13.21% | 15.34% | 51 | 8.26% | 7.14% |
| 30 | 12.82% | 17.75% | 52 | 8.46% | 7.11% |
| 31 | 12.52% | 14.15% | 53 | 8.46% | 7.26% |
| 32 | 12.22% | 13.55% | 54 | 8.47% | 7.42% |
| 33 | 11.65% | 12.90% | 55 | 8.48% | 7.57% |
| 34 | 11.09% | 12.24% | 56 | 8.48% | 7.72% |
| 35 | 10.52% | 11.58% | 57 | 8.49% | 7.88% |
| 36 | 9.95% | 10.92% | 58 | 8.77% | 8.15% |
| 37 | 9.39% | 10.26% | 59 | 9.08% | 8.42% |
| 38 | 9.12% | 9.98% | 60 | 9.32% | 8.69% |
| 39 | 8.86% | 9.70% | 61 | 9.60% | 8.96% |
| 40 | 8.60% | 9.42% | 62 | 9.88% | 9.24% |
| 41 | 8.32% | 9.14% | 63 | 10.28% | 10.51% |
| 42 | 8.07% | 8.86% | 64 | 10.68% | 11.78% |
| 43 | 7.95% | 8.54% | 65+ | 11.08% | 13.05% |

Table 3: Disability Rates

| Age | Peace Officer / Firefighter | | Others | |
|------|-----------------------------|---------|---------|---------|
| | Male | Female | Male | Female |
| < 23 | 0.0179% | 0.0112% | 0.0327% | 0.0376% |
| 23 | 0.0244% | 0.0153% | 0.0360% | 0.0400% |
| 24 | 0.0310% | 0.0194% | 0.0392% | 0.0424% |
| 25 | 0.0374% | 0.0234% | 0.0425% | 0.0448% |
| 26 | 0.0440% | 0.0275% | 0.0456% | 0.0472% |
| 27 | 0.0505% | 0.0316% | 0.0489% | 0.0496% |
| 28 | 0.0526% | 0.0329% | 0.0501% | 0.0510% |
| 29 | 0.0548% | 0.0343% | 0.0513% | 0.0524% |
| 30 | 0.0570% | 0.0356% | 0.0524% | 0.0538% |
| 31 | 0.0591% | 0.0370% | 0.0536% | 0.0554% |
| 32 | 0.0612% | 0.0383% | 0.0548% | 0.0568% |
| 33 | 0.0634% | 0.0397% | 0.0566% | 0.0586% |
| 34 | 0.0657% | 0.0411% | 0.0584% | 0.0606% |
| 35 | 0.0679% | 0.0425% | 0.0602% | 0.0624% |
| 36 | 0.0702% | 0.0439% | 0.0620% | 0.0644% |
| 37 | 0.0724% | 0.0453% | 0.0638% | 0.0662% |
| 38 | 0.0757% | 0.0473% | 0.0669% | 0.0696% |
| 39 | 0.0789% | 0.0493% | 0.0701% | 0.0728% |
| 40 | 0.0822% | 0.0514% | 0.0734% | 0.0762% |
| 41 | 0.0854% | 0.0534% | 0.0765% | 0.0794% |
| 42 | 0.0886% | 0.0554% | 0.0797% | 0.0826% |
| 43 | 0.0977% | 0.0611% | 0.0879% | 0.0908% |
| 44 | 0.1066% | 0.0667% | 0.0962% | 0.0990% |
| 45 | 0.1157% | 0.0723% | 0.1043% | 0.1072% |
| 46 | 0.1247% | 0.0780% | 0.1125% | 0.1154% |
| 47 | 0.1337% | 0.0836% | 0.1208% | 0.1236% |
| 48 | 0.1462% | 0.0914% | 0.1329% | 0.1360% |
| 49 | 0.1588% | 0.0993% | 0.1451% | 0.1484% |
| 50 | 0.1714% | 0.1071% | 0.1572% | 0.1608% |
| 51 | 0.1839% | 0.1150% | 0.1694% | 0.1734% |
| 52 | 0.1965% | 0.1228% | 0.1815% | 0.1858% |
| 53 | 0.2294% | 0.1434% | 0.2132% | 0.2168% |
| 54 | 0.2624% | 0.1640% | 0.2450% | 0.2478% |

Table 4: Retirement Rates

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

Glossary of Terms

Actuarial Accrued Liability

Total accumulated cost to fund pension or postemployment benefits arising from service in all prior years.

Actuarial Cost Method

Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension or postemployment plan for a group of plan members to the years of service that give rise to that cost.

Actuarial Present Value of Projected Benefits

Amount which, together with future interest, is expected to be sufficient to pay all future benefits.

Actuarial Valuation

Study of probable amounts of future pension or postemployment benefits and the necessary amount of contributions to fund those benefits.

Actuary

Person who performs mathematical calculations pertaining to pension and insurance benefits based on specific procedures and assumptions.

GASB 74 and 75

Governmental Accounting Standards Board Statement Number 74 amends Number 43 effective for the fiscal year beginning after June 15, 2016 and defines new financial reporting requirements for public postemployment benefit plans. Governmental Accounting Standards Board Statement Number 75 amends Number 45 effective for fiscal years beginning after June 15, 2017 and defines new accounting and financial reporting requirements for employers sponsoring public postemployment benefit plans.

Normal Cost

That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.

Rate Payroll

Members' earnings used to determine contribution rates.

Unfunded Actuarial Accrued Liability (UAAL)

The portion of the actuarial accrued liability not offset by plan assets.

Valuation Payroll

Members' earnings used to determine Normal Cost and Actuarial Accrued Liability.

Vested Benefits

Benefits which are unconditionally guaranteed regardless of employment.

DRAFT



State of Alaska

Teachers' Retirement System Defined Contribution Retirement Plan

For Occupational Death & Disability
and Retiree Medical Benefits

Actuarial Valuation Report
As of June 30, 2021

January 2022

DRAFT



January 7, 2022

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

Certification of Actuarial Valuation

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

This report summarizes the annual actuarial valuation results of the State of Alaska Teachers' Retirement System Defined Contribution Retirement (TRS DCR) Plan as of June 30, 2021 performed by Buck Global, LLC (Buck).

The actuarial valuation is based on financial information provided in the financial statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2021. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities and other factors under TRS DCR were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Buck is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of TRS DCR as of June 30, 2021.

TRS DCR is funded by Employer Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board). The funding objective for TRS DCR is to pay required contributions that remain level as a percent of TRS DCR compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability as a level percent of TRS DCR compensation over closed layered 25-year periods. This objective is currently being met and is projected to continue to be met as required by the Alaska State statutes. Absent future gains/losses, actuarially determined contributions are expected to remain level as a percent of pay and the overall funded status is expected to remain at or above 100%.

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

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

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2013 to June 30, 2017. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2018 valuation to better reflect expected future experience. Based on our annual analysis of recent claims experience, changes were made to the per capita claims cost rates effective June 30, 2021 to better reflect expected future healthcare experience. A summary of the actuarial assumptions and methods used in this actuarial valuation is shown in Sections 4.2 and 4.3. We certify that the assumptions and methods described in Sections 4.2 and 4.3 of this report meet the requirements of all applicable Actuarial Standards of Practice.

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

Assessment of Risks

Actuarial Standard of Practice No. 51 (ASOP 51) applies to actuaries performing funding calculations related to a pension plan. ASOP 51 does not apply to actuaries performing services in connection with other post-employment benefits, such as medical benefits. Accordingly, ASOP 51 does not apply to the retiree medical portion of TRS DCR. We also believe ASOP 51 does not apply to the occupational death & disability portion of TRS DCR. Therefore, information related to ASOP 51 is not included in this report. However, it may be beneficial to review the ASOP 51 information provided in the TRS valuation report for information on risks that may also relate to the occupational death & disability benefits provided by this plan.

Use of Models

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of the plan using data and assumptions as of the measurement date under the funding methods specified in this report. The output from the third-party vendor software is used as input to an internally developed model that applies applicable funding methods and policies to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal model are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts

within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed. Significant changes to the internal model that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

Buck used manual rate models to determine relative plan values for the defined benefit (DB) retiree medical plan and the DCR retiree medical plan, and to reflect the different Medicare coordination methods between the two plans. The manual rate models are intended to provide benchmark data and pricing capabilities, calculate per capita costs, and calculate actuarial values of different commercial health plans. Buck relied on the models, which were developed using industry data by actuaries and consultants at OptumInsight.

COVID-19

The potential impact of the ongoing COVID-19 pandemic on costs and liabilities was considered and an adjustment was made in setting the medical per capita claims cost assumption. FY20 medical claims were adjusted for a COVID-19 related decline in claims during the last four months (March – June) of FY20. FY21 medical claims were adjusted for a COVID-19 related decline in those claims during the fiscal year. A more detailed explanation on these adjustments is shown in Sections 4.2 and 4.3 and in the valuation report for the DB plan.

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

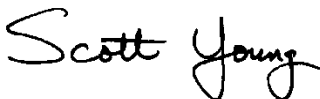
I am available to discuss this report with you at your convenience. I can be reached at 602-803-6174.

Respectfully submitted,



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

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



Scott Young, FSA, EA, MAAA, FCA
Director
Buck

Contents

| | |
|--|-----------|
| Executive Summary | 1 |
| Section 1: Actuarial Funding Results | 5 |
| Section 1.1: Actuarial Liabilities and Normal Cost | 5 |
| Section 1.2: Actuarial Contributions as of June 30, 2021 for FY24 | 6 |
| Section 1.3: Actuarial Gain/(Loss) for FY21 | 10 |
| Section 1.4: History of Unfunded Liability and Funded Ratio | 11 |
| Section 2: Plan Assets | 12 |
| Section 2.1: Summary of Fair Value of Assets | 12 |
| Section 2.2: Changes in Fair Value of Assets During FY21 | 13 |
| Section 2.3: Development of Actuarial Value of Assets | 14 |
| Section 2.4: Historical Asset Rates of Return | 16 |
| Section 3: Member Data | 17 |
| Section 3.1: Summary of Members Included | 17 |
| Section 3.2: Age and Service Distribution of Active Members | 18 |
| Section 3.3: Member Data Reconciliation | 19 |
| Section 3.4: Schedule of Active Member Data | 20 |
| Section 3.5: Active Member Payroll Reconciliation | 21 |
| Section 4: Basis of the Actuarial Valuation | 22 |
| Section 4.1: Summary of Plan Provisions | 22 |
| Section 4.2: Description of Actuarial Methods and Valuation Procedures | 26 |
| Section 4.3: Summary of Actuarial Assumptions | 29 |
| Glossary of Terms | 38 |

Executive Summary

Overview

The State of Alaska Teachers' Retirement System Defined Contribution Retirement (TRS DCR) Plan provides occupational death & disability and retiree medical benefits to teachers and other eligible members hired after June 30, 2006 or who have elected participation in this plan. The Commissioner of the Department of Administration is responsible for administering the plan. The Alaska Retirement Management Board has fiduciary responsibility over the assets of the plan. This report presents the results of the actuarial valuation of TRS DCR as of the valuation date of June 30, 2021.

Purpose

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

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

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

Funded Status

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

| Funded Status as of June 30 (\$'s in 000's) | 2020 | 2021 |
|--|--------------|--------------|
| Occupational Death & Disability | | |
| a. Actuarial Accrued Liability | \$ 223 | \$ 205 |
| b. Valuation Assets | <u>4,933</u> | <u>5,843</u> |
| c. Unfunded Actuarial Accrued Liability, (a) - (b) | \$ (4,710) | \$ (5,638) |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a) | 2,212.1% | 2,850.2% |
| e. Fair Value of Assets | \$ 4,823 | \$ 6,623 |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 2,162.8% | 3,230.7% |

| Funded Status as of June 30 (\$'s in 000's) | 2020 | 2021 |
|---|------|------|
|---|------|------|

Retiree Medical

| | | |
|--|---------------|---------------|
| a. Actuarial Accrued Liability | \$ 40,634 | \$ 44,396 |
| b. Valuation Assets | <u>49,554</u> | <u>59,380</u> |
| c. Unfunded Actuarial Accrued Liability, (a) - (b) | \$ (8,920) | \$ (14,984) |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a) | 122.0% | 133.8% |
| e. Fair Value of Assets | \$ 48,413 | \$ 67,278 |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 119.1% | 151.5% |

Total

| | | |
|--|---------------|---------------|
| a. Actuarial Accrued Liability | \$ 40,857 | \$ 44,601 |
| b. Valuation Assets | <u>54,487</u> | <u>65,223</u> |
| c. Unfunded Actuarial Accrued Liability, (a) - (b) | \$ (13,630) | \$ (20,622) |
| d. Funded Ratio based on Valuation Assets, (b) ÷ (a) | 133.4% | 146.2% |
| e. Fair Value of Assets | \$ 53,236 | \$ 73,901 |
| f. Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 130.3% | 165.7% |

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

1. Investment Experience

The approximate FY21 investment return based on fair value of assets was 29.5% compared to the expected investment return of 7.38% (net of investment expenses of approximately 0.29%). This resulted in a gain of approximately \$12,235,000 to the plan from investment experience. The asset valuation method recognizes 20% of this gain (\$2,447,000) this year and an additional 20% in each of the next 4 years. In addition, 20% of the FY17 investment gain, 20% of the FY18 investment loss, 20% of the FY19 investment loss, and 20% of the FY20 investment loss were recognized this year. The approximate FY21 asset return based on actuarial value of assets was 11.3% compared to the expected asset return of 7.38% (net of investment expenses).

2. Salary Increases

Salary increases for continuing active members during FY21 were higher than anticipated based on the valuation assumptions, resulting in a liability loss of approximately \$1,000.

3. Demographic Experience

The number of active members increased 3.5% from 5,332 at June 30, 2020 to 5,521 at June 30, 2021. The average age of active members increased from 41.63 to 41.90 and average credited service increased from 6.03 to 6.34 years.

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

4. Retiree Medical Claims Experience

Please refer to the State of Alaska Teachers' Retirement System (TRS) Defined Benefit Plan Actuarial Valuation Report as of June 30, 2021 for a full description of the assumptions and costs of the retiree medical plan. Adjustments to these costs and assumptions are described in this report.

The recent claims experience described in Section 4.2 of this report (Section 5.2 of the TRS report) created an actuarial gain of approximately \$1,883,000.

5. Changes in Methods Since the Prior Valuation

There were no changes in actuarial methods since the prior valuation.

6. Changes in Assumptions Since the Prior Valuation

Healthcare claim costs are updated annually as described in Section 4.2. The amounts included in Normal Cost for administrative expenses were updated based on the last two years of actual administrative expenses paid from plan assets. There were no other changes in actuarial assumptions since the prior valuation.

7. Changes in Benefit Provisions Since the Prior Valuation

Starting in 2022, prior authorization will be required for certain specialty medications. This change created an actuarial gain of approximately \$528,000. There have been no other changes in benefit provisions valued since the prior valuation.

Comparative Summary of Contribution Rates

| Occupational Death & Disability | FY 2023 | FY 2024 |
|---|----------------|----------------|
| a. Employer Normal Cost Rate | 0.08% | 0.08% |
| b. Past Service Cost Rate | <u>(0.10)%</u> | <u>(0.11)%</u> |
| c. Total Employer Contribution Rate, (a) + (b), not less than (a) | 0.08% | 0.08% |

| Retiree Medical | FY 2023 | FY 2024 |
|---|----------------|----------------|
| a. Employer Normal Cost Rate | 0.87% | 0.82% |
| b. Past Service Cost Rate | <u>(0.14)%</u> | <u>(0.22)%</u> |
| c. Total Employer Contribution Rate, (a) + (b), not less than (a) | 0.87% | 0.82% |

| Total | FY 2023 | FY 2024 |
|---|----------------|----------------|
| a. Employer Normal Cost Rate | 0.95% | 0.90% |
| b. Past Service Cost Rate | <u>(0.24)%</u> | <u>(0.33)%</u> |
| c. Total Employer Contribution Rate, (a) + (b), not less than (a) | 0.95% | 0.90% |

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

| Total Employer Contribution Rate | | | | |
|---|--------------------|--|------------------------|--------------|
| Valuation Date | Fiscal Year | Occupational Death & Disability | Retiree Medical | Total |
| June 30, 2010 | FY13 | 0.00% | 0.49% | 0.49% |
| June 30, 2011 | FY14 | 0.00% | 0.47% | 0.47% |
| June 30, 2012 | FY15 | 0.00% | 2.04% | 2.04% |
| June 30, 2013 | FY16 | 0.00% | 2.04% | 2.04% |
| June 30, 2014 | FY17 | 0.00% | 1.05% | 1.05% |
| June 30, 2015 | FY18 | 0.00% | 0.91% | 0.91% |
| June 30, 2016 | FY19 | 0.08% | 0.79% | 0.87% |
| June 30, 2017 | FY20 | 0.08% | 1.09% | 1.17% |
| June 30, 2018 | FY21 | 0.08% | 0.93% | 1.01% |
| June 30, 2019 | FY22 | 0.08% | 0.83% | 0.91% |
| June 30, 2020 | FY23 | 0.08% | 0.87% | 0.95% |
| June 30, 2021 | FY24 | TBD | TBD | TBD |

Summary of Actuarial Accrued Liability Gain/(Loss)

The following table shows the FY21 gain/(loss) on actuarial accrued liability as of June 30, 2021 (\$'s in 000's):

| | Occupational Death & Disability | Retiree Medical | Total |
|--|--|------------------------|-----------------|
| Retirement Experience | \$ 0 | \$ 550 | \$ 550 |
| Termination Experience | (7) | 2,361 | 2,354 |
| Disability Experience | 219 | (57) | 162 |
| Active Mortality Experience | 107 | (9) | 98 |
| Inactive Mortality Experience | (1) | (30) | (31) |
| Salary Increases | (1) | N/A | (1) |
| New Entrants | 0 | (581) | (581) |
| Rehires | 1 | (2,038) | (2,037) |
| Benefit Payments Different than Expected | 18 | (101) | (83) |
| Per Capita Claims Costs | N/A | 1,883 | 1,883 |
| Prescription Drug Plan Changes | N/A | 528 | 528 |
| Miscellaneous ¹ | <u>8</u> | <u>195</u> | <u>203</u> |
| Total | \$ 344 | \$ 2,701 | \$ 3,045 |

¹ Includes the effects of various data changes that are typical when new census data is received for the annual valuation, as well as other items that do not fit neatly into any of the other categories.

Section 1: Actuarial Funding Results

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

| As of June 30, 2021 | Present Value of Projected Benefits | Actuarial Accrued (Past Service) Liability |
|---|--|--|
| Active Members | | |
| Occupational Death Benefits | \$ 844 | \$ 94 |
| Occupational Disability Benefits | 1,407 | (66) |
| Medical and Prescription Drug Benefits | 83,777 | 54,549 |
| Medicare Part D Subsidy | <u>(17,536)</u> | <u>(11,418)</u> |
| Subtotal | \$ 68,492 | \$ 43,159 |
| Benefit Recipients | | |
| Survivor Benefits | \$ 0 | \$ 0 |
| Disability Benefits | 177 | 177 |
| Medical and Prescription Drug Benefits | 1,600 | 1,600 |
| Medicare Part D Subsidy | <u>(335)</u> | <u>(335)</u> |
| Subtotal | \$ 1,442 | \$ 1,442 |
| Total | \$ 69,934 | \$ 44,601 |
| Total Occupational Death & Disability | \$ 2,428 | \$ 205 |
| Total Retiree Medical, Net of Part D Subsidy | \$ 67,506 | \$ 44,396 |
| Total Retiree Medical, Gross of Part D Subsidy | \$ 85,377 | \$ 56,149 |
| As of June 30, 2021 | Normal Cost | |
| Active Members | | |
| Occupational Death Benefits | \$ | 118 |
| Occupational Disability Benefits | | 217 |
| Medical and Prescription Drug Benefits | | 4,361 |
| Medicare Part D Subsidy | | <u>(913)</u> |
| Subtotal | \$ | 3,783 |
| Administrative Expense Load | | |
| Occupational Death & Disability | \$ | 5 |
| Retiree Medical | | <u>22</u> |
| Subtotal | \$ | 27 |
| Total | \$ | 3,810 |
| Total Occupational Death & Disability | \$ | 340 |
| Total Retiree Medical, Net of Part D Subsidy | \$ | 3,470 |
| Total Retiree Medical, Gross of Part D Subsidy | \$ | 4,383 |

Section 1.2: Actuarial Contributions as of June 30, 2021 for FY24 (\$'s in 000's)

| Normal Cost Rate | Occupational Death & Disability | Retiree Medical | Total |
|---|--|----------------------------|--------------|
| 1. Total Normal Cost | \$ 340 | \$ 3,470 | \$ 3,810 |
| 2. DCR Plan Rate Payroll Projected for FY22 | 423,783 | 423,783 | 423,783 |
| 3. Employer Normal Cost Rate, (1) ÷ (2) | 0.08% | 0.82% | 0.90% |
| Past Service Cost Rate | | | |
| 1. Actuarial Accrued Liability | \$ 205 | \$ 44,396 | \$ 44,601 |
| 2. Valuation Assets | 5,843 | 59,380 | 65,223 |
| 3. Unfunded Actuarial Accrued Liability, (1) - (2) | \$ (5,638) | \$ (14,984) | \$ (20,622) |
| 4. Funded Ratio based on Valuation Assets | 2,850.2% | 133.8% | 146.2% |
| 5. Past Service Cost Amortization Payment | (448) | (934) | (1,382) |
| 6. DCR Plan Rate Payroll Projected for FY22 | 423,783 | 423,783 | 423,783 |
| 7. Past Service Cost Rate, (5) ÷ (6) | (0.11%) | (0.22%) | (0.33%) |
| Total Employer Contribution Rate, not less than Normal Cost Rate | 0.08% | 0.82% | 0.90% |

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

| Total Employer Contribution Rate as Percent of Total Payroll | Occupational Death & Disability | Retiree Medical | Total |
|---|--|----------------------------|--------------|
| 1. Total Normal Cost | \$ 340 | \$ 3,470 | \$ 3,810 |
| 2. Total DB and DCR Plan Rate Payroll Projected for FY22 | 750,334 | 750,334 | 750,334 |
| 3. Employer Normal Cost Rate, (1) ÷ (2) | 0.05% | 0.46% | 0.51% |
| 4. Past Service Cost Amortization Payment | (448) | (934) | (1,382) |
| 5. Past Service Cost Rate, (4) ÷ (2) | (0.06%) | (0.12%) | (0.18%) |
| Total Employer Contribution Rate, not less than Normal Cost Rate | 0.05% | 0.46% | 0.51% |

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|------------------------------------|---------------------|-----------------|----------|-------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Unfunded Liability | 06/30/2007 | 11 | \$ 16 | \$ 14 | \$ 2 |
| FY08 Gain | 06/30/2008 | 12 | (392) | (367) | (39) |
| Change in Assumptions | 06/30/2009 | 13 | (82) | (78) | (8) |
| FY09 Gain | 06/30/2009 | 13 | (594) | (577) | (57) |
| Change in Assumptions | 06/30/2010 | 14 | (7) | (8) | (1) |
| FY10 Gain | 06/30/2010 | 14 | (479) | (472) | (44) |
| FY11 Gain | 06/30/2011 | 15 | (560) | (559) | (50) |
| FY12 Gain | 06/30/2012 | 16 | (129) | (131) | (11) |
| FY13 Gain | 06/30/2013 | 17 | (149) | (150) | (12) |
| Change in Assumptions | 06/30/2014 | 18 | (50) | (53) | (4) |
| PRPA Modification | 06/30/2014 | 18 | (25) | (25) | (2) |
| FY14 Gain | 06/30/2014 | 18 | (255) | (260) | (20) |
| FY15 Gain | 06/30/2015 | 19 | (275) | (280) | (21) |
| FY16 Gain | 06/30/2016 | 20 | (209) | (215) | (16) |
| FY17 Gain | 06/30/2017 | 21 | (251) | (253) | (18) |
| Change in Assumptions ¹ | 06/30/2018 | 22 | 0 | 0 | 0 |
| FY18 Gain | 06/30/2018 | 22 | (257) | (259) | (18) |
| FY19 Gain | 06/30/2019 | 23 | (338) | (340) | (23) |
| FY20 Gain | 06/30/2020 | 24 | (637) | (640) | (42) |
| FY21 Gain | 06/30/2021 | 25 | (985) | (985) | (64) |
| Total | | | | \$ (5,638) | \$ (448) |

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

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|------------------------------------|---------------------|-----------------|----------|--------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Unfunded Liability | 06/30/2007 | 11 | \$ (239) | \$ (221) | \$ (25) |
| Change in Assumptions | 06/30/2008 | 12 | 84 | 83 | 9 |
| FY08 Gain | 06/30/2008 | 12 | (393) | (367) | (39) |
| Change in Assumptions | 06/30/2009 | 13 | (69) | (66) | (7) |
| FY09 Gain | 06/30/2009 | 13 | (281) | (274) | (27) |
| Change in Assumptions ¹ | 06/30/2010 | 14 | 0 | 0 | 0 |
| FY10 Gain | 06/30/2010 | 14 | (545) | (537) | (50) |
| FY11 Gain | 06/30/2011 | 15 | (94) | (92) | (8) |
| Change in Assumptions | 06/30/2012 | 16 | 11,518 | 11,654 | 993 |
| FY12 Gain | 06/30/2012 | 16 | (60) | (57) | (5) |
| FY13 Loss | 06/30/2013 | 17 | 3,439 | 3,506 | 287 |
| Change in Assumptions | 06/30/2014 | 18 | (9,736) | (9,951) | (783) |
| FY14 Loss | 06/30/2014 | 18 | 1,616 | 1,650 | 130 |
| FY15 Gain | 06/30/2015 | 19 | (3,485) | (3,562) | (271) |
| EGWP Impact | 06/30/2016 | 20 | (6,400) | (6,528) | (480) |
| FY16 Loss | 06/30/2016 | 20 | 958 | 980 | 72 |
| Change in Assumptions | 06/30/2017 | 21 | 7,645 | 7,761 | 554 |
| FY17 Gain | 06/30/2017 | 21 | (1,451) | (1,473) | (105) |
| Change in Assumptions/Methods | 06/30/2018 | 22 | (9,505) | (9,585) | (666) |
| FY18 Loss | 06/30/2018 | 22 | 2,491 | 2,512 | 174 |
| FY19 Gain | 06/30/2019 | 23 | (4,904) | (4,941) | (334) |
| Change in Assumptions | 06/30/2020 | 24 | 2,153 | 2,163 | 143 |
| FY20 Gain | 06/30/2020 | 24 | (1,655) | (1,662) | (110) |
| Prescription Drug Plan Changes | 06/30/2021 | 25 | (528) | (528) | (34) |
| FY21 Gain | 06/30/2021 | 25 | (5,449) | (5,449) | (352) |
| Total | | | | \$ (14,984) | \$ (934) |

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

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

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--------------------------------|---------------------|-----------------|----------|--------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Unfunded Liability | 06/30/2007 | 11 | \$ (223) | \$ (207) | \$ (23) |
| Change in Assumptions | 06/30/2008 | 12 | 84 | 83 | 9 |
| FY08 Gain | 06/30/2008 | 12 | (785) | (734) | (78) |
| Change in Assumptions | 06/30/2009 | 13 | (151) | (144) | (15) |
| FY09 Gain | 06/30/2009 | 13 | (875) | (851) | (84) |
| Change in Assumptions | 06/30/2010 | 14 | (7) | (8) | (1) |
| FY10 Gain | 06/30/2010 | 14 | (1,024) | (1,009) | (94) |
| FY11 Gain | 06/30/2011 | 15 | (654) | (651) | (58) |
| Change in Assumptions | 06/30/2012 | 16 | 11,518 | 11,654 | 993 |
| FY12 Gain | 06/30/2012 | 16 | (189) | (188) | (16) |
| FY13 Loss | 06/30/2013 | 17 | 3,290 | 3,356 | 275 |
| Change in Assumptions | 06/30/2014 | 18 | (9,786) | (10,004) | (787) |
| PRPA Modification | 06/30/2014 | 18 | (25) | (25) | (2) |
| FY14 Loss | 06/30/2014 | 18 | 1,361 | 1,390 | 110 |
| FY15 Gain | 06/30/2015 | 19 | (3,760) | (3,842) | (292) |
| EGWP Impact | 06/30/2016 | 20 | (6,400) | (6,528) | (480) |
| FY16 Loss | 06/30/2016 | 20 | 749 | 765 | 56 |
| Change in Assumptions | 06/30/2017 | 21 | 7,645 | 7,761 | 554 |
| FY17 Gain | 06/30/2017 | 21 | (1,702) | (1,726) | (123) |
| Change in Assumptions/Methods | 06/30/2018 | 22 | (9,505) | (9,585) | (666) |
| FY18 Loss | 06/30/2018 | 22 | 2,234 | 2,253 | 156 |
| FY19 Gain | 06/30/2019 | 23 | (5,242) | (5,281) | (357) |
| Change in Assumptions | 06/30/2020 | 24 | 2,153 | 2,163 | 143 |
| FY20 Gain | 06/30/2020 | 24 | (2,292) | (2,302) | (152) |
| Prescription Drug Plan Changes | 06/30/2021 | 25 | (528) | (528) | (34) |
| FY21 Gain | 06/30/2021 | 25 | (6,434) | (6,434) | (416) |
| Total | | | | \$ (20,622) | \$ (1,382) |

Section 1.3: Actuarial Gain/(Loss) for FY21 (\$'s in 000's)

| | Occupational Death & Disability | Retiree Medical | Total |
|--|---------------------------------------|--------------------|------------------|
| 1. Expected Actuarial Accrued Liability | | | |
| a. Actuarial Accrued Liability as of June 30, 2020 | \$ 223 | \$ 40,634 | \$ 40,857 |
| b. Normal Cost | 312 | 3,388 | 3,700 |
| c. Interest on (a) and (b) at 7.38% | 39 | 3,249 | 3,288 |
| d. Employer Group Waiver Plan | 0 | 3 | 3 |
| e. Benefit Payments | (24) | (171) | (195) |
| f. Interest on (d) and (e) at 7.38%, adjusted for timing | (1) | (6) | (7) |
| g. Assumption/Method Changes | 0 | 0 | 0 |
| h. Expected Actuarial Accrued Liability as of June 30, 2021 (a) + (b) + (c) + (d) + (e) + (f) + (g) | <u>\$ 549</u> | <u>\$ 47,097</u> | <u>\$ 47,646</u> |
| 2. Actual Actuarial Accrued Liability as of June 30, 2021 | <u>205</u> | <u>44,396</u> | <u>44,601</u> |
| 3. Liability Gain/(Loss), (1)(h) - (2) | \$ 344 | \$ 2,701 | \$ 3,045 |
| 4. Expected Actuarial Asset Value | | | |
| a. Actuarial Asset Value as of June 30, 2020 | \$ 4,933 | \$ 49,554 | \$ 54,487 |
| b. Interest on (a) at 7.38% | 364 | 3,657 | 4,021 |
| c. Employer Contributions | 362 | 4,217 | 4,579 |
| d. Employer Group Waiver Plan | 0 | 3 | 3 |
| e. Interest on (c) and (d) at 7.38%, adjusted for timing | 13 | 153 | 166 |
| f. Benefit Payments | (24) | (171) | (195) |
| g. Administrative Expenses | (9) | (34) | (43) |
| h. Interest on (f) and (g) at 7.38%, adjusted for timing | (1) | (7) | (8) |
| i. Expected Actuarial Asset Value as of June 30, 2021 (a) + (b) + (c) + (d) + (e) + (f) + (g) + (h) | <u>\$ 5,638</u> | <u>\$ 57,372</u> | <u>\$ 63,010</u> |
| 5. Actuarial Asset Value as of June 30, 2021 | <u>5,843</u> | <u>59,380</u> | <u>65,223</u> |
| 6. Actuarial Asset Gain/(Loss), (5) - (4)(i) | \$ 205 | \$ 2,008 | \$ 2,213 |
| 7. Total Actuarial Gain/(Loss), (3) + (6) | \$ 549 | \$ 4,709 | \$ 5,258 |
| 8. Contribution Gain/(Loss) | \$ 445 | \$ 1,295 | \$ 1,740 |
| 9. Administrative Expense Gain/(Loss) | \$ (9) | \$ (27) | \$ (36) |
| 10. FY21 Gain/(Loss), (7) + (8) + (9) | \$ 985 | \$ 5,977 | \$ 6,962 |

Section 1.4: 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, 2007 | \$ 374 | \$ 597 | 159.7% | \$ (223) |
| June 30, 2008 | 801 | 1,728 | 215.7% | (927) |
| June 30, 2009 | 1,460 | 3,424 | 234.5% | (1,964) |
| June 30, 2010 | 2,448 | 5,472 | 223.5% | (3,024) |
| June 30, 2011 | 3,858 | 7,566 | 196.1% | (3,708) |
| June 30, 2012 | 16,874 | 9,285 | 55.0% | 7,589 |
| June 30, 2013 | 22,138 | 11,146 | 50.3% | 10,992 |
| June 30, 2014 | 16,296 | 13,611 | 83.5% | 2,685 |
| June 30, 2015 | 19,797 | 20,847 | 105.3% | (1,050) |
| June 30, 2016 | 22,007 | 28,733 | 130.6% | (6,726) |
| June 30, 2017 | 33,707 | 34,586 | 102.6% | (879) |
| June 30, 2018 | 32,459 | 40,621 | 125.1% | (8,162) |
| June 30, 2019 | 33,221 | 46,666 | 140.5% | (13,445) |
| June 30, 2020 | 40,857 | 54,487 | 133.4% | (13,630) |
| June 30, 2021 | 44,601 | 65,223 | 146.2% | (20,622) |

Section 2: Plan Assets

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

| As of June 30, 2021 | Occupational Death & Disability | Retiree Medical | Total | Allocation Percent |
|--------------------------------------|---------------------------------------|--------------------|-----------|-----------------------|
| Cash and Short-Term Investments | | | | |
| - Cash and Cash Equivalents | \$ 75 | \$ 757 | \$ 832 | 1.1% |
| - Subtotal | \$ 75 | \$ 757 | \$ 832 | 1.1% |
| Fixed Income Investments | | | | |
| - Domestic Fixed Income Pool | \$ 1,336 | \$ 13,569 | \$ 14,905 | 20.2% |
| - International Fixed Income Pool | 0 | 0 | 0 | 0.0% |
| - Tactical Fixed Income Pool | 0 | 0 | 0 | 0.0% |
| - High Yield Pool | 0 | 0 | 0 | 0.0% |
| - Treasury Inflation Protection Pool | 0 | 0 | 0 | 0.0% |
| - Emerging Debt Pool | 0 | 0 | 0 | 0.0% |
| - Subtotal | \$ 1,336 | \$ 13,569 | \$ 14,905 | 20.2% |
| Equity Investments | | | | |
| - Domestic Equity Pool | \$ 1,809 | \$ 18,359 | \$ 20,168 | 27.4% |
| - International Equity Pool | 997 | 10,118 | 11,115 | 15.1% |
| - Private Equity Pool | 981 | 9,956 | 10,937 | 14.9% |
| - Emerging Markets Equity Pool | 212 | 2,150 | 2,362 | 3.2% |
| - Alternative Equity Strategies | 385 | 3,910 | 4,295 | 5.8% |
| - Subtotal | \$ 4,384 | \$ 44,493 | \$ 48,877 | 66.4% |
| Other Investments | | | | |
| - Real Estate Pool | \$ 406 | \$ 4,124 | \$ 4,530 | 6.2% |
| - Other Investments Pool | 406 | 4,115 | 4,521 | 6.1% |
| - Absolute Return Pool | 0 | 0 | 0 | 0.0% |
| - Other Assets | 0 | 0 | 0 | 0.0% |
| - Subtotal | \$ 812 | \$ 8,239 | \$ 9,051 | 12.3% |
| Total Cash and Investments | \$ 6,607 | \$ 67,058 | \$ 73,665 | 100.0% |
| Net Accrued Receivables | 16 | 220 | 236 | |
| Net Assets | \$ 6,623 | \$ 67,278 | \$ 73,901 | |

Section 2.2: Changes in Fair Value of Assets During FY21 (\$'s in 000's)

| Fiscal Year 2021 | Occupational Death & Disability | Retiree Medical | Total |
|--|---------------------------------------|--------------------|-----------|
| 1. Fair Value of Assets as of June 30, 2020 | \$ 4,823 | \$ 48,413 | \$ 53,236 |
| 2. Additions: | | | |
| a. Member Contributions | \$ 0 | \$ 0 | \$ 0 |
| b. Employer Contributions | 362 | 4,217 | 4,579 |
| c. Interest and Dividend Income | 70 | 707 | 777 |
| d. Net Appreciation/(Depreciation) in Fair Value of Investments | 1,415 | 14,279 | 15,694 |
| e. Employer Group Waiver Plan | 0 | 3 | 3 |
| f. Other | 0 | 2 | 2 |
| g. Total Additions | \$ 1,847 | \$ 19,208 | \$ 21,055 |
| 3. Deductions: | | | |
| a. Medical Benefits | \$ 0 | \$ 171 | \$ 171 |
| b. Death & Disability Benefits | 24 | 0 | 24 |
| c. Investment Expenses | 14 | 138 | 152 |
| d. Administrative Expenses | 9 | 34 | 43 |
| e. Total Deductions | \$ 47 | \$ 343 | \$ 390 |
| 4. Fair Value of Assets as of June 30, 2021 | \$ 6,623 | \$ 67,278 | \$ 73,901 |
| 5. Approximate Fair Value Investment Return Rate during FY21 Net of Investment Expenses | 29.5% | 29.5% | 29.5% |

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

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

| | Occupational Death & Disability | Retiree Medical | Total |
|--|---------------------------------------|--------------------|-----------|
| 1. Investment Gain/(Loss) for FY21 | | | |
| a. Fair Value as of June 30, 2020 | \$ 4,823 | \$ 48,413 | \$ 53,236 |
| b. Contributions | 362 | 4,217 | 4,579 |
| c. Employer Group Waiver Plan | 0 | 3 | 3 |
| d. Benefit Payments | 24 | 171 | 195 |
| e. Administrative Expenses | 9 | 34 | 43 |
| f. Actual Investment Return (net of investment expenses) | 1,471 | 14,850 | 16,321 |
| g. Expected Return Rate (net of investment expenses) | 7.38% | 7.38% | 7.38% |
| h. Expected Return | 368 | 3,718 | 4,086 |
| i. Investment Gain/(Loss) for the Year (f) - (h) | 1,103 | 11,132 | 12,235 |
| 2. Actuarial Value as of June 30, 2021 | | | |
| a. Fair Value as of June 30, 2021 | \$ 6,623 | \$ 67,278 | \$ 73,901 |
| b. Deferred Investment Gain/(Loss) | 780 | 7,898 | 8,678 |
| c. Preliminary Actuarial Value as of June 30, 2021, (a) - (b) | 5,843 | 59,380 | 65,223 |
| d. Upper Limit: 120% of Fair Value as of June 30, 2021 | 7,947 | 80,733 | 88,680 |
| e. Lower Limit: 80% of Fair Value as of June 30, 2021 | 5,299 | 53,823 | 59,122 |
| f. Actuarial Value at June 30, 2021, (c) limited by (d) and (e) | 5,843 | 59,380 | 65,223 |
| 3. Ratio of Actuarial Value of Assets to Fair Value of Assets | | | |
| | 88.2% | 88.3% | 88.3% |
| 4. Approximate Actuarial Value Investment Return Rate during FY21 Net of Investment Expenses | | | |
| | 11.4% | 11.3% | 11.3% |

The tables below show the development of the gains/(losses) to be recognized in the current year (\$'s in 000's):

| Occupational Death & Disability | | | | |
|--|----------------------------|--|---|---|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 143 | \$ 115 | \$ 28 | \$ 0 |
| June 30, 2018 | 8 | 6 | 2 | 0 |
| June 30, 2019 | (48) | (20) | (10) | (18) |
| June 30, 2020 | (140) | (28) | (28) | (84) |
| June 30, 2021 | <u>1,103</u> | <u>0</u> | <u>221</u> | <u>882</u> |
| Total | \$ 1,066 | \$ 73 | \$ 213 | \$ 780 |

| Retiree Medical | | | | |
|---------------------------|----------------------------|--|---|---|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 1,184 | \$ 948 | \$ 236 | \$ 0 |
| June 30, 2018 | (19) | (12) | (4) | (3) |
| June 30, 2019 | (460) | (184) | (92) | (184) |
| June 30, 2020 | (1,367) | (273) | (273) | (821) |
| June 30, 2021 | <u>11,132</u> | <u>0</u> | <u>2,226</u> | <u>8,906</u> |
| Total | \$ 10,470 | \$ 479 | \$ 2,093 | \$ 7,898 |

| Total | | | | |
|---------------------------|----------------------------|--|---|---|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 1,327 | \$ 1,063 | \$ 264 | \$ 0 |
| June 30, 2018 | (11) | (6) | (2) | (3) |
| June 30, 2019 | (508) | (204) | (102) | (202) |
| June 30, 2020 | (1,507) | (301) | (301) | (905) |
| June 30, 2021 | <u>12,235</u> | <u>0</u> | <u>2,447</u> | <u>9,788</u> |
| Total | \$ 11,536 | \$ 552 | \$ 2,306 | \$ 8,678 |

Section 2.4: Historical Asset Rates of Return

| Year Ending | Actuarial Value | | Fair Value | |
|---------------|-----------------|-------------|------------|-------------|
| | Annual | Cumulative* | Annual | Cumulative* |
| June 30, 2008 | 6.4% | 6.4% | (0.3%) | (0.3%) |
| June 30, 2009 | 3.2% | 4.8% | (12.0%) | (6.3%) |
| June 30, 2010 | 4.2% | 4.6% | 6.4% | (2.3%) |
| June 30, 2011 | 7.4% | 5.3% | 18.9% | 2.6% |
| June 30, 2012 | 6.9% | 5.6% | 1.6% | 2.4% |
| June 30, 2013 | 7.7% | 6.0% | 11.9% | 3.9% |
| June 30, 2014 | 10.9% | 6.6% | 18.0% | 5.8% |
| June 30, 2015 | 9.5% | 7.0% | 3.1% | 5.5% |
| June 30, 2016 | 6.5% | 6.9% | (0.1%) | 4.9% |
| June 30, 2017 | 7.6% | 7.0% | 12.6% | 5.6% |
| June 30, 2018 | 7.8% | 7.1% | 8.0% | 5.8% |
| June 30, 2019 | 6.4% | 7.0% | 6.2% | 5.9% |
| June 30, 2020 | 6.3% | 7.0% | 4.3% | 5.7% |
| June 30, 2021 | 11.3% | 7.3% | 29.5% | 7.3% |

* Cumulative since fiscal year ending June 30, 2008

Section 3: Member Data

Section 3.1: Summary of Members Included

| As of June 30 | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|--------------|--------------|--------------|--------------|--------------------|
| Active Members | | | | | |
| 1. Number | 4,694 | 4,915 | 4,998 | 5,332 | 5,521 ¹ |
| 2. Average Age | 40.21 | 40.64 | 41.06 | 41.63 | 41.90 |
| 3. Average Credited Service | 4.88 | 5.30 | 5.67 | 6.03 | 6.34 |
| 4. Average Entry Age | 35.33 | 35.34 | 35.39 | 35.60 | 35.56 |
| 5. Average Annual Earnings | \$ 66,542 | \$ 68,119 | \$ 69,619 | \$ 71,118 | \$ 74,045 |
| Disabilitants and Beneficiaries (Occupational Death & Disability) | | | | | |
| 1. Number | 0 | 0 | 1 | 1 | 1 |
| 2. Average Age | N/A | N/A | 53.45 | 54.45 | 55.45 |
| 3. Average Monthly Death & Disability Benefit | N/A | N/A | \$ 2,024 | \$ 2,024 | \$ 2,024 |
| Retirees, Surviving Spouses, and Dependent Spouses (Retiree Medical) | | | | | |
| 1. Number | 4 | 9 | 12 | 17 | 24 |
| 2. Average Age | 69.72 | 68.59 | 68.54 | 68.79 | 67.71 |
| Total Number of Members | 4,698 | 4,924 | 5,011 | 5,350 | 5,546 |

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

¹ Includes 1,431 male active members and 4,090 female active members.

