

State of Alaska

Summary of Current and Proposed Assumptions/Methods from 2017 Experience Study

Prepared by Buck for the December 12, 2018 Actuarial Committee Meeting

1. Economic Assumptions

Assumption	Current	Proposed
Inflation Rate	3.12%	2.50% ¹
Real Rate of Return	4.88%	4.88% ¹
Investment Return ²	8.00% net of all expenses	7.38% net of investment expenses
Payroll Growth Rate	Inflation + 50 bp (3.62%)	Inflation + 25 bp (2.75%)
Salary Increase Rates ³	See Table 1	See Table 1
Trend Rates	See Table 2	See Table 2

2. Demographic Assumptions

Assumption	Current	Proposed
Pre-Retirement Mortality - Healthy		
• PERS and NGNMRS	60% (male) and 65% (female) of post-termination healthy mortality rates	100% (male and female) of RP-2014 employee table with MP-2017 generational improvement
• TRS and JRS	68% (male) and 60% (female) of post-termination healthy mortality rates	100% (male and female) of RP-2014 white collar employee table with MP-2017 generational improvement
Post-Termination Mortality - Healthy		
• PERS and NGNMRS	96% of RP-2000, 2000 Base Year projected to 2018 with Scale BB	91% (male) and 96% (female) of RP-2014 healthy annuitant table with MP-2017 generational improvement
• TRS and JRS	94% (male) and 97% (female) of RP-2000, 2000 Base Year projected to 2018 with Scale BB, 3-yr setback for males and 4-yr setback for females	93% (male) and 90% (female) of RP-2014 white collar healthy annuitant table with MP-2017 generational improvement
Post-Retirement Mortality - Disabled	RP-2000 Disabled Retiree Table, 2000 Base Year projected to 2018 with Scale BB	RP-2014 disabled table with MP-2017 generational improvement
Retirement - Unreduced	See Table 3	See Table 3
Retirement - Reduced	See Table 4	See Table 4
Retirement – Deferred Vested	Earliest age eligible for unreduced retirement benefit	No change
Withdrawal - Select ⁴	See Table 5	See Table 5
Withdrawal – Ultimate ⁵	See Table 6	See Table 6
Disability ⁵	See Table 7	See Table 7
Occupational-Related Death/Disability		
• PERS	50% (P/F), 70% (Others)	40% (P/F), 75% (Others)
• TRS	15%	No change

¹ Selected by the ARMB.

² For PERS, TRS and JRS. No change is being proposed to the 7% investment return net of investment expenses for NGNMRS.

³ For PERS and TRS only. No changes are being proposed to the salary increase rates for JRS.

⁴ For PERS DCR only. No changes are being proposed to the select withdrawal rates for all other plans.

⁵ For PERS, TRS and NGNMRS. No changes are being proposed to the ultimate withdrawal rates for JRS.

Withdrawal of Contributions at Termination ⁶		
• PERS	15% (P/F), 10% (Others)	10% (P/F), 5% (Others)
• TRS	5%	0%
Percent Covering Dependent Spouse at Retirement Without Dual Coverage ⁷		
• PERS P/F	85% (male), 60% (female)	75% (male), 50% (female)
• PERS Others	75% (male), 70% (female)	65% (male), 60% (female)
• TRS	85% (male), 75% (female)	65% (male), 60% (female)
Age Difference	3 years older (male), 3 years younger (female)	No change (male), 2 years younger (female)
Alaska Residency		
• PERS P/F	65%	No change
• PERS Others	70%	No change
• TRS	60%	No change
Part-Time Service Earned During the Year		
• PERS P/F	1.00	No change
• PERS Others	0.65	0.75
• TRS	0.75	No change
Healthcare Participation - DB ⁸		
• If System-Paid	100% when first eligible	No change
• If not System-Paid	10% when first eligible	20% when first eligible
Healthcare Participation - DCR	See Table 8	See Table 8
Healthcare Morbidity	See Table 9	See Table 9
Rehires ⁹		
• Pension	14.23% (PERS), 18.49% (TRS)	18.77% (PERS), 15.57% (TRS)
• Healthcare	17.24% (PERS), 10.39% (TRS)	17.09% (PERS), 12.03% (TRS)
Number of Dependent Children ⁸	Benefits valued only for members currently covering dependent children. Coverage for dependent children assumed through age 23 (for life if dependent child is disabled).	No change
Number of Unused Sick Days ¹⁰	4.5 days for each year of service	No change
Active Population Growth ¹¹	0%	No change
Form of Payment ¹²	100% elect lump sum (actives), 100% elect annuity (deferred vested)	70% of actives and deferred vested elect lump sum

⁶ In all cases, the assumption is 100% if member is not vested at termination.

⁷ Proposed assumption is set to include an allowance for future covered children. Applicable for healthcare benefits only (no change is being proposed for pension benefits).