Section 3.2: 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 | 93 | 4,820,122 | 51,829 |
| 25 - 29 | 582 | 35,233,778 | 60,539 |
| 30 - 34 | 913 | 62,245,631 | 68,177 |
| 35 - 39 | 1,122 | 84,044,406 | 74,906 |
| 40 - 44 | 897 | 68,120,327 | 75,942 |
| 45 - 49 | 632 | 50,198,959 | 79,429 |
| 50 - 54 | 521 | 41,787,962 | 80,207 |
| 55 - 59 | 404 | 32,949,416 | 81,558 |
| 60 - 64 | 245 | 20,049,134 | 81,833 |
| 65 - 69 | 87 | 7,203,861 | 82,803 |
| 70 - 74 | 21 | 1,709,445 | 81,402 |
| 75+ | 4 | 441,677 | 110,419 |

Total 5,521 \$ 408,804,718 \$ 74,045

Annual Earnings by Credited Service

| Years of Service | Number | Total Annual Earnings | Average Annual Earnings |
|------------------|--------------|-----------------------|-------------------------|
| 0 | 134 | \$ 7,688,581 | \$ 57,377 |
| 1 | 677 | 42,392,282 | 62,618 |
| 2 | 549 | 36,410,038 | 66,321 |
| 3 | 516 | 35,912,821 | 69,598 |
| 4 | 442 | 30,921,457 | 69,958 |
| 0 - 4 | 2,318 | \$ 153,325,179 | \$ 66,145 |
| 5 - 9 | 1,864 | 141,448,230 | 75,884 |
| 10 - 14 | 1,221 | 103,476,219 | 84,747 |
| 15 - 19 | 116 | 10,364,704 | 89,351 |
| 20 - 24 | 2 | 190,386 | 95,193 |
| 25 - 29 | 0 | 0 | 0 |
| 30 - 34 | 0 | 0 | 0 |
| 35 - 39 | 0 | 0 | 0 |
| 40+ | 0 | 0 | 0 |

Total 5,521 \$ 408,804,718 \$ 74,045

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 | 0 |
| 20 - 24 | 93 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 |
| 25 - 29 | 485 | 97 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 582 |
| 30 - 34 | 426 | 428 | 59 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 913 |
| 35 - 39 | 336 | 405 | 367 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 1,122 |
| 40 - 44 | 317 | 295 | 255 | 29 | 1 | 0 | 0 | 0 | 0 | 0 | 897 |
| 45 - 49 | 216 | 207 | 188 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 632 |
| 50 - 54 | 173 | 181 | 151 | 15 | 1 | 0 | 0 | 0 | 0 | 0 | 521 |
| 55 - 59 | 140 | 132 | 116 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 404 |
| 60 - 64 | 90 | 77 | 60 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 245 |
| 65 - 69 | 30 | 34 | 20 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 87 |
| 70 - 74 | 11 | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 75+ | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Total | 2,318 | 1,864 | 1,221 | 116 | 2 | 0 | 0 | 0 | 0 | 0 | 5,521 |

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

Section 3.3: Member Data Reconciliation

| | Actives | Retirees and Surviving Spouses | Dependent Spouses | OD&D Disabilitants | OD&D Beneficiaries | Total |
|---|--------------|---|----------------------|-----------------------|-----------------------|--------------|
| As of June 30, 2020 ¹ | 5,332 | 14 | 3 | 1 | 0 | 5,350 |
| New Entrants | 702 | 0 | 0 | 0 | 0 | 702 |
| Rehires | 230 | 0 | 0 | 0 | 0 | 230 |
| Vested Terminations | (308) | 0 | 0 | 0 | 0 | (308) |
| Non-Vested Terminations | (384) | 0 | 0 | 0 | 0 | (384) |
| Refund of Contributions | (41) | 0 | 0 | 0 | 0 | (41) |
| Disability Retirements | 0 | 0 | 0 | 0 | 0 | 0 |
| Age Retirements | (6) | 6 | 2 | 0 | 0 | 2 |
| Deaths With Beneficiary | 0 | 0 | 0 | 0 | 0 | 0 |
| Deaths Without Beneficiary | (8) | 0 | 0 | 0 | 0 | (8) |
| Data Corrections | 4 | 0 | (1) | 0 | 0 | 3 |
| Net Change | 189 | 6 | 1 | 0 | 0 | 196 |
| As of June 30, 2021 ² | 5,521 | 20 | 4 | 1 | 0 | 5,546 |

¹ 125 participants are expected to receive retiree medical benefits in a different plan and are included for OD&D benefits only.

² 128 participants are expected to receive retiree medical benefits in a different plan and are included for OD&D benefits only.

Section 3.4: Schedule of Active Member Data

| Valuation Date | Number | Annual Earnings (000's) | Annual Average Earnings | Percent Increase in Average Earnings | Number of Participating Employers |
|----------------|--------|-------------------------|-------------------------|--------------------------------------|-----------------------------------|
| June 30, 2021 | 5,521 | \$ 408,805 | \$ 74,045 | 4.1% | 57 |
| June 30, 2020 | 5,332 | 379,201 | 71,118 | 2.2% | 57 |
| June 30, 2019 | 4,998 | 347,957 | 69,619 | 2.2% | 57 |
| June 30, 2018 | 4,915 | 334,803 | 68,119 | 2.4% | 57 |
| June 30, 2017 | 4,694 | 312,347 | 66,542 | 2.0% | 57 |
| June 30, 2016 | 4,383 | 285,854 | 65,219 | 2.5% | 58 |
| June 30, 2015 | 4,095 | 260,584 | 63,635 | 2.7% | 58 |
| June 30, 2014 | 3,547 | 219,701 | 61,940 | 2.4% | 58 |
| June 30, 2013 | 3,272 | 197,944 | 60,496 | 3.5% | 58 |
| June 30, 2012 | 3,057 | 178,761 | 58,476 | 4.7% | 58 |

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

Section 3.5: Active Member Payroll Reconciliation

| Payroll Field | Payroll Data (000's) |
|--|----------------------|
| a) DRB actual reported salaries FY21 in employer list | \$ 451,880 |
| b) DRB actual reported salaries FY21 in valuation data | 401,736 |
| c) Annualized valuation data | 408,805 |
| d) Valuation payroll as of June 30, 2021 | 427,762 |
| e) Rate payroll for FY22 | 423,783 |

- a) Actual reported salaries from DRB employer listing showing all payroll paid during FY21, including those who were not active as of June 30, 2021
- b) Payroll from valuation data for people who are in active status as of June 30, 2021
- c) Payroll from (b) annualized for both new entrants and part-timers
- d) Payroll from (c) with one year of salary scale applied to estimate salaries payable for the upcoming year
- e) Payroll from (d) with the part-timer annualization removed

Section 4: Basis of the Actuarial Valuation

Section 4.1: Summary of Plan Provisions

Effective Date

July 1, 2006, with amendments through June 30, 2021.

Administration of Plan

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

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

Employers Included

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

Membership

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

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

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

Member Contributions

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

Retiree Medical Benefits

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

| Plan Design Feature | In-Network ¹ | Out-of-Network ^{1 2} |
|---|--|-------------------------------|
| Deductible (single / family) | \$300 / \$600 | |
| Medical services (participant share) | 20% | 40% |
| Emergency Room Copay (non-emergent use) | \$100 | \$100 |
| Medical Out-of-Pocket Maximum (single / family, including deductible) | \$1,500 / \$3,000 | \$3,000 / \$6,000 |
| Medicare Coordination | Exclusion | Exclusion |
| Pharmacy | No Deductible | No Deductible |
| Retail Generic (per 30-day fill) | 20% \$10 min / \$50 max | |
| Retail Non-Formulary Brand (per 30-day fill) | 25% \$25 min / \$75 max | 40% |
| Retail Formulary Brand (per 30-day fill) | 35% \$80 min / \$150 max | |
| Mail-Order Generic | \$20 copay | |
| Mail-Order Non-Formulary Brand | \$50 copay | 40% |
| Mail-Order Formulary Brand | \$100 copay | |
| Pharmacy Out-of-Pocket Max (single / family) | \$1,000 / \$2,000 | |
| Medicare Pharmacy Arrangement | Retiree Drug Subsidy / Employer Group Waiver Plan effective 1/1/2019 | |
| Wellness / Preventative | 100% covered, not subject to deductible | 20%, after deductible |

¹ Section 1.1 of the AlaskaCare Defined Contribution Retiree Benefit Plan states that this health plan shall be updated from time to time to reflect changes in benefits, including annual adjustments to the premium, deductible, coinsurance, medical out-of-pocket limit, and prescription drug out-of-pocket limit.

² OON applies only to non-Medicare eligible participants.

- Buck used manual rate models to determine relative plan values for the defined benefit (DB) retiree medical plan and the DCR retiree medical plan outlined above. We applied the ratio of the DCR retiree medical plan value to the DB retiree medical plan value to the per capita costs determined for each of pre/post-Medicare medical and pharmacy benefits to estimate corresponding values for the DCR retiree medical plan design. These factors are noted in Section 4.3. We further adjusted the Medicare medical manual rate to reflect the Medicare coordination method adopted. The estimated 2022 reimbursements under EGWP were provided by Segal Consulting (who worked with the EGWP administrator, Optum, to develop those estimates). We reflect estimated discounts and pharmacy rebates in the defined benefit medical cost so no further adjustment was needed for the DCR retiree medical plan. The medical network differential is reflected in the relative plan value adjustments.
- Starting in 2022, prior authorization will be required for certain specialty medications. There is no change to the medications that are covered by the plan.
- The retiree medical plan’s coverage is supplemental to Medicare. Medicare coordination is described in the DCR Plan Handbook, referred to in the industry as exclusion coordination: Medicare payment is deducted from the Medicare allowable expense and plan parameters are applied to the remaining amount. Starting in 2019, the prescription drug coverage is through a Medicare Part D EGWP arrangement.
- The premium for Medicare-eligible retirees will be based on the member’s years of service. The percentage of premium paid by the member is as follows:

| Years of Service | Percent of Premium Paid by Member |
|-------------------------|--|
| < 15 | 30% |
| 15 – 19 | 25% |
| 20 – 24 | 20% |
| 25 – 29 | 15% |
| 30+ | 10% |

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

Occupational Disability Benefits

- Benefit is 40% of salary at date of disability.
- Disability Benefit Adjustment: The disability benefit is increased by 75% of the cost of living increase in the preceding calendar year or 9%, whichever is less.
- Member earns service while on occupational disability.
- Benefits cease when the member becomes eligible for normal retirement at Medicare-eligible age and 10 years of service, or at any age with 30 years of service.
- No subsidized retiree medical benefits are provided until normal retirement eligibility. The member's premium is 100% of the estimated cost until they are Medicare eligible. Medicare-eligible premiums follow the service-based schedule above.

Occupational Death Benefits

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

Changes Since the Prior Valuation

Starting in 2022, prior authorization will be required for certain specialty medications. There have been no other changes in TRS DCR benefit provisions valued since the prior valuation.

Section 4.2: Description of Actuarial Methods and Valuation Procedures

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

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

Actuarial Cost Method

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method, level percent of pay. Each year's difference between actual and expected unfunded actuarial accrued liability is amortized over 25 years as a level percentage of expected payroll.

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

The actuarial accrued liability for beneficiaries and disabled members currently receiving benefits (if any) was determined as the actuarial present value of the benefits expected to be paid. No future normal costs are payable for these members.

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

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

Valuation of Assets

Effective June 30, 2006, the asset valuation method recognizes 20% of the investment gain or loss in each of the current and preceding four years. This method was phased in over five years. Fair Value of Assets was \$0 as of June 30, 2006. All assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from financial statements audited by KPMG LLP. Valuation assets are constrained to a range of 80% to 120% of the fair value of assets.

Changes in Methods Since the Prior Valuation

There were no changes in the asset or valuation methods since the prior valuation.

Valuation of Retiree Medical and Prescription Drug Benefits

The methodology used for the valuation of the retiree medical benefits is described in Section 5.2 of the State of Alaska Teachers' Retirement System Defined Benefit Plan Actuarial Valuation Report as of June 30, 2021.

Starting in 2022, prior authorization will be required for certain specialty medications. There is no change to the medications that are covered by the plan. Segal provided an estimate of the impact of this change to the DB retiree health plan cost for calendar year 2022. The DB base claims costs for pre-Medicare prescription drug, Medicare prescription drug, and EGWP were adjusted to reflect this change. Those base claims costs were used for the DCR valuation with further adjustments as noted below. Additionally, starting in 2022, certain common preventive benefits will be covered for the DB plan. However, preventive benefits are already covered under the DCR plan so no adjustment is needed for that change. Therefore, the base claims cost for the DB plan prior to reflecting the addition of preventive benefits was used for the DCR valuation with further adjustments as noted below.

Due to the lack of experience for the DCR retiree medical plan, base claims costs are based on those described in the actuarial valuation as of June 30, 2021 for the Defined Benefit (DB) retiree medical plan covering TRS and PERS. The DB rates were used with some adjustments. The claims costs were adjusted to reflect the differences between the DCR medical plan and the DB medical plan. These differences include network steerage, different coverage levels, different Medicare coordination for medical benefits, and an indexing of the retiree out-of-pocket dollar amounts. To account for higher initial copays, deductibles and out-of-pocket limits, projected FY22 claims costs were reduced 3.1% for medical claims, and 8.9% for prescription drugs. In addition, to account for the difference in Medicare coordination, projected FY22 medical claims costs for Medicare eligible retirees were further reduced 29.5%.

To adjust for the decrease in medical claims due to COVID-19 during the last 4 months of FY20, the per capita cost during the first 8 months was used as the basis for estimating claims that would have occurred in the absence of COVID-19. FY21 experience was also thoroughly reviewed to assess the impact of COVID-19 and whether an adjustment to FY21 claims was appropriate for use in the June 30, 2021 valuation. FY21 medical per capita claims were noticeably lower than expected, so a 4% load was added to the FY21 medical claims used in the per capita claims cost development to better reflect future expected long-term costs of the plan.

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

The State transitioned to an Employer Group Waiver Program (EGWP) for DCR participants effective January 1, 2019. The estimated 2022 reimbursements under EGWP were provided by Segal Consulting (who worked with the EGWP administrator, Optum, to develop those estimates).

Healthcare Reform

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

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

The Further Consolidated Appropriations Act, 2020 passed in December 2019 repealed several healthcare-related taxes, including the Cadillac Tax.

The Tax Cuts and Jobs Act passed in December 2017 included the elimination of the individual mandate penalty and changed the inflation measure for purposes of determining the limits for the High Cost Excise Tax to use chained CPI. It is our understanding the law does not directly impact other provisions of the ACA. While the nullification of the ACA's individual mandate penalty does not directly impact employer group health plans, it could contribute to the destabilization of the individual market and increase the number of uninsured. Such destabilization could translate to increased costs for employers. We have considered this when setting our healthcare cost trend assumptions and will continue to monitor this issue.

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

DRAFT

Section 4.3: Summary of Actuarial Assumptions

The demographic and economic assumptions used in the June 30, 2021 valuation are described below. Unless noted otherwise, these assumptions were adopted by the Board in January 2019 based on the experience study for the period July 1, 2013 to June 30, 2017.

Investment Return

7.38% per year, net of investment expenses.

Salary Scale

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

Inflation – 2.50% per year.

Productivity – 0.25% per year.

Payroll Growth

2.75% per year (inflation + productivity).

Total Inflation

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

Mortality (Pre-Commencement)

Mortality rates based upon the 2013-2017 actual experience.

RP-2014 white-collar employee table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Deaths are assumed to result from occupational causes 15% of the time.

Mortality (Post-Commencement)

Mortality rates based upon the 2013-2017 actual experience.

93% of male and 90% of female rates of RP-2014 white-collar healthy annuitant table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Turnover

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

Disability

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

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

Post-disability mortality in accordance with the RP-2014 disabled table, benefit-weighted, rolled back to 2006, and projected with MP-2017 generational improvement.

Retirement

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

Spouse Age Difference

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

Percent Married for Occupational Death & Disability

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

Dependent Spouse Medical Coverage Election

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

Part-Time Status

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

Per Capita Claims Cost

Sample claims cost rates (before base claims cost adjustments described below) adjusted to age 65 for FY22 medical and prescription drugs are shown below. The prescription drug costs reflect the plan change to require prior authorization for certain specialty medications.

| | Medical | Prescription Drugs |
|------------------------|-----------|--------------------|
| Pre-Medicare | \$ 15,708 | \$ 3,375 |
| Medicare Parts A & B | \$ 1,619 | \$ 3,474 |
| Medicare Part D – EGWP | N/A | \$ 1,131 |

Members are assumed to attain Medicare eligibility at age 65. All costs are for the 2022 fiscal year (July 1, 2021 – June 30, 2022).

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

Third Party Administrator Fees

\$493 per person per year; assumed to increase at 4.5% per year.

Base Claims Cost Adjustments

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

- 0.969 for the pre-Medicare plan.
- 0.674 for both the Medicare medical plan and Medicare coordination method (3.1% reduction for the medical plan and 29.5% reduction for the coordination method).
- 0.911 for the prescription drug plan.

Administrative Expenses

Beginning with the June 30, 2018 valuation, the Normal Cost is increased for administrative expenses expected to be paid from plan assets during the year. The amounts included in the June 30, 2021 Normal Cost, which are based on the average of actual administrative expenses during the last two fiscal years, are \$5,000 for occupational death & disability and \$22,000 for retiree medical.

Healthcare Cost Trend

The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 6.3% is applied to the FY22 pre-Medicare medical claims costs to get the FY23 medical claims costs.

| | Medical Pre-65 | Medical Post-65 | Prescription Drugs / EGWP |
|-----------|----------------|-----------------|---------------------------|
| FY22 | 6.3% | 5.4% | 7.1% |
| FY23 | 6.1% | 5.4% | 6.8% |
| FY24 | 5.9% | 5.4% | 6.4% |
| FY25 | 5.8% | 5.4% | 6.1% |
| FY26 | 5.6% | 5.4% | 5.7% |
| FY27-FY40 | 5.4% | 5.4% | 5.4% |
| FY41 | 5.3% | 5.3% | 5.3% |
| FY42 | 5.2% | 5.2% | 5.2% |
| FY43 | 5.1% | 5.1% | 5.1% |
| FY44 | 5.1% | 5.1% | 5.1% |
| FY45 | 5.0% | 5.0% | 5.0% |
| FY46 | 4.9% | 4.9% | 4.9% |
| FY47 | 4.8% | 4.8% | 4.8% |
| FY48 | 4.7% | 4.7% | 4.7% |
| FY49 | 4.6% | 4.6% | 4.6% |
| FY50+ | 4.5% | 4.5% | 4.5% |

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

Aging Factors

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

Retiree Medical Participation

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

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

Imputed Data

Data changes from the prior year which are deemed to have immaterial impact on liabilities and contribution rates are assumed to be correct in the current year's client data. Non-vested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage.

Changes in Assumptions Since the Prior Valuation

The amounts included in the Normal Cost for administrative expenses were changed from \$0 to \$5,000 for occupational death & disability, and from \$8,000 to \$22,000 for retiree medical (based on the most recent two years of actual administrative expenses paid from plan assets). The per capita claims cost assumption is updated annually.

DRAFT

Table 1: Salary Scale

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

Table 2: Turnover Rates

Select Rates during the First 6 Years of Employment

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

Ultimate Rates after the First 6 Years of Employment

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

Table 3: Disability Rates

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

Table 4: Retirement Rates

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

Glossary of Terms

Actuarial Accrued Liability

Total accumulated cost to fund pension or postemployment benefits arising from service in all prior years.

Actuarial Cost Method

Technique used to assign or allocate, in a systematic and consistent manner, the expected cost of a pension or postemployment plan for a group of plan members to the years of service that give rise to that cost.

Actuarial Present Value of Projected Benefits

Amount which, together with future interest, is expected to be sufficient to pay all future benefits.

Actuarial Valuation

Study of probable amounts of future pension or postemployment benefits and the necessary amount of contributions to fund those benefits.

Actuary

Person who performs mathematical calculations pertaining to pension and insurance benefits based on specific procedures and assumptions.

GASB 74 and 75

Governmental Accounting Standards Board Statement Number 74 amends Number 43 effective for the fiscal year beginning after June 15, 2016 and defines new financial reporting requirements for public postemployment benefit plans. Governmental Accounting Standards Board Statement Number 75 amends Number 45 effective for fiscal years beginning after June 15, 2017 and defines new accounting and financial reporting requirements for employers sponsoring public postemployment benefit plans.

Normal Cost

That portion of the actuarial present value of benefits assigned to a particular year in respect to an individual participant or the plan as a whole.

Rate Payroll

Members' earnings used to determine contribution rates.

Unfunded Actuarial Accrued Liability (UAAL)

The portion of the actuarial accrued liability not offset by plan assets.

Valuation Payroll

Members' earnings used to determine Normal Cost and Actuarial Accrued Liability.

Vested Benefits

Benefits which are unconditionally guaranteed regardless of employment.

DRAFT



January 6, 2022

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

**Re: Judicial Retirement System and National Guard and Naval Militia Retirement System
Roll-Forward Actuarial Valuations as of June 30, 2021**

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

We have completed the roll-forward actuarial valuations for the State of Alaska Judicial Retirement System (JRS) and the National Guard and Naval Militia Retirement System (NGNMRS) as of June 30, 2021. The valuations have been performed by a projection or “roll forward” of results from the last valuation date of June 30, 2020 to June 30, 2021. Actual asset values as of June 30, 2021 were reflected. A summary of results and description of assumptions and methods are included in this report.

The purposes of these roll-forward valuations are to (i) determine the employer contributions necessary to meet the Board’s funding policy for each System, (ii) disclose the funding assets and liability measures as of the valuation date, and (iii) review the current funded status of each System and assess the funded status as an appropriate measure for determining future actuarially determined contributions.

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

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the actuarial assumptions, changes 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 these valuations.

Actuarial Assumptions and Methods

In lieu of collecting new participant data as of June 30, 2021 and performing a full actuarial valuation, the actuarial liabilities are projected or “rolled forward” from the June 30, 2020 valuation date to June 30, 2021 by assuming the actuarial assumptions during the year are exactly realized.

The actuarial value of assets was calculated as of June 30, 2021 using actual assets and cash flows during FY21. The asset valuation method recognizes 20% of the investment gain or loss each year, for a period of five years. Valuation assets are constrained to a range of 80% to 120% of the fair value of assets.

All data, actuarial assumptions, methods, and plan provisions are the same as those shown in the June 30, 2020 valuation reports dated May 20, 2021, with the following exceptions:

- For JRS, the amounts included in the Normal Cost for administrative expenses were changed from \$83,000 to \$102,000 for pension and from \$24,000 to \$31,000 for healthcare, based on the most recent two years of actual administrative expenses paid from plan assets.
- For NGNMRS, the amount included in the Normal Cost for administrative expenses was changed from \$256,000 to \$268,000, based on the most recent two years of actual administrative expenses paid from plan assets.
- For NGNMRS, the June 30, 2020 actuarial accrued liability used for the roll-forward valuation reflects a valuation system coding update that was recommended by the reviewing actuary. This update decreased the June 30, 2020 actuarial accrued liability by \$38,250.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of each System and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under each System.

Funded Status

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

Summary of Results

The results of the June 30, 2021 roll-forward valuations are shown below (results from the June 30, 2020 valuations are shown for comparison purposes):

| | June 30, 2020 | June 30, 2021 |
|--|---------------|---------------|
| Judicial Retirement System | | |
| • Funded Status ¹ | | |
| o Pension | 92.0% | 98.6% |
| o Healthcare | 207.6% | 211.4% |
| o Total | 100.5% | 107.1% |
| • Employer/State Contribution Rates ² | | |
| o Pension | 63.6% | 58.7% |
| o Healthcare | <u>6.5%</u> | <u>6.5%</u> |
| o Total | 70.1% | 65.2% |
| National Guard and Naval Militia Retirement System | | |
| • Funded Status ¹ | 191.9% | 196.9% |
| • Actuarially Determined Contribution, not less than zero ³ | \$ 0 | \$ 0 |

The following table summarizes the FY21 actuarial gains/(losses). Net actuarial gains/losses decrease/increase the unfunded actuarial accrued liability versus what was expected based on the previous valuation.

| | JRS | NGNMRS |
|--|-----------------|---------------------|
| Asset Gain/(Loss) | \$ 9,349,000 | \$ 1,040,000 |
| Liability Gain/(Loss) | N/A | 41,000 ⁴ |
| Healthcare Benefit Payment Gain/(Loss) | (608,000) | N/A |
| Contribution Gain/(Loss) | 4,665,000 | 0 |
| Administrative Expense Gain/(Loss) | <u>(19,000)</u> | <u>(41,000)</u> |
| Total Gain/(Loss) | \$ 13,387,000 | \$ 1,040,000 |

¹ The funded status shown is based on the actuarial value of assets. The funded status is different based on the fair value of assets.

² The June 30, 2020 valuation determined the contribution rates for FY23. The June 30, 2021 valuation determines the contribution rates for FY24. Total contribution rates are not less than the Normal Cost rate.

³ The June 30, 2020 valuation determined the contribution for FY23. The June 30, 2021 valuation determines the contribution for FY24.

⁴ The June 30, 2020 actuarial accrued liability used for the roll-forward valuation reflects a valuation system coding update that was recommended by the reviewing actuary. The amount shown includes interest to June 30, 2021.

Assessment of Risks

Actuarial Standard of Practice No. 51 (ASOP 51) applies to actuaries performing funding calculations related to a pension plan. ASOP 51 does not apply to actuaries performing services in connection with other post-employment benefits, such as medical benefits. Accordingly, ASOP 51 does not apply to the healthcare portion of JRS. See pages 16-18 of this report for further details regarding ASOP 51.

Use of Models

Actuarial Standard of Practice No. 56 (ASOP 56) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. Buck uses third-party software in the performance of annual actuarial valuations and projections. The model is intended to calculate the liabilities associated with the provisions of each plan using data and assumptions as of the measurement date under the funding methods specified in this report. The output from the third-party vendor software is used as input to internally developed models that apply applicable funding methods and policies to the derived liabilities and other inputs, such as plan assets and contributions, to generate many of the exhibits found in this report. Buck has an extensive review process in which the results of the liability calculations are checked using detailed sample life output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other funding outputs and the internal models are similarly reviewed in detail and at a higher level for accuracy, reasonability, and consistency with prior results. Buck also reviews the third-party model when significant changes are made to the software. This review is performed by experts within Buck who are familiar with applicable funding methods, as well as the manner in which the model generates its output. If significant changes are made to the internal models, extra checking and review are completed. Significant changes to the internal models that are applicable to multiple clients are generally developed, checked, and reviewed by multiple experts within Buck who are familiar with the details of the required changes.

Additional models used in valuing health benefits for JRS are described in Section 4.2 of the June 30, 2020 report dated May 20, 2021.

This report was prepared under our supervision and in accordance with all applicable Actuarial Standards of Practice. We are Fellows of the Society of Actuaries, Enrolled Actuaries, Fellows of the Conference of Consulting Actuaries, and Members of the American Academy of Actuaries. We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Please let us know if you have any questions or if you would like to discuss these results in more detail. David can be reached at 602-803-6174 and Scott can be reached at 216-315-1929.

Sincerely,



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



Scott Young, FSA, EA, MAAA, FCA
Director
Buck

Attachments

cc: Mr. Kevin Worley, State of Alaska

Judicial Retirement System

| Funded Status as of June 30 | | 2020 | 2021 |
|-----------------------------|---|--------------------|--------------------|
| Pension | | | |
| a. | Actuarial Accrued Liability | \$ 211,742,043 | \$ 218,717,460 |
| b. | Valuation Assets | <u>194,788,043</u> | <u>215,641,198</u> |
| c. | Unfunded Actuarial Accrued Liability, (a) - (b) | \$ 16,954,000 | \$ 3,076,262 |
| d. | Funded Ratio based on Valuation Assets, (b) ÷ (a) | 92.0% | 98.6% |
| e. | Fair Value of Assets | \$ 189,844,025 | \$ 245,047,997 |
| f. | Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 89.7% | 112.0% |
| Healthcare | | | |
| a. | Actuarial Accrued Liability | \$ 16,763,770 | \$ 17,920,646 |
| b. | Valuation Assets | <u>34,805,639</u> | <u>37,884,167</u> |
| c. | Unfunded Actuarial Accrued Liability, (a) - (b) | \$ (18,041,869) | \$ (19,963,521) |
| d. | Funded Ratio based on Valuation Assets, (b) ÷ (a) | 207.6% | 211.4% |
| e. | Fair Value of Assets | \$ 34,036,503 | \$ 43,173,349 |
| f. | Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 203.0% | 240.9% |
| Total | | | |
| a. | Actuarial Accrued Liability | \$ 228,505,813 | \$ 236,638,106 |
| b. | Valuation Assets | <u>229,593,683</u> | <u>253,525,365</u> |
| c. | Unfunded Actuarial Accrued Liability, (a) - (b) | \$ (1,087,869) | \$ (16,887,259) |
| d. | Funded Ratio based on Valuation Assets, (b) ÷ (a) | 100.5% | 107.1% |
| e. | Fair Value of Assets | \$ 223,880,528 | \$ 288,221,346 |
| f. | Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 98.0% | 121.8% |

| Comparative Summary of Contribution Rates | | FY 2023 | FY 2024 |
|---|--|----------------|----------------|
| Pension | | | |
| a. | Normal Cost Rate Net of Member Contributions | 38.85% | 38.99% |
| b. | Past Service Cost Rate | <u>24.74%</u> | <u>19.71%</u> |
| c. | Total Employer/State Contribution Rate, (a) + (b), not less than (a) | 63.59% | 58.70% |
| Healthcare | | | |
| a. | Normal Cost Rate | 6.49% | 6.54% |
| b. | Past Service Cost Rate | <u>(8.24)%</u> | <u>(9.33)%</u> |
| c. | Total Employer/State Contribution Rate, (a) + (b), not less than (a) | 6.49% | 6.54% |
| Total | | | |
| a. | Normal Cost Rate Net of Member Contributions | 45.34% | 45.53% |
| b. | Past Service Cost Rate | <u>24.74%</u> | <u>19.71%</u> |
| c. | Total Employer/State Contribution Rate, (a) + (b), not less than (a) | 70.08% | 65.24% |

Judicial Retirement System (continued)

| Actuarial Contributions as of June 30, 2021 for FY24 | Pension | Healthcare | Total |
|---|--------------------|-------------------|--------------------|
| Normal Cost Rate | | | |
| 1. Total Normal Cost | \$ 5,952,927 | \$ 860,927 | \$ 6,813,854 |
| 2. Base Salaries for Upcoming Fiscal Year | 13,157,172 | 13,157,172 | 13,157,172 |
| 3. Normal Cost Rate, (1) ÷ (2) | 45.24% | 6.54% | 51.78% |
| 4. Average Member Contribution Rate | 6.25% | 0.00% | 6.25% |
| 5. Employer Normal Cost Rate, (3) - (4) | 38.99% | 6.54% | 45.53% |
| Past Service Rate | | | |
| 1. Actuarial Accrued Liability | \$ 218,717,460 | \$ 17,920,646 | \$ 236,638,106 |
| 2. Valuation Assets | <u>215,641,198</u> | <u>37,884,167</u> | <u>253,525,365</u> |
| 3. Unfunded Actuarial Accrued Liability, (1) - (2) | \$ 3,076,262 | \$ (19,963,521) | \$ (16,887,259) |
| 4. Funded Ratio, (2) ÷ (1) | 98.6% | 211.4% | 107.1% |
| 5. Past Service Cost Amortization Payment | 2,593,806 | (1,227,111) | 1,366,695 |
| 6. Base Salaries for Upcoming Fiscal Year | 13,157,172 | 13,157,172 | 13,157,172 |
| 7. Past Service Rate, (5) ÷ (6) | 19.71% | (9.33)% | 10.38% |
| Total Employer Contribution Rate, not less than Normal Cost Rate | 58.70% | 6.54% | 65.24% |

Judicial Retirement System (continued)

Schedule of Past Service Cost Amortizations - Pension

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|---|---------------------|-----------------|--------------|---------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Unfunded Liability ¹ | 6/30/2002 | 6 | \$ 5,864,449 | \$ 3,943,106 | \$ 731,664 |
| FY03/04 Loss ¹ | 6/30/2004 | 8 | 855,068 | 681,204 | 98,849 |
| Revaluation of Liabilities ¹ | 6/30/2005 | 9 | 9,115,451 | 7,702,909 | 1,014,308 |
| FY05/06 Loss ¹ | 6/30/2006 | 10 | 18,186,558 | 16,102,295 | 1,947,827 |
| FY07 Loss | 6/30/2007 | 11 | 1,364,721 | 1,254,213 | 140,759 |
| FY08 Gain | 6/30/2008 | 12 | (29,014,739) | (27,481,906) | (2,884,889) |
| FY09 Loss | 6/30/2009 | 13 | 21,273,454 | 20,625,359 | 2,039,004 |
| Change in Assumptions | 6/30/2010 | 14 | 13,976,981 | 13,791,031 | 1,291,385 |
| FY10 Loss | 6/30/2010 | 14 | 6,474,780 | 6,388,639 | 598,229 |
| FY11 Loss | 6/30/2011 | 15 | 7,397,917 | 7,407,859 | 660,308 |
| FY12 Loss | 6/30/2012 | 16 | 11,916,371 | 12,057,403 | 1,027,469 |
| FY13 Loss | 6/30/2013 | 17 | 7,033,497 | 6,922,837 | 566,097 |
| Change in Assumptions | 6/30/2014 | 18 | 4,219,851 | 4,312,578 | 339,526 |
| FY14 Gain | 6/30/2014 | 18 | (14,458,986) | (14,776,719) | (1,163,359) |
| FY15 Gain | 6/30/2015 | 19 | (3,325,706) | (3,400,048) | (258,478) |
| FY16 Gain | 6/30/2016 | 20 | (9,932,623) | (10,131,681) | (745,694) |
| FY17 Gain | 6/30/2017 | 21 | (1,137,538) | (1,154,977) | (82,492) |
| Change in Assumptions | 6/30/2018 | 22 | 10,343,783 | 10,431,580 | 724,547 |
| FY18 Gain | 6/30/2018 | 22 | (12,096,419) | (12,199,094) | (847,313) |
| Change in Assumptions | 6/30/2019 | 23 | (14,775,890) | (14,884,472) | (1,007,300) |
| FY19 Loss | 6/30/2019 | 23 | 3,344,559 | 3,369,137 | 228,005 |
| Change in Assumptions | 6/30/2020 | 24 | (21,604,253) | (21,700,673) | (1,433,384) |
| FY20 Loss | 6/30/2020 | 24 | 5,424,705 | 5,448,915 | 359,915 |
| FY21 Gain | 6/30/2021 | 25 | (11,633,233) | <u>(11,633,233)</u> | <u>(751,177)</u> |
| Total | | | | \$ 3,076,262 | \$ 2,593,806 |

¹ The pension and healthcare split was done based on the ratio of unfunded actuarial accrued liability as of June 30, 2006.

Judicial Retirement System (continued)

Schedule of Past Service Cost Amortizations - Healthcare

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|---|---------------------|-----------------|--------------|------------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Unfunded Liability ¹ | 6/30/2002 | 6 | \$ 2,295,257 | \$ 1,543,274 | \$ 286,362 |
| FY03/04 Loss ¹ | 6/30/2004 | 8 | 334,660 | 266,612 | 38,688 |
| Revaluation of Liabilities ¹ | 6/30/2005 | 9 | 3,567,649 | 3,014,800 | 396,985 |
| FY05/06 Loss ¹ | 6/30/2006 | 10 | 7,117,943 | 6,302,194 | 762,350 |
| FY07 Gain | 6/30/2007 | 11 | (810,073) | (744,478) | (83,552) |
| Change in Assumptions | 6/30/2008 | 12 | 789,072 | 747,387 | 78,456 |
| FY08 Gain | 6/30/2008 | 12 | (14,011,596) | (13,271,372) | (1,393,151) |
| FY09 Loss | 6/30/2009 | 13 | 901,355 | 873,897 | 86,393 |
| Change in Assumptions | 6/30/2010 | 14 | 2,006,196 | 1,979,505 | 185,360 |
| FY10 Gain | 6/30/2010 | 14 | (1,930,656) | (1,904,968) | (178,380) |
| FY11 Loss | 6/30/2011 | 15 | 550,376 | 551,115 | 49,124 |
| Change in Assumptions | 6/30/2012 | 16 | 353,605 | 357,788 | 30,489 |
| FY12 Gain | 6/30/2012 | 16 | (5,516,210) | (5,581,498) | (475,626) |
| FY13 Loss | 6/30/2013 | 17 | 226,259 | 230,466 | 18,846 |
| Change in Assumptions | 6/30/2014 | 18 | 772,305 | 789,275 | 62,139 |
| FY14 Gain | 6/30/2014 | 18 | (3,342,464) | (3,415,915) | (268,932) |
| FY15 Gain | 6/30/2015 | 19 | (1,416,996) | (1,448,671) | (110,131) |
| Change in Method | 6/30/2016 | 20 | (3,567,789) | (3,639,291) | (267,852) |
| FY16 Gain | 6/30/2016 | 20 | (425,711) | (434,243) | (31,960) |
| FY17 Gain | 6/30/2017 | 21 | (586,113) | (595,099) | (42,504) |
| Change in Assumptions/ Methods/EGWP | 6/30/2018 | 22 | 1,009,960 | 1,018,532 | 70,744 |
| FY18 Gain | 6/30/2018 | 22 | (2,148,478) | (2,166,713) | (150,494) |
| Change in Assumptions | 6/30/2019 | 23 | 126,754 | 127,684 | 8,641 |
| FY19 Gain | 6/30/2019 | 23 | (155,028) | (156,166) | (10,568) |
| Change in Assumptions | 6/30/2020 | 24 | 200,955 | 201,852 | 13,333 |
| FY20 Gain | 6/30/2020 | 24 | (2,842,610) | (2,855,296) | (188,600) |
| FY21 Gain | 6/30/2021 | 25 | (1,754,192) | <u>(1,754,192)</u> | <u>(113,271)</u> |
| Total | | | | \$ (19,963,521) | \$ (1,227,111) |

¹ The pension and healthcare split was done based on the ratio of unfunded actuarial accrued liability as of June 30, 2006.

Judicial Retirement System (continued)

Schedule of Past Service Cost Amortizations - Total

| Layer | Amortization Period | | Balances | | Beginning-of-Year Payment |
|--|---------------------|-----------------|--------------|------------------------|---------------------------|
| | Date Created | Years Remaining | Initial | Outstanding | |
| Initial Unfunded Liability | 6/30/2002 | 6 | \$ 8,159,706 | \$ 5,486,380 | \$ 1,018,026 |
| FY03/04 Loss | 6/30/2004 | 8 | 1,189,728 | 947,816 | 137,537 |
| Revaluation of Liabilities | 6/30/2005 | 9 | 12,683,100 | 10,717,709 | 1,411,293 |
| FY05/06 Loss | 6/30/2006 | 10 | 25,304,501 | 22,404,489 | 2,710,177 |
| FY07 Loss | 6/30/2007 | 11 | 554,648 | 509,735 | 57,207 |
| Change in Assumptions | 6/30/2008 | 12 | 789,072 | 747,387 | 78,456 |
| FY08 Gain | 6/30/2008 | 12 | (43,026,335) | (40,753,278) | (4,278,040) |
| FY09 Loss | 6/30/2009 | 13 | 22,174,809 | 21,499,256 | 2,125,397 |
| Change in Assumptions | 6/30/2010 | 14 | 15,983,177 | 15,770,536 | 1,476,745 |
| FY10 Loss | 6/30/2010 | 14 | 4,544,124 | 4,483,671 | 419,849 |
| FY11 Loss | 6/30/2011 | 15 | 7,948,293 | 7,958,974 | 709,432 |
| Change in Assumptions | 6/30/2012 | 16 | 353,605 | 357,788 | 30,489 |
| FY12 Loss | 6/30/2012 | 16 | 6,400,161 | 6,475,905 | 551,843 |
| FY13 Loss | 6/30/2013 | 17 | 7,259,756 | 7,153,303 | 584,943 |
| Change in Assumptions | 6/30/2014 | 18 | 4,992,156 | 5,101,853 | 401,665 |
| FY14 Gain | 6/30/2014 | 18 | (17,801,450) | (18,192,634) | (1,432,291) |
| FY15 Gain | 6/30/2015 | 19 | (4,742,702) | (4,848,719) | (368,609) |
| Change in Method | 6/30/2016 | 20 | (3,567,789) | (3,639,291) | (267,852) |
| FY16 Gain | 6/30/2016 | 20 | (10,358,334) | (10,565,924) | (777,654) |
| FY17 Gain | 6/30/2017 | 21 | (1,723,651) | (1,750,076) | (124,996) |
| Change in Assumptions/ Methods/EGWP | 6/30/2018 | 22 | 11,353,743 | 11,450,112 | 795,291 |
| FY18 Gain | 6/30/2018 | 22 | (14,244,897) | (14,365,807) | (997,807) |
| Change in Assumptions | 6/30/2019 | 23 | (14,649,136) | (14,756,788) | (998,659) |
| FY19 Loss | 6/30/2019 | 23 | 3,189,531 | 3,212,971 | 217,437 |
| Change in Assumptions | 6/30/2020 | 24 | (21,403,298) | (21,498,821) | (1,420,051) |
| FY20 Loss | 6/30/2020 | 24 | 2,582,095 | 2,593,619 | 171,315 |
| FY21 Gain | 6/30/2021 | 25 | (13,387,425) | <u>(13,387,425)</u> | <u>(864,448)</u> |
| Total | | | | \$ (16,887,259) | \$ 1,366,695 |

Judicial Retirement System (continued)

| Changes in Fair Value of Assets During FY21 | Pension | Healthcare | Total |
|--|----------------|---------------|----------------|
| 1. Fair Value of Assets as of June 30, 2020 | \$ 189,844,025 | \$ 34,036,503 | \$ 223,880,528 |
| 2. Additions: | | | |
| a. Employee Contributions | \$ 837,686 | \$ 0 | \$ 837,686 |
| b. Employer Contributions | 6,962,607 | 654,383 | 7,616,990 |
| c. State Contributions | 5,145,000 | 0 | 5,145,000 |
| d. Interest and Dividend Income | 2,685,812 | 478,159 | 3,163,971 |
| e. Net Appreciation / Depreciation in Fair Value of Investments | 54,575,739 | 9,641,569 | 64,217,308 |
| f. Employer Group Waiver Plan | 0 | 168,159 | 168,159 |
| g. Other | <u>7,891</u> | <u>14,345</u> | <u>22,236</u> |
| h. Total Additions | \$ 70,214,735 | \$ 10,956,615 | \$ 81,171,350 |
| 3. Deductions: | | | |
| a. Medical Benefits | \$ 0 | \$ 1,692,383 | \$ 1,692,383 |
| b. Retirement Benefits | 14,368,857 | 0 | 14,368,857 |
| c. Refund of Contributions | 0 | 0 | 0 |
| d. Investment Expenses | 544,884 | 95,170 | 640,054 |
| e. Administrative Expenses | <u>97,022</u> | <u>32,216</u> | <u>129,238</u> |
| f. Total Deductions | \$ 15,010,763 | \$ 1,819,769 | \$ 16,830,532 |
| 4. Fair Value of Assets as of June 30, 2021 | \$ 245,047,997 | \$ 43,173,349 | \$ 288,221,346 |
| 5. Approximate Fair Value Investment Return Rate during FY21 Net of Investment Expenses | 30.0% | 29.9% | 30.0% |

Judicial Retirement System (continued)

| Development of Actuarial Value of Assets | Pension | Healthcare | Total |
|--|----------------|---------------|----------------|
| 1. Investment Gain / (Loss) for FY21 | | | |
| a. Fair Value of Assets as of June 30, 2020 | \$ 189,844,025 | \$ 34,036,503 | \$ 223,880,528 |
| b. Contributions | 12,945,293 | 654,383 | 13,599,676 |
| c. Employer Group Waiver Plan | 0 | 168,159 | 168,159 |
| d. Benefit Payments | 14,368,857 | 1,692,383 | 16,061,240 |
| e. Administrative Expenses | 97,022 | 32,216 | 129,238 |
| f. Actual Investment Return (net of investment expenses) | 56,724,558 | 10,038,903 | 66,763,461 |
| g. Expected Return Rate (net of investment expenses) | 7.38% | 7.38% | 7.38% |
| h. Expected Return, Weighted for Timing | 14,104,367 | 2,479,200 | 16,583,567 |
| i. Investment Gain / (Loss) for the Year, (f) - (h) | 42,620,191 | 7,559,703 | 50,179,894 |
| 2. Actuarial Value as of June 30, 2021 | | | |
| a. Fair Value as of June 30, 2021 | \$ 245,047,997 | \$ 43,173,349 | \$ 288,221,346 |
| b. Deferred Investment Gain / (Loss) | 29,406,799 | 5,289,182 | 34,695,981 |
| c. Preliminary Actuarial Value at June 30, 2021, (a) - (b) | 215,641,198 | 37,884,167 | 253,525,365 |
| d. Lower Limit: 80% of Fair Value as of June 30, 2021 | 196,038,398 | 34,538,679 | 230,577,077 |
| e. Upper Limit: 120% of Fair Value as of June 30, 2021 | 294,057,596 | 51,808,019 | 345,865,615 |
| f. Actuarial Value as of June 30, 2021, (c) limited by (d) and (e) | \$ 215,641,198 | \$ 37,884,167 | \$ 253,525,365 |
| 3. Ratio of Actuarial Value of Assets to Fair Value of Assets | 88.0% | 87.7% | 88.0% |
| 4. Approximate Actuarial Value Investment Return Rate during FY21 Net of Investment Expenses | 11.5% | 11.6% | 11.5% |

Judicial Retirement System (continued)

| Pension | | | | |
|--------------------|----------------------|---|------------------------------------|--|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 7,229,597 | \$ 5,783,677 | \$ 1,445,920 | \$ 0 |
| June 30, 2018 | 292,590 | 175,554 | 58,518 | 58,518 |
| June 30, 2019 | (2,647,188) | (1,058,876) | (529,437) | (1,058,875) |
| June 30, 2020 | (6,148,327) | (1,229,665) | (1,229,665) | (3,688,997) |
| June 30, 2021 | <u>42,620,191</u> | <u>0</u> | <u>8,524,038</u> | <u>30,096,153</u> |
| Total | \$ 41,346,863 | \$ 3,670,690 | \$ 8,269,374 | \$ 29,406,799 |

| Healthcare | | | | |
|--------------------|---------------------|---|------------------------------------|--|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 1,282,441 | \$ 1,025,952 | \$ 256,489 | \$ 0 |
| June 30, 2018 | 98,500 | 59,100 | 19,700 | 19,700 |
| June 30, 2019 | (409,783) | (163,914) | (81,956) | (163,913) |
| June 30, 2020 | (1,023,945) | (204,789) | (204,789) | (614,367) |
| June 30, 2021 | <u>7,559,703</u> | <u>0</u> | <u>1,511,941</u> | <u>6,047,762</u> |
| Total | \$ 7,506,916 | \$ 716,349 | \$ 1,501,385 | \$ 5,289,182 |

| Total | | | | |
|--------------------|----------------------|---|------------------------------------|--|
| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
| June 30, 2017 | \$ 8,512,038 | \$ 6,809,629 | \$ 1,702,409 | \$ 0 |
| June 30, 2018 | 391,090 | 234,654 | 78,218 | 78,218 |
| June 30, 2019 | (3,056,971) | (1,222,790) | (611,393) | (1,222,788) |
| June 30, 2020 | (7,172,272) | (1,434,454) | (1,434,454) | (4,303,364) |
| June 30, 2021 | <u>50,179,894</u> | <u>0</u> | <u>10,035,979</u> | <u>40,143,915</u> |
| Total | \$ 48,853,779 | \$ 4,387,039 | \$ 9,770,759 | \$ 34,695,981 |

National Guard and Naval Militia Retirement System

| Funded Status as of June 30 | | 2020 | 2021 |
|-----------------------------|---|-------------------|-------------------|
| a. | Actuarial Accrued Liability | \$ 22,417,247 | \$ 22,975,269 |
| b. | Valuation Assets | <u>43,020,393</u> | <u>45,248,391</u> |
| c. | Unfunded Actuarial Accrued Liability, (a) - (b) | \$ (20,603,146) | \$ (22,273,122) |
| d. | Funded Ratio based on Valuation Assets, (b) ÷ (a) | 191.9% | 196.9% |
| e. | Fair Value of Assets | \$ 42,095,708 | \$ 49,813,036 |
| f. | Funded Ratio based on Fair Value of Assets, (e) ÷ (a) | 187.8% | 216.8% |

| Actuarial Determined Contribution Amounts | | FY 2023 | FY 2024 |
|---|---|--------------------|--------------------|
| a. | Normal Cost | \$ 503,140 | \$ 503,140 |
| b. | Administrative Expense Load | 256,000 | 268,000 |
| c. | Past Service Cost | <u>(3,224,638)</u> | <u>(3,486,009)</u> |
| d. | Total Annual Contribution, (a) + (b) + (c), not less than 0 | \$ 0 | \$ 0 |

National Guard and Naval Militia Retirement System (continued)

Changes in Fair Value of Assets During FY21

| | | |
|---|----|----------------|
| 1. Fair Value of Assets as of June 30, 2020 | \$ | 42,095,708 |
| 2. Additions: | | |
| a. Employer Contributions | \$ | 0 |
| b. Investment Income | | 9,571,576 |
| c. Other | | <u>1,690</u> |
| d. Total Additions | \$ | 9,573,266 |
| 3. Deductions: | | |
| a. Retirement Benefits | \$ | 1,454,330 |
| b. Investment Expenses | | 97,169 |
| c. Administrative Expenses | | <u>304,439</u> |
| d. Total Deductions | \$ | 1,855,938 |
| 4. Fair Value of Assets as of June 30, 2021 | \$ | 49,813,036 |
| 5. Approximate Fair Value Investment Return Rate during FY21 Net of Investment Expenses | | 23.0% |

National Guard and Naval Militia Retirement System (continued)

Development of Actuarial Value of Assets

| | | |
|--|----|------------|
| 1. Investment Gain / (Loss) for FY21 | | |
| a. Fair Value of Assets as of June 30, 2020 | \$ | 42,095,708 |
| b. Contributions | | 0 |
| c. Benefit Payments | | 1,454,330 |
| d. Administrative Expenses | | 304,439 |
| e. Actual Investment Return (net of investment expenses) | | 9,476,097 |
| f. Expected Return Rate (net of investment expenses) | | 7.00% |
| g. Expected Return, Weighted for Timing | | 2,881,937 |
| h. Investment Gain / (Loss) for the Year, (e) - (g) | | 6,594,160 |
| 2. Actuarial Value as of June 30, 2021 | | |
| a. Fair Value as of June 30, 2021 | \$ | 49,813,036 |
| b. Deferred Investment Gain / (Loss) | | 4,564,645 |
| c. Preliminary Actuarial Value at June 30, 2021, (a) - (b) | | 45,248,391 |
| d. Lower Limit: 80% of Fair Value as of June 30, 2021 | | 39,850,429 |
| e. Upper Limit: 120% of Fair Value as of June 30, 2021 | | 59,775,643 |
| f. Actuarial Value as of June 30, 2021, (c) limited by (d) and (e) | \$ | 45,248,391 |
| 3. Ratio of Actuarial Value of Assets to Fair Value of Assets | | 90.8% |
| 4. Approximate Actuarial Value Investment Return Rate during FY21 Net of Investment Expenses | | 9.5% |

| Fiscal Year Ending | Asset Gain / (Loss) | Gain / (Loss) Recognized in Prior Years | Gain / (Loss) Recognized This Year | Gain / (Loss) Deferred to Future Years |
|--------------------|---------------------|---|------------------------------------|--|
| June 30, 2017 | \$ 704,309 | \$ 563,448 | \$ 140,861 | \$ 0 |
| June 30, 2018 | (681,054) | (408,633) | (136,211) | (136,210) |
| June 30, 2019 | (407,413) | (162,966) | (81,483) | (162,964) |
| June 30, 2020 | (685,847) | (137,169) | (137,169) | (411,509) |
| June 30, 2021 | <u>6,594,160</u> | <u>0</u> | <u>1,318,832</u> | <u>5,275,328</u> |
| Total | \$ 5,524,155 | \$ (145,320) | \$ 1,104,830 | \$ 4,564,645 |

Actuarial Standard of Practice No. 51

Funding future retirement benefits prior to when those benefits become due involves assumptions regarding future economic and demographic experience. These assumptions are applied to calculate actuarial liabilities, current contribution requirements, and the funded status of the plans. However, to the extent future experience deviates from the assumptions used, variations will occur in these calculated values. These variations create risk to the plans. Understanding the risks to the funding of the plans is important.

Actuarial Standard of Practice No. 51 (ASOP 51)¹ requires certain disclosures of potential risks to the plans and provides useful information for intended users of actuarial reports that determine plan contributions or evaluate the adequacy of specified contribution levels to support benefit provisions.

Under ASOP 51, risk is defined as the potential of actual future measurements deviating from expected future measurements resulting from actual future experience deviating from actuarially assumed experience.

It is important to note that not all risk is negative, but all risk should be understood and accepted based on knowledge, judgement, and educated decisions. Future measurements may deviate in ways that produce positive or negative financial impacts to the plan.

In the actuary's professional judgment, the following risks may reasonably be anticipated to significantly affect the pension plans' future financial condition and contribution requirements.

- Investment Risk – potential that the investment return will be different than the return expected in the actuarial valuation (7.38% for JRS and 7.00% for NGNMRS)
- Contribution Risk – potential that the contribution actually made will be different than the actuarially determined contribution
- Long-Term Return on Investment Risk – potential that changes in long-term capital market assumptions or the plan's asset allocation will create the need to update the long-term return on investment assumption
- Longevity Risk – potential that participants live longer than expected compared to the valuation mortality assumptions
- Salary Increase Risk² – potential that future salaries will be different than expected in the actuarial valuation
- Inflation Risk² – potential that the consumer price index (CPI) for urban wage earners and clerical workers for Anchorage is different than the 2.5% inflation rate assumed in the valuation
- Other Demographic Risk – potential that other demographic experience will be different than expected

The following information is provided to comply with ASOP 51 and furnish beneficial information on potential risks to the plan. **This list is not all-inclusive**; it is an attempt to identify the more significant risks and how those risks might affect the results shown in this report.

¹ ASOP 51 does not apply to the healthcare portion of JRS. Accordingly, all comments in this section relate to the pension portion of JRS.

² Salary increase risk and inflation risk apply to JRS only.

Note that ASOP 51 does not require the actuary to evaluate the ability or willingness of the plan sponsor to make contributions to the plans when due, or to assess the likelihood or consequences of potential future changes in law. In addition, this valuation report is not intended to provide investment advice or to provide guidance on the management or reduction of risk.

Assessment of Risks

Investment Risk

Plan costs are very sensitive to the market return.

- Any return on assets lower than assumed will increase costs.
- The plans use an actuarial value of assets that smooths gains and losses on market returns over a five-year period to help control some of the volatility in costs due to investment risk.
- Historical experience of actual returns is shown in Section 2.5 (JRS) and Section 2.4 (NGNMRS) of the June 30, 2020 reports dated May 20, 2021. This historical experience illustrates how returns can vary over time.

Contribution Risk

There is a risk to the plans when the employer's and/or State's actual contribution amount and the actuarially determined contribution differ.

- If the actual contributions are lower than the actuarially determined contributions, the plans may not be sustainable in the long term.
- Any underpayment of the contribution will increase future contribution amounts to help pay off the additional Unfunded Actuarial Accrued Liability associated with the underpayment(s).
- As long as the Board consistently adopts the actuarially determined contributions, this risk is mitigated due to Alaska statutes requiring the State to contribute additional funds necessary to pay the total contributions adopted by the Board.

Long-Term Return on Investment Risk

Inherent in the long-term return on investment assumption is the expectation that the current rate will be used until the last benefit payment of the plan is made. There is a risk that sustained changes in economic conditions, changes in long-term future capital market assumptions, or changes to the plans' asset allocations will necessitate an update to the long-term return on investment assumption used.

- Under a lower long-term return on investment assumption, less investment return is available to pay plan benefits. This may lead to a need for increased employer contributions.
- The liabilities will be higher at a lower assumed rate of return because future benefits will have a lower discount rate applied when calculating the present value.
- A 1% decrease in the long-term return on investment assumption will increase the actuarial accrued liability by approximately 11% for JRS and 9% for NGNMRS.

Longevity Risk

Plan costs will be increased as participants are expected to live longer.

- Benefits are paid over a longer lifetime when life expectancy is expected to increase. The longer duration of payments leads to higher liabilities.
- Health care has been improving, which affects the life expectancy of participants. As health care improves, leading to longer life expectancies, costs to the plans could increase.
- The mortality assumptions for the plans mitigates this risk by assuming future improvements in mortality. However, any improvement in future mortality greater than that expected by the current mortality assumptions would lead to increased costs for the plans.

JRS provides cost-of-living adjustments on retirement benefits (based on salary changes of sitting judges) that increase longevity risk, because members who live longer than expected will incur more benefit payment increases than expected and therefore increase costs.

Salary Increase Risk¹

Plan costs will be increased if actual salary increases are larger than expected.

- Higher-than-expected salary increases will produce higher benefits.
- The higher benefits may be partially offset by increased employee contributions due to higher salaries.
- If future payroll grows at a rate different than assumed, contributions as a percentage of payroll will be affected.

Inflation Risk¹

Inflation risk may be associated with the interaction of inflation with other assumptions, but this is not significant as a standalone assumption, and therefore is considered as part of the associated assumption risk instead of being discussed here.

Other Demographic Risk

The plans are subject to risks associated with other demographic assumptions (e.g., retirement and termination rates). Differences between actual and expected experience for these assumptions tend to have less impact on the overall costs of the plans. The demographic assumptions used in the valuations are re-evaluated regularly as part of the four-year experience studies to ensure the assumptions are consistent with long-term expectations.

¹ Salary increase risk and inflation risk apply to JRS only.



State of Alaska

25-Year Layered Unfunded Liability Amortization Methodology

Prepared for the March 16, 2022 Actuarial Committee Meeting

Background

There are two types of methods for amortizing the unfunded liability:

- Level Dollar – Each year’s amortization amount is the same in all years.
- Level Percent of Pay – Each year’s amortization amount increases based on the expected growth in payroll (i.e., the amortization amount remains constant as a percent of each year’s payroll).

The amortization amounts under level-percent-of-pay are less than under level-dollar in the earlier years, and greater in the later years. The two streams of amortization amounts are equal on a present value basis.

Effective June 30, 2014, Alaska Statutes¹ require the amortization to be “determined by a level percent of pay method based on amortization of the past service liability for a closed term of 25 years”.

The 25-year “layered” amortization methodology was adopted by the ARMB in 2018 primarily to avoid undesirable volatility in Additional State Contributions due to potential adverse experience in the latter years of the closed 25-year period that began in 2014. As part of the transition to the new methodology, the amortization period of the “initial” layer was 21 years (which was the remainder of the original closed 25-year period). The amortization period for all other layers is 25 years, which is consistent with the statutory requirement that amortization of the unfunded liability be for a closed term of 25 years.

The amount of each year’s amortization layer is equal to the increase or decrease in the Unfunded Actuarial Accrued Liability (UAAL) due to events that occur during the year – changes in actuarial assumptions/methods, changes in plan provisions, and actuarial gains/losses due to asset and liability experience.

- Amortization layers are *positive* when the UAAL increases. The positive amortization amounts are often called “amortization charges”.
- Amortization layers are *negative* when the UAAL decreases. The negative amortization amounts are often called “amortization credits”.

The total amortization amount for the year is the sum of all amortization charges and credits.

The Actuarially Determined Contribution for each system includes two components, calculated separately by benefit (pension and healthcare):

- Normal Cost – The cost of benefits expected to accrue during the upcoming year for active members. Expected member contributions are subtracted to derive the Employer Normal Cost.
- Past Service Cost – The sum of all unfunded liability amortization charges and credits.

¹ AS 37.10.220(a)(8)(B)



The sum of the Employer Normal Cost plus Past Service Cost is divided by plan payroll to derive a total actuarial contribution rate². Per Alaska Statutes³, the total actuarial contribution rate cannot be less than the Normal Cost rate (except for NGNMRS).

Employer contributions for PERS and TRS are specified by Alaska Statutes:

- PERS⁴
 - Each non-State employer contributes 22% of payroll.
 - The State-as-an-Employer contributes the total actuarial contribution rate based on the payroll of its employees (under SB 55 which went into effect July 1, 2021).
- TRS⁵
 - Each employer contributes 12.56% of payroll.

If the total actuarial contribution rate, including the actuarial contribution rate for the DCR plan, exceeds the statutory employer contribution rate, the excess is contributed by the State as Additional State Contributions. Under PERS, the Additional State Contribution is based on the payroll of non-State employers only beginning July 1, 2021.

To allow for budgeting of contribution requirements, the valuation in year x is used to determine contributions for fiscal year x+3. For example, the June 30, 2020 valuations determine the contributions for FY23. For PERS and TRS, the contribution rates for a fiscal year are based on a two-year roll-forward of the valuation results. A two-year roll-forward is not used for the other plans.

Example

The PERS pension amortization layers as of June 30, 2021 are summarized below (in \$000s):

| Layer | Date Created | Initial Amount | Initial Period (years) | Years Remaining at 6/30/2021 | Outstanding Balance at 6/30/2021 | FY22 Amortization Amount |
|-----------------------|--------------|----------------|------------------------|------------------------------|----------------------------------|--------------------------|
| Initial | 6/30/2018 | \$4,620,399 | 21 | 18 | \$4,547,029 | \$357,984 |
| Change in Assumptions | 6/30/2018 | \$555,442 | 25 | 22 | \$560,156 | \$38,907 |
| FY19 Loss | 6/30/2019 | \$297,539 | 25 | 23 | \$299,724 | \$20,284 |
| FY20 Loss | 6/30/2020 | \$124,501 | 25 | 24 | \$125,057 | \$8,260 |
| FY21 Gain | 6/30/2021 | \$(578,700) | 25 | 25 | \$(578,700) | \$(37,368) |
| Total | | | | | \$4,953,266 | \$388,067 |

The amortization schedule for each layer is shown on the following pages, along with a schedule showing all amortization layers combined.

² For NGNMRS, the contribution is expressed as a dollar amount.

³ AS.39.35.255(d) and AS.14.25.070(d)

⁴ AS.39.35.255(a)

⁵ AS.14.25.070(a)



| | |
|-----------------|----------------|
| Layer: | Initial |
| Date Created: | 6/30/2018 |
| Initial Amount: | \$4,620,399 |
| Initial Period: | 21 years |

| Date | Outstanding Balance | Years Remaining | Amortization Amount for Upcoming Fiscal Year |
|-----------|---------------------|-----------------|--|
| 6/30/2021 | \$4,547,029 | 18 | \$357,984 |
| 6/30/2022 | \$4,498,197 | 17 | \$367,828 |
| 6/30/2023 | \$4,435,190 | 16 | \$377,944 |
| 6/30/2024 | \$4,356,671 | 15 | \$388,337 |
| 6/30/2025 | \$4,261,197 | 14 | \$399,016 |
| 6/30/2026 | \$4,147,210 | 13 | \$409,989 |
| 6/30/2027 | \$4,013,028 | 12 | \$421,264 |
| 6/30/2028 | \$3,856,836 | 11 | \$432,849 |
| 6/30/2029 | \$3,676,677 | 10 | \$444,752 |
| 6/30/2030 | \$3,470,441 | 9 | \$456,983 |
| 6/30/2031 | \$3,235,851 | 8 | \$469,550 |
| 6/30/2032 | \$2,970,454 | 7 | \$482,462 |
| 6/30/2033 | \$2,671,606 | 6 | \$495,730 |
| 6/30/2034 | \$2,336,456 | 5 | \$509,363 |
| 6/30/2035 | \$1,961,932 | 4 | \$523,370 |
| 6/30/2036 | \$1,544,728 | 3 | \$537,763 |
| 6/30/2037 | \$1,081,279 | 2 | \$552,552 |
| 6/30/2038 | \$567,747 | 1 | \$567,747 |
| 6/30/2039 | \$0 | | |



| | |
|-----------------|------------------------------|
| | Change in Assumptions |
| Layer: | |
| Date Created: | 6/30/2018 |
| Initial Amount: | \$555,442 |
| Initial Period: | 25 years |

| Date | Outstanding Balance | Years Remaining | Amortization Amount for Upcoming Fiscal Year |
|-----------|---------------------|-----------------|--|
| 6/30/2021 | \$560,156 | 22 | \$38,907 |
| 6/30/2022 | \$559,717 | 21 | \$39,977 |
| 6/30/2023 | \$558,097 | 20 | \$41,076 |
| 6/30/2024 | \$555,177 | 19 | \$42,206 |
| 6/30/2025 | \$550,828 | 18 | \$43,366 |
| 6/30/2026 | \$544,913 | 17 | \$44,559 |
| 6/30/2027 | \$537,280 | 16 | \$45,784 |
| 6/30/2028 | \$527,768 | 15 | \$47,043 |
| 6/30/2029 | \$516,203 | 14 | \$48,337 |
| 6/30/2030 | \$502,395 | 13 | \$49,666 |
| 6/30/2031 | \$486,140 | 12 | \$51,032 |
| 6/30/2032 | \$467,219 | 11 | \$52,436 |
| 6/30/2033 | \$445,394 | 10 | \$53,877 |
| 6/30/2034 | \$420,411 | 9 | \$55,359 |
| 6/30/2035 | \$391,993 | 8 | \$56,882 |
| 6/30/2036 | \$359,842 | 7 | \$58,446 |
| 6/30/2037 | \$323,639 | 6 | \$60,053 |
| 6/30/2038 | \$283,039 | 5 | \$61,704 |
| 6/30/2039 | \$237,670 | 4 | \$63,402 |
| 6/30/2040 | \$187,129 | 3 | \$65,145 |
| 6/30/2041 | \$130,986 | 2 | \$66,936 |
| 6/30/2042 | \$68,777 | 1 | \$68,777 |
| 6/30/2043 | \$0 | | |



| | |
|-----------------|------------------|
| Layer: | FY19 Loss |
| Date Created: | 6/30/2019 |
| Initial Amount: | \$297,539 |
| Initial Period: | 25 years |

| Date | Outstanding Balance | Years Remaining | Amortization Amount for Upcoming Fiscal Year |
|-----------|---------------------|-----------------|--|
| 6/30/2021 | \$299,724 | 23 | \$20,284 |
| 6/30/2022 | \$300,063 | 22 | \$20,841 |
| 6/30/2023 | \$299,829 | 21 | \$21,415 |
| 6/30/2024 | \$298,961 | 20 | \$22,004 |
| 6/30/2025 | \$297,396 | 19 | \$22,609 |
| 6/30/2026 | \$295,066 | 18 | \$23,230 |
| 6/30/2027 | \$291,897 | 17 | \$23,869 |
| 6/30/2028 | \$287,808 | 16 | \$24,525 |
| 6/30/2029 | \$282,713 | 15 | \$25,200 |
| 6/30/2030 | \$276,517 | 14 | \$25,893 |
| 6/30/2031 | \$269,120 | 13 | \$26,605 |
| 6/30/2032 | \$260,413 | 12 | \$27,337 |
| 6/30/2033 | \$250,277 | 11 | \$28,088 |
| 6/30/2034 | \$238,587 | 10 | \$28,861 |
| 6/30/2035 | \$225,204 | 9 | \$29,655 |
| 6/30/2036 | \$209,981 | 8 | \$30,470 |
| 6/30/2037 | \$192,759 | 7 | \$31,308 |
| 6/30/2038 | \$173,366 | 6 | \$32,169 |
| 6/30/2039 | \$151,617 | 5 | \$33,054 |
| 6/30/2040 | \$127,313 | 4 | \$33,962 |
| 6/30/2041 | \$100,240 | 3 | \$34,896 |
| 6/30/2042 | \$70,166 | 2 | \$35,856 |
| 6/30/2043 | \$36,842 | 1 | \$36,842 |
| 6/30/2044 | \$0 | | |



| | |
|-----------------|------------------|
| Layer: | FY20 Loss |
| Date Created: | 6/30/2020 |
| Initial Amount: | \$124,501 |
| Initial Period: | 25 years |

| Date | Outstanding Balance | Years Remaining | Amortization Amount for Upcoming Fiscal Year |
|-----------|---------------------|-----------------|--|
| 6/30/2021 | \$125,057 | 24 | \$8,260 |
| 6/30/2022 | \$125,417 | 23 | \$8,488 |
| 6/30/2023 | \$125,558 | 22 | \$8,721 |
| 6/30/2024 | \$125,460 | 21 | \$8,961 |
| 6/30/2025 | \$125,097 | 20 | \$9,207 |
| 6/30/2026 | \$124,443 | 19 | \$9,460 |
| 6/30/2027 | \$123,469 | 18 | \$9,721 |
| 6/30/2028 | \$122,143 | 17 | \$9,988 |
| 6/30/2029 | \$120,432 | 16 | \$10,263 |
| 6/30/2030 | \$118,299 | 15 | \$10,545 |
| 6/30/2031 | \$115,706 | 14 | \$10,835 |
| 6/30/2032 | \$112,610 | 13 | \$11,133 |
| 6/30/2033 | \$108,966 | 12 | \$11,439 |
| 6/30/2034 | \$104,724 | 11 | \$11,753 |
| 6/30/2035 | \$99,832 | 10 | \$12,076 |
| 6/30/2036 | \$94,232 | 9 | \$12,408 |
| 6/30/2037 | \$87,863 | 8 | \$12,750 |
| 6/30/2038 | \$80,656 | 7 | \$13,100 |
| 6/30/2039 | \$72,542 | 6 | \$13,461 |
| 6/30/2040 | \$63,441 | 5 | \$13,831 |
| 6/30/2041 | \$53,271 | 4 | \$14,211 |
| 6/30/2042 | \$41,943 | 3 | \$14,602 |
| 6/30/2043 | \$29,359 | 2 | \$15,003 |
| 6/30/2044 | \$15,415 | 1 | \$15,415 |
| 6/30/2045 | \$0 | | |



| | |
|-----------------|------------------|
| Layer: | FY21 Gain |
| Date Created: | 6/30/2021 |
| Initial Amount: | (\$578,700) |
| Initial Period: | 25 years |

| Date | Outstanding Balance | Years Remaining | Amortization Amount for Upcoming Fiscal Year |
|-----------|---------------------|-----------------|--|
| 6/30/2021 | (\$578,700) | 25 | (\$37,368) |
| 6/30/2022 | (\$581,282) | 24 | (\$38,395) |
| 6/30/2023 | (\$582,952) | 23 | (\$39,451) |
| 6/30/2024 | (\$583,611) | 22 | (\$40,536) |
| 6/30/2025 | (\$583,154) | 21 | (\$41,651) |
| 6/30/2026 | (\$581,466) | 20 | (\$42,796) |
| 6/30/2027 | (\$578,424) | 19 | (\$43,973) |
| 6/30/2028 | (\$573,893) | 18 | (\$45,182) |
| 6/30/2029 | (\$567,730) | 17 | (\$46,425) |
| 6/30/2030 | (\$559,777) | 16 | (\$47,701) |
| 6/30/2031 | (\$549,867) | 15 | (\$49,013) |
| 6/30/2032 | (\$537,817) | 14 | (\$50,361) |
| 6/30/2033 | (\$523,430) | 13 | (\$51,746) |
| 6/30/2034 | (\$506,494) | 12 | (\$53,169) |
| 6/30/2035 | (\$486,780) | 11 | (\$54,631) |
| 6/30/2036 | (\$464,042) | 10 | (\$56,133) |
| 6/30/2037 | (\$438,013) | 9 | (\$57,677) |
| 6/30/2038 | (\$408,405) | 8 | (\$59,263) |
| 6/30/2039 | (\$374,909) | 7 | (\$60,893) |
| 6/30/2040 | (\$337,190) | 6 | (\$62,567) |
| 6/30/2041 | (\$294,890) | 5 | (\$64,288) |
| 6/30/2042 | (\$247,620) | 4 | (\$66,056) |
| 6/30/2043 | (\$194,963) | 3 | (\$67,872) |
| 6/30/2044 | (\$136,470) | 2 | (\$69,738) |
| 6/30/2045 | (\$71,657) | 1 | (\$71,657) |
| 6/30/2046 | \$0 | | |



| Date | Outstanding Balance | Amortization Amount for Upcoming Fiscal Year | | | | | Total |
|-----------|---------------------|--|-----------------------|-----------|-----------|------------|------------|
| | | Initial | Change in Assumptions | FY19 Loss | FY20 Loss | FY21 Gain | |
| 6/30/2021 | \$4,953,266 | \$357,984 | \$38,907 | \$20,284 | \$8,260 | (\$37,368) | \$388,067 |
| 6/30/2022 | \$4,902,112 | \$367,828 | \$39,977 | \$20,841 | \$8,488 | (\$38,395) | \$398,739 |
| 6/30/2023 | \$4,835,722 | \$377,944 | \$41,076 | \$21,415 | \$8,721 | (\$39,451) | \$409,705 |
| 6/30/2024 | \$4,752,658 | \$388,337 | \$42,206 | \$22,004 | \$8,961 | (\$40,536) | \$420,972 |
| 6/30/2025 | \$4,651,364 | \$399,016 | \$43,366 | \$22,609 | \$9,207 | (\$41,651) | \$432,547 |
| 6/30/2026 | \$4,530,166 | \$409,989 | \$44,559 | \$23,230 | \$9,460 | (\$42,796) | \$444,442 |
| 6/30/2027 | \$4,387,250 | \$421,264 | \$45,784 | \$23,869 | \$9,721 | (\$43,973) | \$456,665 |
| 6/30/2028 | \$4,220,662 | \$432,849 | \$47,043 | \$24,525 | \$9,988 | (\$45,182) | \$469,223 |
| 6/30/2029 | \$4,028,295 | \$444,752 | \$48,337 | \$25,200 | \$10,263 | (\$46,425) | \$482,127 |
| 6/30/2030 | \$3,807,875 | \$456,983 | \$49,666 | \$25,893 | \$10,545 | (\$47,701) | \$495,386 |
| 6/30/2031 | \$3,556,950 | \$469,550 | \$51,032 | \$26,605 | \$10,835 | (\$49,013) | \$509,009 |
| 6/30/2032 | \$3,272,879 | \$482,462 | \$52,436 | \$27,337 | \$11,133 | (\$50,361) | \$523,007 |
| 6/30/2033 | \$2,952,813 | \$495,730 | \$53,877 | \$28,088 | \$11,439 | (\$51,746) | \$537,388 |
| 6/30/2034 | \$2,593,684 | \$509,363 | \$55,359 | \$28,861 | \$11,753 | (\$53,169) | \$552,167 |
| 6/30/2035 | \$2,192,181 | \$523,370 | \$56,882 | \$29,655 | \$12,076 | (\$54,631) | \$567,352 |
| 6/30/2036 | \$1,744,741 | \$537,763 | \$58,446 | \$30,470 | \$12,408 | (\$56,133) | \$582,954 |
| 6/30/2037 | \$1,247,527 | \$552,552 | \$60,053 | \$31,308 | \$12,750 | (\$57,677) | \$598,986 |
| 6/30/2038 | \$696,403 | \$567,747 | \$61,704 | \$32,169 | \$13,100 | (\$59,263) | \$615,457 |
| 6/30/2039 | \$86,920 | \$0 | \$63,402 | \$33,054 | \$13,461 | (\$60,893) | \$49,024 |
| 6/30/2040 | \$40,693 | \$0 | \$65,145 | \$33,962 | \$13,831 | (\$62,567) | \$50,371 |
| 6/30/2041 | (\$10,393) | \$0 | \$66,936 | \$34,896 | \$14,211 | (\$64,288) | \$51,755 |
| 6/30/2042 | (\$66,734) | \$0 | \$68,777 | \$35,856 | \$14,602 | (\$66,056) | \$53,179 |
| 6/30/2043 | (\$128,762) | \$0 | \$0 | \$36,842 | \$15,003 | (\$67,872) | (\$16,027) |
| 6/30/2044 | (\$121,055) | \$0 | \$0 | \$0 | \$15,415 | (\$69,738) | (\$54,323) |
| 6/30/2045 | (\$71,657) | \$0 | \$0 | \$0 | \$0 | (\$71,657) | (\$71,657) |
| 6/30/2046 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |

Alaska Retirement Management Board

Calculating the Additional State Contribution

Here is an example of the steps involved to calculate the FY22 Additional State Contribution for TRS based on the 2019 valuation. A similar process is followed for PERS.

Step 1: Calculate the DB plan actuarial cost amounts projected for FY22

| | | Pension | Healthcare | Total |
|---|---|-------------|--------------|-------------|
| 1 | Total Normal Cost | 44,433,000 | 22,003,000 | 66,436,000 |
| 2 | Member Contributions | 26,705,000 | 0 | 26,705,000 |
| 3 | Employer Normal Cost [1 – 2] | 17,728,000 | 22,003,000 | 39,731,000 |
| 4 | Unfunded Liability Amortization Amounts | 148,717,000 | (30,219,000) | 148,717,000 |
| 5 | DB Contribution Amount [3 + 4, not less than 3] | 166,445,000 | 22,003,000 | 188,448,000 |

Step 2: Calculate the DCR plan actuarial cost amounts for the upcoming year

| | | Occ D&D | Retiree Medical | Total |
|---|--|-----------|-----------------|-----------|
| 1 | Normal Cost | 284,000 | 2,972,000 | 3,256,000 |
| 2 | Unfunded Liability Amortization Amounts | (326,000) | (555,000) | (881,000) |
| 3 | DCR Contribution Amount [1 + 2, not less than 1] | 284,000 | 2,972,000 | 3,256,000 |

Step 3: Convert amounts from Step 2 to a % of DCR pay for the upcoming year

| | | Occ D&D | Retiree Medical | Total |
|---|-------------------------------------|---------|-----------------|-------------|
| 1 | DCR Contribution Amount from Step 2 | 284,000 | 2,972,000 | 3,256,000 |
| 2 | Projected DCR Pay for Upcoming Year | | | 359,622,000 |
| 3 | FY22 DCR Contribution Rate [1 / 2] | 0.08% | 0.83% | 0.91% |

Step 4: Estimate DCR amounts projected for FY22 based on contribution rates from Step 2 and the fixed contribution rates for DC and HRA accounts

| | | Occ D&D | Retiree Medical | DC Accounts | HRA Accounts | Total |
|---|---------------------------------------|---------|-----------------|-------------|--------------|-------------|
| 1 | FY22 Contribution Rate | 0.08% | 0.83% | 7.00% | 3.00% | 10.91% |
| 2 | Projected FY22 DCR Pay | | | | | 430,849,000 |
| 3 | FY22 DCR Contribution Amounts [1 x 2] | 345,000 | 3,576,000 | 30,159,000 | 12,925,000 | 47,005,000 |

Alaska Retirement Management Board

Step 5: Convert projected FY22 DB amounts from Step 1 to a % of projected FY22 total pay

| | | Pension | Healthcare | Total |
|---|--|-------------|--------------|-------------|
| 1 | Projected FY 22 Total Pay | | | 739,581,000 |
| 2 | Employer Normal Cost | 17,728,000 | 22,003,000 | 39,731,000 |
| 3 | Employer Normal Cost Rate [2 / 1] | 2.40% | 2.98% | 5.38% |
| 4 | Unfunded Liability Amortization Amounts | 148,717,000 | (30,219,000) | 148,717,000 |
| 5 | Unfunded Liability Amortization Rate [4 / 1] | 20.11% | (4.09)% | 20.11% |
| 6 | Total FY22 DB Rate [3 + 5, not less than 3] | 22.51% | 2.98% | 25.49% |

Step 6: Convert projected FY22 DCR amounts from Step 4 to a % of projected FY22 total pay

| | | Total |
|---|-------------------------------|-------------|
| 1 | Projected FY 22 Total Pay | 739,581,000 |
| 2 | FY22 DCR Contribution Amounts | 47,005,000 |
| 3 | Total FY22 DCR Rate [2 / 1] | 6.36% |

Step 7: Combine FY22 DB and DCR contribution rates and calculate the FY22 Additional State Contribution

| | | Total |
|---|--|-------------|
| 1 | FY22 DB Rate from Step 5 | 25.49% |
| 2 | FY22 DCR Rate from Step 6 | 6.36% |
| 3 | Total DB/DCR FY22 Rate [1 + 2] | 31.85% |
| 4 | Fixed Employer Contribution Rate | 12.56% |
| 5 | Additional State Contribution Rate [3 – 4] | 19.29% |
| 6 | Projected FY22 Total Pay | 739,581,000 |
| 7 | FY22 Additional State Contribution [5 x 6] | 142,665,000 |



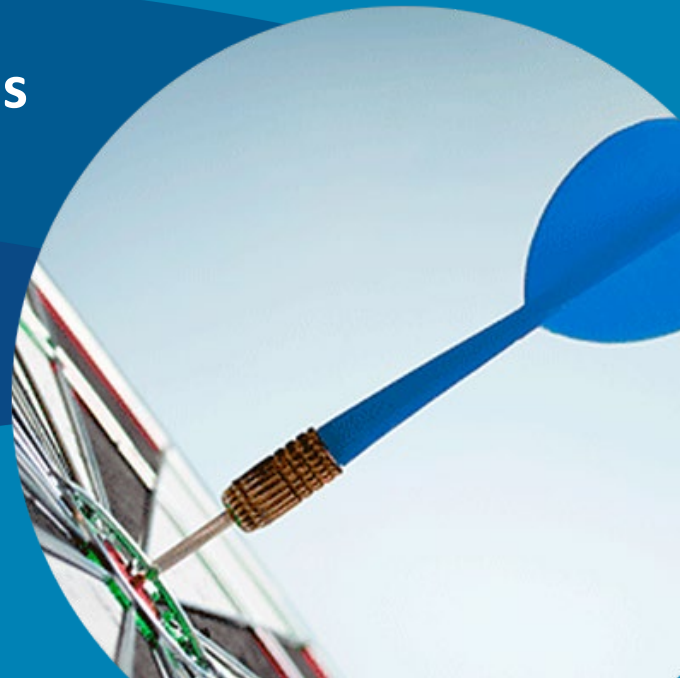
Alaska Retirement Management Board Actuarial Committee

Actuarial Review of June 30, 2021 Valuations

Paul Wood, ASA, FCA, MAAA

Bill Detweiler, ASA, EA, FCA, MAAA

March 16, 2022



Review of the June 30, 2021 Actuarial Valuation

- Claims and Enrollment Review
- Assumptions Review
- Test Life Review

Claims and Enrollment Review

- Buck provided a PowerPoint that showed the development of the Per Capita Claims Costs (PCCC)
- Overall, based on the data in the PowerPoint, there was favorable claims experience meaning the PCCC did not increase as much as was expected

Claims and Enrollment Review

PCCC Claims Development

- Overall, we found the development of the PCCC to be reasonable
- The table below shows the final PCCC used in the valuation, as confirmed through test life checking
- It also compares the PCCC used this year to those used last year

| Per Capita Claims Cost (Age 65) | | | | | | |
|---------------------------------|--|--|---------------|--|--|---------------|
| | Medical | | | Prescription Drugs | | |
| | <u>June 30, 2020</u> <u>Valaution</u> | <u>June 30, 2021</u> <u>Valaution</u> | <u>Change</u> | <u>June 30, 2020</u> <u>Valaution</u> | <u>June 30, 2021</u> <u>Valaution</u> | <u>Change</u> |
| Pre-Medicare | \$ 15,360 | \$ 15,926 | 3.7% | \$ 3,393 | \$ 3,375 | -0.5% |
| Medicare Parts A & B | \$ 1,618 | \$ 1,619 | 0.1% | \$ 3,340 | \$ 3,474 | 4.0% |
| Medicare Part B Only | \$ 5,340 | \$ 5,341 | 0.0% | \$ 3,340 | \$ 3,474 | 4.0% |
| Medicare Part D – EGWP | N/A | N/A | N/A | \$ 1,003 | \$ 1,131 | 12.8% |

Claims and Enrollment Review

PCCC Gains and COVID-19 Experience

- Large gains five years in a row
 - This is mostly due to positive experience on the medical claims
 - The gains this year would have been even larger, but Buck added a 4% load to the medical claims to account for COVID-19 experience
- Pre-Medicare costs were increased and Prescription Drugs costs were decreased this year due to plan changes
- Both of these items need to be carefully monitored going forward to see if claims swing back in the other direction

Assumptions Review

Gains and Losses

- Now have three years of experience under most recently adopted assumptions
- Can start to monitor any developing trends
 - New Medicare Part B Assumption causing consistent gains
 - Investment return expectations still continuing a downward trend around the country

Test Life Review

- For a sample group we examine the following:
 - Data inputs
 - Benefit amounts
 - Liability calculations
- The sample lives tell us if the assumptions are correctly employed
- They tell us if the plan provisions are valued correctly

Test Life Review - Findings

- Materiality Standards
 - Actuaries look to the Actuarial Standards of Practice
 - “An item or a combination of related items is material if its omission or misstatement could influence a decision of an intended user”
 - Relies heavily on the professional judgement of the actuary

Test Life Review - Findings

- We choose test lives each year that are different and contain unique characteristics
- In years with no assumption or plan changes, we first replicate the significant benefits (retirement/withdrawal), then dive deeper into small differences on the ancillary benefits (death/disability)
- As a result, we were able to identify some minor findings this year related to the valuation of certain ancillary benefits, or related to unique characteristics of the test lives chosen

Test Life Review - Findings

- **Finding #1 - Administration of Claimed Service**
 - An active PERS DB Peace Officer/Firefighter member who has 5 years of claimed service has this amount being included in credited service and excluded from eligibility service
 - Additionally, the early retirement reduction factors (ERFs) being used for this member are based on the credited service with the claimed service included
 - We recommend Buck confirm this treatment is consistent with how the Alaska DRB is administering the benefits for members that have claimed service.
- **Finding #2 - Retirement Benefit for PERS DB Peace Officer/Firefighter Occupational Disability**
 - Based on one of our agreed upon recommendations from last year, for DB PERS Peace Officer/Firefighter members, we expected to see an increase to the deferred retirement benefit for the occupational disability piece by the same accumulative PRPA percentage that was applied to the disability benefit
 - However, a DB PERS Peace Officer/Firefighter member is only having the benefit increased until age 55, rather than their assumed retirement age of 57
 - We recommend Buck increase this benefit until the assumed retirement age for each member.

Test Life Review - Findings

- **Finding #3 - Occupational Death COLA Benefit for PERS DB Peace Officer/Firefighter**
 - PERS DB Peace Officer/Firefighter members have a 10% Alaska COLA benefit amount (before applying any decrements, assumptions, or payment forms) for the deferred occupational married death benefit piece not equal to 10% of the regular benefit amount for this piece
 - We recommend Buck update this 10% Alaska COLA benefit component to be 10% of the regular benefit amount or provide an explanation as to why it is not.
- **Finding #4 - Service Eligibility for TRS DB**
 - A TRS DB member has different service amounts being used for death benefits eligibility.
 - We recommend Buck confirm which of these service amounts the Alaska DRB uses for eligibility and use that service amount consistently across all benefits.

Test Life Review - Findings

- **Finding #5 - Occupational Disability Benefit for PERS PF DCR OD&D**
 - A TRS DCR occupational disability member has their benefit being calculated assuming the service amount provided by the Alaska DRB is as of the date of disability.
 - We recommend Buck confirm with the Alaska DRB that this service amount is as of the date of disability, and not as of the valuation date.