⁸ For PERS and TRS.

⁹ For DB only. Percentages shown are loads to the Normal Cost.

¹⁰ For TRS only.

¹¹ For PERS and TRS DB/DCR overall.

¹² For NGNMRS only.

3. Funding Methods

Method	Current	Proposed
Healthcare Normal Cost and Actuarial Accrued Liability	Level Dollar	Level % of Pay
Administrative Expenses ¹³		
• PERS pension	None	4.9%
• PERS healthcare	None	7.9%
• TRS pension	None	5.1%
• TRS healthcare	None	10.0%
• PERS DCR ODD	None	0.5%
• PERS DCR RM	None	0.4%
• TRS DCR ODD	None	3.9%
• TRS DCR RM	None	1.5%
Unfunded Actuarial Accrued Liability (UAAL) Amortization Period ¹⁴	25-year closed period established effective 6/30/14	For UAAL that exists on 6/30/18 prior to proposed assumptions/methods, no change to 25-year closed period that was established effective 6/30/14. For effects on UAAL at 6/30/18 due to proposed assumptions/methods, and all future years' changes in UAAL, separate 25-year closed periods. Level % of pay amortization is unchanged.

Note: The proposed change in UAAL amortization period can be made at any time. The change does not have to be made effective 6/30/18 in conjunction with the 2017 experience study.

¹³ Percentages are loads to Normal Cost. The percentages shown above are different than the percentages shown in our 9/19/18 meeting materials for two reasons: (i) we are now using a more refined calculation versus an estimated approach used previously; and (ii) we have excluded ASO fees from the administrative expenses based on additional information provided to us since the 9/19/18 meeting. The percentages shown above are based on the average of administrative expenses paid from the trust in FY16 and FY17. For the 6/30/18 valuations, we will use the average of the amounts paid from the trust in FY17 and FY18.

¹⁴ For PERS and TRS DB only. No changes are being proposed for all other plans.

Note: Tables 1 to 9 provide the detailed rates related only to the assumptions for which we are proposing changes based on the 2017 experience study.

Table 1 – Salary Increase Rates (DB and DCR)

Years of Service	PERS P/F		PERS Others		TRS	
	Current	Proposed	Current	Proposed	Current	Proposed
0	9.66%	7.75%	8.55%	6.75%	8.11%	6.75%
1	8.66%	7.25%	7.36%	6.25%	7.51%	6.25%
2	7.16%	6.75%	6.35%	5.75%	6.91%	5.75%
3	7.03%	6.25%	6.11%	5.25%	6.41%	5.25%
4	6.91%	5.75%	5.71%	4.75%	6.11%	4.75%
5	6.41%	5.25%	Age Based	4.25%	6.11%	4.25%
6	5.66%	4.75%	Age Based	3.75%	5.90%	3.75%
7	4.92%	4.25%	Age Based	3.65%	5.69%	3.65%
8	4.92%	3.75%	Age Based	3.55%	5.55%	3.55%
9	4.92%	3.65%	Age Based	3.45%	5.40%	3.45%
10	4.92%	3.55%	Age Based	3.35%	5.26%	3.35%
11	4.92%	3.45%	Age Based	3.25%	5.11%	3.25%
12	4.92%	3.35%	Age Based	3.15%	4.96%	3.15%
13	4.92%	3.25%	Age Based	3.05%	4.84%	3.05%
14	4.92%	3.15%	Age Based	2.95%	4.72%	2.95%
15	4.92%	3.05%	Age Based	2.85%	4.60%	2.85%
16	4.92%	2.95%	Age Based	2.75%	4.49%	2.75%
17	4.92%	2.85%	Age Based	2.75%	4.37%	2.75%
18	4.92%	2.75%	Age Based	2.75%	4.27%	2.75%
19	4.92%	2.75%	Age Based	2.75%	4.17%	2.75%
20+	4.92%	2.75%	Age Based	2.75%	4.07%*	2.75%

* Current assumption for TRS is 3.97% at 21 years of service and 3.87% at 22+ years of service.