Test Life Review – Findings

Communications with Buck

- We provided these findings to Buck
 - For the first four findings, Buck agreed they need to make some updates to their valuations
 - The fifth finding is still being reviewed
 - Both Buck and GRS agree these findings are immaterial and recommend they be included in the next valuation

Test Life Review – Summary

PERS DB Pension

| PERS DB - Active Test Case 1 - P/F Tier 1 | | | |
|---|----------------|------------------|-------------|
| <i>Basic Data:</i> | Current Age | Credited Service | Gender |
| | 57.6 | 15.5 | Male |
| Present Value of Benefits (PVB) | GRS | Buck | % Diff |
| Total Retirement PVB | 482,147 | 482,146 | 0.0% |
| Total Withdrawal PVB | - | - | 0.0% |
| Total Death PVB | 9,724 | 9,407 | 3.4% |
| Total Disability PVB | - | - | 0.0% |
| GRAND TOTAL PVB | 491,870 | 491,554 | 0.1% |

| PERS DB - Active Test Case 2 - Others Tier 2 | | | |
|--|---------------|------------------|-------------|
| <i>Basic Data:</i> | Current Age | Credited Service | Gender |
| | 67.3 | 6.7 | Female |
| Present Value of Benefits (PVB) | GRS | Buck | % Diff |
| Total Retirement PVB | 84,972 | 84,972 | 0.0% |
| Total Withdrawal PVB | - | - | 0.0% |
| Total Death PVB | 1,257 | 1,265 | -0.6% |
| Total Disability PVB | - | - | 0.0% |
| GRAND TOTAL PVB | 86,229 | 86,237 | 0.0% |

| PERS DB - Active Test Case 3 - P/F Tier 3 | | | |
|---|----------------|------------------|-------------|
| <i>Basic Data:</i> | Current Age | Credited Service | Gender |
| | 42.2 | 5.2 | Male |
| Present Value of Benefits (PVB) | GRS | Buck | % Diff |
| Total Retirement PVB | 177,490 | 177,490 | 0.0% |
| Total Withdrawal PVB | 30,583 | 30,584 | 0.0% |
| Total Death PVB | 6,955 | 6,994 | -0.6% |
| Total Disability PVB | 5,236 | 5,223 | 0.2% |
| GRAND TOTAL PVB | 220,264 | 220,290 | 0.0% |

| PERS DB - Inactive Test Cases | | | |
|--|---------|---------|--------|
| Present Value of Benefits (PVB) | GRS | Buck | % Diff |
| PERS Peace Officer/Firefighter - Retiree | 558,060 | 558,060 | 0.0% |
| PERS Peace Officer/Firefighter - Beneficiary | 463,295 | 463,061 | 0.1% |
| PERS Peace Officer/Firefighter - DV | 78,936 | 78,522 | 0.5% |
| PERS Others - Retiree | 692,135 | 692,135 | 0.0% |
| PERS Others - Beneficiary | 82,712 | 82,712 | 0.0% |
| PERS Others - DV | 57,846 | 57,499 | 0.6% |



Test Life Review – Summary

TRS DB Pension

TRS DB - Active Test Case 1 - Tier 1

| <u>Basic Data:</u> | <u>Current Age</u> | <u>Credited Service</u> | <u>Gender</u> |
|--|--------------------|-------------------------|---------------|
| | 69.0 | 12.6 | Female |
| Present Value of Benefits (PVB) | GRS | Buck | % Diff |
| <i>Total Retirement PVB</i> | 260,387 | 260,387 | 0.0% |
| <i>Total Withdrawal PVB</i> | - | - | 0.0% |
| <i>Total Death PVB</i> | 2,212 | 1,908 | 15.9% |
| <i>Total Disability PVB</i> | - | - | 0.0% |
| GRAND TOTAL PVB | 262,599 | 262,296 | 0.1% |

TRS DB - Active Test Case 2 - Tier 2

| <u>Basic Data:</u> | <u>Current Age</u> | <u>Credited Service</u> | <u>Gender</u> |
|--|--------------------|-------------------------|---------------|
| | 42.4 | 3.5 | Female |
| Present Value of Benefits (PVB) | GRS | Buck | % Diff |
| <i>Total Retirement PVB</i> | 52,201 | 52,201 | 0.0% |
| <i>Total Withdrawal PVB</i> | 21,778 | 21,778 | 0.0% |
| <i>Total Death PVB</i> | 835 | 814 | 2.6% |
| <i>Total Disability PVB</i> | 1,853 | 1,762 | 5.2% |
| GRAND TOTAL PVB | 76,667 | 76,554 | 0.1% |

TRS DB - Active Test Case 3 - Tier 2

| <u>Basic Data:</u> | <u>Current Age</u> | <u>Credited Service</u> | <u>Gender</u> |
|--|--------------------|-------------------------|---------------|
| | 47.8 | 7.0 | Female |
| Present Value of Benefits (PVB) | GRS | Buck | % Diff |
| <i>Total Retirement PVB</i> | 150,782 | 150,782 | 0.0% |
| <i>Total Withdrawal PVB</i> | 28,919 | 28,919 | 0.0% |
| <i>Total Death PVB</i> | 1,836 | 1,825 | 0.6% |
| <i>Total Disability PVB</i> | 2,644 | 2,591 | 2.0% |
| GRAND TOTAL PVB | 184,181 | 184,118 | 0.0% |

TRS DB - Inactive Test Cases

| Present Value of Benefits (PVB) | GRS | Buck | % Diff |
|---|------------|-------------|---------------|
| <i>TRS - Retiree - Female, Tier 1</i> | 443,684 | 443,684 | 0.0% |
| <i>TRS - DV - Female, Tier 2</i> | 70,976 | 70,658 | 0.5% |
| <i>TRS - Beneficiary - Female, Tier 2</i> | 199,134 | 199,067 | 0.0% |



Test Life Review – Summary

PERS Retiree Health

| Actives | Test Case 1 - PF Tier 1 | | | Test Case 2 - Other Tier 2 | | | Test Case 3 - P/F Tier 3 | | |
|--|--------------------------------|----------------|---------------|-----------------------------------|---------------|---------------|---------------------------------|----------------|---------------|
| <u>Basic Data:</u> | | | | | | | | | |
| Sex | Male | | | Female | | | Male | | |
| Current Age | 57.57 | | | 67.30 | | | 42.24 | | |
| Current Credited Service | 20.47 | | | 6.74 | | | 5.19 | | |
| Present Value of Benefits (PVB) | GRS* | Buck | % Diff | GRS | Buck | % Diff | GRS | Buck | % Diff |
| <u>Retirement:</u> | | | | | | | | | |
| Tier x <Member> | 147,044 | 147,026 | 0.0% | 35,847 | 35,845 | 0.0% | 81,402 | 81,387 | 0.0% |
| Tier x <Spouse> | 139,495 | 135,988 | 2.6% | 18,673 | 18,651 | 0.1% | 75,128 | 71,763 | 4.7% |
| Contrib Tier x <Member> | - | - | 0.0% | - | - | 0.0% | 900 | 899 | 0.0% |
| Contrib Tier x <Spouse> | - | - | 0.0% | - | - | 0.0% | 677 | 677 | 0.0% |
| Post 65 Part D Tier x <Member> | 18,460 | 18,459 | 0.0% | 6,915 | 6,914 | 0.0% | 8,897 | 8,896 | 0.0% |
| Post 65 Part D Tier x <Spouse> | 13,847 | 13,846 | 0.0% | 3,576 | 3,576 | 0.0% | 6,514 | 6,513 | 0.0% |
| Total Retirement PVB | 254,232 | 250,708 | 1.4% | 44,029 | 44,007 | 0.1% | 139,542 | 136,164 | 2.5% |

| Inactives - PVB | GRS | Buck | % Diff |
|--|------------|-------------|---------------|
| Retiree - P/F Tier 2 - Female | 305,408 | 305,377 | 0.0% |
| Beneficiary - P/F Tier 2 - Female | 156,465 | 156,432 | 0.0% |
| Vested Termination - P/F Tier 3 - Male | 170,838 | 171,857 | -0.6% |
| Retiree - Other Tier 2 - Female | 87,500 | 87,486 | 0.0% |
| Beneficiary - Other Tier 1 - Male | 92,909 | 92,894 | 0.0% |
| Vested Termination - Other Tier 1 - Male | 225,975 | 230,674 | -2.0% |



Test Life Review – Summary

TRS Retiree Health

| Actives | Test Case 1 - Tier 1 | | |
|---------------------------------|----------------------|----------------|-------------|
| Basic Data: | | | |
| Sex | Female | | |
| Current Age | 69.00 | | |
| Current Credited Service | 12.60 | | |
| Present Value of Benefits (PVB) | GRS | Buck | % Diff |
| Retirement: | | | |
| Tier x <Member> | 98,578 | 98,570 | 0.0% |
| Tier x <Spouse> | 50,812 | 50,811 | 0.0% |
| Post 65 Part D Tier x <Member> | (19,010) | (19,009) | 0.0% |
| Post 65 Part D Tier x <Spouse> | (9,764) | (9,764) | 0.0% |
| Contrib <Member> | - | - | 0.0% |
| Contrib <Spouse> | - | - | 0.0% |
| Total Retirement PVB | 120,615 | 120,609 | 0.0% |

| Test Case 2 - Tier 2 | | | Test Case 3 - Tier 2 | | |
|----------------------|----------------|-------------|----------------------|---------------|-------------|
| Female | | | Female | | |
| 47.75 | | | 42.43 | | |
| 7.00 | | | 3.50 | | |
| GRS | Buck | % Diff | GRS | Buck | % Diff |
| 90,701 | 90,683 | 0.0% | 49,227 | 49,217 | 0.0% |
| 45,053 | 43,094 | 4.5% | 24,528 | 23,409 | 4.8% |
| (11,634) | (11,632) | 0.0% | (6,257) | (6,256) | 0.0% |
| (6,804) | (6,803) | 0.0% | (3,680) | (3,680) | 0.0% |
| (718) | (717) | 0.0% | (366) | (366) | 0.0% |
| (429) | (429) | 0.0% | (219) | (219) | 0.0% |
| 116,169 | 114,196 | 1.7% | 63,232 | 62,105 | 1.8% |

| Inactives - PVB | GRS | Buck | % Diff |
|--------------------------|---------|---------|--------|
| Retiree - Male | 180,702 | 180,677 | 0.0% |
| Vested Termination -Male | 191,153 | 193,435 | -1.2% |
| Retiree - Male | 174,434 | 172,511 | 1.1% |



Test Life Review – Summary

PERS and TRS DCR Occupational Death & Disability

| DCR Active Test Case 1 PERS Other | | | |
|--|--------------------|-------------------------|---------------|
| <u>Basic Data:</u> | <u>Current Age</u> | <u>Credited Service</u> | <u>Sex</u> |
| | 56.14 | 6.66 | Female |
| Present Value of Benefits (PVB) | GRS | Buck | % Diff |
| Total Disability PVB | 1,047.51 | 1,048.04 | -0.1% |
| Total Death PVB | 390.62 | 390.60 | 0.0% |
| GRAND TOTAL PVB | 1,438.12 | 1,438.64 | 0.0% |

| DCR Active Test Case 2 PERS P/F | | | |
|--|--------------------|-------------------------|---------------|
| <u>Basic Data:</u> | <u>Current Age</u> | <u>Credited Service</u> | <u>Sex</u> |
| | 37.73 | 8.26 | Male |
| Present Value of Benefits (PVB) | GRS | Buck | % Diff |
| Total Disability PVB | 7,911.43 | 7,911.15 | 0.0% |
| Total Death PVB | 1,884.77 | 1,884.83 | 0.0% |
| GRAND TOTAL PVB | 9,796.21 | 9,795.98 | 0.0% |

| DCR Active Test Case 3 TRS | | | |
|--|--------------------|-------------------------|---------------|
| <u>Basic Data:</u> | <u>Current Age</u> | <u>Credited Service</u> | <u>Sex</u> |
| | 49.33 | 10.00 | Female |
| Present Value of Benefits (PVB) | GRS | Buck | % Diff |
| Total Disability PVB | 404.26 | 404.26 | 0.0% |
| Total Death PVB | 232.50 | 232.52 | 0.0% |
| GRAND TOTAL PVB | 636.75 | 636.78 | 0.0% |

| DCR Inactive Test Cases | | | |
|--|------------|-------------|---------------|
| Present Value of Benefits (PVB) | GRS | Buck | % Diff |
| PERS Other - Disability | 104,971.07 | 105,056.00 | -0.1% |
| PERS P/F - Disability | 640,778.98 | 640,657.00 | 0.0% |
| TRS - Disability | 184,262.54 | 176,511.00 | 4.4% |



Test Life Review – Summary

PERS and TRS DCR Retiree Health

| Actives | Test Case 1 - PERS Other | | | Test Case 2 - PERS PF | | | Test Case 3 - TRS | | |
|--|---------------------------------|------------------|---------------|------------------------------|------------------|---------------|--------------------------|------------------|---------------|
| <u>Basic Data:</u> | | | | | | | | | |
| Sex | Female | | | Male | | | Female | | |
| Current Age | 56.14 | | | 37.73 | | | 49.3333 | | |
| Current Credited Service | 6.16 | | | 8.26 | | | 10.00 | | |
| Present Value of Benefits (PVB) | GRS | Buck | % Diff | GRS | Buck | % Diff | GRS | Buck | % Diff |
| <u>Retirement:</u> | | | | | | | | | |
| Post 65 DCR <Member> | 23,695.24 | 23,736.33 | -0.2% | 12,727.27 | 12,587.32 | 1.1% | 15,736.80 | 15,769.20 | -0.2% |
| Post 65 DCR <Spouse> | 12,758.30 | 12,780.36 | -0.2% | 12,974.40 | 12,812.96 | 1.3% | 8,459.26 | 8,476.71 | -0.2% |
| Contrib DCR <Member> | (5,591.08) | (5,599.14) | -0.1% | (1,500.67) | (1,314.04) | 14.2% | (2,139.58) | (2,086.07) | 2.6% |
| Contrib DCR <Spouse> | (3,012.20) | (3,016.54) | -0.1% | (1,560.48) | (1,345.46) | 16.0% | (1,151.68) | (1,123.14) | 2.5% |
| Post 65 Part D DCR <Member> | 3,763.09 | 3,886.02 | -3.2% | 2,468.88 | 2,429.60 | 1.6% | 2,910.99 | 2,929.25 | -0.6% |
| Post 65 Part D DCR <Spouse> | 2,006.00 | 2,087.21 | -3.9% | 1,900.11 | 1,871.54 | 1.5% | 1,562.90 | 1,572.65 | -0.6% |
| Total Retirement PVB | 33,619.33 | 33,874.24 | -0.8% | 27,009.50 | 27,041.92 | -0.1% | 25,378.70 | 25,538.60 | -0.6% |

| Inactives - PVB | GRS | Buck | % Diff |
|-------------------------|------------|-------------|---------------|
| PERS Other - Disability | 72,971.21 | 75,240.00 | -3.0% |
| PERS P/F - Disability | 67,965.46 | 69,620.00 | -2.4% |
| TRS - Disability | 75,216.82 | 77,396.00 | -2.8% |



Summary of Recommendations

- We recommend Buck examine experience under the current assumptions in the upcoming experience study to determine if they are working as intended or need to be modified.
- We recommend Buck continues to track the medical claims experience closely, particularly any further impact from the plan changes or COVID-19 experience.
- We recommend Buck review with the Board whether to implement a new entrant/rehire assumption in the DCR plan.
- We recommend Buck continue to disclose the nature and impact of all programming changes included in the valuation.
- We recommend Buck generate a new gain/loss item that tracks the experience of the EGWP savings assumption.
- We recommend that Buck implement the changes to their valuation methods as detailed in findings of the test life review.
- We recommend Buck make some small modifications to their valuation reports to improve communication and disclosures.

Questions?





State of Alaska Retirement Systems

Presentation to ARMB Actuarial Committee

2021 Experience Study – Demographic Assumptions,
Updated Economic Assumptions

March 16, 2022

Contents

| | Slide |
|--|--------------|
| Background | 4-6 |
| Demographic Assumptions | |
| - Background | 8-10 |
| - Mortality | 12-25 |
| - Retirement | 27-34 |
| - Withdrawal | 36-46 |
| - Other | 48-51 |
| Updated Economic Assumptions | 53-57 |
| Cost Effects of Proposed Assumptions | 59-65 |
| Appendix (A/E Ratios, Current and Proposed Decrements) | 67-86 |
| Actuarial Certification | 88-89 |

Background

Background

- Under AS 37.10.220(a)(9), the ARMB requests the plan actuary to conduct an experience analysis of the retirement systems at least once every four years (except healthcare costs and trend rates are analyzed annually)
- The last experience study covered the experience for the 4-year period July 1, 2013 to June 30, 2017
 - New assumptions adopted by the ARMB were effective beginning with the June 30, 2018 valuations
- The current experience study covers the experience for the 4-year period July 1, 2017 to June 30, 2021
 - New assumptions adopted by the ARMB will be effective beginning with the June 30, 2022 valuations
- The experience study covers *economic* and *demographic* assumptions
 - Proposed economic assumptions were initially discussed at the December 2021 meeting
 - Today's presentation includes an analysis of the demographic assumptions, along with updated economic assumptions

Background (cont'd)

- Each assumption used in the valuation should represent the actuary's **best estimate of reasonable long-term expectations**
 - An assumption is considered reasonable if it is not anticipated to result in significant cumulative gains or losses over time
 - Each assumption should be evaluated considering its materiality on the valuation results
 - The assumptions should be consistent with each other
 - Typically, a range of reasonableness applies for each assumption
 - Past experience should be considered, but not given undue influence if future expectations differ
- Although the analysis of experience during the last 4-year period involves a lot of numbers and data, the overall process of setting assumptions is a blend of art and science

Background (cont'd)

- Actuarial Standard of Practice No. 51 (ASOP 51) requires the actuary to identify risks that, in his/her professional judgment, may reasonably be anticipated to significantly affect the plan's future financial condition
- The more significant risk factors affecting future funded ratios and contribution rates of the plans are:
 - Investment Risk – future investment returns will be different than the assumed rate
 - Contribution Risk – the actuarially determined contribution is not deposited to the trust each year
 - Long-Term Return on Investment Risk – changes in capital market assumptions or the asset allocation will create the need to update the long-term investment return assumption
 - Longevity Risk – mortality rates of participants and beneficiaries will be different than assumed
 - Salary Increase Risk – future salary increases will be different than assumed
 - Inflation Risk – changes in the CPI will be different than assumed
 - Other Demographic Risk – retirement and withdrawal patterns will be different than assumed
- An experience study is performed every 4 years to assess whether the assumptions being used in the annual actuarial valuations should be changed to better match future experience, thereby managing these risk factors

Demographic Assumptions

Demographic Assumptions - Background

- Demographic assumptions are used to predict expected patterns of behavior of plan participants
 - Mortality
 - Retirement
 - Withdrawal (termination of employment)
 - Disability
 - Occupational-related death and disability
 - Withdrawal of contributions upon termination
 - Rehires
 - Unused sick days (TRS)
 - Population growth rate
 - Alaska residency for COLA
 - Part-time service
 - Percent electing lump sums (NGNMRS)
 - Healthcare dependent assumptions
 - Medicare Part B only
 - Healthcare participation
 - Healthcare morbidity

Demographic Assumptions – Background (cont'd)

- We analyzed plan experience for the 4-year period July 1, 2017 to June 30, 2021
- Data used is the same as the data from the annual valuations
- Actual experience (A) was compared to expected experience (E) based on the current demographic assumptions
 - A/E ratios were developed for each assumption that had credible experience
 - See Appendix for further details
- For some decrements (e.g., disability) or small groups (e.g., JRS), there was insufficient experience; in these cases, we are proposing no changes to the current assumptions

Demographic Assumptions – Background (cont'd)

- Experience was analyzed on a *liability*-weighted basis for mortality (pension), retirement and ultimate withdrawal; and on a *headcount* basis for other assumptions
- Differences between headcount-weighted and liability-weighted analysis:
 - On a headcount-weighted basis, each person who decrements (changes status) counts equally
 - On a liability-weighted basis, those who decrement are treated differently depending on their respective liabilities
- Example
 - Two people from the same tier retire with unreduced benefits – one at age 50 and the other at age 62
 - They both have the same average salary and the same benefit service (i.e., the *amount* of their retirement benefit is the same)
 - On a *headcount*-weighted basis, each person counts as one in terms of changing from active to retired status
 - The 50-year old has significantly higher liabilities than the 62-year old because benefits are expected to be paid over a longer period of time
 - The *liability*-weighted impact of the 50-year old is much different than the *liability*-weighted impact of the 62-year old

Mortality Assumption

Mortality Assumption

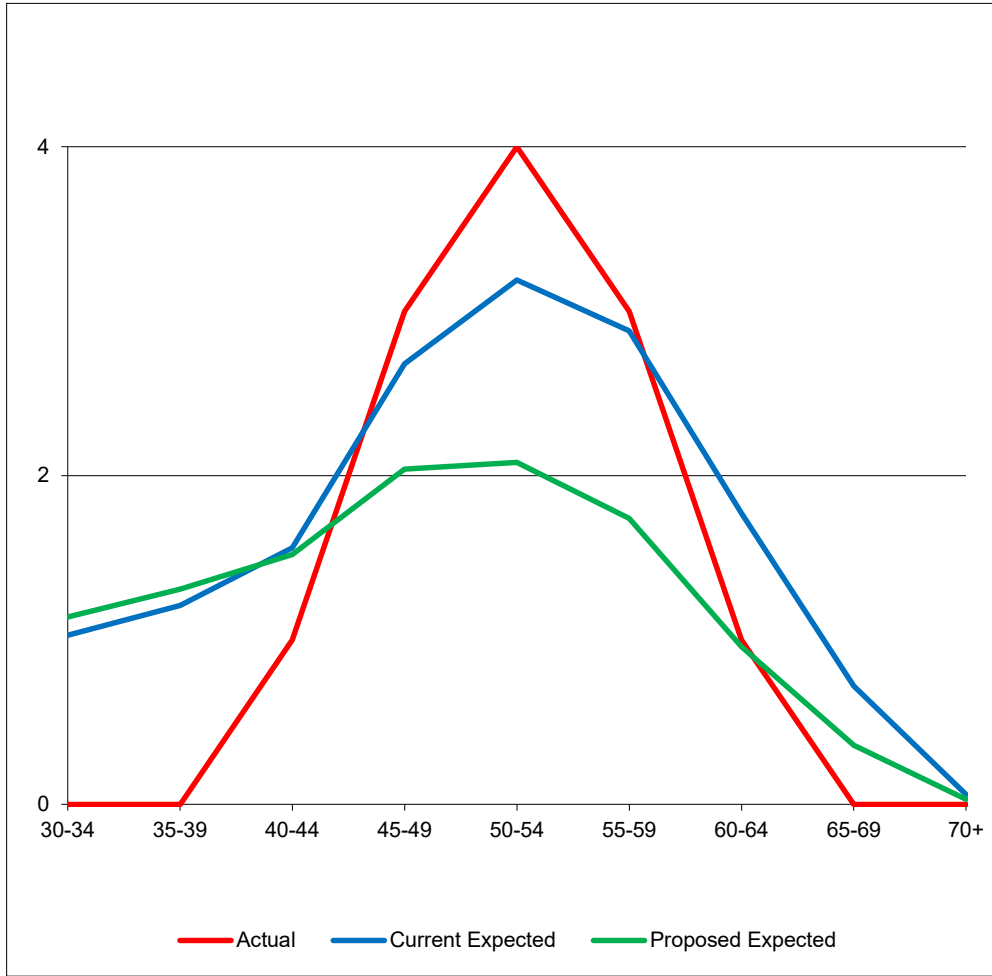
- A mortality assumption typically includes
 - A *base table* with mortality rates that typically differ by gender, age, and occupation
 - A *mortality improvement scale* projects future changes in mortality rates; most recently developed improvement scales project future changes in mortality by age and year of birth (those born more recently are expected to live longer); these are called *generational* mortality improvement scales
 - The Society of Actuaries publishes annual updates to standard mortality improvement scales
- The current mortality assumption was set based on the 2017 experience study
 - Base Table: RP-2014
 - Generational Mortality Improvement Scale: MP-2017
 - Percentages of base table rates are used for certain groups to match plan experience
- Credibility factors were applied if mortality experience was partially statistically credible
- Since the 2017 experience study was completed, the Society of Actuaries has published mortality tables that are specific to the public sector, including separate tables for Safety employees, Teachers, and General employees (these public sector-specific mortality tables are referred to as Pub-2010)

Mortality Assumption (cont'd)

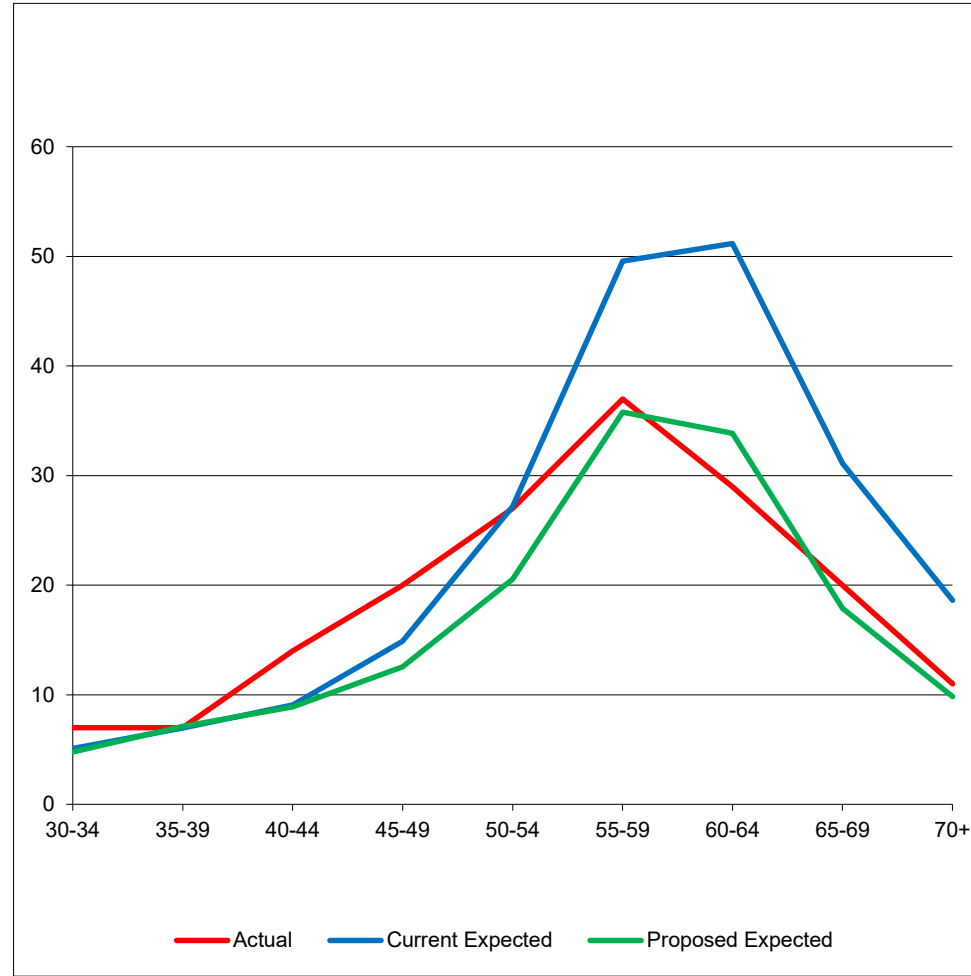
- We propose Pub-2010 mortality tables that differ by plan/group:
 - PERS and PERS DCR
 - Peace/Fire – Pub-2010 *Safety*
 - Others – Pub-2010 *General*
 - TRS and TRS DCR
 - Pub-2010 *Teachers*
 - JRS
 - Pub-2010 *General Above-Median*
 - NGNMRS
 - Pub-2010 *Safety*
- For the mortality improvement scale, we propose updating to the most recently-published generational mortality improvement scale as of the date of each annual valuation

Pre-Commencement Mortality Experience – PERS/PERS DCR

Headcounts – Peace/Fire



Headcounts – Others



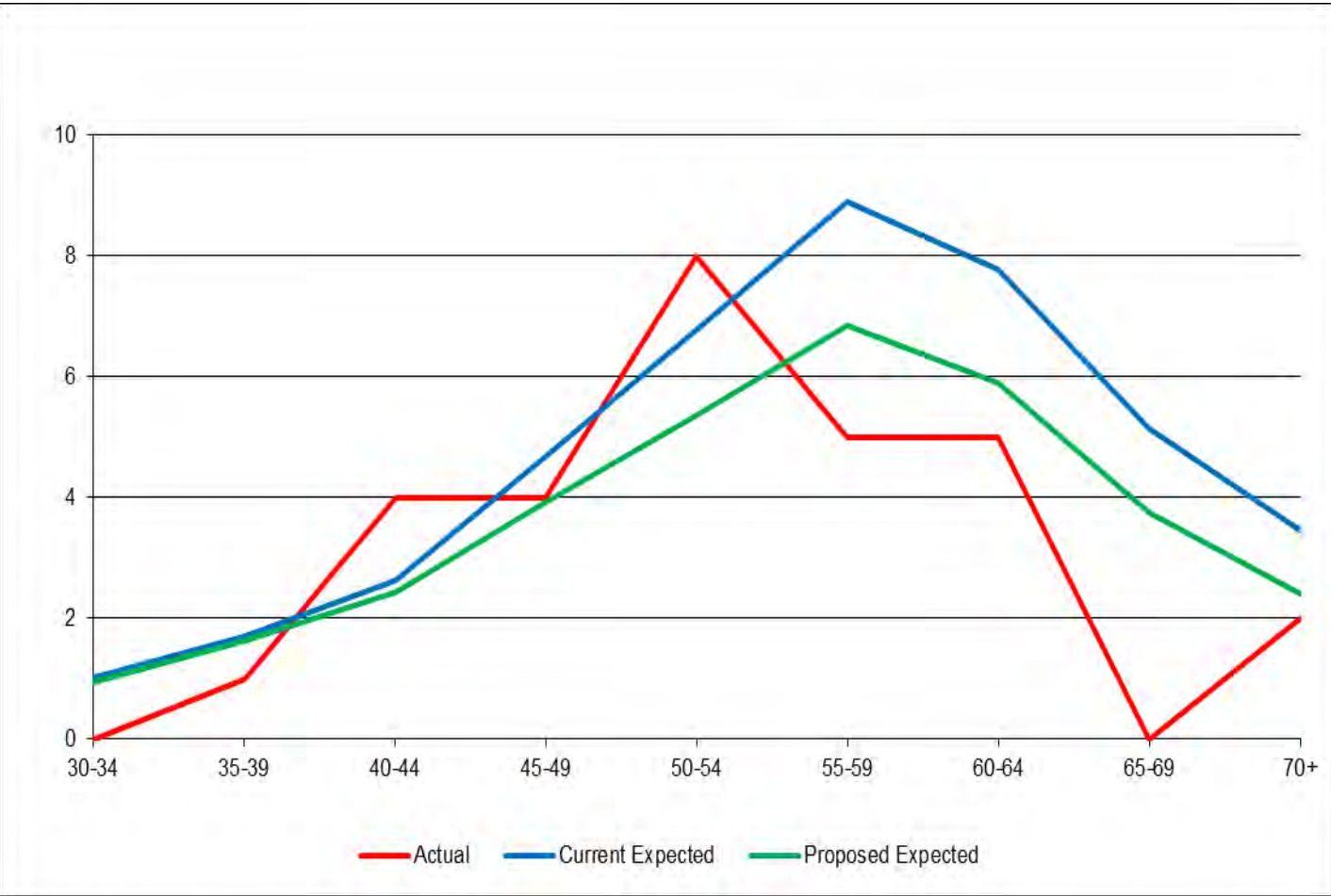
Not enough experience to be statistically credible

Proposed rates for pension: Pub-2010 employee benefit-weighted table (Safety for Peace/Fire; General for Others)

Proposed rates for healthcare: Pub-2010 employee headcount-weighted table (Safety for Peace/Fire; General for Others)

Pre-Commencement Mortality Experience – TRS/TRS DCR

Headcounts



Not enough experience to be statistically credible

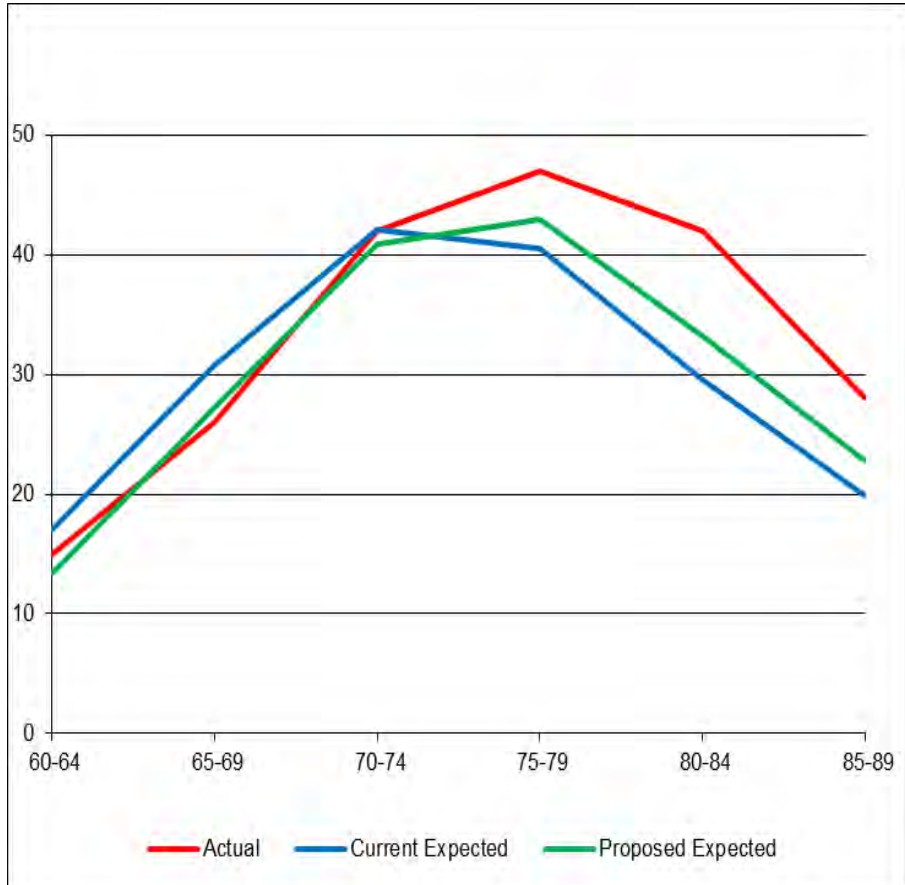
Proposed rates for pension: Pub-2010 employee benefit-weighted Teachers table

Proposed rates for healthcare: Pub-2010 employee headcount-weighted Teachers table

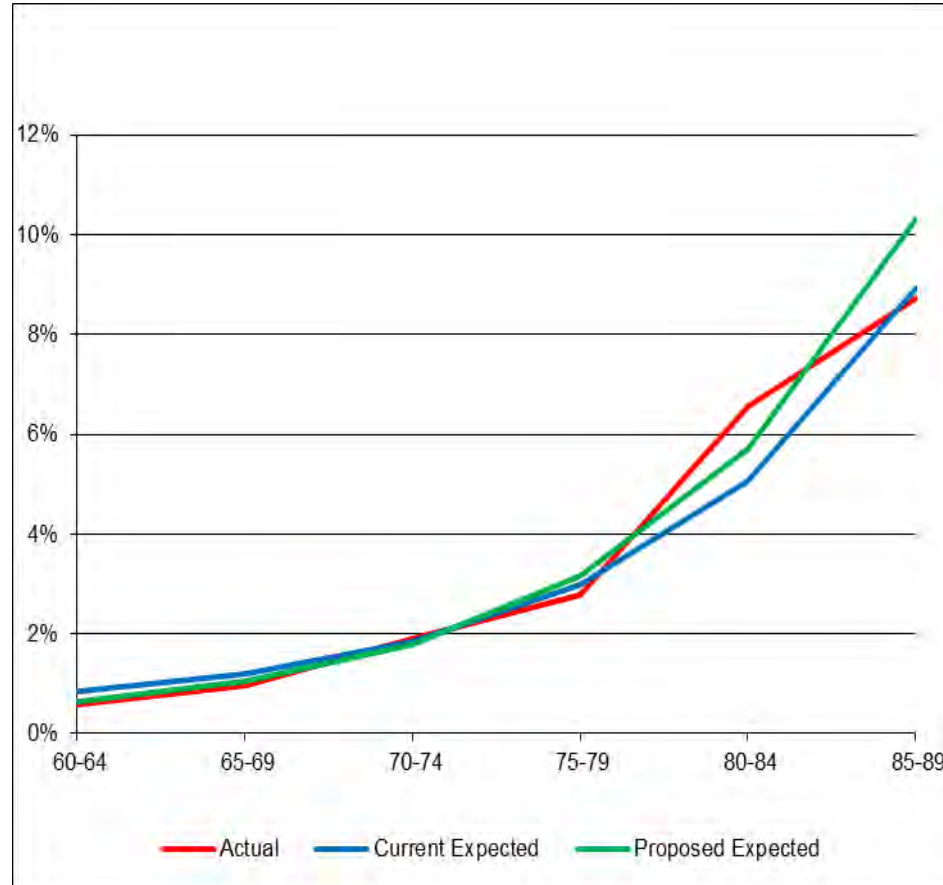
Post-Commencement Mortality Experience – PERS/PERS DCR

Peace/Fire - Retirees

Headcounts



Liability-Weighted Rates



Experience was partially credible

Proposed rates for pension:
Pub-2010 Retiree Benefit-
Weighted Safety Table

Proposed rates for
healthcare: Pub-2010
Retiree Headcount-
Weighted Safety Table

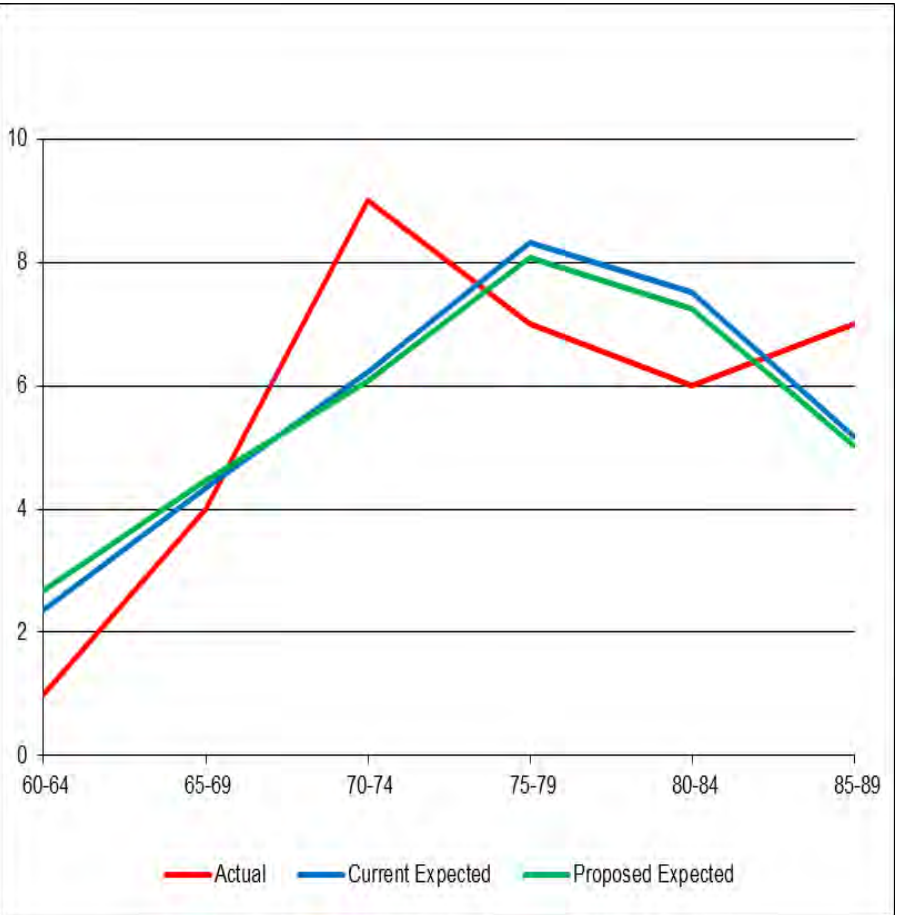
A/E Ratios:

- Current = 92%
- Proposed = 96%

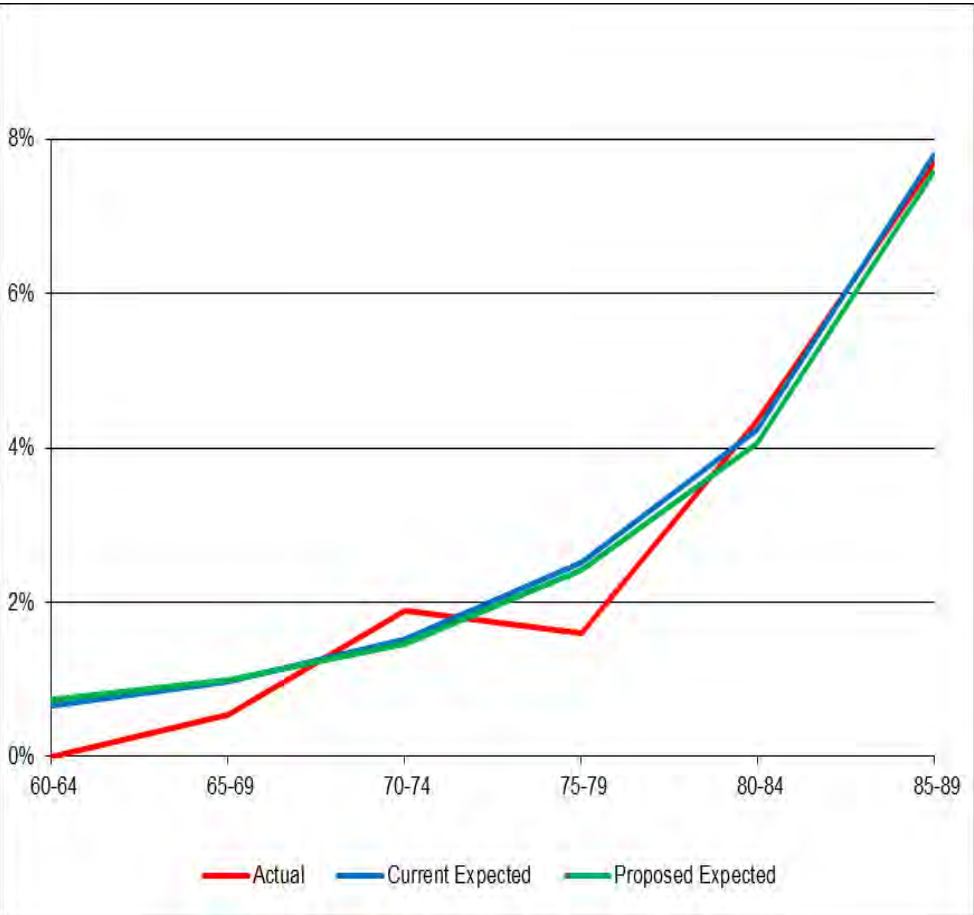
Post-Commencement Mortality Experience – PERS/PERS DCR

Peace/Fire - Beneficiaries

Headcounts



Liability-Weighted Rates



Not enough experience to be statistically credible

Proposed rates for pension: Pub-2010 Contingent Survivor Benefit-Weighted Table

Proposed rates for healthcare: Pub-2010 Contingent Survivor Headcount-Weighted Table

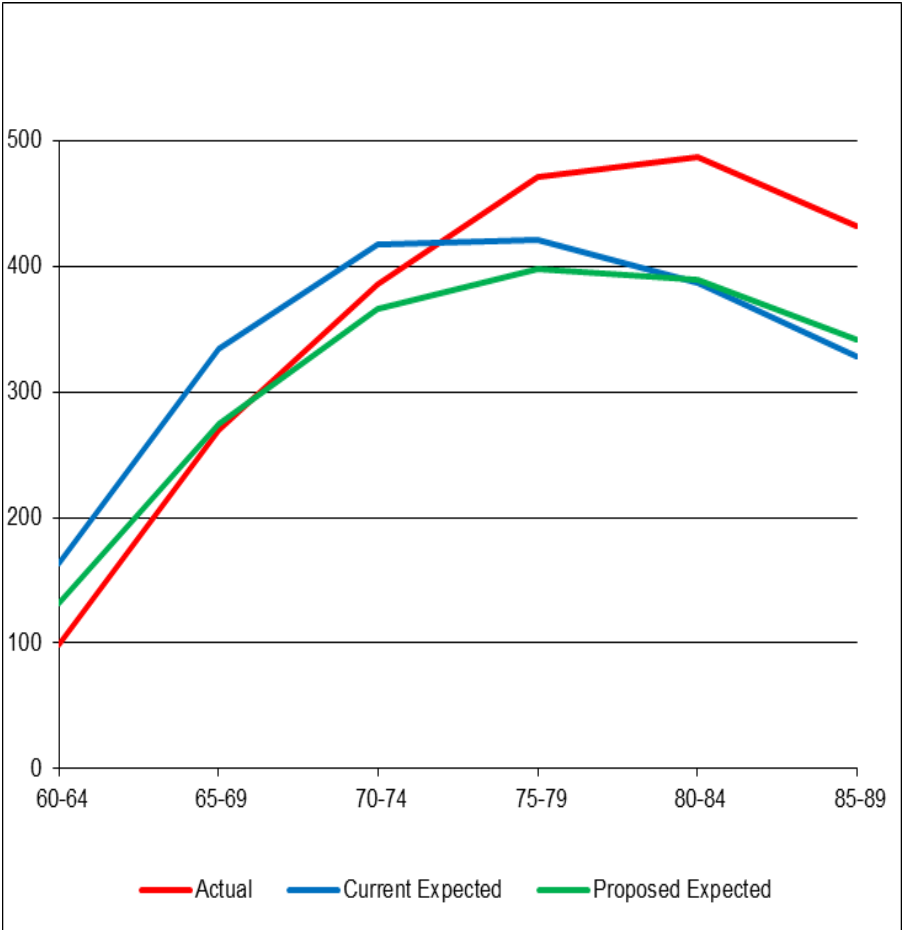
A/E Ratios:

- Current = 91%
- Proposed = 90%

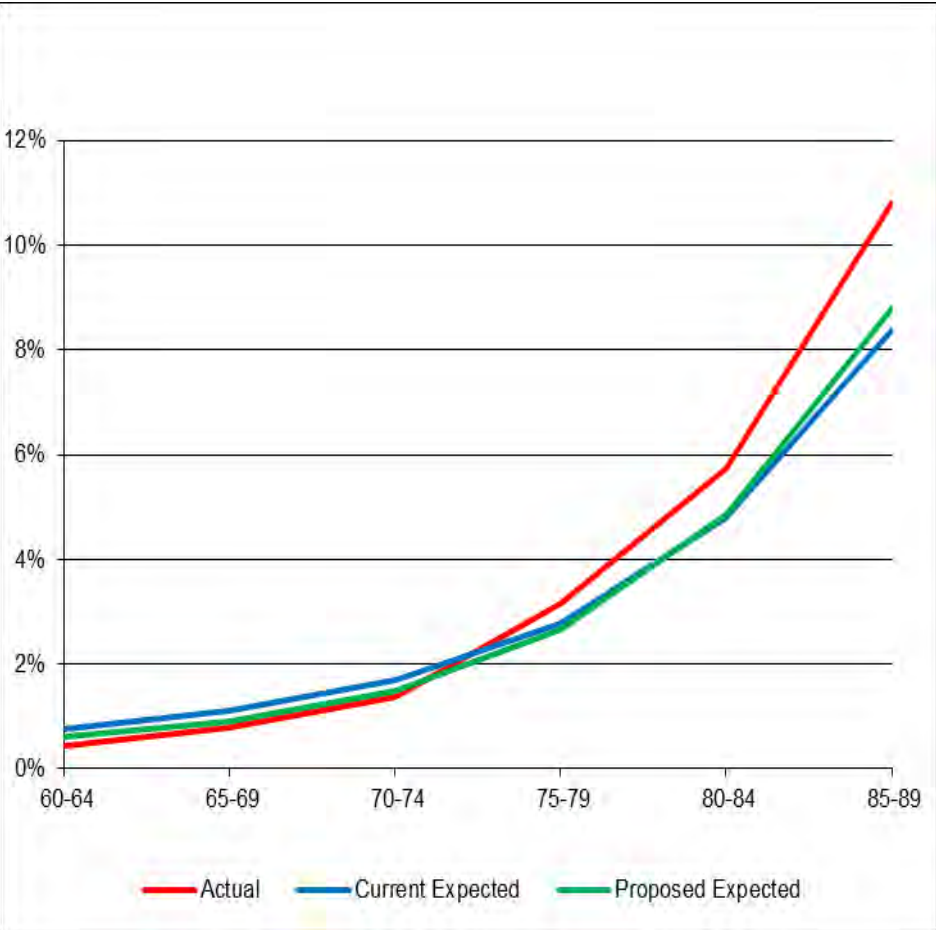
Post-Commencement Mortality Experience – PERS/PERS DCR

Others - Retirees

Headcounts



Liability-Weighted Rates



Experience was partially credible

Proposed rates for pension: Pub-2010 Retiree Benefit-Weighted General Table (98% of male rates; 106% of female rates)

Proposed rates for healthcare: Pub-2010 Retiree Headcount-Weighted General Table (101% of male rates; 110% of female rates)

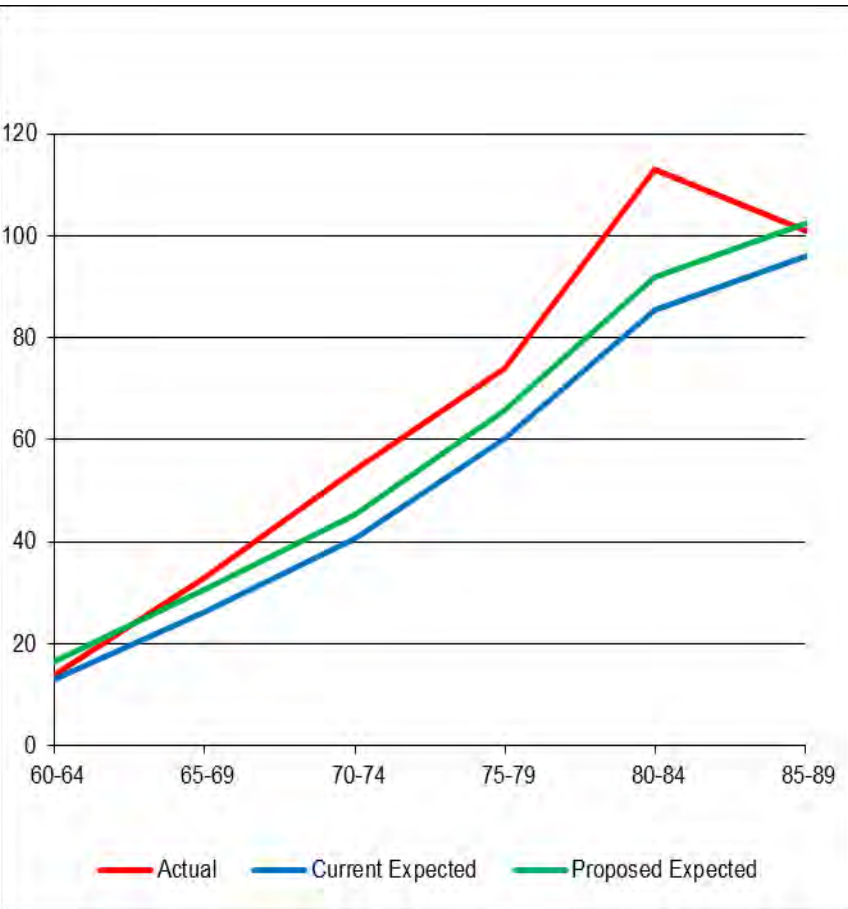
A/E Ratios:

- Current = 91%
- Proposed = 100%

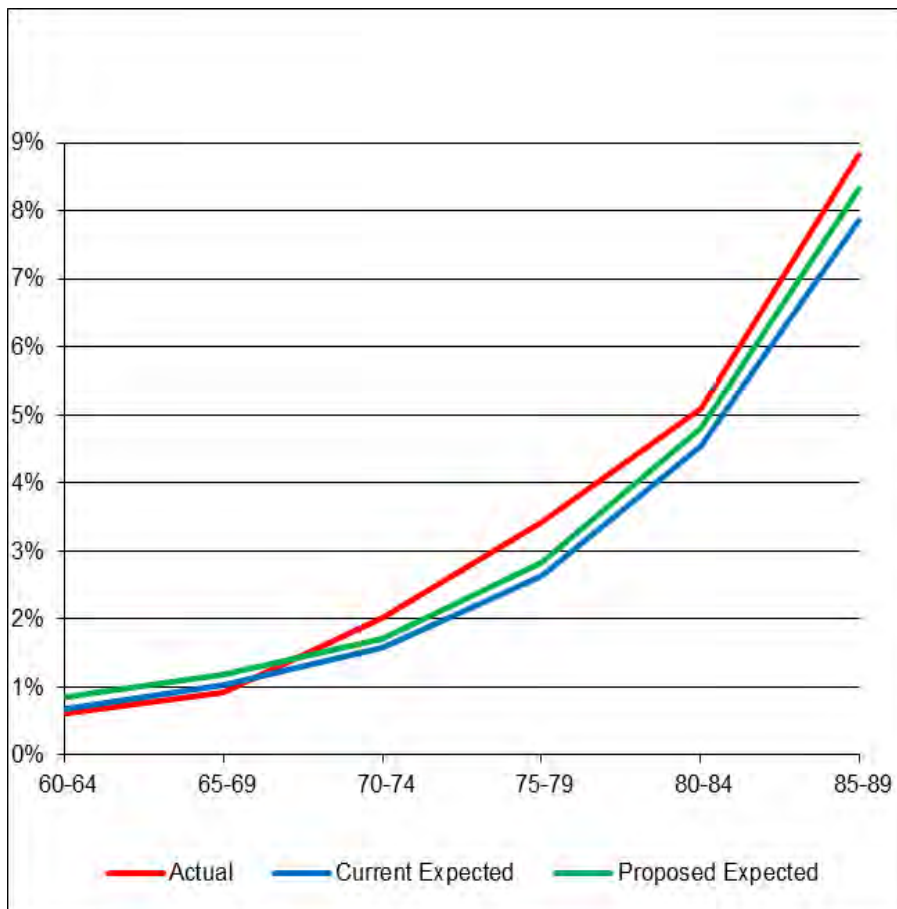
Post-Commencement Mortality Experience – PERS/PERS DCR

Others - Beneficiaries

Headcounts



Liability-Weighted Rates



Experience was partially credible

Proposed rates for pension: Pub-2010 Contingent Survivor Benefit-Weighted Table (102% of male rates; 108% of female rates)

Proposed rates for healthcare: Pub-2010 Contingent Survivor Headcount-Weighted Table (101% of male rates; 108% of female rates)

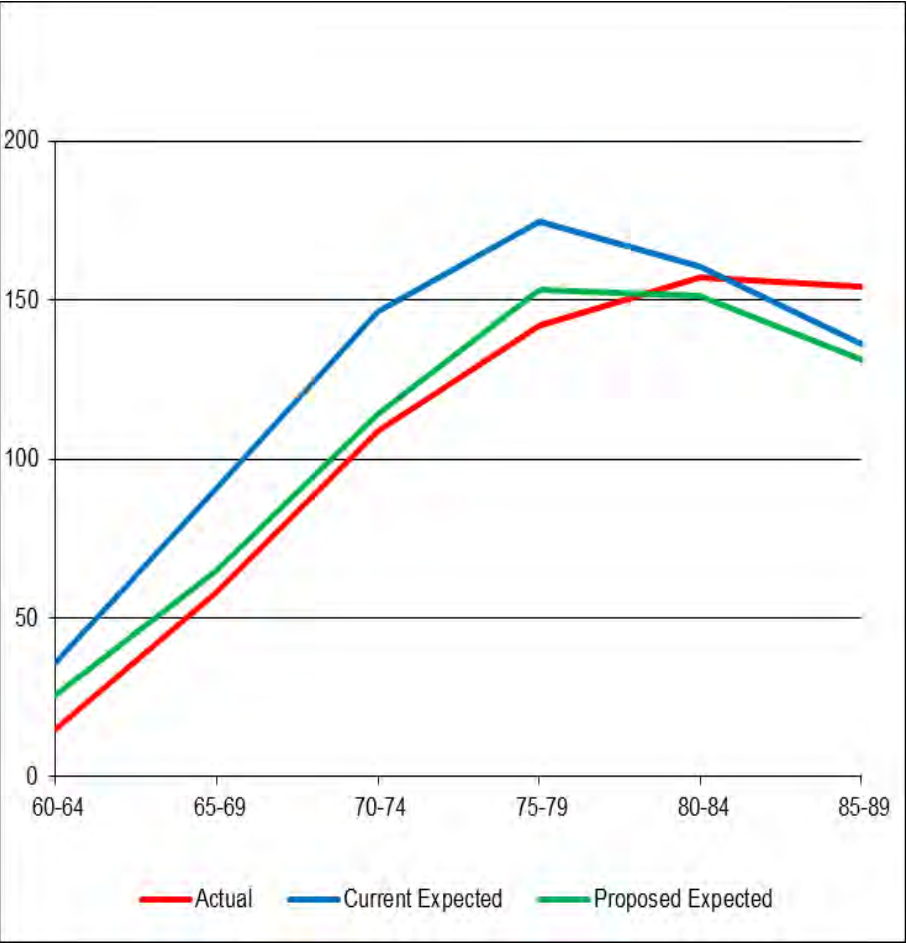
A/E Ratios:

- Current = 119%
- Proposed = 109%

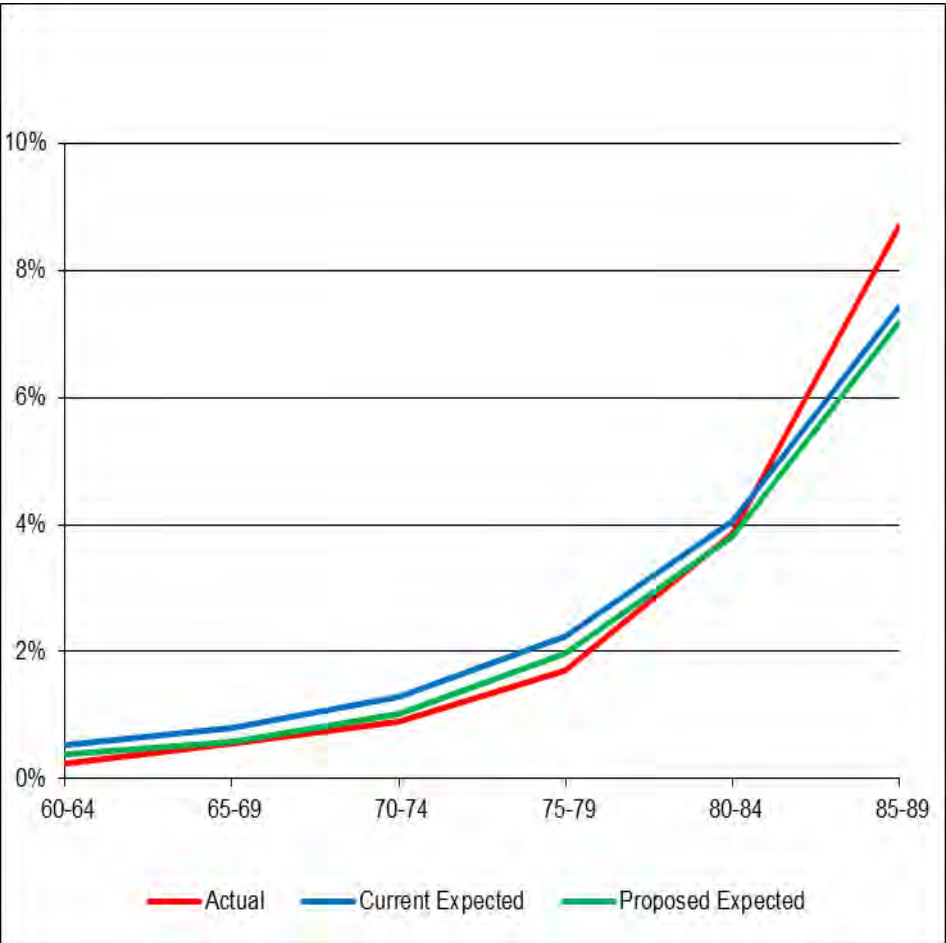
Post-Commencement Mortality Experience – TRS/TRS DCR

Retirees

Headcounts



Liability-Weighted Rates



Experience was partially credible

Proposed rates for pension: Pub-2010 Retiree Benefit-Weighted Teachers Table (97% of male rates; 97% of female rates)

Proposed rates for healthcare: Pub-2010 Retiree Headcount-Weighted Teachers Table (98% of male rates; 100% of female rates)

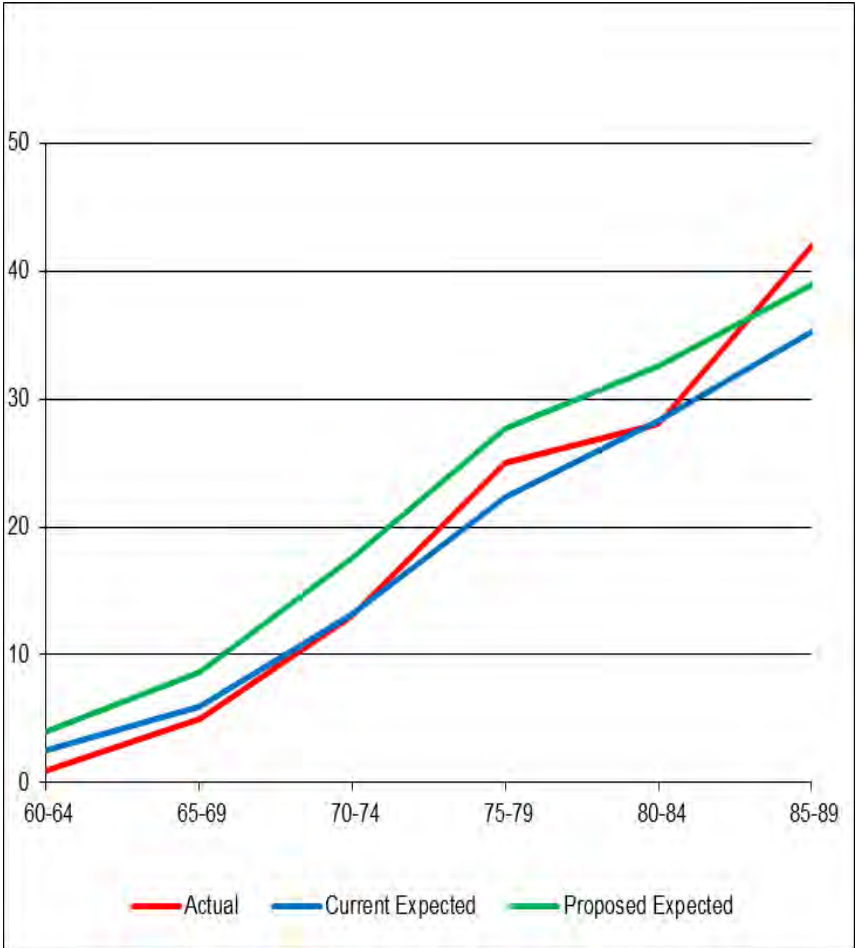
A/E Ratios:

- Current = 84%
- Proposed = 98%

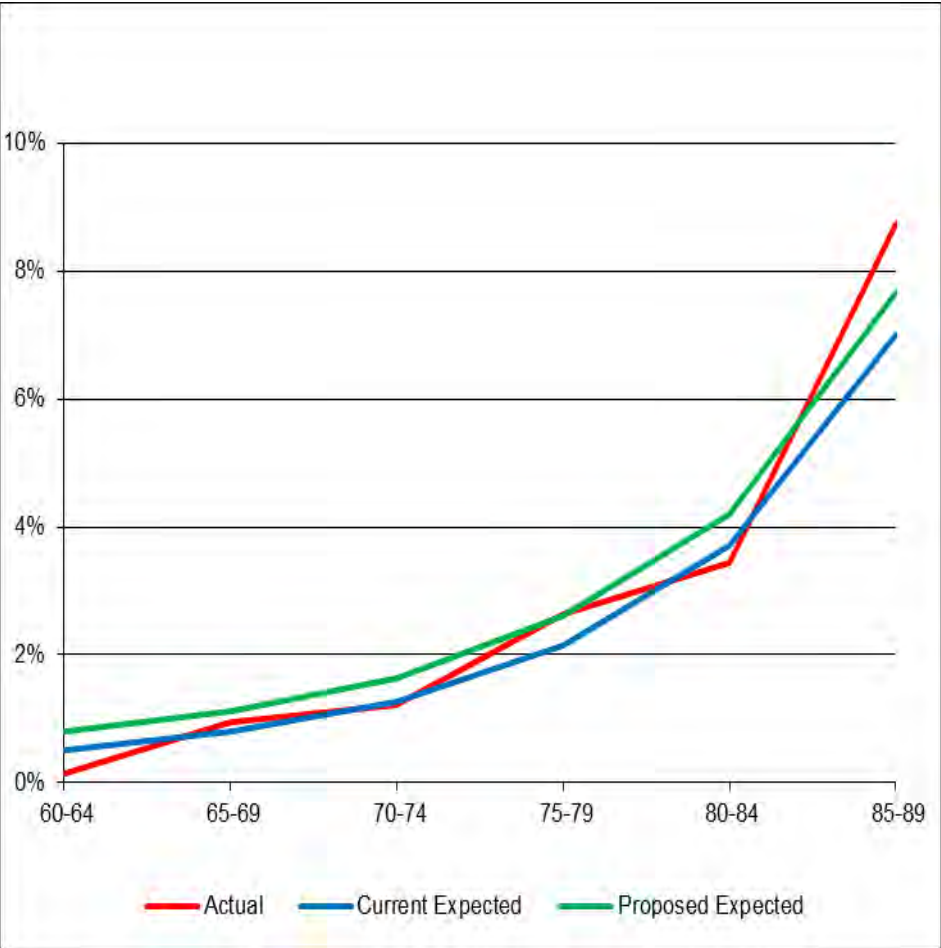
Post-Commencement Mortality Experience – TRS/TRS DCR

Beneficiaries

Headcounts



Liability-Weighted Rates



Experience was partially credible

Proposed rates for pension: Pub-2010 Contingent Survivor Benefit-Weighted Table (100% of male rates; 95% of female rates)

Proposed rates for healthcare: Pub-2010 Contingent Survivor Headcount-Weighted Table (100% of male rates; 94% of female rates)

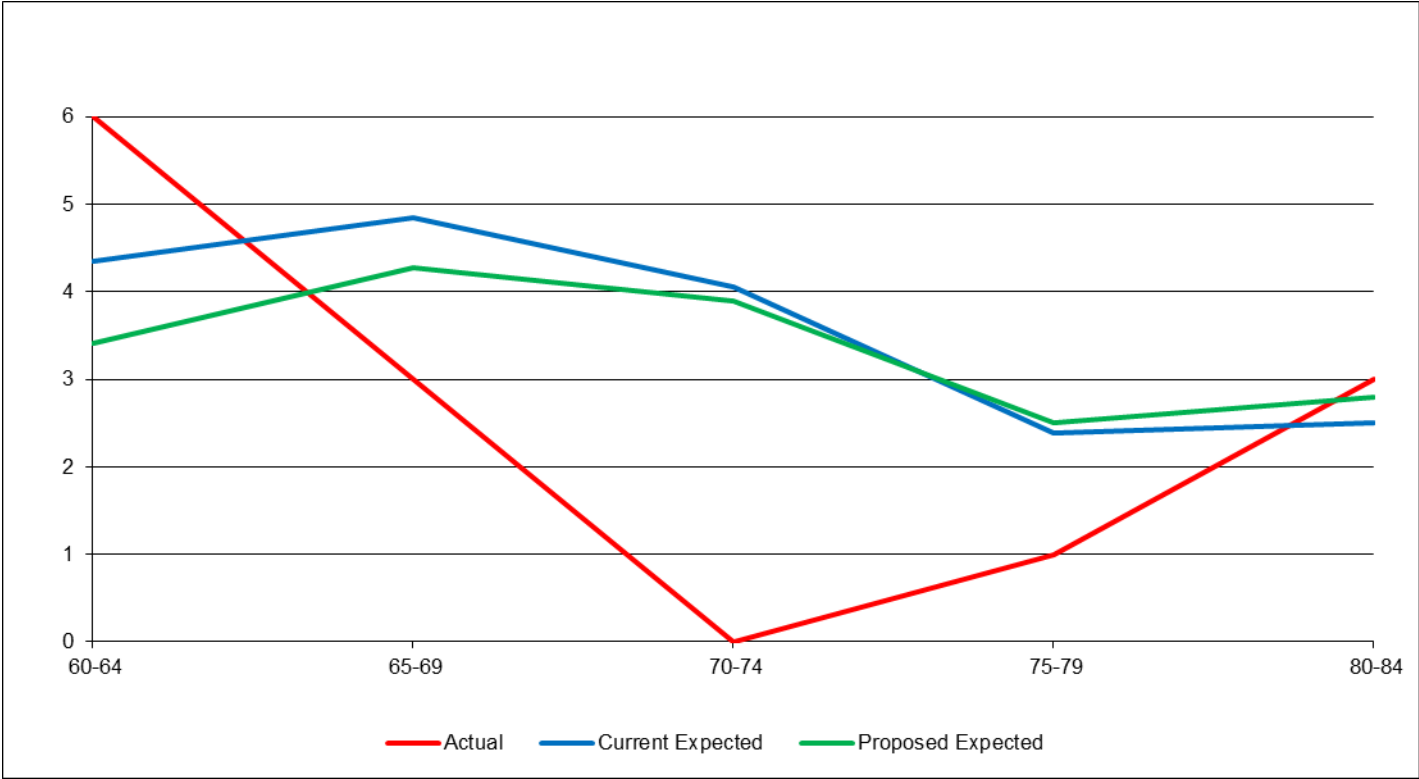
A/E Ratios:

- Current = 108%
- Proposed = 92%

Post-Commencement Mortality Experience – NGNMRS

Retirees

Headcounts



Not enough experience to be statistically credible

Proposed rates: Pub-2010 employee benefit-weighted Safety table

Current and Proposed Mortality Assumption

Pre-Commencement

| Plan | Current Assumption | | Proposed Assumption | |
|-------------------|----------------------|------------------------------|--|------------------------------|
| | <u>Base Table</u> | <u>Mortality Improvement</u> | <u>Base Table¹</u> | <u>Mortality Improvement</u> |
| PERS and PERS DCR | | | | |
| - Peace/Fire | RP-2014 | MP-2017 | Pub-2010 Safety | MP-2021 ² |
| - Others | RP-2014 | MP-2017 | Pub-2010 General | MP-2021 ² |
| TRS and TRS DCR | RP-2014 White Collar | MP-2017 | Pub-2010 Teachers | MP-2021 ² |
| JRS | RP-2014 White Collar | MP-2017 | Pub-2010 General Above-Median ³ | MP-2021 ² |
| NGNMRS | RP-2014 | MP-2017 | Pub-2010 Safety | MP-2021 ² |

1. Amount-weighted version for pension, headcount-weighted version for healthcare.

2. We propose annually updating the mortality improvement scale to the most recently-published scale as of the valuation date. The MP-2021 scale was published in October 2021.

3. Above-Median Income table based on salary of the active participant.

Current and Proposed Mortality Assumption (cont'd)

Post-Commencement

| Plan | Current Assumption | | Proposed Assumption - Pension | |
|-------------------|--|------------------------------|---|------------------------------|
| | <u>Base Table</u> | <u>Mortality Improvement</u> | <u>Base Table¹</u> | <u>Mortality Improvement</u> |
| PERS and PERS DCR | | | | |
| - Peace/Fire | RP-2014 (91% male, 96% female) | MP-2017 | Pub-2010 Safety (100% male, 100% female) | MP-2021 ² |
| - Others | RP-2014 (91% male, 96% female) | MP-2017 | Pub-2010 General (98% male, 106% female) | MP-2021 ² |
| TRS and TRS DCR | RP-2014 White Collar (93% male, 90% female) | MP-2017 | Pub-2010 Teachers (97% male, 97% female) | MP-2021 ² |
| JRS | RP-2014 White Collar (93% male, 90% female) | MP-2017 | Pub-2010 General Above-Median ³ | MP-2021 ² |
| NGNMRS | RP-2014 (91% male, 96% female) | MP-2017 | Pub-2010 Safety (100% male, 100% female) | MP-2021 ² |

1. Amount-weighted version. For beneficiaries, Contingent Annuitant table will be used with adjusted rates (not shown here) based on experience and partial credibility.

2. We propose annually updating the mortality improvement scale to the most recently-published scale as of the valuation date. The MP-2021 scale was published in October 2021.

3. Above-Median Income table based on benefit of the retired participant.

Current and Proposed Mortality Assumption (cont'd)

Post-Commencement

| Plan | Current Assumption | | Proposed Assumption - Healthcare | |
|-------------------|--|------------------------------|--|------------------------------|
| | <u>Base Table</u> | <u>Mortality Improvement</u> | <u>Base Table¹</u> | <u>Mortality Improvement</u> |
| PERS and PERS DCR | | | | |
| - Peace/Fire | RP-2014 (91% male, 96% female) | MP-2017 | Pub-2010 Safety (100% male, 100% female) | MP-2021 ² |
| - Others | RP-2014 (91% male, 96% female) | MP-2017 | Pub-2010 General (101% male, 110% female) | MP-2021 ² |
| TRS and TRS DCR | RP-2014 White Collar (93% male, 90% female) | MP-2017 | Pub-2010 Teachers (98% male, 100% female) | MP-2021 ² |
| JRS | RP-2014 White Collar (93% male, 90% female) | MP-2017 | Pub-2010 General Above-Median ³ | MP-2021 ² |

1. Headcount-weighted version. For beneficiaries, Contingent Annuitant table will be used with adjusted rates (not shown here) based on experience and partial credibility.
2. We propose annually updating the mortality improvement scale to the most recently-published scale as of the valuation date. The MP-2021 scale was published in October 2021.
3. Above-Median Income table based on benefit of the retired participant.

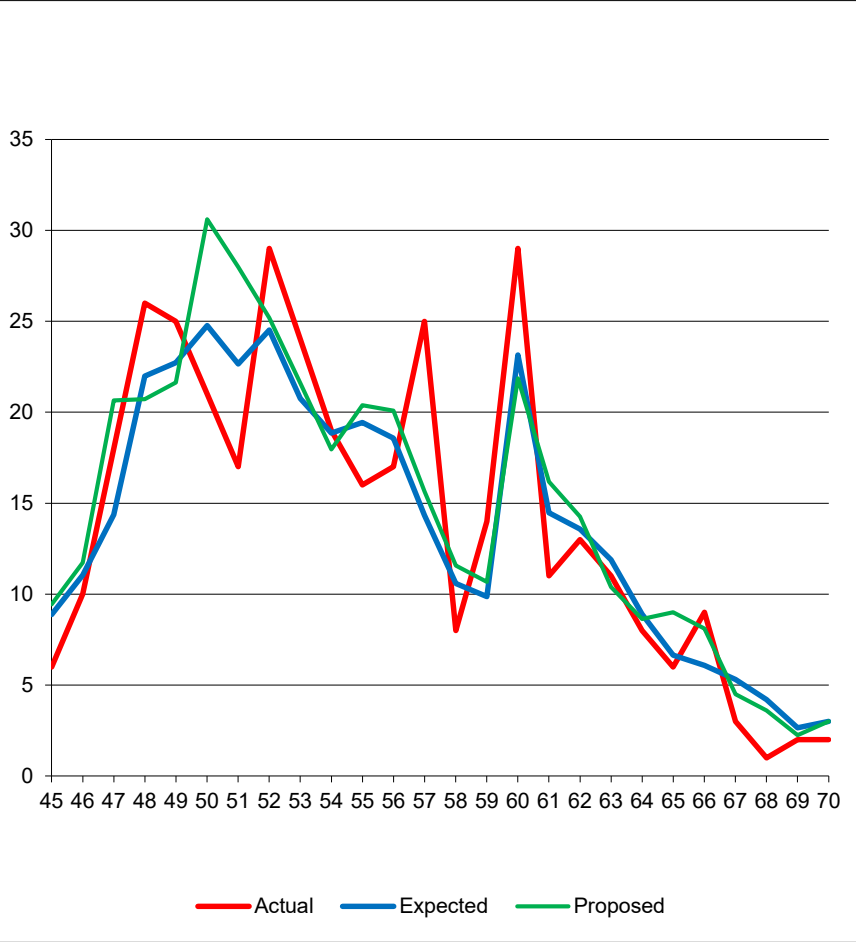
Retirement Assumption

Retirement Assumption

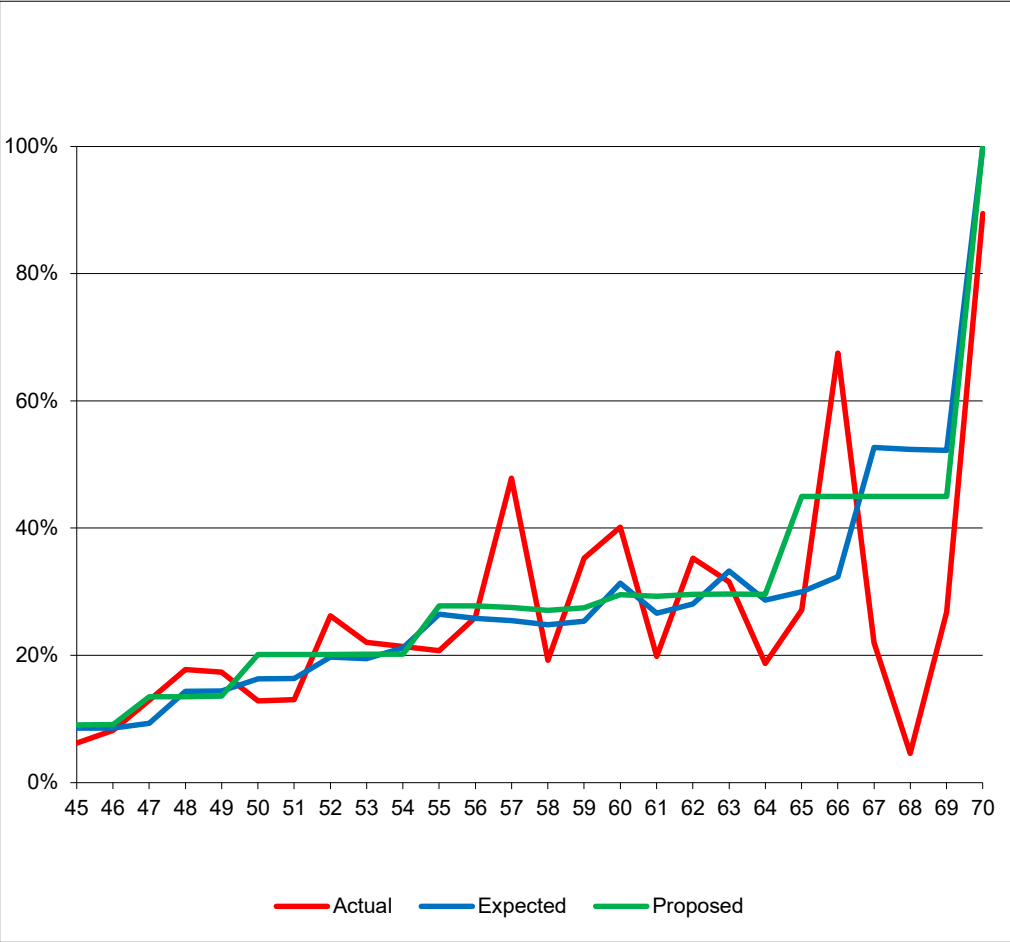
- The retirement assumption is used to project the ages at which active participants are expected to retire
- Different groups are eligible for *unreduced* retirement benefits if they meet certain age and/or service requirements; otherwise, they are eligible for *reduced* retirement benefits

Unreduced Retirement Experience - PERS P/F

Headcounts



Liability-Weighted Rates



Counts:

- Actual = 385
- Expected = 386
- Proposed = 412

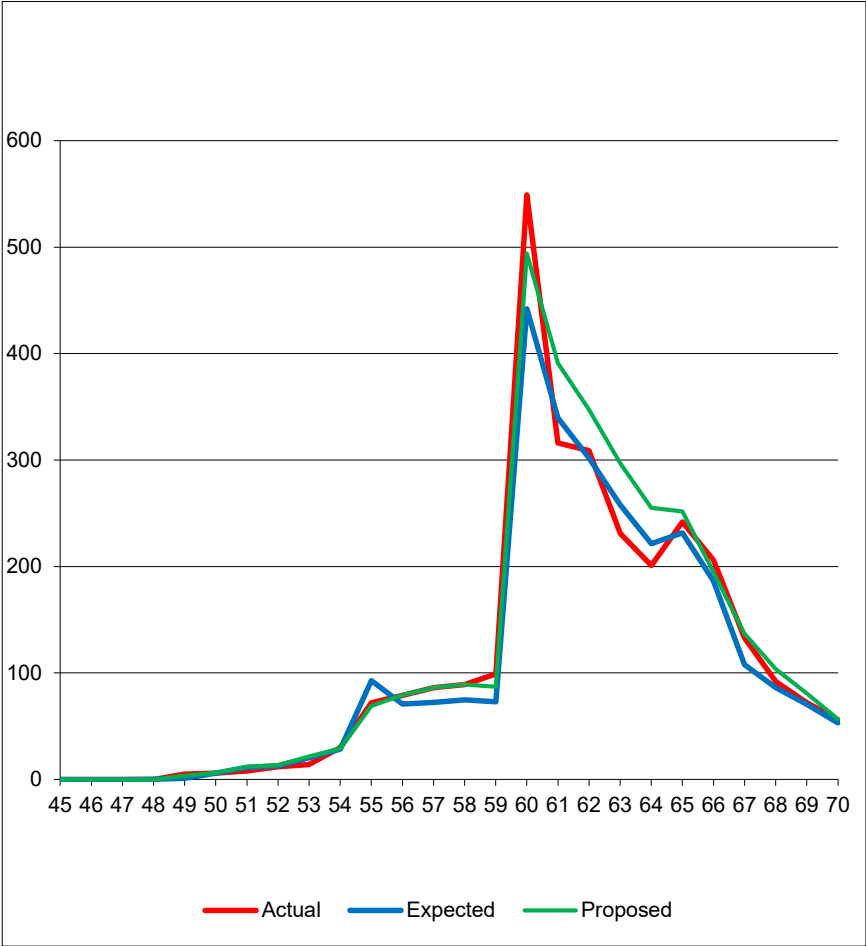
Proposed rates are adjustments to rates at all ages to better match recent experience based on *liability-weighted* A/E ratios.

A/E Ratios:

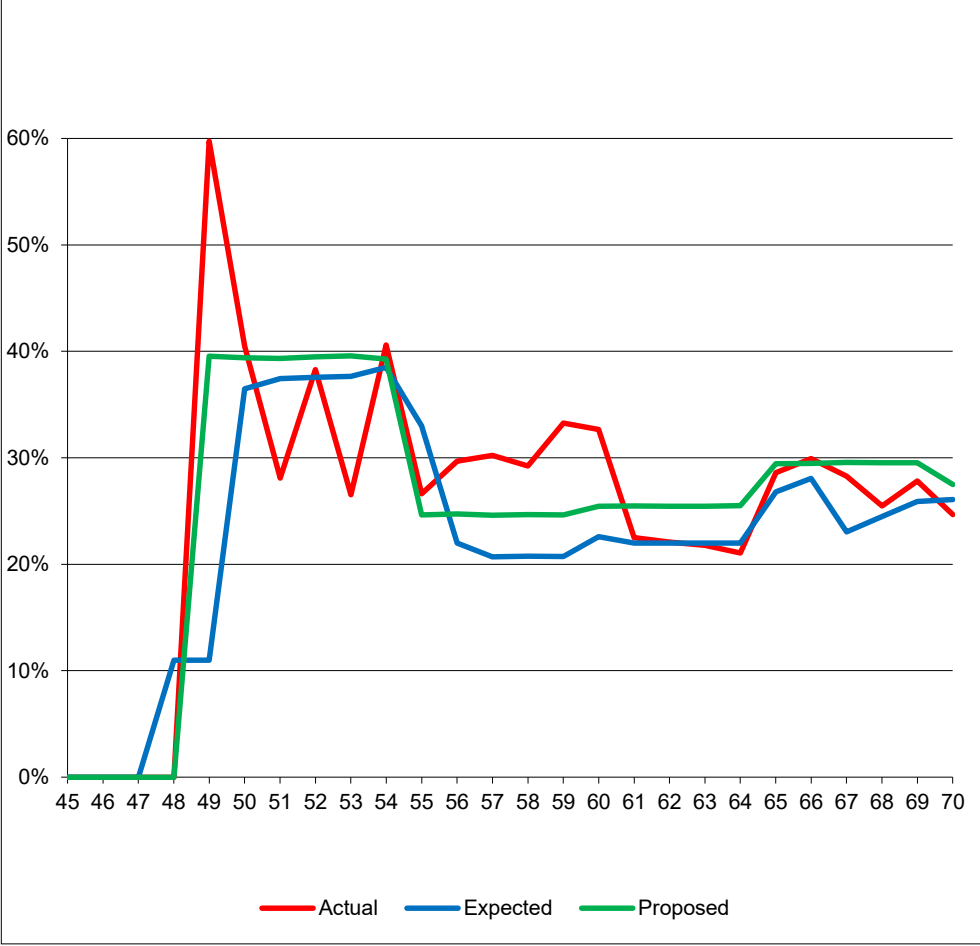
- Current = 105%
- Proposed = 98%

Unreduced Retirement Experience - PERS Others

Headcounts



Liability-Weighted Rates



Counts:

- Actual = 3,060
- Expected = 2,987
- Proposed = 3,321

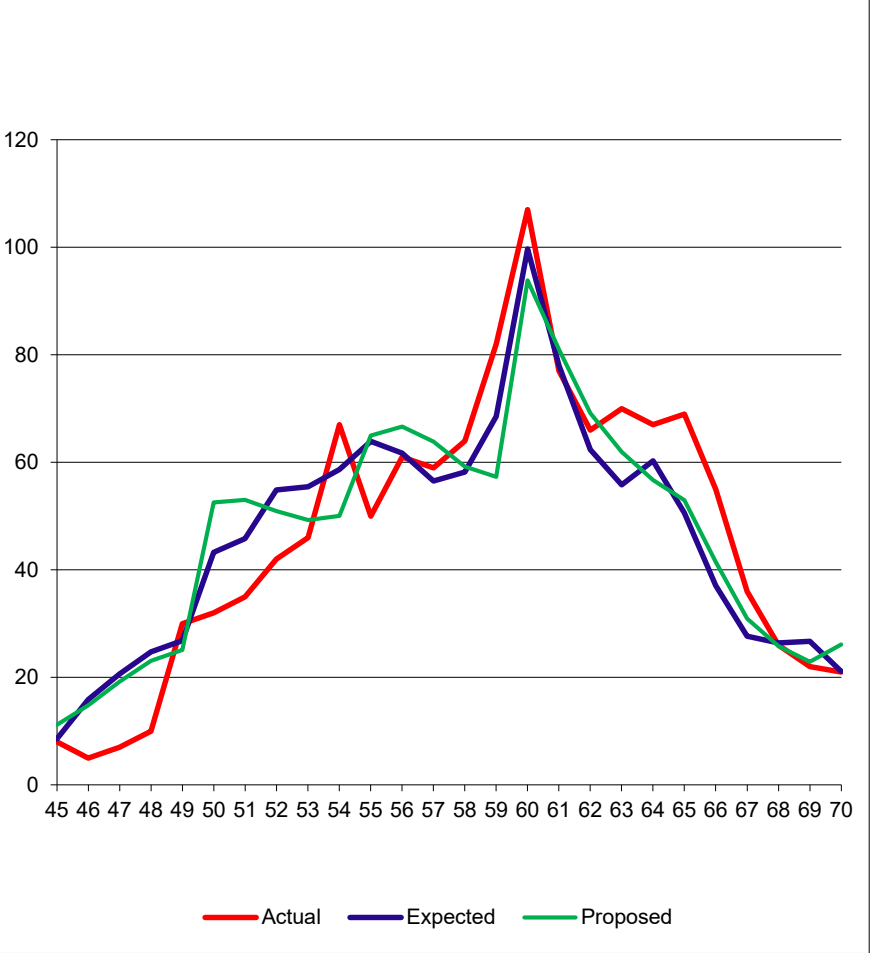
Proposed rates are adjustments to rates at all ages to better match recent experience based on *liability-weighted* A/E ratios.

A/E Ratios:

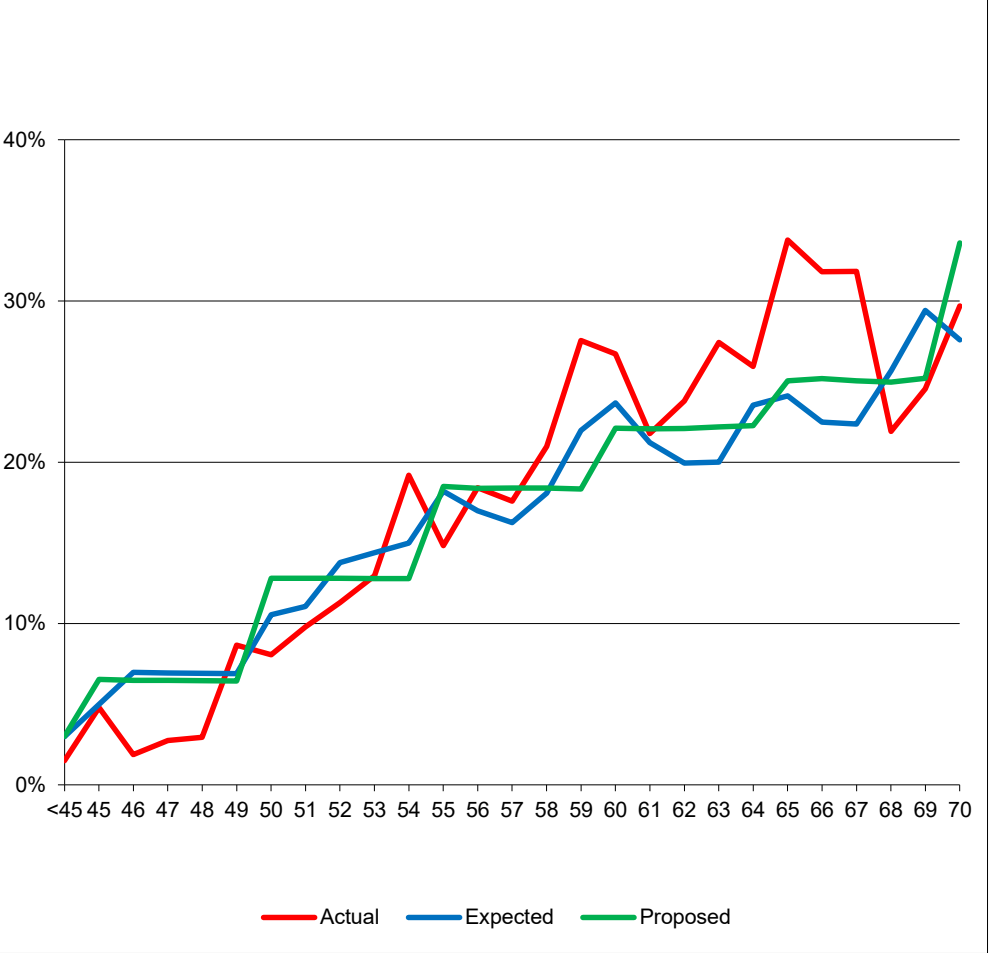
- Current = 111%
- Proposed = 100%

Unreduced Retirement Experience - TRS

Headcounts



Liability-Weighted Rates



Counts:

- Actual = 1,262
- Expected = 1,303
- Proposed = 1,317

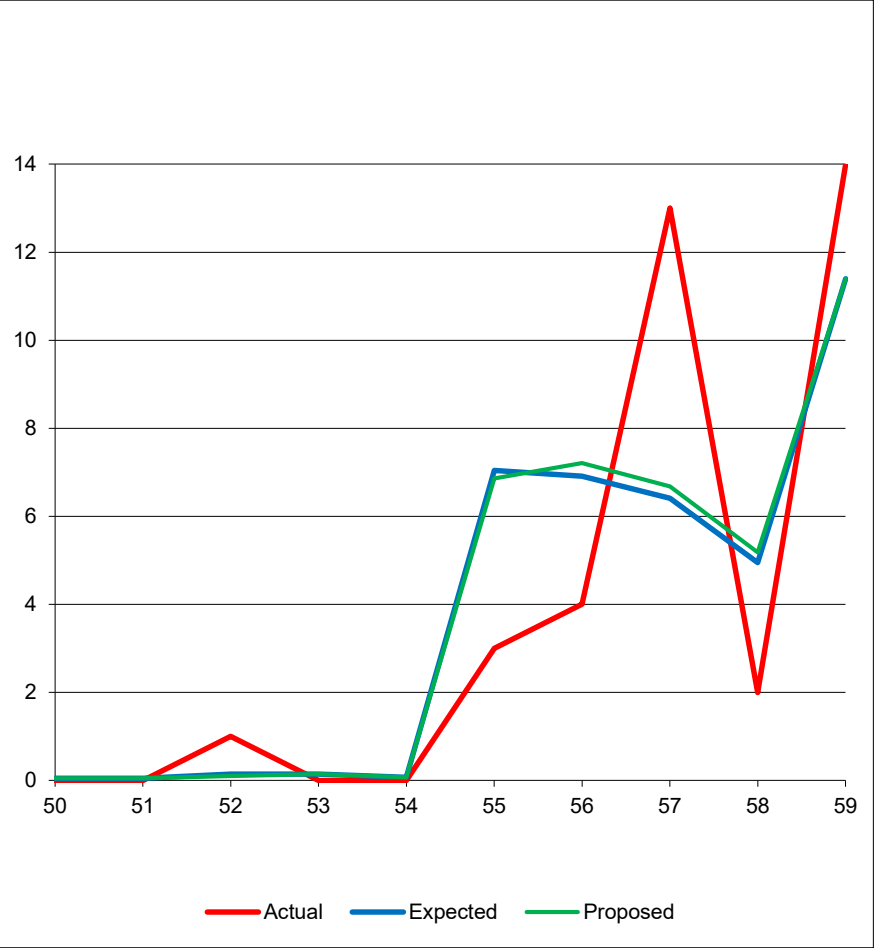
Proposed rates are adjustments to rates at all ages to better match recent experience based on *liability-weighted A/E ratios*.