Table 2 – Trend Rates

Current

Fiscal Year	Medical Pre-65	Medical Post-65	Prescription Drugs	RDS/EGWP	Retiree Contributions
2018	8.0%	5.5%	9.0%	6.5%	8.0%
2019	7.5%	5.5%	8.5%	6.2%	7.6%
2020	7.0%	5.4%	8.0%	6.0%	7.2%
2021	6.5%	5.4%	7.5%	5.7%	6.8%
2022	6.3%	5.4%	7.1%	5.5%	6.5%
2023	6.1%	5.4%	6.8%	5.4%	6.3%
2024	5.9%	5.4%	6.4%	5.2%	6.0%
2025	5.8%	5.4%	6.1%	5.0%	5.9%
2026	5.6%	5.4%	5.7%	4.8%	5.6%
2027	5.4%	5.4%	5.4%	4.7%	5.4%
2028	5.4%	5.4%	5.4%	4.7%	5.4%
2029	5.4%	5.4%	5.4%	4.7%	5.4%
2030	5.4%	5.4%	5.4%	4.7%	5.4%
2031	5.4%	5.4%	5.4%	4.7%	5.4%
2032	5.4%	5.4%	5.4%	4.7%	5.4%
2033	5.4%	5.4%	5.4%	4.7%	5.4%
2034	5.4%	5.4%	5.4%	4.7%	5.4%
2035	5.4%	5.4%	5.4%	4.7%	5.4%
2036	5.4%	5.4%	5.4%	4.7%	5.4%
2037	5.4%	5.4%	5.4%	4.7%	5.4%
2038	5.4%	5.4%	5.4%	4.7%	5.4%
2039	5.4%	5.4%	5.4%	4.7%	5.4%
2040	5.4%	5.4%	5.4%	4.7%	5.4%
2041	5.2%	5.2%	5.2%	4.6%	5.2%
2042	5.1%	5.1%	5.1%	4.5%	5.1%
2043	5.0%	5.0%	5.0%	4.5%	5.0%
2044	4.8%	4.8%	4.8%	4.4%	4.8%
2045	4.7%	4.7%	4.7%	4.3%	4.7%
2046	4.5%	4.5%	4.5%	4.2%	4.5%
2047	4.4%	4.4%	4.4%	4.2%	4.4%
2048	4.3%	4.3%	4.3%	4.1%	4.3%
2049	4.1%	4.1%	4.1%	4.0%	4.1%
2050+	4.0%	4.0%	4.0%	4.0%	4.0%

Table 2 – Trend Rates

Proposed

Fiscal Year	Medical Pre-65	Medical Post-65	Prescription Drugs/EGWP	RDS	Retiree Contributions
2018	8.0%	5.5%	9.0%	4.7%	8.0%
2019	7.5%	5.5%	8.5%	4.7%	7.6%
2020	7.0%	5.4%	8.0%	4.7%	7.2%
2021	6.5%	5.4%	7.5%	4.6%	6.8%
2022	6.3%	5.4%	7.1%	4.6%	6.5%
2023	6.1%	5.4%	6.8%	4.6%	6.3%
2024	5.9%	5.4%	6.4%	4.6%	6.0%
2025	5.8%	5.4%	6.1%	4.6%	5.9%
2026	5.6%	5.4%	5.7%	4.6%	5.6%
2027	5.4%	5.4%	5.4%	4.5%	5.4%
2028	5.4%	5.4%	5.4%	4.5%	5.4%
2029	5.4%	5.4%	5.4%	4.5%	5.4%
2030	5.4%	5.4%	5.4%	4.5%	5.4%
2031	5.4%	5.4%	5.4%	4.5%	5.4%
2032	5.4%	5.4%	5.4%	4.5%	5.4%
2033	5.4%	5.4%	5.4%	4.5%	5.4%
2034	5.4%	5.4%	5.4%	4.5%	5.4%
2035	5.4%	5.4%	5.4%	4.5%	5.4%
2036	5.4%	5.4%	5.4%	4.5%	5.4%
2037	5.4%	5.4%	5.4%	4.5%	5.4%
2038	5.4%	5.4%	5.4%	4.5%	5.4%
2039	5.4%	5.4%	5.4%	4.5%	5.4%
2040	5.4%	5.4%	5.4%	4.5%	5.4%
2041	5.3%	5.3%	5.3%	4.5%	5.3%
2042	5.2%	5.2%	5.2%	4.5%	5.2%
2043	5.1%	5.1%	5.1%	4.5%	5.1%
2044	5.1%	5.1%	5.1%	4.5%	5.1%
2045	5.0%	5.0%	5.0%	4.5%	5.0%
2046	4.9%	4.9%	4.9%	4.5%	4.9%
2047	4.8%	4.8%	4.8%	4.5%	4.8%
2048	4.7%	4.7%	4.7%	4.5%	4.7%
2049	4.6%	4.6%	4.6%	4.5%	4.6%
2050+	4.5%	4.5%	4.5%	4.5%	4.5%

Getzen Model Components of Ultimate Trend Rates	Current	Proposed
Inflation	3.12%	2.50%
Real GDP	0.88% ¹⁵	2.00%
Ultimate Trend Rate	4.00%	4.50%

¹⁵ The real GDP growth rate of 0.88% has been used to set the ultimate trend rates since the 6/30/14 valuations.