A/E Ratios:

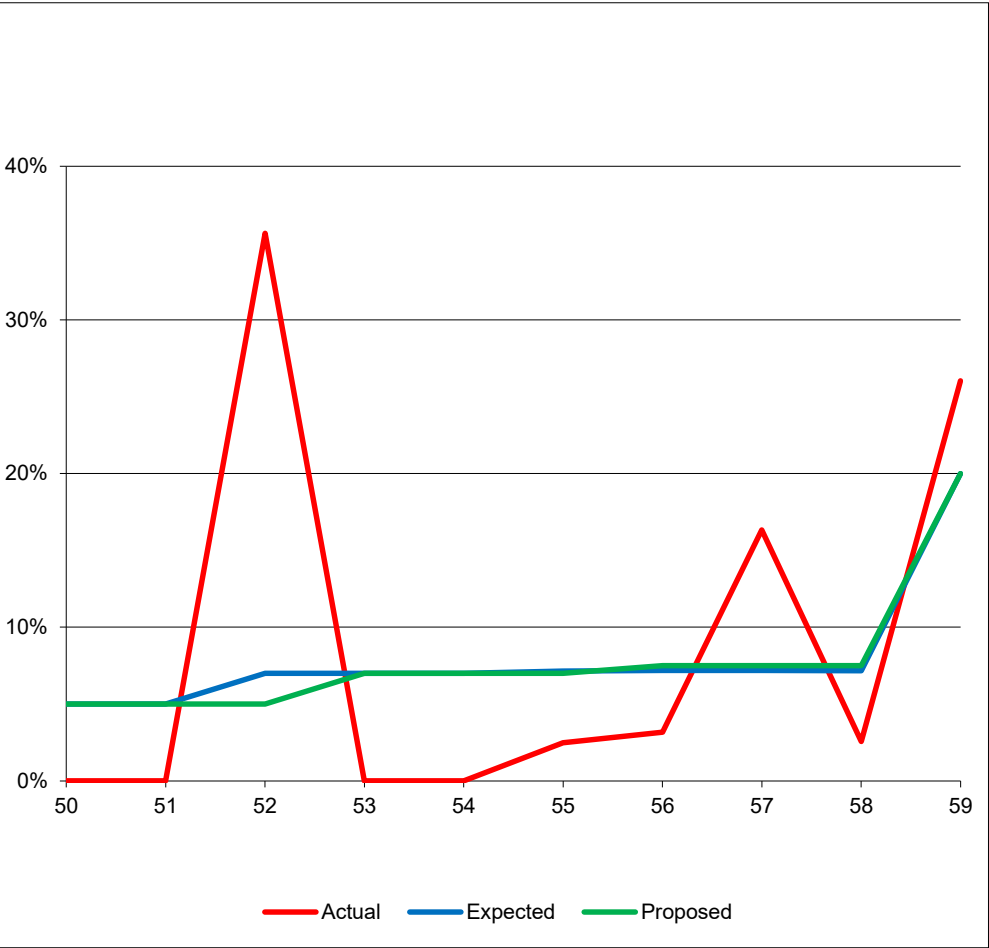
- Current = 102%
- Proposed = 101%

Reduced Retirement Experience - PERS P/F

Headcounts



Liability-Weighted Rates



Counts:

- Actual = 37
- Expected = 37
- Proposed = 38

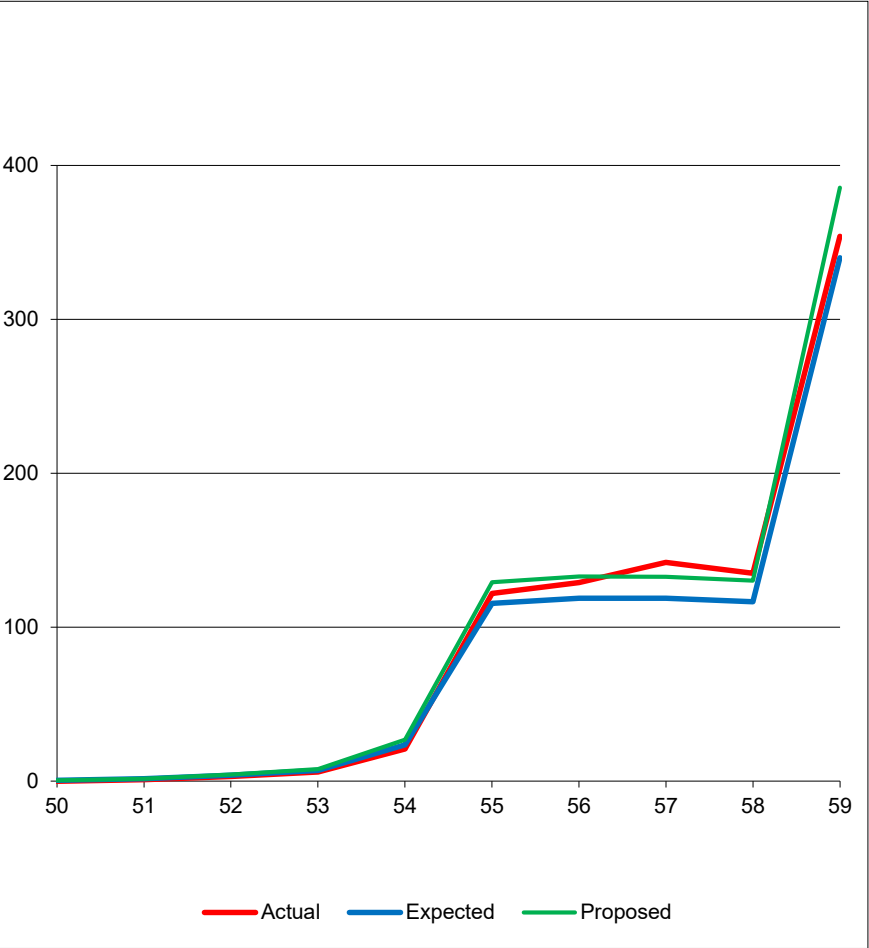
Proposed rates are minor adjustments to rates at all ages to better match recent experience based on *liability-weighted A/E* ratios.

A/E Ratios:

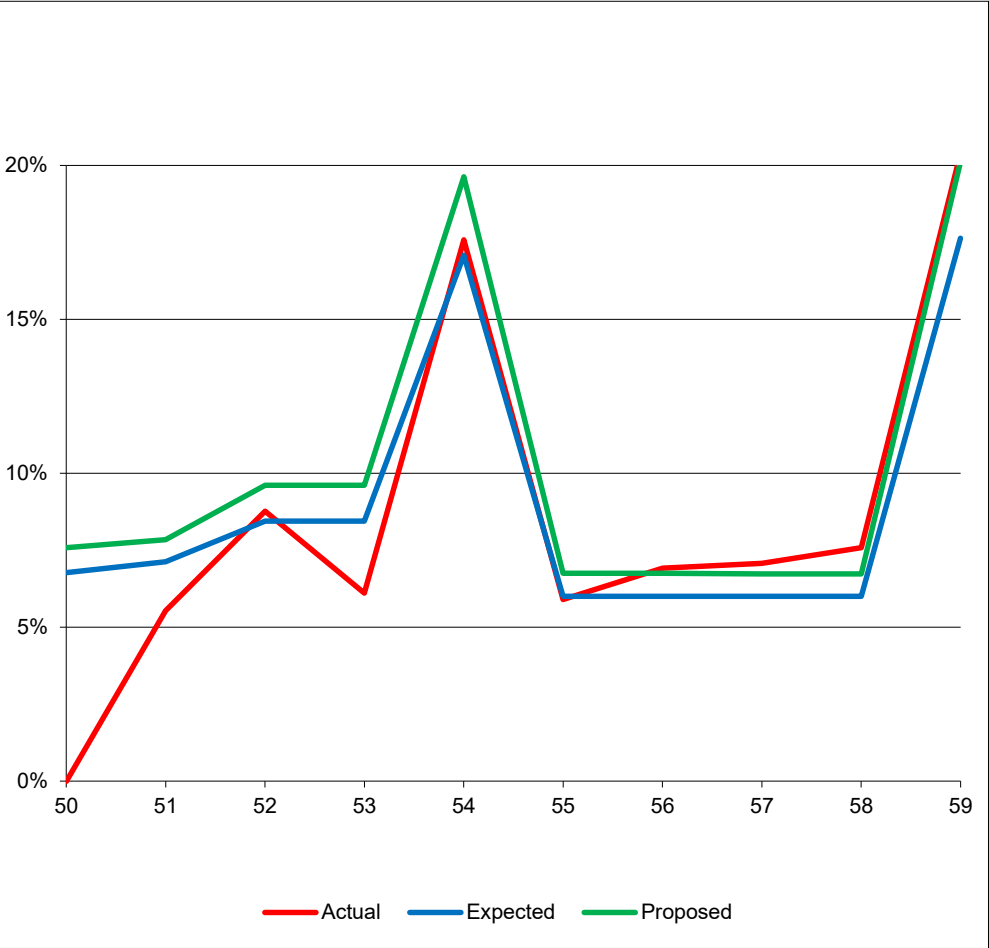
- Current = 101%
- Proposed = 100%

Reduced Retirement Experience - PERS Others

Headcounts



Liability-Weighted Rates



Counts:

- Actual = 913
- Expected = 846
- Proposed = 952

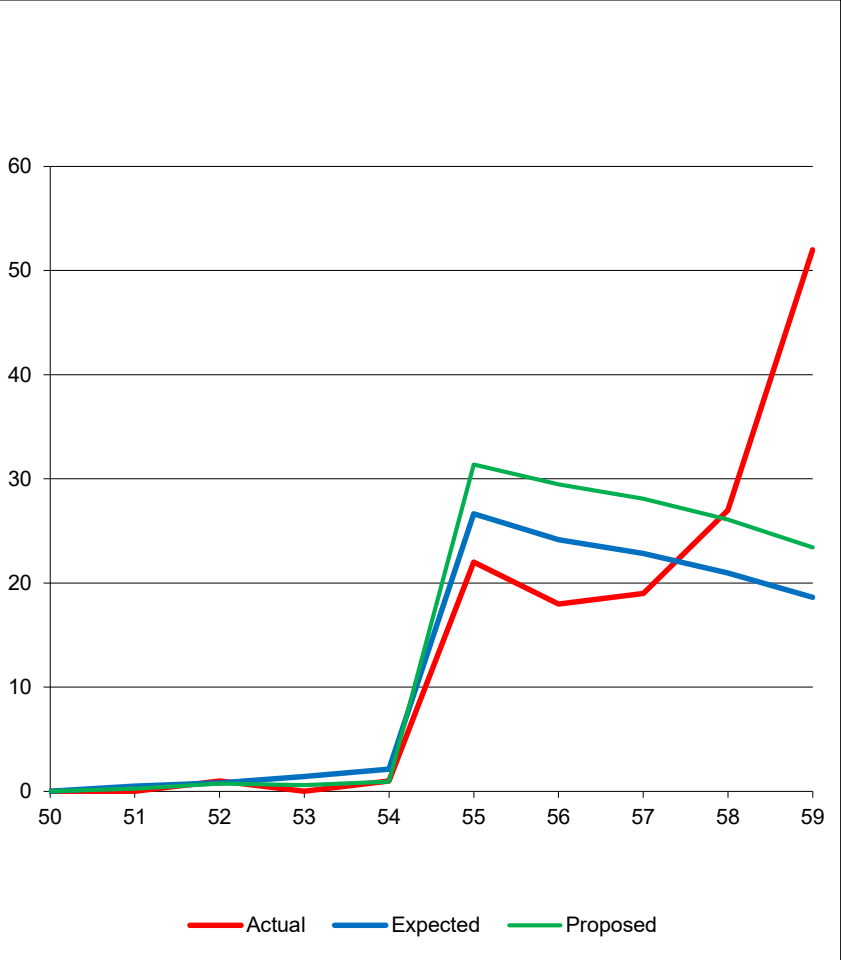
Proposed rates are adjustments to rates at all ages to better match recent experience based on *liability-weighted* A/E ratios.

A/E Ratios:

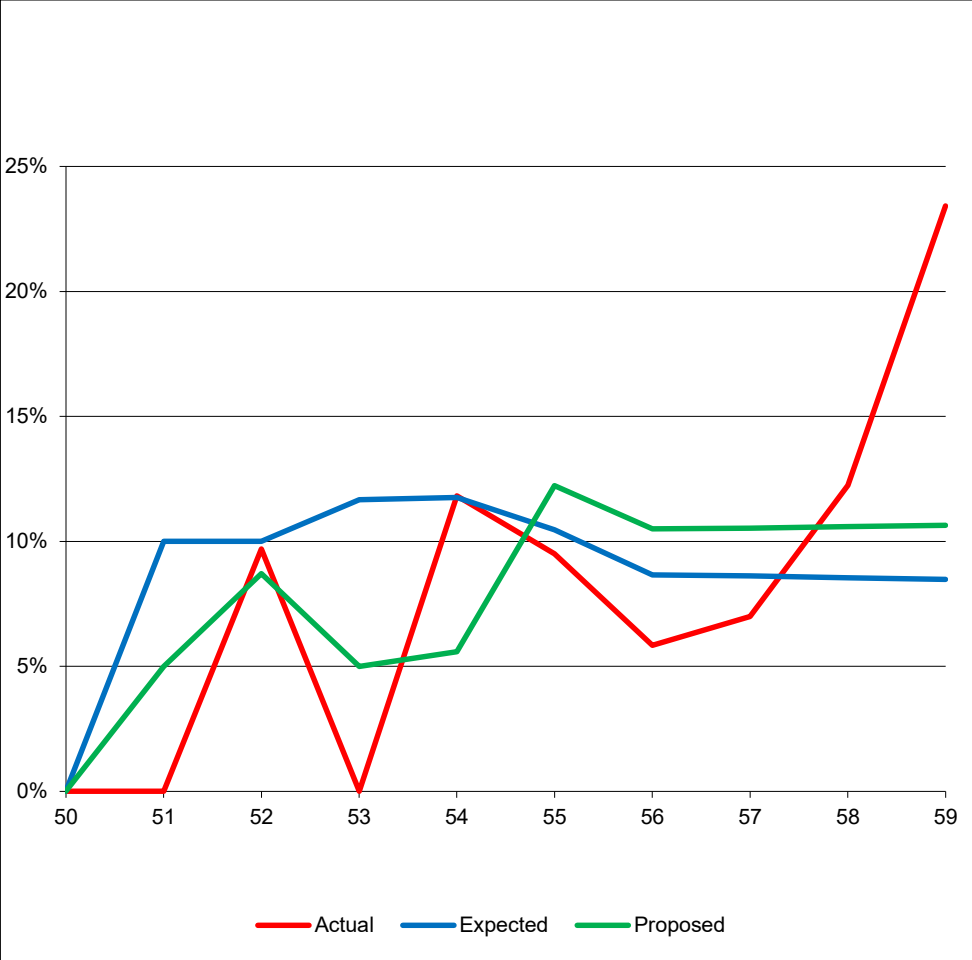
- Current = 114%
- Proposed = 100%

Reduced Retirement Experience - TRS

Headcounts



Liability-Weighted Rates



Counts:

- Actual = 140
- Expected = 118
- Proposed = 141

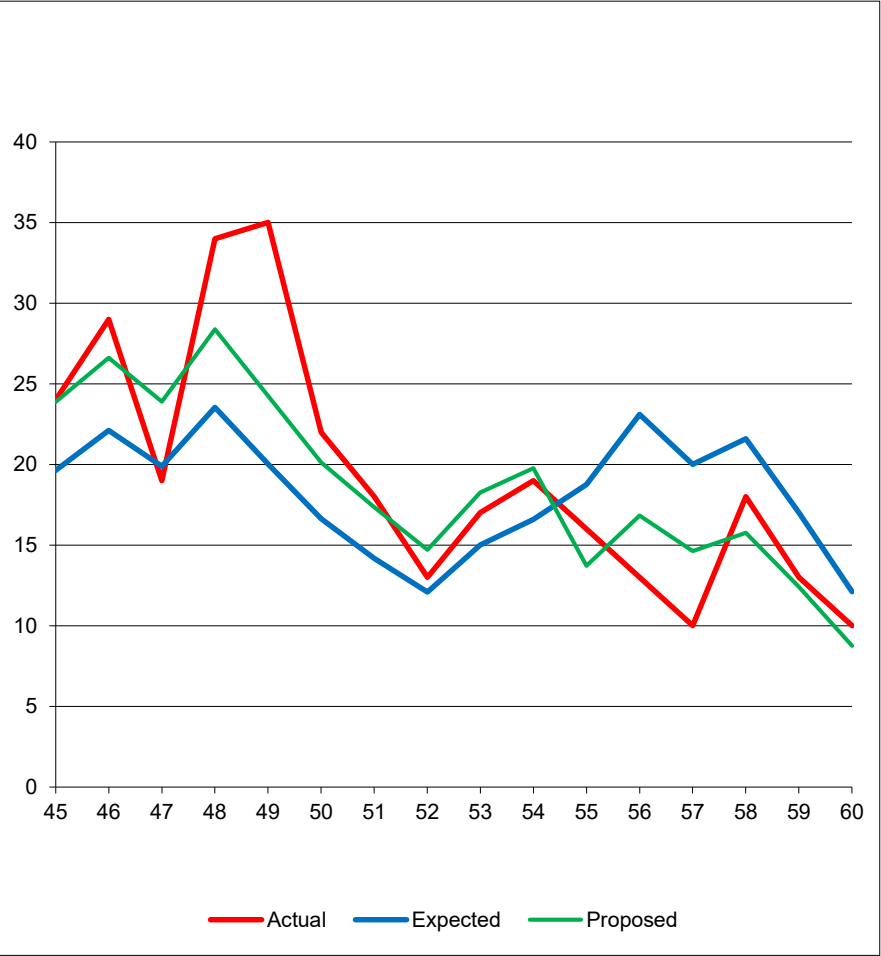
Proposed rates are adjustments to rates at all ages to better match recent experience based on *liability-weighted* A/E ratios.

A/E Ratios:

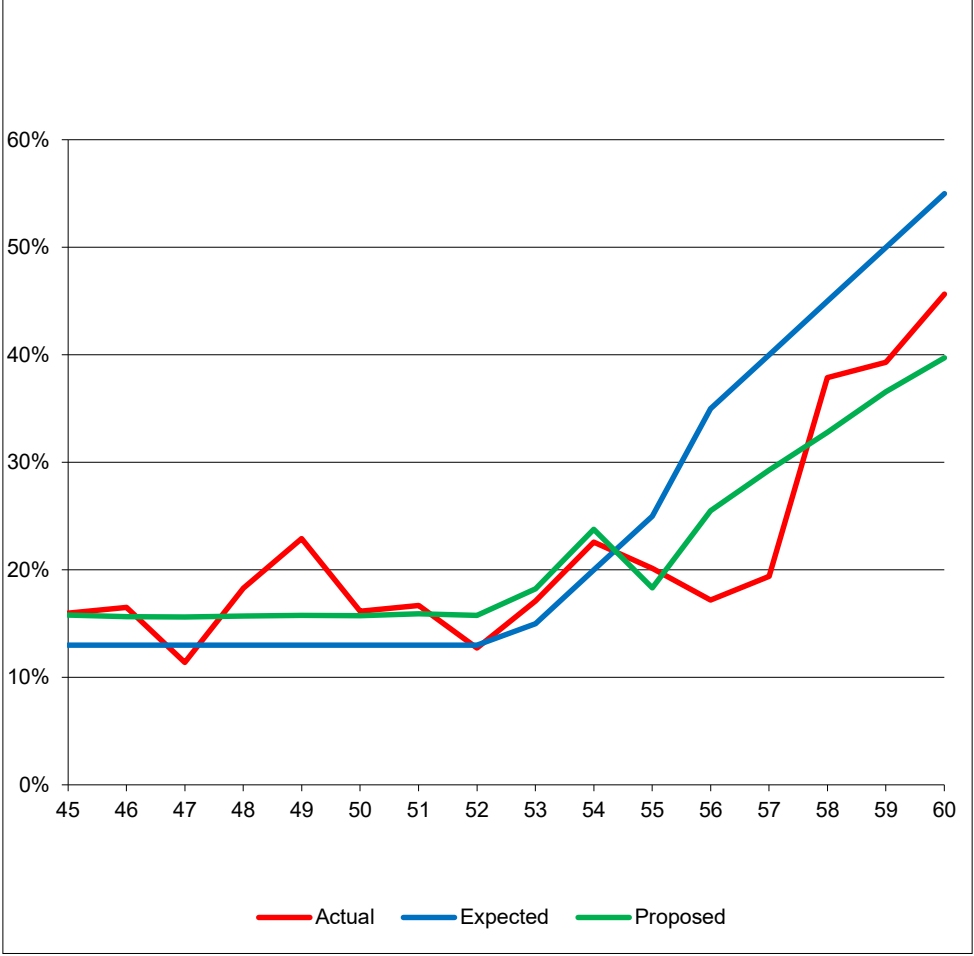
- Current = 122%
- Proposed = 103%

Retirement Experience - NGNMRS

Headcounts



Liability-Weighted Rates



Counts:

- Actual = 482
- Expected = 431
- Proposed = 465

Proposed rates are adjustments to rates at all ages to better match recent experience based on *liability-weighted* A/E ratios.

A/E Ratios:

- Current = 104%
- Proposed = 100%

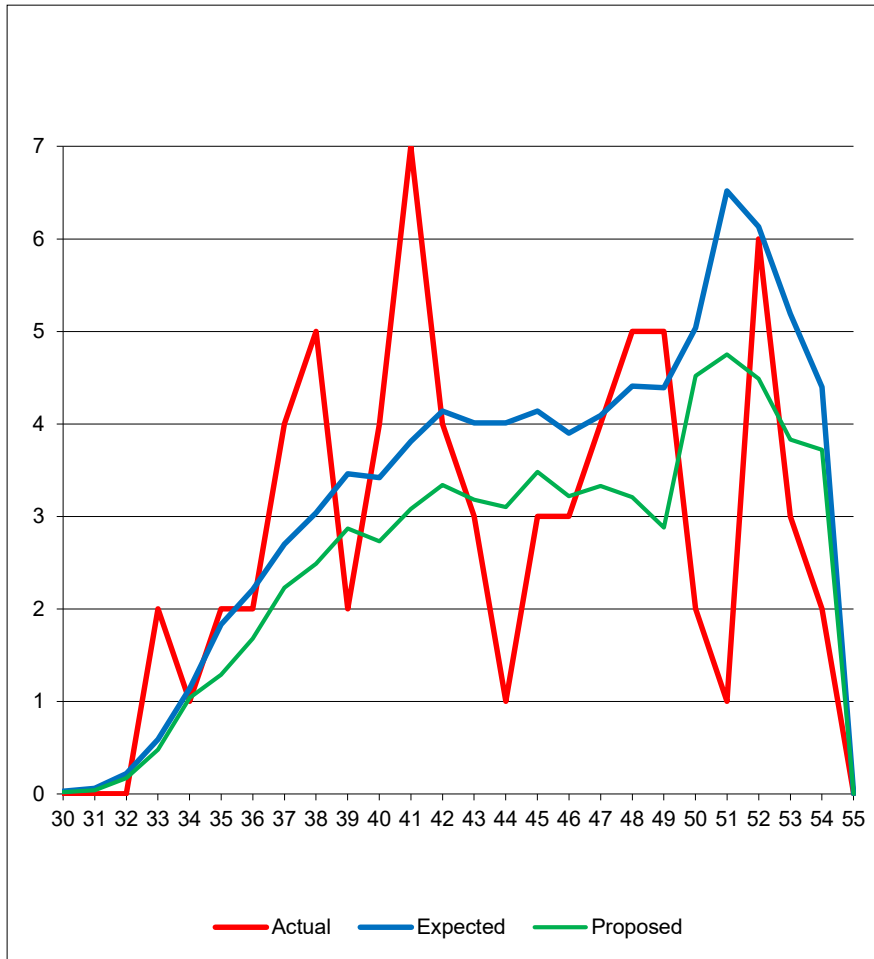
Withdrawal Assumption

Withdrawal Assumption

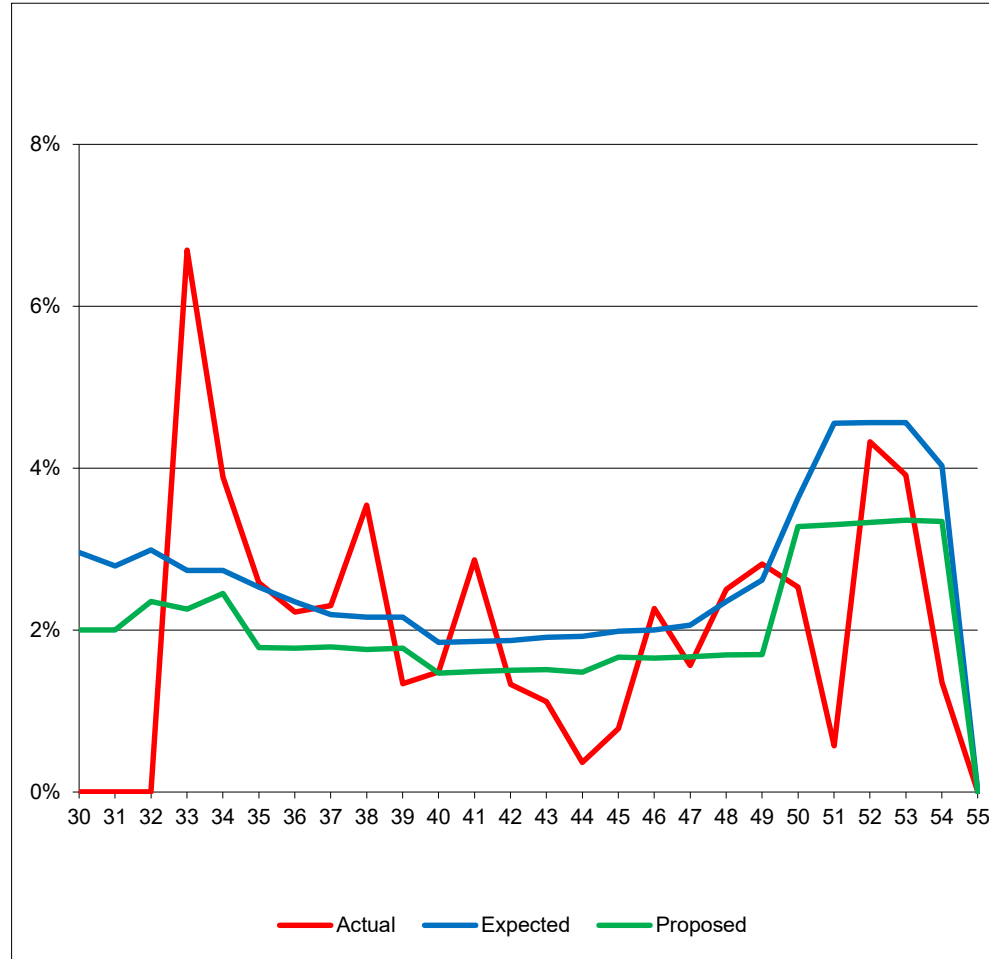
- The withdrawal assumption is used to project the ages at which active participants are expected to terminate employment
- The withdrawal assumption typically reflects *select* and *ultimate* rates
 - Withdrawal rates are assumed to be higher during the first few years of employment (the “select period”)
 - Beyond the select period, withdrawal rates decrease by age

Withdrawal Experience - PERS P/F

Headcounts



Liability-Weighted Rates



Counts:

- Actual = 71
- Expected = 83
- Proposed = 65

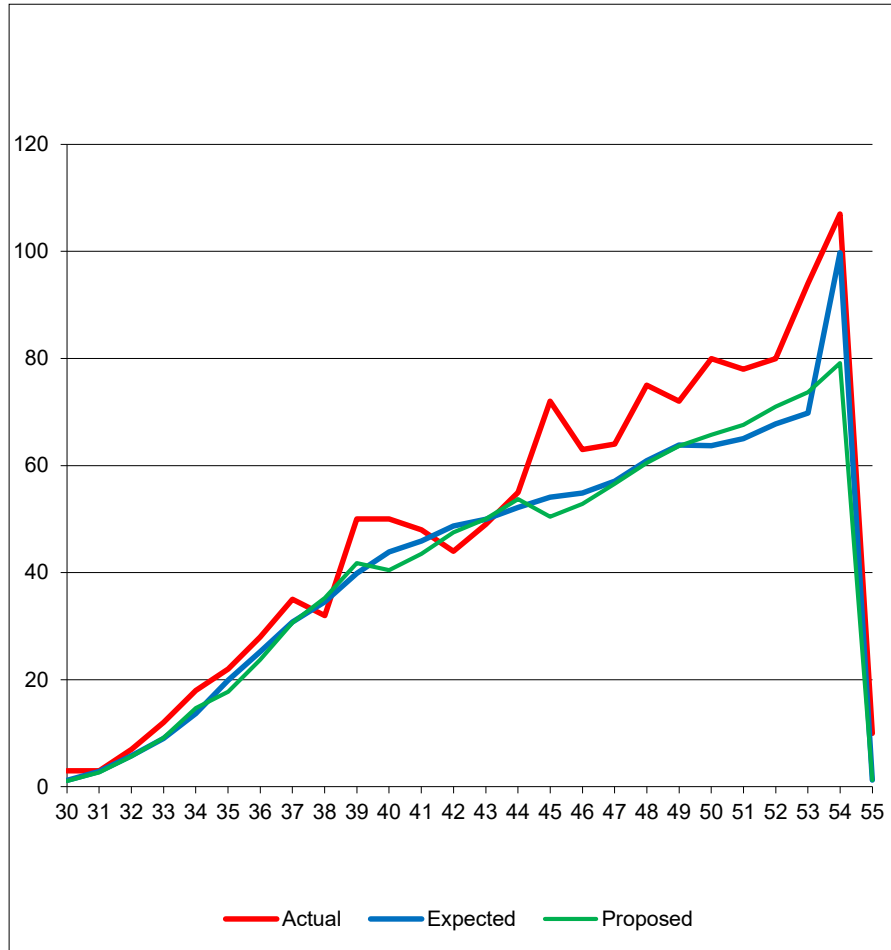
Proposed rates are adjustments to rates at all ages to better match recent experience based on *liability-weighted* A/E ratios.

A/E Ratios:

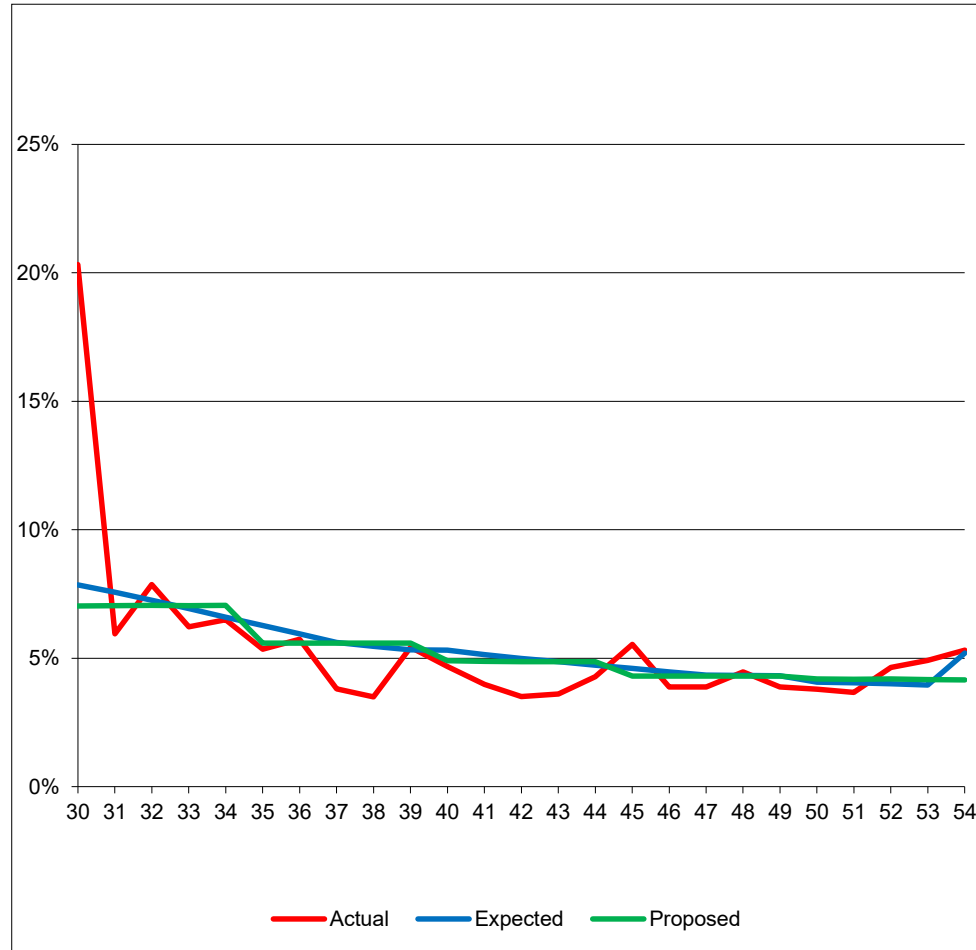
- Current = 78%
- Proposed = 100%

Withdrawal Experience - PERS Others

Headcounts



Liability-Weighted Rates



Counts:

- Actual = 1,306
- Expected = 1,092
- Proposed = 1,070

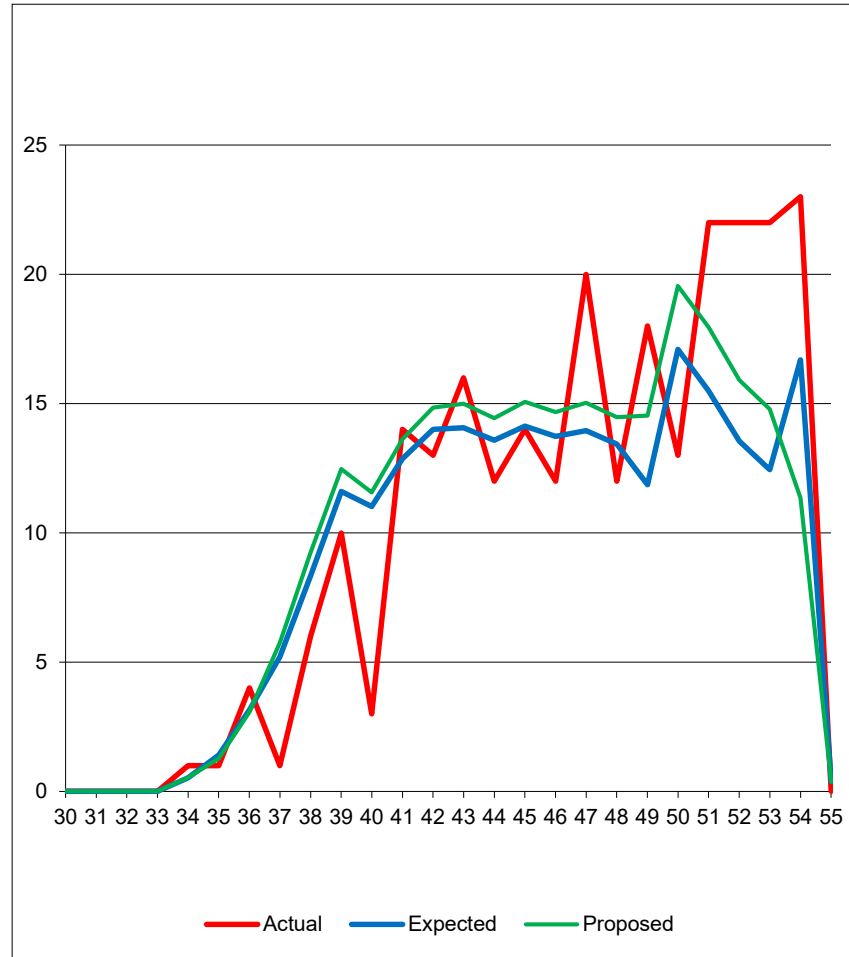
Proposed rates are adjustments to rates at all ages to better match recent experience based on *liability-weighted A/E ratios*.

A/E Ratios:

- Current = 97%
- Proposed = 99%

Withdrawal Experience - TRS

Headcounts



Liability-Weighted Rates



Counts:

- Actual = 270
- Expected = 241
- Proposed = 258

Proposed rates are adjustments to rates at all ages to better match recent experience based on *liability-weighted A/E* ratios.

A/E Ratios:

- Current = 108%
- Proposed = 100%

Withdrawal Experience – PERS DCR Select (less than 5 years of service)

Headcounts – Peace/Fire

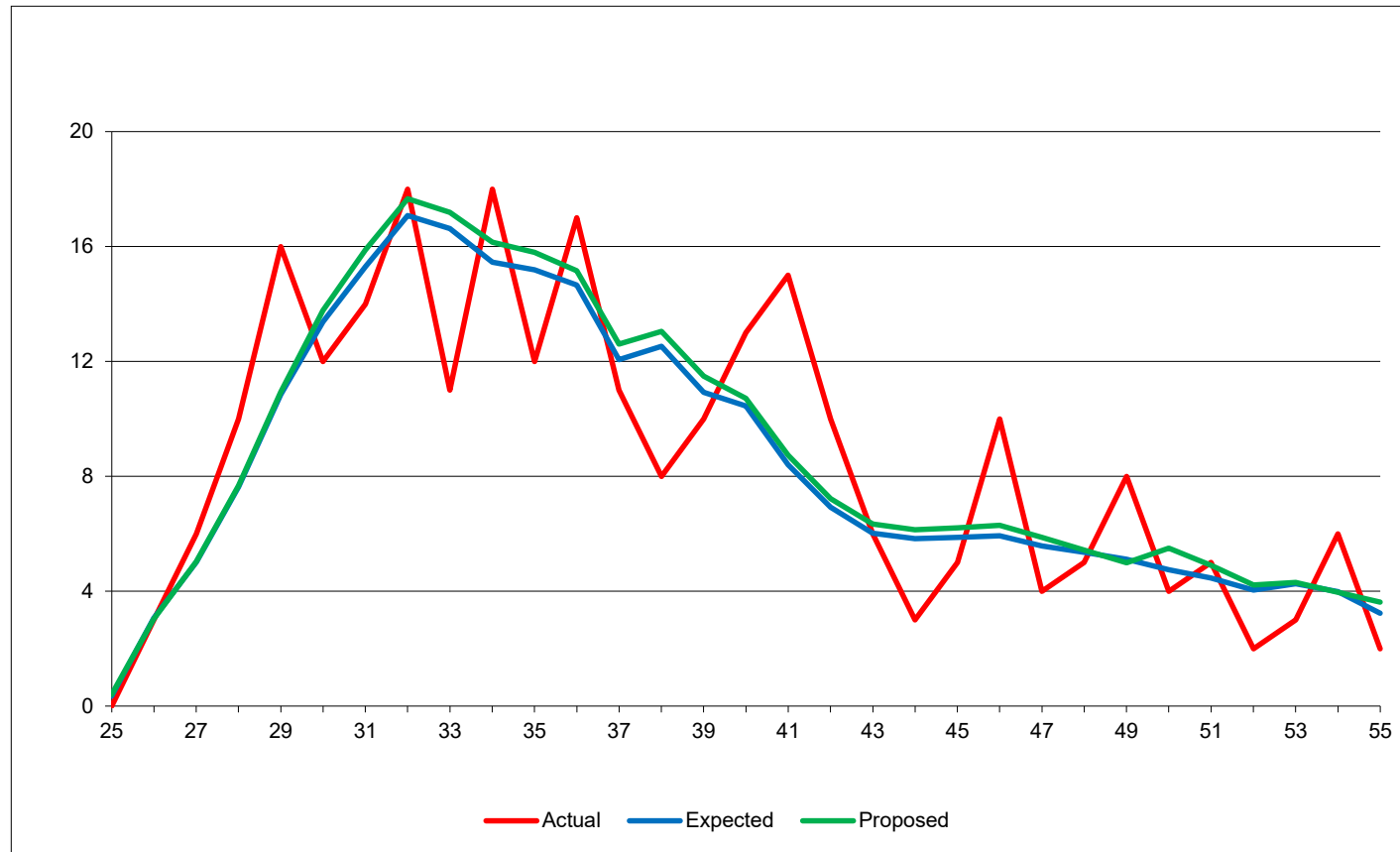
| | Male | | | Female | | |
|----------|---------------|-------------------------|--------------------------|---------------|-------------------------|--------------------------|
| | <u>Actual</u> | <u>Current Expected</u> | <u>Proposed Expected</u> | <u>Actual</u> | <u>Current Expected</u> | <u>Proposed Expected</u> |
| < 1 year | 83 | 94 | 84 | 29 | 22 | 29 |
| 1 year | 86 | 113 | 95 | 33 | 26 | 33 |
| 2 years | 78 | 74 | 78 | 22 | 20 | 22 |
| 3 years | 78 | 61 | 72 | 17 | 16 | 17 |
| 4 years | 68 | 55 | 66 | 12 | 15 | 12 |

Proposed rates are adjustments to rates at all service levels to better match recent experience based on *headcount-weighted A/E ratios*.

Withdrawal Experience - PERS DCR

Ultimate (5+ years of service)

Headcounts – P/F



Counts:

- Actual = 293
- Expected = 280
- Proposed = 291

Proposed rates are adjustments to rates at all ages to better match recent experience based on *headcount-weighted A/E ratios*.

Withdrawal Experience – PERS DCR

Select (less than 5 years of service)

Headcounts – Others

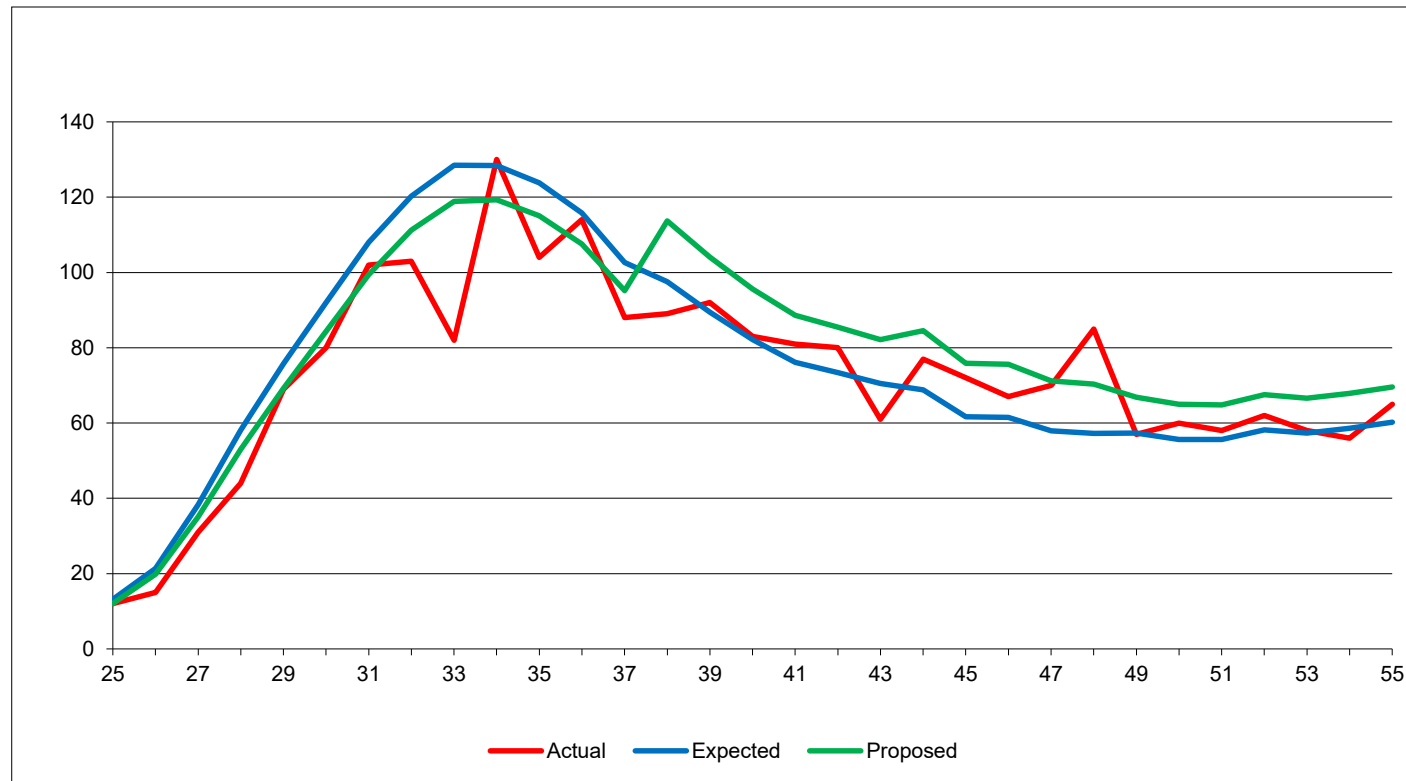
| | Male | | | Female | | |
|----------|---------------|-------------------------|--------------------------|---------------|-------------------------|--------------------------|
| | <u>Actual</u> | <u>Current Expected</u> | <u>Proposed Expected</u> | <u>Actual</u> | <u>Current Expected</u> | <u>Proposed Expected</u> |
| < 1 year | 877 | 761 | 875 | 1,220 | 1,159 | 1,201 |
| 1 year | 1,111 | 1,122 | 1,068 | 1,931 | 1,812 | 1,949 |
| 2 years | 682 | 699 | 666 | 1,168 | 1,082 | 1,152 |
| 3 years | 463 | 457 | 477 | 736 | 659 | 739 |
| 4 years | 357 | 280 | 356 | 557 | 483 | 548 |

Proposed rates are adjustments to rates at all service levels to better match recent experience based on *headcount-weighted A/E* ratios.

Withdrawal Experience - PERS DCR

Ultimate (5+ years of service)

Headcounts - Others



Counts:

- Actual = 3,037
- Expected = 2,928
- Proposed = 3,086

Proposed rates are adjustments to rates at all ages to better match recent experience based on *headcount-weighted* A/E ratios.