Table 3 – Retirement Rates (Unreduced)**PERS P/F**

Age	Female		Male	
	Current	Proposed	Current	Proposed
<47	0.060000	0.060000	0.080000	0.088000
47	0.150000	0.150000	0.080000	0.088000
48	0.150000	0.150000	0.130000	0.143000
49	0.150000	0.150000	0.130000	0.143000
50	0.150000	0.150000	0.150000	0.165000
51	0.150000	0.150000	0.150000	0.165000
52	0.150000	0.150000	0.185000	0.203500
53	0.150000	0.150000	0.185000	0.203500
54	0.250000	0.250000	0.185000	0.203500
55	0.200000	0.200000	0.250000	0.275000
56	0.150000	0.150000	0.250000	0.275000
57	0.150000	0.150000	0.250000	0.275000
58	0.150000	0.150000	0.250000	0.275000
59	0.150000	0.150000	0.250000	0.275000
60	0.250000	0.250000	0.300000	0.330000
61	0.200000	0.200000	0.250000	0.275000
62	0.300000	0.300000	0.250000	0.275000
63	0.500000	0.500000	0.250000	0.275000
64	0.500000	0.500000	0.200000	0.220000
65	0.500000	0.500000	0.200000	0.220000
66	0.500000	0.500000	0.250000	0.275000
67	0.500000	0.500000	0.500000	0.550000
68	0.500000	0.500000	0.500000	0.550000
69	0.500000	0.500000	0.500000	0.550000
70+	1.000000	1.000000	1.000000	1.000000

Table 3 – Retirement Rates (Unreduced)**PERS Others**

Age	Female		Male	
	Current (rounded)	Proposed (rounded)	Current (rounded)	Proposed (rounded)
<50	0.10	0.11	0.10	0.11
50	0.35	0.39	0.30	0.33
51	0.35	0.39	0.33	0.36
52	0.35	0.39	0.33	0.36
53	0.35	0.39	0.33	0.36
54	0.35	0.39	0.35	0.38
55	0.30	0.33	0.30	0.33
56	0.20	0.22	0.20	0.22
57	0.18	0.20	0.20	0.22
58	0.18	0.20	0.20	0.22
59	0.18	0.20	0.20	0.22
60	0.21	0.23	0.20	0.22
61	0.20	0.22	0.20	0.22
62	0.20	0.22	0.20	0.22
63	0.20	0.22	0.20	0.22
64	0.20	0.22	0.20	0.22
65	0.26	0.29	0.23	0.25
66	0.26	0.29	0.25	0.28
67	0.22	0.24	0.20	0.22
68	0.22	0.24	0.23	0.25
69	0.22	0.24	0.25	0.28
70	0.22	0.24	0.25	0.28
71	0.22	0.24	0.25	0.28
72	0.25	0.28	0.25	0.28
73	0.25	0.28	0.25	0.28
74	0.35	0.39	0.25	0.28
75-79	0.50	0.55	0.50	0.55
80-89	0.50	1.00	0.50	1.00
90+	1.00	1.00	1.00	1.00

Table 3 – Retirement Rates (Unreduced)**TRS**

Age	Female		Male	
	Current	Proposed	Current	Proposed
<45	0.03	0.03	0.03	0.03
45	0.05	0.05	0.05	0.05
46	0.08	0.08	0.05	0.05
47	0.08	0.08	0.05	0.05
48	0.08	0.08	0.05	0.05
49	0.08	0.08	0.05	0.05
50	0.13	0.14	0.05	0.05
51	0.12	0.13	0.08	0.08
52	0.12	0.13	0.15	0.15
53	0.13	0.14	0.15	0.15
54	0.14	0.15	0.15	0.15
55	0.16	0.17	0.20	0.20
56	0.16	0.17	0.17	0.17
57	0.16	0.17	0.15	0.15
58	0.16	0.17	0.20	0.20
59	0.22	0.23	0.20	0.20
60	0.22	0.23	0.25	0.25
61	0.22	0.23	0.18	0.18
62	0.20	0.21	0.18	0.18
63	0.20	0.21	0.18	0.18
64	0.25	0.26	0.18	0.18
65	0.20	0.21	0.30	0.30
66	0.20	0.21	0.25	0.25
67	0.20	0.21	0.25	0.25
68	0.25	0.26	0.25	0.25
69	0.25	0.26	0.35	0.35
70	0.25	0.26	0.30	0.30
71	0.35	0.37	0.30	0.30
72	0.35	0.37	0.30	0.30
73	0.35	0.37	0.30	0.30
74	0.35	0.37	0.30	0.30
75-79	0.50	0.50	0.50	0.50
80-84	0.50	1.00	0.50	1.00
85+	1.00	1.00	1.00	1.00

Table 4 – Retirement Rates (Reduced)

PERS P/F

Age	Female		Male	
	Current	Proposed	Current	Proposed
<50	N/A		N/A	
50	0.087041	0.050000	0.087041	0.050000
51	0.085580	0.070000	0.085580	0.050000
52	0.072383	0.070000	0.072383	0.070000
53	0.076688	0.070000	0.076688	0.070000
54	0.075561	0.350000	0.075561	0.070000
55	0.077429	0.080000	0.077429	0.070000
56	0.077106	0.080000	0.077106	0.070000
57	0.076730	0.080000	0.076730	0.070000
58	0.076820	0.080000	0.076820	0.070000
59	0.200000	0.200000	0.200000	0.200000
60+	N/A	N/A	N/A	N/A

PERS Others

Age	Female		Male	
	Current	Proposed	Current	Proposed
<50	N/A	N/A	N/A	N/A
50	0.06	0.08	0.04	0.06
51	0.06	0.08	0.04	0.06
52	0.08	0.08	0.06	0.09
53	0.08	0.08	0.06	0.09
54	0.14	0.15	0.14	0.20
55	0.06	0.06	0.05	0.06
56	0.06	0.06	0.05	0.06
57	0.06	0.06	0.05	0.06
58	0.06	0.06	0.05	0.06
59	0.16	0.20	0.14	0.15
60+	N/A	N/A	N/A	N/A

TRS

Age	Female		Male	
	Current	Proposed	Current	Proposed
<50	N/A	N/A	N/A	N/A
50	0.08	0.10	0.08	0.10
51	0.08	0.10	0.08	0.10
52	0.08	0.10	0.08	0.10
53	0.08	0.12	0.08	0.10
54	0.16	0.12	0.16	0.10
55	0.08	0.08	0.08	0.15
56	0.08	0.08	0.08	0.10
57	0.08	0.08	0.08	0.10
58	0.08	0.08	0.08	0.10
59	0.16	0.08	0.16	0.10
60+	N/A	N/A	N/A	N/A

Table 4 – Retirement Rates (NGNMRS)

Age	Current		Proposed	
	Male	Female	Male	Female
<51	10%	10%	13%	13%
51-52	10%	10%	13%	13%
53	12%	12%	15%	15%
54	15%	15%	20%	20%
55	20%	20%	25%	25%
56	25%	25%	35%	35%
57	30%	30%	40%	40%
58	35%	35%	45%	45%
59	40%	40%	50%	50%
60	45%	45%	55%	55%
61-64	50%	50%	60%	60%
65+	100%	100%	100%	100%

Table 5 – Withdrawal Rates (Select)

PERS DCR P/F

Years of Service	Female		Male	
	Current	Proposed (rounded)	Current	Proposed (rounded)
0	0.17	0.21	0.18	0.19
1	0.13	0.16	0.14	0.15
2	0.11	0.14	0.10	0.11
3	0.10	0.13	0.09	0.09
4	0.09	0.11	0.08	0.08

PERS DCR Others

Years of Service	Female		Male	
	Current	Proposed (rounded)	Current	Proposed (rounded)
0	0.27	0.28	0.23	0.24
1	0.21	0.22	0.20	0.21
2	0.17	0.18	0.16	0.17
3	0.14	0.14	0.13	0.13
4	0.18	0.12	0.09	0.09

Table 6 – Withdrawal Rates (Ultimate)

PERS P/F (5 or more years of service)

Age	Female		Male		Age	Female		Male	
	Current	Proposed	Current	Proposed		Current	Proposed	Current	Proposed
20	0.080000	0.068000	0.040894	0.047000	45	0.033802	0.032800	0.019012	0.018100
21	0.080000	0.068000	0.040894	0.047000	46	0.033527	0.032500	0.019506	0.018500
22	0.080000	0.068000	0.040894	0.047000	47	0.033251	0.032300	0.020000	0.019000
23	0.080000	0.068000	0.038801	0.044600	48	0.032862	0.031900	0.023333	0.022200
24	0.080000	0.068000	0.036708	0.042200	49	0.032474	0.031500	0.026667	0.025300
25	0.080000	0.068000	0.034616	0.039800	50	0.032085	0.064200	0.030000	0.031800
26	0.080000	0.068000	0.032523	0.037400	51	0.031581	0.063200	0.040000	0.042400
27	0.080000	0.068000	0.030430	0.035000	52	0.030941	0.061900	0.040000	0.042400
28	0.078000	0.066300	0.028877	0.033200	53	0.030201	0.060400	0.040000	0.042400
29	0.076000	0.064600	0.027324	0.031400	54	0.060402	0.030000	0.040000	0.042400
30	0.074000	0.062900	0.025771	0.029600	55	0.060402	0.020000	0.040000	0.030000
31	0.072000	0.061200	0.024218	0.027900	56	0.060402	0.020000	0.040000	0.030000
32	0.070000	0.059500	0.022665	0.026100	57	0.060402	0.020000	0.040000	0.030000
33	0.063077	0.053600	0.021722	0.025000	58	0.060402	0.020000	0.040000	0.030000
34	0.056154	0.047700	0.020779	0.023900	59	0.060402	0.020000	0.040000	0.030000
35	0.049231	0.041800	0.019836	0.022800	60	0.060402	0.020000	0.040000	0.030000
36	0.042308	0.036000	0.018893	0.021700	61	0.060402	0.020000	0.040000	0.030000
37	0.035385	0.030100	0.017950	0.020600	62	0.060402	0.020000	0.040000	0.030000
38	0.035234	0.029900	0.017866	0.020500	63	0.060402	0.020000	0.040000	0.030000
39	0.035082	0.029800	0.017782	0.020400	64	0.060402	0.020000	0.040000	0.030000
40	0.034930	0.033900	0.017699	0.016800	65	0.060402	0.020000	0.040000	0.030000
41	0.034779	0.033700	0.017615	0.016700	65+	0.060402	0.020000	0.040000	0.030000
42	0.034627	0.033600	0.017531	0.016700					
43	0.034352	0.033300	0.018025	0.017100					
44	0.034077	0.033100	0.018519	0.017600					