Withdrawal Experience – TRS DCR

Select (less than 6 years of service)

Headcounts

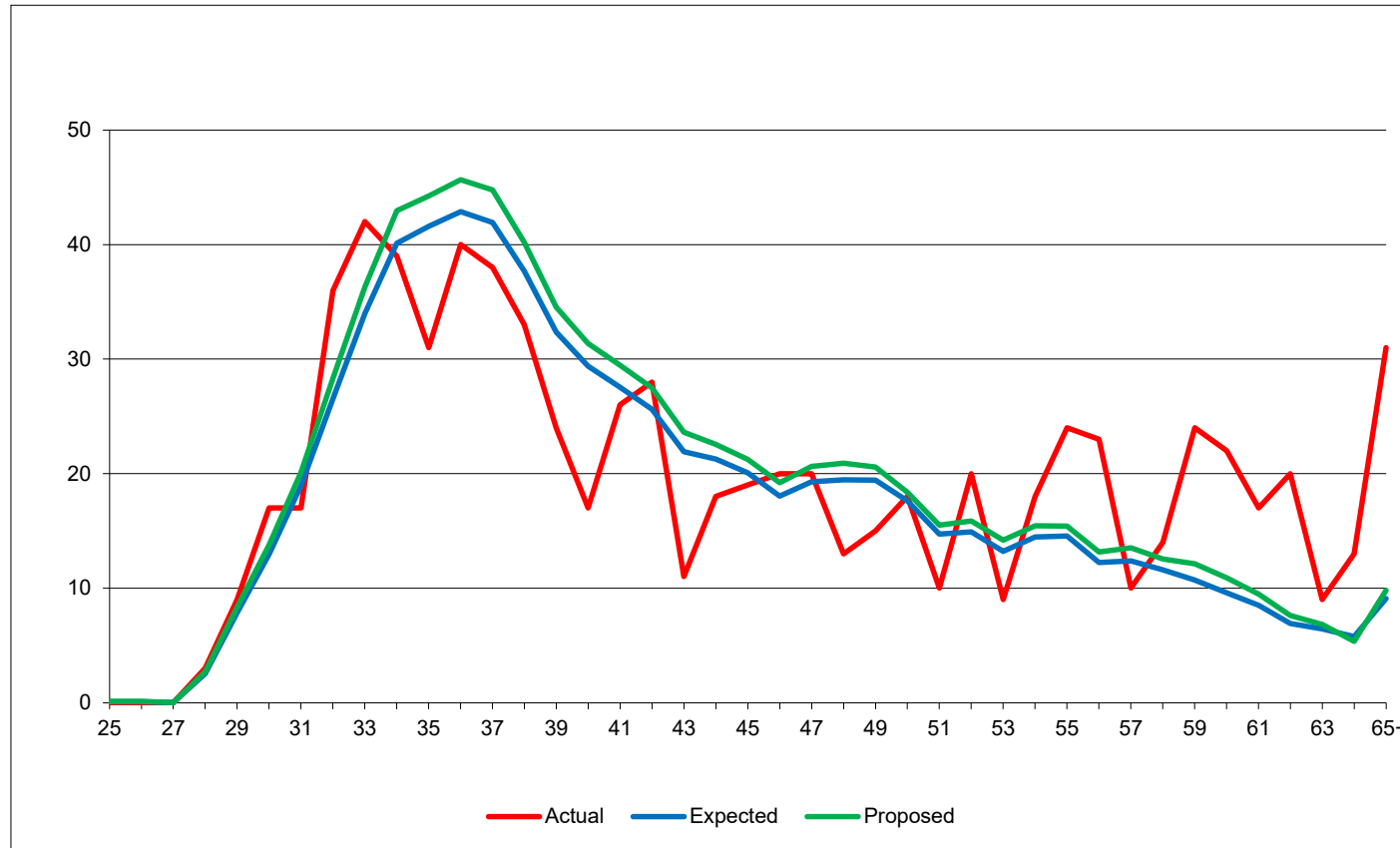
| | Male | | | Female | | |
|----------|---------------|-------------------------|--------------------------|---------------|-------------------------|--------------------------|
| | <u>Actual</u> | <u>Current Expected</u> | <u>Proposed Expected</u> | <u>Actual</u> | <u>Current Expected</u> | <u>Proposed Expected</u> |
| < 1 year | 7 | 6 | 8 | 21 | 15 | 21 |
| 1 year | 203 | 140 | 201 | 415 | 373 | 419 |
| 2 years | 106 | 90 | 106 | 323 | 273 | 319 |
| 3 years | 86 | 70 | 86 | 204 | 206 | 202 |
| 4 years | 58 | 53 | 59 | 204 | 163 | 193 |
| 5 years | 77 | 35 | 62 | 138 | 106 | 132 |

Proposed rates are adjustments to rates at all service levels to better match recent experience based on *headcount-weighted A/E* ratios.

Withdrawal Experience - TRS DCR

Ultimate (6+ years of service)

Headcounts



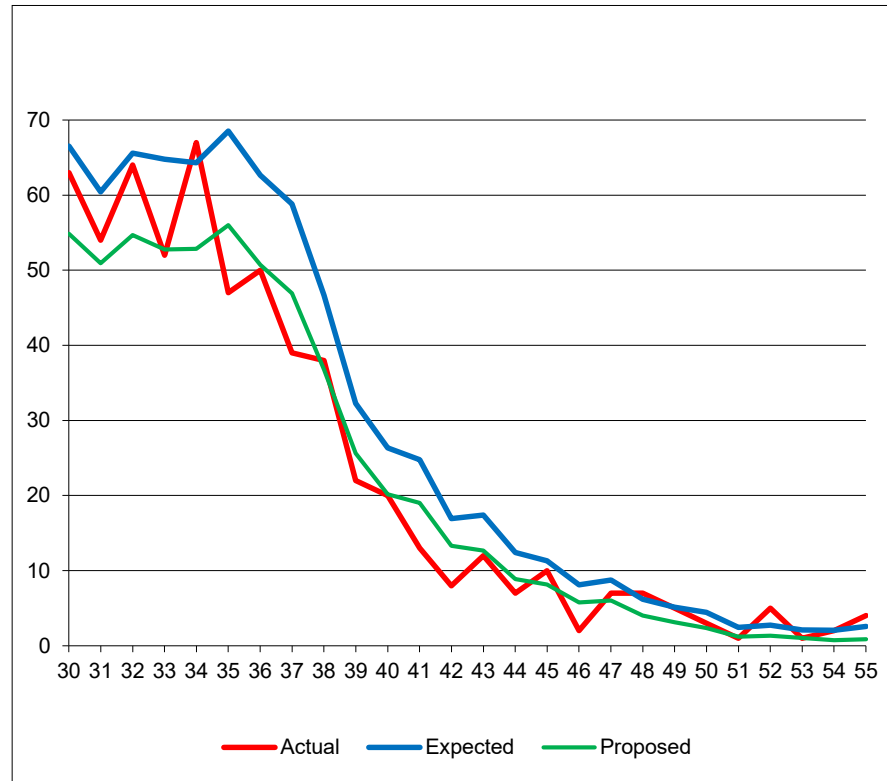
Counts:

- Actual = 798
- Expected = 744
- Proposed = 795

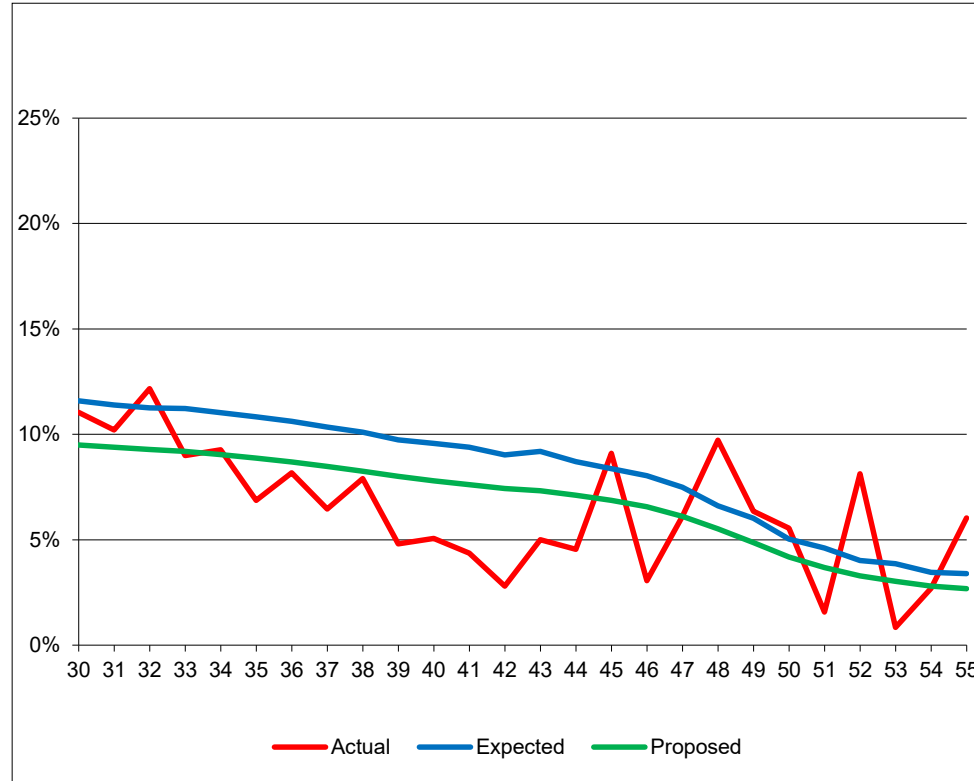
Proposed rates are adjustments to rates at all ages to better match recent experience based on *headcount-weighted* A/E ratios.

Withdrawal Experience – NGNMRS

Headcounts



Liability-Weighted Rates



Counts:

- Actual = 1,385
- Expected = 1,443
- Proposed = 1,162

Proposed rates are adjustments to rates at all ages to better match recent experience based on *liability-weighted A/E* ratios.

A/E Ratios:

- Current = 81%
- Proposed = 99%

Other Demographic Assumptions

Other Demographic Assumptions

- Disability
 - Insufficient disability experience, so we propose no changes to the current disability rates
- Occupational-related death and disability

| | Current | Actual | Proposed |
|---------------|---------|--------|----------|
| PERS – P/F | 75% | 72% | 70% |
| PERS – Others | 40% | 36% | 35% |
| TRS | 15% | n/a | 15% |

- Withdrawal of contributions upon termination

| | Current | Actual | Proposed |
|---------------|---------|--------|----------|
| PERS – P/F | 10% | 5% | 5% |
| PERS - Others | 5% | 4% | 5% |
| TRS | 0% | 1% | 0% |

- Rehires (percentage load to Normal Cost)

| | Current | Actual | Proposed |
|-------------------|---------|--------|----------|
| PERS – pension | 18.77% | 15.33% | 15.30% |
| PERS – healthcare | 17.09% | 2.36% | 2.40% |
| TRS – pension | 15.57% | 11.98% | 12.00% |
| TRS - healthcare | 12.03% | 0.20% | 0.20% |

Comments regarding the rehire assumption:

- The current rehire loads for the DB plans, which were developed based on the 5 years of experience ending in 2017, were too high based on the most recent 4 years of rehire experience. The actual liabilities from rehires during the last 4 years were compared to the current rehire loads, and adjustments were made to the current rehire loads to better match recent experience.
- With lower proposed rehire loads for healthcare, a greater portion of the fixed employer contributions (22% for PERS and 12.56% for TRS) will be deposited to the DB pension trusts rather than the DB healthcare trusts. Based on the comparative funded ratios of the DB pension and DB healthcare trusts, we believe it is more prudent to deposit more contributions to the DB pension trusts.
- There have been recent suggestions to implement rehire loads for the DCR plans. Doing so would increase the portion of the fixed employer contributions being deposited to the DCR trusts. Because the DCR trusts are so well funded, they are able to absorb any reasonable losses due to rehires. Therefore, we believe it is more prudent to deposit more contributions to the DB trusts. Accordingly, we are proposing no rehire loads for the DCR plans at this time.

Other Demographic Assumptions (cont'd)

- Unused sick days (TRS)
 - Current: 4.5 days
 - Actual: 5.30 days
 - Proposed: **5.25 days**
- Population growth rate
 - Current: 0%
 - Actual: -0.05% (PERS); -1.48% (TRS)
 - Proposed: **0%**

- Alaska residency for COLA

| | Current | Actual | Proposed |
|---------------|---------|--------|------------|
| PERS – P/F | 65% | 60% | 60% |
| PERS – Others | 70% | 65% | 65% |
| TRS | 60% | 59% | 60% |

- Part-time service (years)

| | Current | Actual | Proposed |
|---------------|---------|--------|-------------|
| PERS – P/F | 1.00 | n/a | 1.00 |
| PERS – Others | 0.75 | 0.68 | 0.75 |
| TRS | 0.75 | 0.76 | 0.75 |

Other Demographic Assumptions (cont'd)

- Percent electing lump sums (NGNMRS)

| | Current | Actual | Proposed |
|-------------------|---------|--------|----------|
| Active | 70% | 49% | 50% |
| Terminated Vested | 70% | 52% | 50% |

- Healthcare dependent assumptions

| | Current | | Actual | | Proposed | |
|---------------|---------|--------|--------|--------|----------|--------|
| | Male | Female | Male | Female | Male | Female |
| PERS - P/F | 75% | 50% | 72% | 45% | 75% | 50% |
| PERS - Others | 65% | 60% | 57% | 46% | 60% | 50% |
| TRS | 65% | 60% | 56% | 47% | 60% | 50% |
| JRS | 90% | 70% | 69% | 17% | 80% | 60% |

- Spouse age difference

| | Current | | Actual | | Proposed | |
|---------------|---------|--------|--------|--------|----------|--------|
| | Male | Female | Male | Female | Male | Female |
| PERS – P/F | 3 | -2 | 2.7 | -2.6 | 3 | -2 |
| PERS – Others | 3 | -2 | 3.5 | -1.8 | 3 | -2 |
| TRS | 3 | -2 | 3.4 | -1.7 | 3 | -2 |
| JRS | 4 | -4 | 2.5 | 4.4 | 4 | -4 |

Other Demographic Assumptions (cont'd)

- Healthcare participation

| | Current | | Actual | | Proposed | |
|---------------|-------------|-----------------|-------------|-----------------|-------------|-----------------|
| | System paid | Non-System paid | System paid | Non-System paid | System paid | Non-System paid |
| PERS – P/F | 100% | 20% | 96% | 21% | 100% | 20% |
| PERS – Others | 100% | 20% | 98% | 28% | 100% | 25% |
| TRS | 100% | 20% | 94% | 22% | 100% | 20% |

- Medicare Part B only

- Current: 5%
- Actual: 2%
- Proposed: 2%

- Healthcare morbidity

| Age | Current | | Proposed | |
|-------|---------|-------|----------|-------|
| | Medical | Rx | Medical | Rx |
| 0-44 | 2.0% | 4.5% | 2.0% | 4.5% |
| 45-54 | 2.5% | 3.5% | 2.5% | 3.5% |
| 55-64 | 2.5% | 1.5% | 2.5% | 1.0% |
| 65-74 | 3.0% | 2.0% | 2.0% | 2.1% |
| 75-84 | 2.0% | -0.5% | 2.2% | -0.3% |
| 85-94 | 0.3% | -2.5% | 0.5% | -2.5% |
| 95+ | 0.0% | 0.0% | 0.0% | 0.0% |

Updated Economic Assumptions

Updated Economic Assumptions

- At the December meeting, we discussed proposed changes to the economic assumptions
- The proposed inflation rate was originally 2.0%, but it was felt that this is too low. So, we have modified the proposed inflation rate to 2.25% (it is currently 2.5%).
- The new proposed inflation rate also affects the salary increase rates, healthcare trend rates, and payroll growth rate
- Updated proposed economic assumptions are shown on the next four slides

Economic Assumptions – Current and Proposed

PERS/TRS/JRS

| | Current | Proposed |
|--|---------|----------|
| Nominal Return, net of investment expenses | 7.38% | 7.00% |
| Inflation Rate | 2.50% | 2.25% |
| Real Rate of Return | 4.88% | 4.75% |
| Payroll Growth Rate | 2.75% | 2.50% |

NGNMRS

| | Current | Proposed |
|--|---------|----------|
| Nominal Return, net of investment expenses | 7.00% | 5.75% |
| Inflation Rate | 2.50% | 2.25% |
| Real Rate of Return | 4.50% | 3.50% |

Economic Assumptions – Current and Proposed (cont'd)

Salary Increase Rates

PERS/PERS DCR – Peace/Fire

| Service | Current | Proposed |
|---------|---------|----------|
| 0 | 7.75% | 8.25% |
| 1 | 7.25% | 7.50% |
| 2 | 6.75% | 7.00% |
| 3 | 6.25% | 6.75% |
| 4 | 5.75% | 6.50% |
| 5 | 5.25% | 6.00% |
| 6 | 4.75% | 5.50% |
| 7 | 4.25% | 5.25% |
| 8 | 3.75% | 5.00% |
| 9 | 3.65% | 4.80% |

| Service | Current | Proposed |
|---------|---------|----------|
| 10 | 3.55% | 4.70% |
| 11 | 3.45% | 4.60% |
| 12 | 3.35% | 4.50% |
| 13 | 3.25% | 4.40% |
| 14 | 3.15% | 4.30% |
| 15 | 3.05% | 4.20% |
| 16 | 2.95% | 4.10% |
| 17 | 2.85% | 4.00% |
| 18 | 2.75% | 3.80% |
| 19 | 2.75% | 3.80% |
| 20+ | 2.75% | 3.60% |

PERS/PERS DCR - Others

| Service | Current | Proposed |
|---------|---------|----------|
| 0 | 6.75% | 6.50% |
| 1 | 6.25% | 5.75% |
| 2 | 5.75% | 5.25% |
| 3 | 5.25% | 4.75% |
| 4 | 4.75% | 4.50% |
| 5 | 4.25% | 4.00% |
| 6 | 3.75% | 3.80% |
| 7 | 3.65% | 3.70% |
| 8 | 3.55% | 3.50% |
| 9 | 3.45% | 3.30% |

| Service | Current | Proposed |
|---------|---------|----------|
| 10 | 3.35% | 3.20% |
| 11 | 3.25% | 3.00% |
| 12 | 3.15% | 2.85% |
| 13 | 3.05% | 2.80% |
| 14 | 2.95% | 2.75% |
| 15 | 2.85% | 2.70% |
| 16 | 2.75% | 2.65% |
| 17+ | 2.75% | 2.60% |

Economic Assumptions – Current and Proposed (cont'd)

Salary Increase Rates (cont'd)

TRS

| Service | Current | Proposed |
|---------|---------|----------|
| 0 | 6.75% | 6.75% |
| 1 | 6.25% | 6.25% |
| 2 | 5.75% | 5.75% |
| 3 | 5.25% | 5.50% |
| 4 | 4.75% | 5.25% |
| 5 | 4.25% | 5.00% |
| 6 | 3.75% | 4.75% |
| 7 | 3.65% | 4.50% |
| 8 | 3.55% | 4.25% |
| 9 | 3.45% | 4.00% |
| 10 | 3.35% | 3.75% |

| Service | Current | Proposed |
|---------|---------|----------|
| 11 | 3.25% | 3.50% |
| 12 | 3.15% | 3.25% |
| 13 | 3.05% | 3.20% |
| 14 | 2.95% | 3.10% |
| 15 | 2.85% | 3.00% |
| 16 | 2.75% | 2.90% |
| 17 | 2.75% | 2.80% |
| 18 | 2.75% | 2.75% |
| 19 | 2.75% | 2.70% |
| 20+ | 2.75% | 2.60% |

TRS DCR

| Service | Current | Proposed |
|---------|---------|----------|
| 0 | 6.75% | 7.00% |
| 1 | 6.25% | 6.50% |
| 2 | 5.75% | 6.00% |
| 3 | 5.25% | 5.50% |
| 4 | 4.75% | 5.00% |
| 5 | 4.25% | 4.75% |
| 6 | 3.75% | 4.50% |
| 7 | 3.65% | 4.25% |
| 8 | 3.55% | 4.00% |
| 9 | 3.45% | 3.75% |
| 10 | 3.35% | 3.50% |

| Service | Current | Proposed |
|---------|---------|----------|
| 11 | 3.25% | 3.25% |
| 12 | 3.15% | 3.00% |
| 13 | 3.05% | 2.80% |
| 14 | 2.95% | 2.75% |
| 15 | 2.85% | 2.70% |
| 16 | 2.75% | 2.65% |
| 17 | 2.75% | 2.60% |
| 18+ | 2.75% | 2.60% |

JRS

Current: 0% per year through FY24, 3.62% per year thereafter

Proposed: 0% per year through FY24, 2.75% per year thereafter

Economic Assumptions – Current and Proposed (cont'd)

Healthcare Trend Rates

Current

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

Proposed

| Fiscal Year | Medical Pre-65 | Medical Post-65 | Prescription Drugs/EGWP |
|-------------|----------------|-----------------|-------------------------|
| FY22 | 6.30% | 5.40% | 7.10% |
| FY23 | 7.00% | 5.50% | 7.50% |
| FY24 | 6.70% | 5.50% | 7.20% |
| FY25 | 6.40% | 5.40% | 6.90% |
| FY26 | 6.15% | 5.35% | 6.60% |
| FY27 | 5.95% | 5.30% | 6.30% |
| FY28 | 5.70% | 5.20% | 5.95% |
| FY29 | 5.50% | 5.15% | 5.65% |
| FY30 | 5.25% | 5.10% | 5.35% |
| FY31-FY38 | 5.05% | 5.05% | 5.05% |
| FY39 | 5.00% | 5.00% | 5.00% |
| FY40 | 4.95% | 4.95% | 4.95% |
| FY41 | 4.85% | 4.85% | 4.85% |
| FY42 | 4.80% | 4.80% | 4.80% |
| FY43 | 4.70% | 4.70% | 4.70% |
| FY44 | 4.65% | 4.65% | 4.65% |
| FY45 | 4.55% | 4.55% | 4.55% |
| FY46 | 4.50% | 4.50% | 4.50% |
| FY47 | 4.45% | 4.45% | 4.45% |
| FY48 | 4.35% | 4.35% | 4.35% |
| FY49 | 4.30% | 4.30% | 4.30% |
| FY50+ | 4.25% | 4.25% | 4.25% |

The trend rates for the 6/30/21 valuations are not being changed.

The proposed assumption illustrates lowering the ultimate trend rate from 4.50% to 4.25%. Short-term trend rates were also modified to achieve a gradual decline to the 4.25% ultimate rate.

Cost Effects of Proposed Assumptions

Cost Effects of Proposed Assumptions

- The cost effects shown in this presentation are based on the most recent valuations that have been reviewed and adopted by the ARMB (i.e., the June 30, 2020 valuations)
- The cost effects are shown in two steps
 - 1st step: Changing just the demographic assumptions
 - 2nd step: Changing all of the assumptions

Cost Effects of Proposed Assumptions (cont'd)

PERS

| as of June 30, 2020 (\$000's) | Current | | | Proposed – Demographic Only | | | Proposed – All Assumptions | | |
|--|------------------|------------------|-------------------|-----------------------------|------------------|-------------------|----------------------------|------------------|-------------------|
| | Pension | Healthcare | Total | Pension | Healthcare | Total | Pension | Healthcare | Total |
| 1. Actuarial Accrued Liability (AAL) | 15,279,525 | 7,036,550 | 22,316,075 | 15,278,343 | 6,741,265 | 22,019,608 | 15,667,382 | 7,034,680 | 22,702,062 |
| 2. Actuarial Value of Assets (AVA) | <u>9,713,710</u> | <u>7,989,358</u> | <u>17,703,068</u> | <u>9,713,710</u> | <u>7,989,358</u> | <u>17,703,068</u> | <u>9,713,710</u> | <u>7,989,358</u> | <u>17,703,068</u> |
| 3. Unfunded Actuarial Accrued Liability (AAL - AVA) | 5,565,815 | (952,808) | 4,613,007 | 5,564,633 | (1,248,093) | 4,316,540 | 5,953,672 | (954,678) | 4,998,994 |
| 4. Funded Ratio (AVA / AAL) | 63.6% | 113.5% | 79.3% | 63.6% | 118.5% | 80.4% | 62.0% | 113.6% | 78.0% |
| 5. Normal Cost (Total) | 137,815 | 84,825 | 222,640 | 135,952 | 72,334 | 208,286 | 147,723 | 78,469 | 226,192 |
| 6. Projected DB/DCR Payroll for Upcoming Year | | | 2,373,078 | | | 2,373,078 | | | 2,371,708 |
| 7. Contribution Rate as of 6/30/20* | | | | | | | | | |
| 7a. Normal Cost Rate (Employer) | 3.09% | 3.57% | 6.66% | 3.01% | 3.05% | 6.06% | 3.51% | 3.31% | 6.82% |
| 7b. Unfunded Liability Amortization Rate | <u>17.45%</u> | <u>(2.66%)</u> | <u>17.45%</u> | <u>17.44%</u> | <u>(3.47%)</u> | <u>17.44%</u> | <u>18.35%</u> | <u>(2.64%)</u> | <u>18.35%</u> |
| 7c. Total Rate (not less than Employer Normal Cost) | 20.54% | 3.57% | 24.11% | 20.45% | 3.05% | 23.50% | 21.86% | 3.31% | 25.17% |

* % of projected DB/DCR payroll for the upcoming year

Cost Effects of Proposed Assumptions (cont'd)

TRS

| as of June 30, 2020 (\$000's) | Current | | | Proposed – Demographic Only | | | Proposed – All Assumptions | | |
|--|------------------|------------------|------------------|-----------------------------|------------------|------------------|----------------------------|------------------|------------------|
| | Pension | Healthcare | Total | Pension | Healthcare | Total | Pension | Healthcare | Total |
| 1. Actuarial Accrued Liability (AAL) | 7,447,036 | 2,489,675 | 9,936,711 | 7,504,444 | 2,433,004 | 9,937,448 | 7,670,804 | 2,538,043 | 10,208,847 |
| 2. Actuarial Value of Assets (AVA) | <u>5,587,064</u> | <u>3,021,283</u> | <u>8,608,347</u> | <u>5,587,064</u> | <u>3,021,283</u> | <u>8,608,347</u> | <u>5,587,064</u> | <u>3,021,283</u> | <u>8,608,347</u> |
| 3. Unfunded Actuarial Accrued Liability (AAL - AVA) | 1,859,972 | (531,608) | 1,328,364 | 1,917,380 | (588,279) | 1,329,101 | 2,083,740 | (483,240) | 1,600,500 |
| 4. Funded Ratio (AVA / AAL) | 75.0% | 121.4% | 86.6% | 74.5% | 124.2% | 86.6% | 72.8% | 119.0% | 84.3% |
| 5. Normal Cost (Total) | 51,404 | 24,419 | 75,823 | 50,288 | 21,257 | 71,545 | 55,252 | 24,021 | 79,273 |
| 6. Projected DB/DCR Payroll for Upcoming Year | | | 741,090 | | | 741,090 | | | 742,178 |
| 7. Contribution Rate as of 6/30/20* | | | | | | | | | |
| 7a. Normal Cost Rate (Employer) | 2.86% | 3.30% | 6.16% | 2.71% | 2.87% | 5.58% | 3.37% | 3.24% | 6.61% |
| 7b. Unfunded Liability Amortization Rate | <u>18.87%</u> | <u>(4.82%)</u> | <u>18.87%</u> | <u>19.37%</u> | <u>(5.31%)</u> | <u>19.37%</u> | <u>20.60%</u> | <u>(4.35%)</u> | <u>20.60%</u> |
| 7c. Total Rate (not less than Employer Normal Cost) | 21.73% | 3.30% | 25.03% | 22.08% | 2.87% | 24.95% | 23.97% | 3.24% | 27.21% |

* % of projected DB/DCR payroll for the upcoming year

Cost Effects of Proposed Assumptions (cont'd)

PERS DCR

| as of June 30, 2020 (\$000's) | Current | | | Proposed – Demographic Only | | | Proposed – All Assumptions | | |
|--|----------------|----------------|----------------|-----------------------------|----------------|----------------|----------------------------|----------------|----------------|
| | ODD | Healthcare | Total | ODD | Healthcare | Total | ODD | Healthcare | Total |
| 1. Actuarial Accrued Liability (AAL) | 10,634 | 150,701 | 161,335 | 10,916 | 127,999 | 138,915 | 11,709 | 135,014 | 146,723 |
| 2. Actuarial Value of Assets (AVA) | <u>43,029</u> | <u>144,747</u> | <u>187,776</u> | <u>43,029</u> | <u>144,747</u> | <u>187,776</u> | <u>43,029</u> | <u>144,747</u> | <u>187,776</u> |
| 3. Unfunded Actuarial Accrued Liability (AAL - AVA) | (32,395) | 5,954 | (26,441) | (32,113) | (16,748) | (48,861) | (31,320) | (9,733) | (41,053) |
| 4. Funded Ratio (AVA / AAL) | 404.6% | 96.0% | 116.4% | 394.2% | 113.1% | 135.2% | 367.5% | 107.2% | 128.0% |
| 5. Normal Cost | 5,134 | 15,182 | 20,316 | 4,316 | 12,137 | 16,453 | 4,486 | 12,905 | 17,391 |
| 6. Projected DCR Payroll for Upcoming Year | | | 1,443,017 | | | 1,443,017 | | | 1,441,293 |
| 7. Contribution Rate as of 6/30/20* | | | | | | | | | |
| 7a. Normal Cost Rate | 0.36% | 1.05% | 1.41% | 0.30% | 0.84% | 1.14% | 0.31% | 0.90% | 1.21% |
| 7b. Unfunded Liability Amortization Rate | <u>(0.17%)</u> | <u>0.05%</u> | <u>0.05%</u> | <u>(0.16%)</u> | <u>(0.05%)</u> | <u>(0.21%)</u> | <u>(0.16%)</u> | <u>(0.02%)</u> | <u>(0.18%)</u> |
| 7c. Total Rate (not less than Employer Normal Cost) | 0.36% | 1.10% | 1.46% | 0.30% | 0.84% | 1.14% | 0.31% | 0.90% | 1.21% |

* % of projected DCR payroll for the upcoming year

Cost Effects of Proposed Assumptions (cont'd)

TRS DCR

| as of June 30, 2020 (\$000's) | Current | | | Proposed – Demographic Only | | | Proposed – All Assumptions | | |
|--|-----------------|----------------|----------------|-----------------------------|----------------|----------------|----------------------------|----------------|----------------|
| | ODD | Healthcare | Total | ODD | Healthcare | Total | ODD | Healthcare | Total |
| 1. Actuarial Accrued Liability (AAL) | 223 | 40,634 | 40,857 | 228 | 36,770 | 36,998 | 221 | 38,624 | 38,845 |
| 2. Actuarial Value of Assets (AVA) | <u>4,933</u> | <u>49,554</u> | <u>54,487</u> | <u>4,933</u> | <u>49,554</u> | <u>54,487</u> | <u>4,933</u> | <u>49,554</u> | <u>54,487</u> |
| 3. Unfunded Actuarial Accrued Liability (AAL - AVA) | (4,710) | (8,920) | (13,630) | (4,705) | (12,784) | (17,489) | (4,712) | (10,930) | (15,642) |
| 4. Funded Ratio (AVA / AAL) | 2,212.1% | 122.0% | 133.4% | 2,163.6% | 134.8% | 147.3% | 2,232.1% | 128.3% | 140.3% |
| 5. Normal Cost | 312 | 3,396 | 3,708 | 290 | 2,728 | 3,018 | 296 | 2,929 | 3,225 |
| 6. Projected DCR Payroll for Upcoming Year | | | 391,854 | | | 391,854 | | | 392,915 |
| 7. Contribution Rate as of 6/30/20* | | | | | | | | | |
| 7a. Normal Cost Rate | 0.08% | 0.87% | 0.95% | 0.07% | 0.70% | 0.77% | 0.08% | 0.75% | 0.83% |
| 7b. Unfunded Liability Amortization Rate | <u>(0.10%)</u> | <u>(0.14%)</u> | <u>(0.24%)</u> | <u>(0.10%)</u> | <u>(0.20%)</u> | <u>(0.30%)</u> | <u>(0.09%)</u> | <u>(0.17%)</u> | <u>(0.26%)</u> |
| 7c. Total Rate (not less than Employer Normal Cost) | 0.08% | 0.87% | 0.95% | 0.07% | 0.70% | 0.77% | 0.08% | 0.75% | 0.83% |

* % of projected DCR payroll for the upcoming year

Cost Effects of Proposed Assumptions (cont'd)

JRS

| as of June 30, 2020 (\$000's) | Current | | | Proposed – Demographic Only | | | Proposed – All Assumptions | | |
|--|----------------|----------------|----------------|-----------------------------|----------------|----------------|----------------------------|----------------|----------------|
| | Pension | Healthcare | Total | Pension | Healthcare | Total | Pension | Healthcare | Total |
| 1. Actuarial Accrued Liability (AAL) | 211,742 | 16,764 | 228,506 | 205,330 | 15,717 | 221,047 | 199,869 | 16,398 | 216,267 |
| 2. Actuarial Value of Assets (AVA) | <u>194,788</u> | <u>34,806</u> | <u>229,594</u> | <u>194,788</u> | <u>34,806</u> | <u>229,594</u> | <u>194,788</u> | <u>34,806</u> | <u>229,594</u> |
| 3. Unfunded Actuarial Accrued Liability (AAL - AVA) | 16,954 | (18,042) | (1,088) | 10,542 | (19,089) | (8,547) | 5,081 | (18,408) | (13,327) |
| 4. Funded Ratio (AVA / AAL) | 92.0% | 207.6% | 100.5% | 94.9% | 221.5% | 103.9% | 97.5% | 212.3% | 106.2% |
| 5. Normal Cost (Total) | 5,934 | 854 | 6,788 | 5,801 | 782 | 6,583 | 5,404 | 834 | 6,238 |
| 6. Projected Payroll for Upcoming Year | | | 13,157 | | | 13,157 | | | 13,157 |
| 7. Contribution Rate as of 6/30/20* | | | | | | | | | |
| 7a. Normal Cost Rate (Employer) | 38.85% | 6.49% | 45.34% | 37.84% | 5.94% | 43.78% | 34.82% | 6.34% | 41.16% |
| 7b. Unfunded Liability Amortization Rate | <u>24.74%</u> | <u>(8.24%)</u> | <u>24.74%</u> | <u>21.60%</u> | <u>(8.76%)</u> | <u>21.60%</u> | <u>18.93%</u> | <u>(8.32%)</u> | <u>18.93%</u> |
| 7c. Total Rate (not less than Employer Normal Cost) | 63.59% | 6.49% | 70.08% | 59.44% | 5.94% | 65.38% | 53.75% | 6.34% | 60.09% |

* % of projected payroll for the upcoming year

Cost Effects of Proposed Assumptions (cont'd)

NGNMRS

| as of June 30, 2020 (\$000's) | Current | Proposed – Demographic Only | Proposed – All Assumptions |
|---|----------------|-----------------------------------|----------------------------------|
| 1. Actuarial Accrued Liability (AAL) | 22,417 | 23,081 | 25,842 |
| 2. Actuarial Value of Assets (AVA) | <u>43,020</u> | <u>43,020</u> | <u>43,020</u> |
| 3. Unfunded Actuarial Accrued Liability (AAL - AVA) | (20,603) | (19,939) | (17,178) |
| 4. Funded Ratio (AVA / AAL) | 191.9% | 186.4% | 166.5% |
| 5. Normal Cost | 503 | 581 | 722 |
| 6. Contribution as of 6/30/20 | | | |
| 6a. Normal Cost and Administrative Expenses | 759 | 837 | 978 |
| 6b. Unfunded Liability Amortization | <u>(3,325)</u> | <u>(3,121)</u> | <u>(2,590)</u> |
| 6c. Total (not less than zero) | 0 | 0 | 0 |

Appendix

A/E Ratios

Mortality - Post-Commencement

PERS/PERS DCR Peace/Fire - Retirees & Beneficiaries

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|------------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 72,182,000 | 68,589,000 | 95% | 69,014,000 | 99% | 179 | 179 | 200 |
| Female | 12,704,000 | 9,122,000 | 72% | 12,346,000 | 74% | 53 | 56 | 54 |

PERS/PERS DCR Others - Retirees & Beneficiaries

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|-------------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 287,298,000 | 269,971,000 | 94% | 271,510,000 | 99% | 1,243 | 1,228 | 1,433 |
| Female | 225,904,000 | 208,501,000 | 92% | 201,832,000 | 103% | 1,548 | 1,461 | 1,639 |

TRS/TRS DCR - Retirees & Beneficiaries

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|-------------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 163,403,000 | 146,051,000 | 89% | 148,611,000 | 98% | 449 | 427 | 445 |
| Female | 169,039,000 | 137,860,000 | 82% | 142,779,000 | 97% | 594 | 532 | 550 |

NGNMRS - Retirees & Beneficiaries

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|--------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 162,000 | 96,000 | 59% | 135,000 | 71% | 23 | 20 | 14 |
| Female | 18,000 | 13,000 | 72% | 16,000 | 81% | 3 | 2 | 1 |

Mortality - Pre-Commencement

PERS/PERS DCR Peace/Fire

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 14 | 11 | 10 |
| Female | 2 | 2 | 2 |

PERS/PERS DCR Others

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 128 | 89 | 105 |
| Female | 90 | 66 | 70 |

TRS/TRS DCR

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 17 | 14 | 18 |
| Female | 25 | 20 | 11 |

A/E Ratios (cont'd)

Retirement - Unreduced

PERS Peace/Fire

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|-------------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 249,393,000 | 257,818,000 | 103% | 265,408,000 | 97% | 320 | 339 | 316 |
| Female | 40,812,000 | 46,089,000 | 113% | 45,833,000 | 101% | 66 | 73 | 69 |

PERS Others

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|-------------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 543,358,000 | 621,089,000 | 114% | 628,289,000 | 99% | 1,230 | 1,429 | 1,301 |
| Female | 613,317,000 | 667,762,000 | 109% | 660,318,000 | 101% | 1,757 | 1,892 | 1,759 |

TRS

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|-------------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 256,879,000 | 265,168,000 | 103% | 267,058,000 | 99% | 429 | 447 | 422 |
| Female | 471,731,000 | 477,277,000 | 101% | 467,672,000 | 102% | 874 | 870 | 840 |

NGNMRS

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|-----------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 3,530,000 | 3,599,000 | 102% | 3,607,000 | 100% | 370 | 391 | 406 |
| Female | 547,000 | 633,000 | 116% | 636,000 | 100% | 61 | 74 | 76 |

A/E Ratios (cont'd)

Retirement - Reduced

PERS Peace/Fire

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|------------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 13,724,000 | 14,039,000 | 102% | 14,164,000 | 99% | 30 | 31 | 30 |
| Female | 2,886,000 | 2,820,000 | 98% | 2,721,000 | 104% | 7 | 7 | 7 |

PERS Others

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|-------------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 133,336,000 | 160,992,000 | 121% | 157,441,000 | 102% | 327 | 386 | 360 |
| Female | 164,236,000 | 178,409,000 | 109% | 179,148,000 | 100% | 519 | 566 | 553 |

TRS

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|------------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 15,625,000 | 14,950,000 | 96% | 14,822,000 | 101% | 41 | 39 | 38 |
| Female | 26,743,000 | 36,807,000 | 138% | 35,417,000 | 104% | 77 | 102 | 102 |

A/E Ratios (cont'd)

Withdrawal - Ultimate

PERS Peace/Fire

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|------------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 27,698,000 | 20,852,000 | 75% | 20,834,000 | 100% | 64 | 48 | 50 |
| Female | 6,808,000 | 6,169,000 | 91% | 6,124,000 | 101% | 19 | 17 | 21 |

PERS Others

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|-------------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 110,944,000 | 107,455,000 | 97% | 108,330,000 | 99% | 424 | 415 | 487 |
| Female | 146,874,000 | 143,583,000 | 98% | 144,046,000 | 100% | 667 | 655 | 819 |

TRS

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|------------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 17,620,000 | 24,865,000 | 141% | 24,578,000 | 101% | 56 | 79 | 82 |
| Female | 51,008,000 | 49,144,000 | 96% | 49,616,000 | 99% | 183 | 179 | 188 |

A/E Ratios (cont'd)

Withdrawal - Ultimate

PERS DCR Peace/Fire

| Group | Headcounts | | | A / CE | A / NE |
|-------------|------------------|--------------|--------|--------|--------|
| | Current Expected | New Expected | Actual | | |
| Male/Female | 280 | 291 | 293 | 105% | 101% |

PERS DCR Others

| Group | Headcounts | | | A / CE | A / NE |
|-------------|------------------|--------------|--------|--------|--------|
| | Current Expected | New Expected | Actual | | |
| Male/Female | 2,928 | 3,086 | 3,037 | 104% | 98% |

TRS DCR

| Group | Headcounts | | | A / CE | A / NE |
|-------------|------------------|--------------|--------|--------|--------|
| | Current Expected | New Expected | Actual | | |
| Male/Female | 744 | 795 | 798 | 107% | 100% |

NGNMRS

| Group | Actuarial Accrued Liability | | | | | Headcounts | | |
|--------|-----------------------------|-----------|--------|--------------|--------|------------------|--------------|--------|
| | Current Expected | Actual | A / CE | New Expected | A / NE | Current Expected | New Expected | Actual |
| Male | 1,337,000 | 1,124,000 | 84% | 1,136,000 | 99% | 1,115 | 912 | 1,058 |
| Female | 372,000 | 260,000 | 70% | 261,000 | 100% | 328 | 250 | 327 |

Withdrawal (Select) Headcounts – DCR Plans

Withdrawal - Select < 1 year

Withdrawal - Select 1 year

Withdrawal - Select 2 years

PERS DCR Peace/Fire

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 94 | 84 | 83 |
| Female | 22 | 29 | 29 |

PERS DCR Peace/Fire

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 113 | 95 | 86 |
| Female | 26 | 33 | 33 |

PERS DCR Peace/Fire

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 74 | 78 | 78 |
| Female | 20 | 22 | 22 |

PERS DCR Others

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 761 | 875 | 877 |
| Female | 1,159 | 1,201 | 1,220 |

PERS DCR Others

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 1,122 | 1,068 | 1,111 |
| Female | 1,812 | 1,949 | 1,931 |

PERS DCR Others

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 699 | 666 | 682 |
| Female | 1,082 | 1,152 | 1,168 |

TRS DCR

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 6 | 8 | 7 |
| Female | 15 | 21 | 21 |

TRS DCR

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 140 | 201 | 203 |
| Female | 373 | 419 | 415 |

TRS DCR

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 90 | 106 | 106 |
| Female | 273 | 319 | 323 |

Withdrawal (Select) Headcounts – DCR Plans (cont'd)

Withdrawal - Select 3 years

PERS DCR Peace/Fire

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 61 | 72 | 78 |
| Female | 16 | 17 | 17 |

PERS DCR Others

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 457 | 477 | 463 |
| Female | 659 | 739 | 736 |

TRS DCR

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 70 | 86 | 86 |
| Female | 206 | 202 | 204 |

Withdrawal - Select 4 years

PERS DCR Peace/Fire

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 55 | 66 | 68 |
| Female | 15 | 12 | 12 |

PERS DCR Others

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 280 | 356 | 357 |
| Female | 483 | 548 | 557 |

TRS DCR

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 53 | 59 | 58 |
| Female | 163 | 193 | 204 |

Withdrawal - Select 5 years

TRS DCR

| Group | Headcounts | | |
|--------|------------------|--------------|--------|
| | Current Expected | New Expected | Actual |
| Male | 35 | 62 | 77 |
| Female | 106 | 132 | 138 |

Current and Proposed Decrements

Retirement – PERS Peace/Fire

Current

| Age | Reduced | | Unreduced | |
|------|---------|--------|-----------|---------|
| | Male | Female | Male | Female |
| < 47 | N/A | N/A | 8.80% | 6.00% |
| 47 | N/A | N/A | 8.80% | 15.00% |
| 48 | N/A | N/A | 14.30% | 15.00% |
| 49 | N/A | N/A | 14.30% | 15.00% |
| 50 | 5.00% | 5.00% | 16.50% | 15.00% |
| 51 | 5.00% | 7.00% | 16.50% | 15.00% |
| 52 | 7.00% | 7.00% | 20.35% | 15.00% |
| 53 | 7.00% | 7.00% | 20.35% | 15.00% |
| 54 | 7.00% | 35.00% | 20.35% | 25.00% |
| 55 | 7.00% | 8.00% | 27.50% | 20.00% |
| 56 | 7.00% | 8.00% | 27.50% | 15.00% |
| 57 | 7.00% | 8.00% | 27.50% | 15.00% |
| 58 | 7.00% | 8.00% | 27.50% | 15.00% |
| 59 | 20.00% | 20.00% | 27.50% | 15.00% |
| 60 | N/A | N/A | 33.00% | 25.00% |
| 61 | N/A | N/A | 27.50% | 20.00% |
| 62 | N/A | N/A | 27.50% | 30.00% |
| 63 | N/A | N/A | 27.50% | 50.00% |
| 64 | N/A | N/A | 22.00% | 50.00% |
| 65 | N/A | N/A | 22.00% | 50.00% |
| 66 | N/A | N/A | 27.50% | 50.00% |
| 67 | N/A | N/A | 55.00% | 50.00% |
| 68 | N/A | N/A | 55.00% | 50.00% |
| 69 | N/A | N/A | 55.00% | 50.00% |
| 70+ | N/A | N/A | 100.00% | 100.00% |

Proposed

| Age | Reduced | | Unreduced | |
|------|---------|--------|-----------|---------|
| | Male | Female | Male | Female |
| < 47 | N/A | N/A | 9.00% | 7.50% |
| 47 | N/A | N/A | 13.00% | 18.50% |
| 48 | N/A | N/A | 13.00% | 18.50% |
| 49 | N/A | N/A | 13.00% | 18.50% |
| 50 | 5.00% | 5.00% | 20.00% | 21.00% |
| 51 | 5.00% | 5.00% | 20.00% | 21.00% |
| 52 | 7.00% | 7.00% | 20.00% | 21.00% |
| 53 | 7.00% | 7.00% | 20.00% | 21.00% |
| 54 | 7.00% | 7.00% | 20.00% | 21.00% |
| 55 | 7.50% | 7.50% | 29.00% | 20.00% |
| 56 | 7.50% | 7.50% | 29.00% | 20.00% |
| 57 | 7.50% | 7.50% | 29.00% | 20.00% |
| 58 | 7.50% | 7.50% | 29.00% | 20.00% |
| 59 | 20.00% | 20.00% | 29.00% | 20.00% |
| 60 | N/A | N/A | 29.00% | 31.50% |
| 61 | N/A | N/A | 29.00% | 31.50% |
| 62 | N/A | N/A | 29.00% | 31.50% |
| 63 | N/A | N/A | 29.00% | 31.50% |
| 64 | N/A | N/A | 29.00% | 31.50% |
| 65 | N/A | N/A | 45.00% | 45.00% |
| 66 | N/A | N/A | 45.00% | 45.00% |
| 67 | N/A | N/A | 45.00% | 45.00% |
| 68 | N/A | N/A | 45.00% | 45.00% |
| 69 | N/A | N/A | 45.00% | 45.00% |
| 70+ | N/A | N/A | 100.00% | 100.00% |