Table 6 – Withdrawal Rates (Ultimate)

PERS Others (5 or more years of service)

Age	Female		Male		Age	Female		Male	
	Current	Proposed	Current	Proposed		Current	Proposed	Current	Proposed
20	0.136735	0.129900	0.095000	0.114000	45	0.045685	0.048000	0.039880	0.043900
21	0.136735	0.129900	0.095000	0.114000	46	0.043828	0.046000	0.039357	0.043300
22	0.136735	0.129900	0.095000	0.114000	47	0.041972	0.044100	0.038834	0.042700
23	0.128522	0.122100	0.090250	0.108500	48	0.041891	0.044000	0.038701	0.042600
24	0.120309	0.114300	0.085500	0.102600	49	0.041809	0.043900	0.038568	0.042400
25	0.112096	0.106500	0.080750	0.096900	50	0.041566	0.044500	0.038170	0.036300
26	0.103883	0.098700	0.076000	0.091200	51	0.041365	0.044300	0.037844	0.036000
27	0.095670	0.090900	0.071250	0.085500	52	0.041121	0.044000	0.037460	0.035600
28	0.091756	0.087200	0.069160	0.083000	53	0.040844	0.043700	0.037023	0.035200
29	0.087842	0.083400	0.067060	0.080500	54	0.057924	0.062000	0.043859	0.041700
30	0.083927	0.079700	0.064960	0.078000	55	0.057924	0.050000	0.043859	0.030000
31	0.080013	0.076000	0.062870	0.075400	56	0.057924	0.050000	0.043859	0.030000
32	0.076099	0.072300	0.060770	0.072900	57	0.057924	0.050000	0.043859	0.030000
33	0.072399	0.068800	0.058280	0.069900	58	0.057924	0.050000	0.043859	0.030000
34	0.068699	0.065300	0.055780	0.066900	59	0.057924	0.050000	0.043859	0.030000
35	0.064999	0.061700	0.053290	0.063900	60	0.057924	0.050000	0.043859	0.030000
36	0.061299	0.058200	0.050790	0.061000	61	0.057924	0.050000	0.043859	0.030000
37	0.057599	0.054700	0.048300	0.058000	62	0.057924	0.050000	0.043859	0.030000
38	0.056330	0.053500	0.046930	0.056300	63	0.057924	0.050000	0.043859	0.030000
39	0.055061	0.052300	0.045560	0.054700	64	0.057924	0.050000	0.043859	0.030000
40	0.053792	0.056500	0.044190	0.048600	65+	0.057924	0.050000	0.043859	0.030000
41	0.052523	0.055100	0.042820	0.047100					
42	0.051254	0.053800	0.041450	0.045600					
43	0.049398	0.051900	0.040930	0.045000					
44	0.047541	0.049900	0.040400	0.044400					

Table 6 – Withdrawal Rates (Ultimate)

TRS (8 or more years of service)

Age	Female		Male		Age	Female		Male	
	Current	Proposed	Current	Proposed		Current	Proposed	Current	Proposed
15	0.037185	0.038300	0.031209	0.026500	40	0.036224	0.027500	0.030159	0.022600
16	0.037157	0.038300	0.031170	0.026500	41	0.036155	0.027500	0.030085	0.022600
17	0.037138	0.038300	0.031138	0.026500	42	0.036086	0.027400	0.030010	0.022500
18	0.037129	0.038200	0.031107	0.026400	43	0.035976	0.027300	0.029866	0.022400
19	0.037120	0.038200	0.031091	0.026400	44	0.035867	0.027300	0.029721	0.022300
20	0.036848	0.038000	0.030847	0.026200	45	0.035757	0.027200	0.029577	0.022200
21	0.036848	0.038000	0.030831	0.026200	46	0.035648	0.027100	0.029432	0.022100
22	0.036839	0.037900	0.030799	0.026200	47	0.035538	0.027000	0.029288	0.022000
23	0.036839	0.037900	0.030776	0.026200	48	0.035380	0.026900	0.029046	0.021800
24	0.036830	0.037900	0.030736	0.026100	49	0.035221	0.026800	0.028805	0.021600
25	0.036830	0.037900	0.030705	0.026100	50	0.035063	0.044200	0.028563	0.034300
26	0.036820	0.037900	0.030673	0.026100	51	0.034847	0.043900	0.028248	0.033900
27	0.036762	0.037900	0.030642	0.026000	52	0.034595	0.043600	0.027878	0.033500
28	0.041480	0.042700	0.030610	0.026000	53	0.034296	0.043200	0.027468	0.033000
29	0.046198	0.047600	0.030579	0.026000	54	0.059961	0.075600	0.046305	0.030000
30	0.050917	0.052400	0.030555	0.026000	55	0.059285	0.050000	0.045414	0.020000
31	0.055635	0.057300	0.030540	0.026000	56	0.058410	0.050000	0.044334	0.020000
32	0.060353	0.062200	0.030516	0.025900	57	0.057288	0.050000	0.043012	0.020000
33	0.055569	0.057200	0.030500	0.025900	58	0.056018	0.050000	0.041567	0.020000
34	0.050784	0.052300	0.030455	0.025900	59	0.054401	0.050000	0.039826	0.020000
35	0.046000	0.047400	0.030431	0.025900	60	0.052569	0.050000	0.037868	0.020000
36	0.041215	0.042500	0.030407	0.025800	61	0.050523	0.050000	0.035694	0.020000
37	0.036431	0.037500	0.030383	0.025800	62	0.048197	0.050000	0.033170	0.020000
38	0.036362	0.037500	0.030308	0.025800	63	0.045540	0.050000	0.030294	0.020000
39	0.036293	0.037400	0.030234	0.025700	64	0.042653	0.050000	0.027176	0.020000
					65+	0.066000	0.050000	0.054000	0.020000

Table 6 – Withdrawal Rates (Ultimate)

PERS DCR P/F (5 or more years of service)

Age	Female		Male		Age	Female		Male	
	Current	Proposed	Current	Proposed		Current	Proposed	Current	Proposed
20	0.085500	0.119700	0.048000	0.055200	45	0.078800	0.110300	0.049678	0.057100
21	0.085500	0.119700	0.048000	0.055200	46	0.078400	0.109800	0.049061	0.056400
22	0.085500	0.119700	0.048000	0.055200	47	0.078000	0.109200	0.048444	0.055700
23	0.085500	0.119700	0.049120	0.056500	48	0.077400	0.108400	0.052256	0.060100
24	0.085500	0.119700	0.050240	0.057800	49	0.076800	0.107500	0.056067	0.064500
25	0.085500	0.119700	0.051360	0.059100	50	0.076200	0.106700	0.059878	0.068900
26	0.085500	0.119700	0.052480	0.060400	51	0.075600	0.105800	0.063689	0.073200
27	0.085500	0.119700	0.053600	0.061600	52	0.075000	0.105000	0.067500	0.077600
28	0.085275	0.119400	0.053528	0.061600	53	0.076154	0.106600	0.069300	0.079700
29	0.085050	0.119100	0.053456	0.061500	54	0.077308	0.108200	0.071100	0.081800
30	0.084825	0.118800	0.053384	0.061400	55	0.078462	0.109800	0.072900	0.083800
31	0.084600	0.118400	0.053312	0.061300	56	0.079615	0.111500	0.074700	0.085900
32	0.084375	0.118100	0.053239	0.061200	57	0.080769	0.113100	0.076500	0.088000
33	0.084214	0.117900	0.053119	0.061100	58	0.081923	0.114700	0.078480	0.090300
34	0.084054	0.117700	0.052998	0.060900	59	0.083077	0.116300	0.080460	0.092500
35	0.083893	0.117500	0.052878	0.060800	60	0.084231	0.117900	0.082440	0.094800
36	0.083732	0.117200	0.052757	0.060700	61	0.085385	0.119500	0.084420	0.097100
37	0.083571	0.117000	0.052636	0.060500	62	0.086538	0.121200	0.086400	0.099400
38	0.082857	0.116000	0.052415	0.060300	63	0.087692	0.122800	0.107600	0.123700
39	0.082143	0.115000	0.052194	0.060000	64	0.088846	0.124400	0.128800	0.148100
40	0.081429	0.114000	0.051972	0.059800	65+	0.090000	0.126000	0.150000	0.172500
41	0.080714	0.113000	0.051751	0.059500					
42	0.080000	0.112000	0.051529	0.059030					
43	0.079600	0.111400	0.050912	0.058500					
44	0.079200	0.110900	0.050295	0.057800					