Current and Proposed Decrements

Retirement – PERS Others

Current

| Age | Reduced | | Unreduced | |
|------|---------|--------|-----------|---------|
| | Male | Female | Male | Female |
| < 50 | N/A | N/A | 11.00% | 11.00% |
| 50 | 6.00% | 8.00% | 33.00% | 38.50% |
| 51 | 6.00% | 8.00% | 35.75% | 38.50% |
| 52 | 9.00% | 8.00% | 35.75% | 38.50% |
| 53 | 6.00% | 8.00% | 35.75% | 38.50% |
| 54 | 20.00% | 15.00% | 38.50% | 38.50% |
| 55 | 6.00% | 6.00% | 33.00% | 33.00% |
| 56 | 6.00% | 6.00% | 22.00% | 22.00% |
| 57 | 6.00% | 6.00% | 22.00% | 19.80% |
| 58 | 6.00% | 6.00% | 22.00% | 19.80% |
| 59 | 15.00% | 20.00% | 22.00% | 19.80% |
| 60 | N/A | N/A | 22.00% | 23.10% |
| 61 | N/A | N/A | 22.00% | 22.00% |
| 62 | N/A | N/A | 22.00% | 22.00% |
| 63 | N/A | N/A | 22.00% | 22.00% |
| 64 | N/A | N/A | 22.00% | 22.00% |
| 65 | N/A | N/A | 24.75% | 28.60% |
| 66 | N/A | N/A | 27.50% | 28.60% |
| 67 | N/A | N/A | 22.00% | 24.20% |
| 68 | N/A | N/A | 24.75% | 24.20% |
| 69 | N/A | N/A | 27.50% | 24.20% |
| 70 | N/A | N/A | 27.50% | 24.20% |
| 71 | N/A | N/A | 27.50% | 24.20% |
| 72 | N/A | N/A | 27.50% | 27.50% |
| 73 | N/A | N/A | 27.50% | 27.50% |
| 74 | N/A | N/A | 27.50% | 38.50% |
| 75 | N/A | N/A | 55.00% | 55.00% |
| 76 | N/A | N/A | 55.00% | 55.00% |
| 77 | N/A | N/A | 55.00% | 55.00% |
| 78 | N/A | N/A | 55.00% | 55.00% |
| 79 | N/A | N/A | 55.00% | 55.00% |
| 80+ | N/A | N/A | 100.00% | 100.00% |

Proposed

| Age | Reduced | | Unreduced | |
|------|---------|--------|-----------|---------|
| | Male | Female | Male | Female |
| < 50 | N/A | N/A | 11.50% | 11.50% |
| 50 | 7.00% | 8.50% | 37.50% | 40.50% |
| 51 | 7.00% | 8.50% | 37.50% | 40.50% |
| 52 | 11.00% | 8.50% | 37.50% | 40.50% |
| 53 | 11.00% | 8.50% | 37.50% | 40.50% |
| 54 | 24.00% | 16.50% | 37.50% | 40.50% |
| 55 | 7.00% | 6.50% | 25.50% | 24.00% |
| 56 | 7.00% | 6.50% | 25.50% | 24.00% |
| 57 | 7.00% | 6.50% | 25.50% | 24.00% |
| 58 | 7.00% | 6.50% | 25.50% | 24.00% |
| 59 | 18.00% | 22.00% | 25.50% | 24.00% |
| 60 | N/A | N/A | 26.50% | 24.50% |
| 61 | N/A | N/A | 26.50% | 24.50% |
| 62 | N/A | N/A | 26.50% | 24.50% |
| 63 | N/A | N/A | 26.50% | 24.50% |
| 64 | N/A | N/A | 26.50% | 24.50% |
| 65 | N/A | N/A | 30.50% | 28.50% |
| 66 | N/A | N/A | 30.50% | 28.50% |
| 67 | N/A | N/A | 30.50% | 28.50% |
| 68 | N/A | N/A | 30.50% | 28.50% |
| 69 | N/A | N/A | 30.50% | 28.50% |
| 70 | N/A | N/A | 27.50% | 27.50% |
| 71 | N/A | N/A | 27.50% | 27.50% |
| 72 | N/A | N/A | 27.50% | 27.50% |
| 73 | N/A | N/A | 27.50% | 27.50% |
| 74 | N/A | N/A | 27.50% | 27.50% |
| 75 | N/A | N/A | 50.00% | 50.00% |
| 76 | N/A | N/A | 50.00% | 50.00% |
| 77 | N/A | N/A | 50.00% | 50.00% |
| 78 | N/A | N/A | 50.00% | 50.00% |
| 79 | N/A | N/A | 50.00% | 50.00% |
| 80+ | N/A | N/A | 100.00% | 100.00% |

Current and Proposed Decrements

Retirement – TRS

Current

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

Proposed

| Age | Reduced | | Unreduced | |
|---------|---------|--------|-----------|---------|
| | Male | Female | Male | Female |
| < 45 | N/A | N/A | 3.00% | 3.00% |
| 45 | N/A | N/A | 5.50% | 7.00% |
| 46 | N/A | N/A | 5.50% | 7.00% |
| 47 | N/A | N/A | 5.50% | 7.00% |
| 48 | N/A | N/A | 5.50% | 7.00% |
| 49 | N/A | N/A | 5.50% | 7.00% |
| 50 | 5.00% | 5.00% | 12.50% | 13.00% |
| 51 | 5.00% | 5.00% | 12.50% | 13.00% |
| 52 | 5.00% | 10.00% | 12.50% | 13.00% |
| 53 | 5.00% | 5.00% | 12.50% | 13.00% |
| 54 | 10.00% | 5.00% | 12.50% | 13.00% |
| 55 | 14.50% | 11.00% | 20.00% | 17.50% |
| 56 | 9.50% | 11.00% | 20.00% | 17.50% |
| 57 | 9.50% | 11.00% | 20.00% | 17.50% |
| 58 | 9.50% | 11.00% | 20.00% | 17.50% |
| 59 | 9.50% | 11.00% | 20.00% | 17.50% |
| 60 | N/A | N/A | 19.50% | 23.50% |
| 61 | N/A | N/A | 19.50% | 23.50% |
| 62 | N/A | N/A | 19.50% | 23.50% |
| 63 | N/A | N/A | 19.50% | 23.50% |
| 64 | N/A | N/A | 19.50% | 23.50% |
| 65 | N/A | N/A | 28.00% | 23.50% |
| 66 | N/A | N/A | 28.00% | 23.50% |
| 67 | N/A | N/A | 28.00% | 23.50% |
| 68 | N/A | N/A | 28.00% | 23.50% |
| 69 | N/A | N/A | 28.00% | 23.50% |
| 70 | N/A | N/A | 30.00% | 36.00% |
| 71 | N/A | N/A | 30.00% | 36.00% |
| 72 | N/A | N/A | 30.00% | 36.00% |
| 73 | N/A | N/A | 30.00% | 36.00% |
| 74 | N/A | N/A | 30.00% | 36.00% |
| 75 - 79 | N/A | N/A | 50.00% | 50.00% |
| 80+ | N/A | N/A | 100.00% | 100.00% |

Current and Proposed Decrements

Retirement – PERS DCR

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

Retirement – TRS DCR

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

Current and Proposed Decrements

Retirement – NGNMRS

| Current | | | Proposed | | |
|---------|---------|---------|----------|---------|---------|
| Age | Male | Female | Age | Male | Female |
| < 51 | 13.00% | 13.00% | < 51 | 15.34% | 18.20% |
| 51 | 13.00% | 13.00% | 51 | 15.34% | 18.20% |
| 52 | 13.00% | 13.00% | 52 | 15.34% | 18.20% |
| 53 | 15.00% | 15.00% | 53 | 17.70% | 21.00% |
| 54 | 20.00% | 20.00% | 54 | 23.60% | 28.00% |
| 55 | 25.00% | 25.00% | 55 | 18.50% | 16.25% |
| 56 | 35.00% | 35.00% | 56 | 25.90% | 22.75% |
| 57 | 40.00% | 40.00% | 57 | 29.60% | 26.00% |
| 58 | 45.00% | 45.00% | 58 | 33.30% | 29.25% |
| 59 | 50.00% | 50.00% | 59 | 37.00% | 32.50% |
| 60 | 55.00% | 55.00% | 60 | 40.70% | 35.75% |
| 61 | 60.00% | 60.00% | 61 | 44.40% | 35.75% |
| 62 | 60.00% | 60.00% | 62 | 44.40% | 35.75% |
| 63 | 60.00% | 60.00% | 63 | 44.40% | 35.75% |
| 64 | 60.00% | 60.00% | 64 | 44.40% | 35.75% |
| 65+ | 100.00% | 100.00% | 65+ | 100.00% | 100.00% |

Retirement – JRS

| Current | | Proposed | |
|---------|------|----------|------|
| Age | Rate | Age | Rate |
| < 59 | 3% | < 59 | 3% |
| 59 | 10% | 59 | 10% |
| 60 | 20% | 60 | 20% |
| 61 | 20% | 61 | 20% |
| 62 | 10% | 62 | 10% |
| 63 | 10% | 63 | 10% |
| 64 | 10% | 64 | 10% |
| 65 | 20% | 65 | 20% |
| 66 | 20% | 66 | 20% |
| 67 | 10% | 67 | 10% |
| 68 | 10% | 68 | 10% |
| 69 | 10% | 69 | 10% |
| 70+ | 100% | 70+ | 100% |

Current and Proposed Decrements

Withdrawal – PERS Peace/Fire

Current

Select Rates during the First 5 Years of Employment

| Years of Service | Male | Female |
|------------------|--------|--------|
| 0 | 15.00% | 15.00% |
| 1 | 12.00% | 8.00% |
| 2 | 7.20% | 6.40% |
| 3 | 5.67% | 5.60% |
| 4 | 6.48% | 7.20% |

Ultimate Rates after the First 5 Years of Employment

| Age | Male | Female |
|------|-------|--------|
| < 23 | 4.70% | 6.80% |
| 23 | 4.46% | 6.80% |
| 24 | 4.22% | 6.80% |
| 25 | 3.98% | 6.80% |
| 26 | 3.74% | 6.80% |
| 27 | 3.50% | 6.80% |
| 28 | 3.32% | 6.63% |
| 29 | 3.14% | 6.46% |
| 30 | 2.96% | 6.29% |
| 31 | 2.79% | 6.12% |
| 32 | 2.61% | 5.95% |
| 33 | 2.50% | 5.36% |
| 34 | 2.39% | 4.77% |
| 35 | 2.28% | 4.18% |
| 36 | 2.17% | 3.60% |
| 37 | 2.06% | 3.01% |
| 38 | 2.05% | 2.99% |

Proposed

Select Rates during the First 5 Years of Employment

| Years of Service | Male | Female |
|------------------|--------|--------|
| 0 | 15.00% | 15.00% |
| 1 | 12.00% | 8.00% |
| 2 | 7.20% | 6.40% |
| 3 | 5.67% | 5.60% |
| 4 | 6.48% | 7.20% |

Ultimate Rates after the First 5 Years of Employment

| Age | Male | Female |
|------|-------|--------|
| < 23 | 2.40% | 5.80% |
| 23 | 2.40% | 5.80% |
| 24 | 2.40% | 5.80% |
| 25 | 2.40% | 5.80% |
| 26 | 2.40% | 5.80% |
| 27 | 2.40% | 5.80% |
| 28 | 2.40% | 5.80% |
| 29 | 2.40% | 5.80% |
| 30 | 2.00% | 5.10% |
| 31 | 2.00% | 5.10% |
| 32 | 2.00% | 5.10% |
| 33 | 2.00% | 5.10% |
| 34 | 2.00% | 5.10% |
| 35 | 1.60% | 3.00% |
| 36 | 1.60% | 3.00% |
| 37 | 1.60% | 3.00% |
| 38 | 1.60% | 3.00% |

| Age | Male | Female |
|-----|-------|--------|
| 39 | 1.60% | 3.00% |
| 40 | 1.30% | 3.00% |
| 41 | 1.30% | 3.00% |
| 42 | 1.30% | 3.00% |
| 43 | 1.30% | 3.00% |
| 44 | 1.30% | 3.00% |
| 45 | 1.50% | 2.90% |
| 46 | 1.50% | 2.90% |
| 47 | 1.50% | 2.90% |
| 48 | 1.50% | 2.90% |
| 49 | 1.50% | 2.90% |
| 50 | 3.00% | 5.00% |
| 51 | 3.00% | 5.00% |
| 52 | 3.00% | 5.00% |
| 53 | 3.00% | 5.00% |
| 54 | 3.00% | 5.00% |
| 55+ | 2.25% | 1.80% |

Current and Proposed Decrements

Withdrawal – PERS Others

Current

Select Rates during the First 5 Years of Employment

| Hire Age Under 35 | | | Hire Age Over 35 | | |
|-------------------|--------|--------|------------------|--------|--------|
| Years of Service | Male | Female | Years of Service | Male | Female |
| 0 | 29.00% | 29.00% | 0 | 20.00% | 20.00% |
| 1 | 16.25% | 20.00% | 1 | 12.00% | 15.00% |
| 2 | 13.00% | 16.00% | 2 | 10.00% | 12.50% |
| 3 | 10.40% | 12.80% | 3 | 8.50% | 10.00% |
| 4 | 8.45% | 10.40% | 4 | 8.50% | 9.00% |

Ultimate Rates after the First 5 Years of Employment

| Age | Male | Female | Age | Male | Female |
|------|--------|--------|-----|-------|--------|
| < 23 | 11.40% | 12.99% | 39 | 5.47% | 5.23% |
| 23 | 10.83% | 12.21% | 40 | 4.86% | 5.65% |
| 24 | 10.26% | 11.43% | 41 | 4.71% | 5.51% |
| 25 | 9.69% | 10.65% | 42 | 4.56% | 5.38% |
| 26 | 9.12% | 9.87% | 43 | 4.50% | 5.19% |
| 27 | 8.55% | 9.09% | 44 | 4.44% | 4.99% |
| 28 | 8.30% | 8.72% | 45 | 4.39% | 4.80% |
| 29 | 8.05% | 8.34% | 46 | 4.33% | 4.60% |
| 30 | 7.80% | 7.97% | 47 | 4.27% | 4.41% |
| 31 | 7.54% | 7.60% | 48 | 4.26% | 4.40% |
| 32 | 7.29% | 7.23% | 49 | 4.24% | 4.39% |
| 33 | 6.99% | 6.88% | 50 | 3.63% | 4.45% |
| 34 | 6.69% | 6.53% | 51 | 3.60% | 4.43% |
| 35 | 6.39% | 6.17% | 52 | 3.56% | 4.40% |
| 36 | 6.10% | 5.82% | 53 | 3.52% | 4.37% |
| 37 | 5.80% | 5.47% | 54 | 4.17% | 6.20% |
| 38 | 5.63% | 5.35% | 55+ | 3.00% | 5.00% |

Proposed

Select Rates during the First 5 Years of Employment

| Hire Age Under 35 | | | Hire Age Over 35 | | |
|-------------------|--------|--------|------------------|--------|--------|
| Years of Service | Male | Female | Years of Service | Male | Female |
| 0 | 29.00% | 29.00% | 0 | 20.00% | 20.00% |
| 1 | 16.25% | 20.00% | 1 | 12.00% | 15.00% |
| 2 | 13.00% | 16.00% | 2 | 10.00% | 12.50% |
| 3 | 10.40% | 12.80% | 3 | 8.50% | 10.00% |
| 4 | 8.45% | 10.40% | 4 | 8.50% | 9.00% |

Ultimate Rates after the First 5 Years of Employment

| Age | Male | Female | Age | Male | Female |
|------|-------|--------|-----|-------|--------|
| < 23 | 7.80% | 8.20% | 39 | 5.70% | 5.50% |
| 23 | 7.80% | 8.20% | 40 | 4.50% | 5.20% |
| 24 | 7.80% | 8.20% | 41 | 4.50% | 5.20% |
| 25 | 7.80% | 8.20% | 42 | 4.50% | 5.20% |
| 26 | 7.80% | 8.20% | 43 | 4.50% | 5.20% |
| 27 | 7.80% | 8.20% | 44 | 4.50% | 5.20% |
| 28 | 7.80% | 8.20% | 45 | 4.20% | 4.40% |
| 29 | 7.80% | 8.20% | 46 | 4.20% | 4.40% |
| 30 | 7.00% | 7.10% | 47 | 4.20% | 4.40% |
| 31 | 7.00% | 7.10% | 48 | 4.20% | 4.40% |
| 32 | 7.00% | 7.10% | 49 | 4.20% | 4.40% |
| 33 | 7.00% | 7.10% | 50 | 3.60% | 4.70% |
| 34 | 7.00% | 7.10% | 51 | 3.60% | 4.70% |
| 35 | 5.70% | 5.50% | 52 | 3.60% | 4.70% |
| 36 | 5.70% | 5.50% | 53 | 3.60% | 4.70% |
| 37 | 5.70% | 5.50% | 54 | 3.60% | 4.70% |
| 38 | 5.70% | 5.50% | 55+ | 2.90% | 4.90% |

Current and Proposed Decrements

Withdrawal – TRS

Current

Select Rates during the First 8 Years of Employment

| Years of Service | Male | Female |
|------------------|--------|--------|
| 0 | 20.40% | 17.00% |
| 1 | 20.40% | 17.00% |
| 2 | 16.80% | 14.00% |
| 3 | 14.40% | 12.00% |
| 4 | 12.00% | 10.00% |
| 5 | 10.80% | 9.00% |
| 6 | 9.00% | 7.50% |
| 7 | 7.20% | 6.00% |

Ultimate Rates after the First 8 Years of Employment

| Age | Male | Female |
|-----|-------|--------|
| 22 | 2.62% | 3.79% |
| 23 | 2.62% | 3.79% |
| 24 | 2.61% | 3.79% |
| 25 | 2.61% | 3.79% |
| 26 | 2.61% | 3.79% |
| 27 | 2.60% | 3.79% |
| 28 | 2.60% | 4.27% |
| 29 | 2.60% | 4.76% |
| 30 | 2.60% | 5.24% |
| 31 | 2.60% | 5.73% |
| 32 | 2.59% | 6.22% |
| 33 | 2.59% | 5.72% |
| 34 | 2.59% | 5.23% |
| 35 | 2.59% | 4.74% |
| 36 | 2.58% | 4.25% |
| 37 | 2.58% | 3.75% |
| 38 | 2.58% | 3.75% |

Proposed

Select Rates during the First 8 Years of Employment

| Years of Service | Male | Female |
|------------------|--------|--------|
| 0 | 20.40% | 17.00% |
| 1 | 20.40% | 17.00% |
| 2 | 16.80% | 14.00% |
| 3 | 14.40% | 12.00% |
| 4 | 12.00% | 10.00% |
| 5 | 10.80% | 9.00% |
| 6 | 9.00% | 7.50% |
| 7 | 7.20% | 6.00% |

Ultimate Rates after the First 8 Years of Employment

| Age | Male | Female |
|-----|-------|--------|
| 22 | 3.60% | 4.60% |
| 23 | 3.60% | 4.60% |
| 24 | 3.60% | 4.60% |
| 25 | 3.60% | 4.60% |
| 26 | 3.60% | 4.60% |
| 27 | 3.60% | 4.60% |
| 28 | 3.60% | 4.60% |
| 29 | 3.60% | 4.60% |
| 30 | 3.60% | 5.40% |
| 31 | 3.60% | 5.40% |
| 32 | 3.60% | 5.40% |
| 33 | 3.60% | 5.40% |
| 34 | 3.60% | 5.40% |
| 35 | 3.60% | 3.90% |
| 36 | 3.60% | 3.90% |
| 37 | 3.60% | 3.90% |
| 38 | 3.60% | 3.90% |

| Age | Male | Female |
|-----|-------|--------|
| 39 | 3.60% | 3.90% |
| 40 | 3.10% | 2.60% |
| 41 | 3.10% | 2.60% |
| 42 | 3.10% | 2.60% |
| 43 | 3.10% | 2.60% |
| 44 | 3.10% | 2.60% |
| 45 | 3.10% | 2.60% |
| 46 | 3.10% | 2.60% |
| 47 | 3.10% | 2.60% |
| 48 | 3.10% | 2.60% |
| 49 | 3.10% | 2.60% |
| 50 | 4.60% | 4.80% |
| 51 | 4.60% | 4.80% |
| 52 | 4.60% | 4.80% |
| 53 | 4.60% | 4.80% |
| 54 | 4.60% | 4.80% |
| 55+ | 2.80% | 4.80% |

Current and Proposed Decrements

Withdrawal – PERS DCR Peace/Fire

Current

Select Rates during the First 5 Years of Employment

| Years of Service | Male | Female |
|------------------|--------|--------|
| 0 | 18.90% | 20.63% |
| 1 | 14.18% | 16.50% |
| 2 | 10.50% | 13.75% |
| 3 | 9.45% | 12.38% |
| 4 | 8.40% | 11.00% |

Ultimate Rates after the First 5 Years of Employment

| Age | Male | Female |
|------|-------|--------|
| < 23 | 5.52% | 11.97% |
| 23 | 5.65% | 11.97% |
| 24 | 5.78% | 11.97% |
| 25 | 5.91% | 11.97% |
| 26 | 6.04% | 11.97% |
| 27 | 6.16% | 11.97% |
| 28 | 6.16% | 11.94% |
| 29 | 6.15% | 11.91% |
| 30 | 6.14% | 11.88% |
| 31 | 6.14% | 11.84% |
| 32 | 6.12% | 11.81% |
| 33 | 6.11% | 11.79% |
| 34 | 6.09% | 11.77% |
| 35 | 6.08% | 11.75% |
| 36 | 6.07% | 11.72% |
| 37 | 6.05% | 11.70% |
| 38 | 6.03% | 11.60% |
| 39 | 6.00% | 11.50% |
| 40 | 5.98% | 11.40% |
| 41 | 5.95% | 11.30% |
| 42 | 5.93% | 11.20% |
| 43 | 5.85% | 11.14% |

| Age | Male | Female |
|-----|--------|--------|
| 44 | 5.78% | 11.09% |
| 45 | 5.71% | 11.03% |
| 46 | 5.64% | 10.98% |
| 47 | 5.57% | 10.92% |
| 48 | 6.01% | 10.84% |
| 49 | 6.45% | 10.75% |
| 50 | 6.89% | 10.67% |
| 51 | 7.32% | 10.58% |
| 52 | 7.76% | 10.50% |
| 53 | 7.97% | 10.66% |
| 54 | 8.18% | 10.82% |
| 55 | 8.38% | 10.98% |
| 56 | 8.59% | 11.15% |
| 57 | 8.80% | 11.31% |
| 58 | 9.03% | 11.47% |
| 59 | 9.25% | 11.63% |
| 60 | 9.48% | 11.79% |
| 61 | 9.71% | 11.95% |
| 62 | 9.94% | 12.12% |
| 63 | 12.37% | 12.28% |
| 64 | 14.81% | 12.44% |
| 65+ | 17.25% | 12.60% |

Proposed

Select Rates during the First 5 Years of Employment

| Years of Service | Male | Female |
|------------------|--------|--------|
| 0 | 17.00% | 27.00% |
| 1 | 12.00% | 21.00% |
| 2 | 11.00% | 15.00% |
| 3 | 11.00% | 13.00% |
| 4 | 10.00% | 9.00% |

Ultimate Rates after the First 5 Years of Employment

| Age | Male | Female |
|------|-------|--------|
| < 23 | 6.60% | 10.20% |
| 23 | 6.60% | 10.20% |
| 24 | 6.60% | 10.20% |
| 25 | 6.60% | 10.20% |
| 26 | 6.60% | 10.20% |
| 27 | 6.60% | 10.20% |
| 28 | 6.60% | 10.20% |
| 29 | 6.60% | 10.20% |
| 30 | 6.80% | 10.00% |
| 31 | 6.80% | 10.00% |
| 32 | 6.80% | 10.00% |
| 33 | 6.80% | 10.00% |
| 34 | 6.80% | 10.00% |
| 35 | 6.70% | 9.90% |
| 36 | 6.70% | 9.90% |
| 37 | 6.70% | 9.90% |
| 38 | 6.70% | 9.90% |
| 39 | 6.70% | 9.90% |
| 40 | 6.50% | 9.50% |
| 41 | 6.50% | 9.50% |
| 42 | 6.50% | 9.50% |
| 43 | 6.50% | 9.50% |

| Age | Male | Female |
|-----|--------|--------|
| 44 | 6.50% | 9.50% |
| 45 | 6.50% | 9.30% |
| 46 | 6.50% | 9.30% |
| 47 | 6.50% | 9.30% |
| 48 | 6.50% | 9.30% |
| 49 | 6.50% | 9.30% |
| 50 | 8.50% | 9.10% |
| 51 | 8.50% | 9.10% |
| 52 | 8.50% | 9.10% |
| 53 | 8.50% | 9.10% |
| 54 | 8.50% | 9.10% |
| 55 | 9.80% | 9.60% |
| 56 | 9.80% | 9.60% |
| 57 | 9.80% | 9.60% |
| 58 | 9.80% | 9.60% |
| 59 | 9.80% | 9.60% |
| 60 | 12.50% | 10.30% |
| 61 | 12.50% | 10.30% |
| 62 | 12.50% | 10.30% |
| 63 | 12.50% | 10.30% |
| 64 | 12.50% | 10.30% |
| 65+ | 19.20% | 10.70% |

Current and Proposed Decrements

Withdrawal – PERS DCR Others

Current

Select Rates during the First 5 Years of Employment

| Years of Service | Male | Female |
|------------------|--------|--------|
| 0 | 24.36% | 27.98% |
| 1 | 21.00% | 22.31% |
| 2 | 16.80% | 17.85% |
| 3 | 13.44% | 14.28% |
| 4 | 9.45% | 12.34% |

Ultimate Rates after the First 5 Years of Employment

| Age | Male | Female |
|------|--------|--------|
| < 23 | 13.71% | 16.50% |
| 23 | 13.71% | 16.51% |
| 24 | 13.71% | 16.51% |
| 25 | 13.71% | 16.52% |
| 26 | 13.71% | 16.53% |
| 27 | 13.71% | 16.54% |
| 28 | 13.41% | 15.94% |
| 29 | 13.21% | 15.34% |
| 30 | 12.82% | 17.75% |
| 31 | 12.52% | 14.15% |
| 32 | 12.22% | 13.55% |
| 33 | 11.65% | 12.90% |
| 34 | 11.09% | 12.24% |
| 35 | 10.52% | 11.58% |
| 36 | 9.95% | 10.92% |
| 37 | 9.39% | 10.26% |
| 38 | 9.12% | 9.98% |
| 39 | 8.86% | 9.70% |
| 40 | 8.60% | 9.42% |
| 41 | 8.32% | 9.14% |
| 42 | 8.07% | 8.86% |
| 43 | 7.95% | 8.54% |

Proposed

Select Rates during the First 5 Years of Employment

| Years of Service | Male | Female |
|------------------|--------|--------|
| 0 | 28.00% | 29.00% |
| 1 | 20.00% | 24.00% |
| 2 | 16.00% | 19.00% |
| 3 | 14.00% | 16.00% |
| 4 | 12.00% | 14.00% |

Ultimate Rates after the First 5 Years of Employment

| Age | Male | Female |
|------|--------|--------|
| < 23 | 13.70% | 15.80% |
| 23 | 13.70% | 15.80% |
| 24 | 13.70% | 15.80% |
| 25 | 13.70% | 15.80% |
| 26 | 13.70% | 15.80% |
| 27 | 13.70% | 15.80% |
| 28 | 13.70% | 15.80% |
| 29 | 13.70% | 15.80% |
| 30 | 12.20% | 11.20% |
| 31 | 12.20% | 11.20% |
| 32 | 12.20% | 11.20% |
| 33 | 12.20% | 11.20% |
| 34 | 12.20% | 11.20% |
| 35 | 9.70% | 10.20% |
| 36 | 9.70% | 10.20% |
| 37 | 9.70% | 10.20% |
| 38 | 9.70% | 10.20% |
| 39 | 9.70% | 10.20% |
| 40 | 8.50% | 10.60% |
| 41 | 8.50% | 10.60% |
| 42 | 8.50% | 10.60% |
| 43 | 8.50% | 10.60% |

| Age | Male | Female |
|-----|--------|--------|
| 44 | 8.50% | 10.60% |
| 45 | 8.90% | 8.90% |
| 46 | 8.90% | 8.90% |
| 47 | 8.90% | 8.90% |
| 48 | 8.90% | 8.90% |
| 49 | 8.90% | 8.90% |
| 50 | 8.40% | 8.70% |
| 51 | 8.40% | 8.70% |
| 52 | 8.40% | 8.70% |
| 53 | 8.40% | 8.70% |
| 54 | 8.40% | 8.70% |
| 55 | 8.70% | 9.50% |
| 56 | 8.70% | 9.50% |
| 57 | 8.70% | 9.50% |
| 58 | 8.70% | 9.50% |
| 59 | 8.70% | 9.50% |
| 60 | 10.10% | 11.80% |
| 61 | 10.10% | 11.80% |
| 62 | 10.10% | 11.80% |
| 63 | 10.10% | 11.80% |
| 64 | 10.10% | 11.80% |
| 65+ | 11.20% | 15.70% |

Current and Proposed Decrements

Withdrawal – TRS DCR

Current

Select Rates during the First 6 Years of Employment

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

Ultimate Rates after the First 6 Years of Employment

| Age | Male | Female |
|------|-------|--------|
| < 26 | 9.41% | 8.31% |
| 26 | 9.41% | 8.32% |
| 27 | 9.40% | 8.33% |
| 28 | 9.39% | 8.32% |
| 29 | 9.39% | 8.32% |
| 30 | 9.38% | 8.31% |
| 31 | 9.37% | 8.31% |
| 32 | 9.36% | 8.30% |
| 33 | 9.35% | 8.29% |
| 34 | 9.35% | 8.28% |
| 35 | 9.34% | 8.27% |
| 36 | 9.34% | 8.26% |
| 37 | 9.33% | 8.25% |
| 38 | 9.31% | 8.24% |
| 39 | 9.29% | 8.22% |
| 40 | 9.26% | 8.21% |
| 41 | 9.24% | 8.19% |
| 42 | 9.22% | 8.17% |
| 43 | 9.16% | 8.15% |
| 44 | 9.11% | 8.12% |

| Age | Male | Female |
|-----|-------|--------|
| 45 | 9.05% | 8.09% |
| 46 | 8.99% | 8.07% |
| 47 | 8.94% | 8.04% |
| 48 | 8.86% | 8.00% |
| 49 | 8.78% | 7.95% |
| 50 | 8.70% | 7.91% |
| 51 | 8.62% | 7.86% |
| 52 | 8.54% | 7.82% |
| 53 | 8.37% | 7.73% |
| 54 | 8.20% | 7.64% |
| 55 | 8.03% | 7.55% |
| 56 | 7.86% | 7.46% |
| 57 | 7.69% | 7.36% |
| 58 | 7.76% | 7.50% |
| 59 | 7.82% | 7.64% |
| 60 | 7.89% | 7.78% |
| 61 | 7.95% | 7.92% |
| 62 | 8.02% | 8.05% |
| 63 | 8.59% | 8.29% |
| 64 | 9.17% | 8.52% |
| 65+ | 9.75% | 8.75% |

Proposed

Select Rates during the First 6 Years of Employment

| Years of Service | Male | Female |
|------------------|--------|--------|
| 0 | 28.00% | 31.00% |
| 1 | 28.00% | 21.00% |
| 2 | 19.00% | 18.00% |
| 3 | 17.00% | 13.00% |
| 4 | 13.00% | 13.00% |
| 5 | 13.00% | 10.00% |

Ultimate Rates after the First 6 Years of Employment

| Age | Male | Female |
|------|--------|--------|
| < 26 | 10.50% | 8.70% |
| 26 | 10.50% | 8.70% |
| 27 | 10.50% | 8.70% |
| 28 | 10.50% | 8.70% |
| 29 | 10.50% | 8.70% |
| 30 | 10.50% | 8.70% |
| 31 | 10.50% | 8.70% |
| 32 | 10.50% | 8.70% |
| 33 | 10.50% | 8.70% |
| 34 | 10.50% | 8.70% |
| 35 | 10.40% | 8.60% |
| 36 | 10.40% | 8.60% |
| 37 | 10.40% | 8.60% |
| 38 | 10.40% | 8.60% |
| 39 | 10.40% | 8.60% |
| 40 | 10.30% | 8.60% |
| 41 | 10.30% | 8.60% |
| 42 | 10.30% | 8.60% |
| 43 | 10.30% | 8.60% |
| 44 | 10.30% | 8.60% |

| Age | Male | Female |
|-----|--------|--------|
| 45 | 10.00% | 8.40% |
| 46 | 10.00% | 8.40% |
| 47 | 10.00% | 8.40% |
| 48 | 10.00% | 8.40% |
| 49 | 10.00% | 8.40% |
| 50 | 9.50% | 8.10% |
| 51 | 9.50% | 8.10% |
| 52 | 9.50% | 8.10% |
| 53 | 9.50% | 8.10% |
| 54 | 9.50% | 8.10% |
| 55 | 8.80% | 7.90% |
| 56 | 8.80% | 7.90% |
| 57 | 8.80% | 7.90% |
| 58 | 8.80% | 7.90% |
| 59 | 8.80% | 7.90% |
| 60 | 9.30% | 8.70% |
| 61 | 9.30% | 8.70% |
| 62 | 9.30% | 8.70% |
| 63 | 9.30% | 8.70% |
| 64 | 9.30% | 8.70% |
| 65+ | 10.90% | 7.40% |

Current and Proposed Decrements

Withdrawal – JRS

Current

| Years of Service | Rate |
|------------------|------|
| 0 | 3% |
| 1 | 3% |
| 2 | 3% |
| 3 | 3% |
| 4 | 3% |
| 5 | 3% |
| 6 | 3% |
| 7 | 3% |
| 8 | 3% |
| 9 | 3% |
| 10+ | 1% |

Proposed

| Years of Service | Rate |
|------------------|------|
| 0 | 3% |
| 1 | 3% |
| 2 | 3% |
| 3 | 3% |
| 4 | 3% |
| 5 | 3% |
| 6 | 3% |
| 7 | 3% |
| 8 | 3% |
| 9 | 3% |
| 10+ | 1% |

Current and Proposed Decrements

Withdrawal – NGNMRS

Current

Select Rates during the First 5 Years of Employment

| Years of Service | Unisex |
|------------------|--------|
| 0 | 20.00% |
| 1 | 10.00% |
| 2 | 10.00% |
| 3 | 10.00% |
| 4 | 10.00% |

Ultimate Rates after the First 5 Years of Employment

| Age | Male | Female |
|-----|--------|--------|
| 20 | 14.94% | 18.92% |
| 21 | 14.13% | 17.90% |
| 22 | 13.44% | 17.03% |
| 23 | 12.86% | 16.29% |
| 24 | 12.40% | 15.70% |
| 25 | 12.03% | 15.24% |
| 26 | 11.74% | 14.87% |
| 27 | 11.52% | 14.59% |
| 28 | 11.35% | 14.37% |
| 29 | 11.21% | 14.20% |
| 30 | 11.09% | 14.05% |
| 31 | 10.98% | 13.91% |
| 32 | 10.86% | 13.76% |
| 33 | 10.73% | 13.59% |
| 34 | 10.57% | 13.39% |
| 35 | 10.37% | 13.14% |
| 36 | 10.15% | 12.85% |
| 37 | 9.89% | 12.53% |
| 38 | 9.62% | 12.18% |
| 39 | 9.35% | 11.84% |

Proposed

Select Rates during the First 5 Years of Employment

| Years of Service | Unisex |
|------------------|--------|
| 0 | 20.00% |
| 1 | 10.00% |
| 2 | 10.00% |
| 3 | 10.00% |
| 4 | 10.00% |

Ultimate Rates after the First 5 Years of Employment

| Age | Male | Female |
|-----|-------|--------|
| 20 | 9.53% | 9.94% |
| 21 | 9.53% | 9.94% |
| 22 | 9.53% | 9.94% |
| 23 | 9.53% | 9.94% |
| 24 | 9.53% | 9.94% |
| 25 | 9.53% | 9.94% |
| 26 | 9.53% | 9.94% |
| 27 | 9.53% | 9.94% |
| 28 | 9.53% | 9.94% |
| 29 | 9.53% | 9.94% |
| 30 | 9.43% | 9.84% |
| 31 | 9.33% | 9.74% |
| 32 | 9.23% | 9.63% |
| 33 | 9.12% | 9.51% |
| 34 | 8.98% | 9.37% |
| 35 | 8.81% | 9.20% |
| 36 | 8.63% | 9.00% |
| 37 | 8.41% | 8.77% |
| 38 | 8.18% | 8.53% |
| 39 | 7.95% | 8.29% |

| Age | Male | Female |
|-----|-------|--------|
| 40 | 7.73% | 8.06% |
| 41 | 7.54% | 7.87% |
| 42 | 7.38% | 7.70% |
| 43 | 7.23% | 7.55% |
| 44 | 7.06% | 7.37% |
| 45 | 6.83% | 7.13% |
| 46 | 6.51% | 6.79% |
| 47 | 6.06% | 6.32% |
| 48 | 5.49% | 5.73% |
| 49 | 4.82% | 5.03% |
| 50 | 4.16% | 4.33% |
| 51 | 3.63% | 3.79% |
| 52 | 3.26% | 3.40% |
| 53 | 2.98% | 3.12% |
| 54 | 2.78% | 2.91% |
| 55 | 2.64% | 2.75% |
| 56 | 2.57% | 2.67% |
| 57 | 2.58% | 2.69% |
| 58 | 2.64% | 2.76% |
| 59 | 2.78% | 2.90% |
| 60 | 2.88% | 3.00% |

Actuarial Certification

Use of Models

Actuarial Standard of Practice No. 56 (“ASOP 56”) provides guidance to actuaries when performing actuarial services with respect to designing, developing, selecting, modifying, using, reviewing, or evaluating models. For this presentation, Buck used the following:

- internally developed and third-party model to compare actual versus assumed experience and determine proposed assumptions to use for valuing the liabilities in the third-party software
- models to analyze investment returns as previously described in the December 2021 presentation
- third-party software to calculate the liabilities associated with the plans based on current and proposed assumptions
- an internally developed model that applies applicable funding methods and policies to the liabilities derived from the output of the third-party software and other inputs, such as plan assets and contributions, to determine the contribution rates

Buck has an extensive review process for annual valuations whereby the results of the liability calculations are checked using detailed sample output, changes from year to year are summarized by source, and significant deviations from expectations are investigated. Other outputs and the internal model are similarly reviewed in detail and at a high level for accuracy, reasonability and consistency with prior results. The models used for annual valuations are used for this presentation and any adaptations for this presentation are checked and reviewed by experts within the company who are familiar with applicable funding methods as well as the manner in which the model generates its output. If significant changes are made to the internal model, extra checking and review are completed.

Actuarial Certification

The purpose of this presentation is to provide the ARMB Actuarial Committee with an analysis of proposed changes to the demographic and economic assumptions that are used in the actuarial valuations of the State of Alaska's retirement systems for discussion with the actuary at the March 2022 ARMB meeting. Use of this presentation, for any other purpose or by anyone other than the ARMB 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 presentation for that purpose. Because of the risk of misinterpretation of results, you should ask Buck to review any statement you wish to make on the results contained in this presentation. Buck will not accept any liability for any such statement made without the review by Buck.

The cost effects of the proposed assumptions are based on the June 30, 2020 valuations, and are meant to show the estimated impact of the assumptions changes. They are not to be used for determining actual funding contributions.

Please see the draft June 30, 2021 actuarial valuation reports for a more detailed description of risk factors related to future funding of the plans (ASOP 51).

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.

The results were prepared under the direction of David Kershner and Scott Young, both of whom meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. These results have been prepared in accordance with all applicable Actuarial Standards of Practice.

David Kershner
FSA, EA, MAAA, FCA
Principal, Retirement

Scott Young
FSA, EA, MAAA, FCA
Director, Health



Alaska Retirement Management Board
CHARTER OF THE ACTUARIAL COMMITTEE

I. Actuarial Committee Purpose.

The Actuarial Committee (Committee) assists the Alaska Retirement Management Board (Board) in fulfilling the Board's function of independent oversight of the integrity of the Alaska Retirement Management Board's (Board) retirement systems' actuarial valuations, experience analyses, and other requested reports and analysis, including compliance with legal, accounting, and regulatory requirements. It also serves as a conduit of communication between the Actuary, the Review Actuary, the Audit Actuary, Department of Administration (DOA) and Department of Revenue (DOR) staff, and the Board.

The Committee has the authority to conduct any review appropriate to fulfilling its responsibilities and it has direct access to the independent actuaries, as well as DOR and DOA management and staff, and legal counsel. The Committee may recommend that the Board retain, at Board expense and consistent with applicable procurement requirements, special legal, accounting, or other consultants or experts it considers necessary in the performance of its duties.

II. Actuarial Committee Responsibilities and Duties.

A. The Committee shall assist the Board in carrying out the following responsibilities:

1. Coordinate with the retirement system administrator to have an annual actuarial valuation of each retirement system prepared to determine system assets, accrued liabilities, and funding ratios and to certify to the appropriate budgetary authority of each employer in the system (A) an appropriate contribution rate for normal costs; (B) an appropriate contribution rate for liquidating any past service liability; in this subparagraph, the appropriate contribution rate for liquidating the past service liability of the defined benefit retirement plan under AS 14.25.009 - 14.25.220 or the past service liability of the defined benefit retirement plan under AS 39.35.095 - 39.35.680 must be determined by a level percent of pay method based on amortization of the past service liability for a closed term of 25 years;

2. Review actuarial assumptions prepared and certified by a member of the American Academy of Actuaries and conduct experience analyses of the retirement systems not less than once every four years, except for health cost assumptions, which shall be reviewed annually; the results of all actuarial assumptions prepared under this paragraph shall be reviewed and certified by a second member of the American Academy of Actuaries before presentation to the board.

3. Review the annual actuarial valuations and any actuarial experience analysis prepared by the Actuary and the report prepared by the Review Actuary prior to presentation or distribution of any report.

4. Coordinate with staff to conduct an independent audit of the state's actuary not less than once every four years and review any audit report prepared by the Audit Actuary prior to presentation or distribution to the Board.

5. In consultation with management and the independent actuaries, consider the integrity of the actuarial reporting processes and controls, including the process for "closure" on the audit findings.

6. Review any significant changes to applicable actuarial principles and any items required to be communicated by the independent actuaries.

7. Review the independence and performance of the actuaries and periodically recommend to the Board the appointment of the independent actuaries or recommend approval of any discharge of actuaries when circumstances warrant.

8. Review, discuss and recommend for Board consideration any strategic issues related to the actuarial work.

9. Review and assess the adequacy of this Charter at least annually and submit recommended changes to it to the Board for approval.

10. Review and periodically perform self-assessment of the Committee's performance.

B. The Committee shall have the following responsibilities with respect to the ARMB's independent actuaries:

1. Schedule an annual pre-valuation entrance conference with the Actuary that includes DOA and DOR staff and the Review Actuary to discuss scope, staffing, locations, timeline, reliance upon management, and general approach to the annual valuation conducted for the retirement systems; and in the year that an actuarial experience analysis is conducted, schedule a similar entrance conference.

2. Discuss with management and the independent actuaries the actuarial principles and provide input as to the underlying assumptions and methods used in the preparation of the retirement systems' valuation reports and experience analyses to ensure the integrity of actuarial numbers used in preparation of accounting reports, compliance with GASB or other regulatory bodies, consistency with the actuarial policies of the plan, and alignment with the purpose of the reporting.

3. Review the Actuary's draft valuation and the Review Actuary's draft report (and the experience analysis and review when conducted); discuss the contents with the actuaries and monitor the follow-up on significant observations, findings, and recommendations.

4. Discuss with the independent actuaries the clarity and format of the presentations in appearances before the committee and the Board.

5. Meet with the actuaries, in the absence of management, to review findings, recommendations or other pertinent subjects.

6. Review Audit Actuary report (conducted every four years); discuss any significant findings with Actuary and management.

C. In addition to the foregoing, the Committee shall:

1. Perform such other activities consistent with this Charter, and governing law as the Committee considers necessary or appropriate or as the Board may otherwise request.

2. Maintain minutes of Committee meetings and periodically report to the Board on significant results of the Committee's activities.

Alaska Retirement Management Board
Actuarial Committee
Schedule of Remaining 2022 Meetings

April TBD, 2022 (Teleconference)

1. *If necessary* – scheduled to follow up on discussion/findings/questions from March meeting

June 15, 2022 (Juneau/Teleconference)

1. Review and discussion of final review reports and valuations, including any items brought forward from March meeting
2. Action: Recommendations from committee to board for acceptance of review reports and valuations
3. Recommendation from committee to board for action on Audit Findings List
4. FY2022 valuation discussion
 - a. Valuation Timeline
 - b. Actuarial principles and underlying assumptions; any proposed new assumptions
 - c. Outstanding audit issues (Audit Findings List)
5. Follow-up discuss on assumptions for experience study

September 14, 2022 (Juneau/Teleconference)

1. Review contribution rate resolutions/action memos for recommendation to Board
2. Status/Follow-up from previous meetings
3. Education Topic:

November 30, 2022 (Juneau/Teleconference)

1. Status Report/Discussion on Draft Actuarial Valuation and Second Actuary Review Process
2. Discussion of new trends and findings in actuarial matters
3. Education topic:

Periodic and As Needed Meeting Topics

1. Updates by DOA on actuary procurement.
2. Actuarial Committee training.

Alaska Retirement Management Board

Actuarial Committee Schedule of 2023 Meetings

March 15, 2023 (Teleconference)

1. Discuss Draft Review Actuary Report;
2. Review Draft Valuation Reports; requests or recommendations for edits or corrections
3. Review Audit Findings List; proposed resolution and recommendations

April TBD, 2023 (Teleconference)

1. *If necessary* – scheduled to follow up on discussion/findings/questions from March meeting

June 14, 2023 (Juneau/Teleconference)

1. Review and discussion of final review reports and valuations, including any items brought forward from March meeting
2. Action: Recommendations from committee to board for acceptance of review reports and valuations
3. Recommendation from committee to board for action on Audit Findings List
4. FY2023 valuation discussion
 - a. Valuation Timeline
 - b. Actuarial principles and underlying assumptions; any proposed new assumptions
 - c. Outstanding audit issues (Audit Findings List)

September 13, 2023 (Juneau/Teleconference)

1. Review contribution rate resolutions/action memos for recommendation to Board
2. Status/Follow-up from previous meetings
3. Education Topic:

December 6, 2023 (Juneau/Teleconference)

1. Status Report/Discussion on Draft Actuarial Valuation and Second Actuary Review Process
2. Discussion of new trends and findings in actuarial matters
3. Education topic:

Periodic and As Needed Meeting Topics

1. Updates by DOA on actuary procurement.
2. Actuarial Committee training.