Table 6 – Withdrawal Rates (Ultimate)

PERS DCR Others (5 or more years of service)

Age	Female		Male		Age	Female		Male	
	Current	Proposed	Current	Proposed		Current	Proposed	Current	Proposed
20	0.150000	0.165000	0.109667	0.137100	45	0.071847	0.079000	0.061728	0.077200
21	0.150000	0.165000	0.109667	0.137100	46	0.068938	0.075800	0.060789	0.076000
22	0.150000	0.165000	0.109667	0.137100	47	0.066029	0.072600	0.059850	0.074800
23	0.150067	0.165100	0.109674	0.137100	48	0.065749	0.072300	0.061414	0.076800
24	0.150133	0.165100	0.109681	0.137100	49	0.065469	0.072000	0.062977	0.078700
25	0.150200	0.165200	0.109689	0.137100	50	0.065189	0.071700	0.064541	0.080700
26	0.150267	0.165300	0.109696	0.137100	51	0.064908	0.071400	0.066104	0.082600
27	0.150333	0.165400	0.109703	0.137100	52	0.064628	0.071100	0.067668	0.084600
28	0.144910	0.159400	0.107312	0.134100	53	0.066022	0.072600	0.067714	0.084600
29	0.139486	0.153400	0.104921	0.131200	54	0.067416	0.074200	0.067760	0.084700
30	0.134062	0.147500	0.102529	0.128200	55	0.068809	0.075700	0.067806	0.084800
31	0.128638	0.141500	0.100138	0.125200	56	0.070203	0.077200	0.067853	0.084800
32	0.123214	0.135500	0.097747	0.122200	57	0.071597	0.078800	0.067899	0.084900
33	0.117230	0.129000	0.093219	0.116500	58	0.074069	0.081500	0.070131	0.087700
34	0.111246	0.122400	0.088692	0.110900	59	0.076541	0.084200	0.072363	0.090500
35	0.105261	0.115800	0.084164	0.105200	60	0.079014	0.086900	0.074595	0.093200
36	0.099277	0.109200	0.079637	0.099500	61	0.081486	0.089600	0.076827	0.096000
37	0.093293	0.102600	0.075110	0.093900	62	0.083958	0.092400	0.079059	0.098800
38	0.090749	0.099800	0.072996	0.091200	63	0.095528	0.105100	0.082239	0.102800
39	0.088205	0.097000	0.070883	0.088600	64	0.107097	0.117800	0.085420	0.106800
40	0.085661	0.094200	0.068770	0.086000	65+	0.118667	0.130500	0.088600	0.110800
41	0.083117	0.091400	0.066657	0.083200					
42	0.080573	0.094300	0.064544	0.080700					
43	0.077664	0.085400	0.063605	0.079500					
44	0.074756	0.082200	0.062667	0.078300					

Table 6 – Withdrawal Rates (Ultimate)

TRS DCR (5 or more years of service)

Age	Female		Male		Age	Female		Male	
	Current	Proposed	Current	Proposed		Current	Proposed	Current	Proposed
20	0.066811	0.083100	0.062959	0.094100	45	0.064754	0.080900	0.060332	0.090500
21	0.066811	0.083100	0.062959	0.094100	46	0.064544	0.080700	0.059957	0.089900
22	0.066811	0.083100	0.062959	0.094100	47	0.064333	0.080400	0.059583	0.089400
23	0.066773	0.083100	0.062903	0.094100	48	0.063975	0.080000	0.059053	0.088600
24	0.066735	0.083100	0.062847	0.094100	49	0.063617	0.079500	0.058522	0.087800
25	0.066697	0.083100	0.062791	0.094100	50	0.063259	0.079100	0.057992	0.087000
26	0.066659	0.083200	0.062735	0.094100	51	0.062901	0.078600	0.057461	0.086200
27	0.066621	0.083300	0.062679	0.094000	52	0.062543	0.078200	0.056931	0.085400
28	0.066583	0.083200	0.062623	0.093900	53	0.061818	0.077300	0.055800	0.083700
29	0.066544	0.083200	0.062567	0.093900	54	0.061093	0.076400	0.054670	0.082000
30	0.066506	0.083100	0.062512	0.093800	55	0.060367	0.075500	0.053539	0.080300
31	0.066467	0.083100	0.062456	0.093700	56	0.059642	0.074600	0.052409	0.078600
32	0.066429	0.083000	0.062400	0.093600	57	0.058917	0.073600	0.051278	0.076900
33	0.066351	0.082900	0.062360	0.093500	58	0.060021	0.075000	0.051711	0.077600
34	0.066273	0.082800	0.062320	0.093500	59	0.061125	0.076400	0.052144	0.078200
35	0.066194	0.082700	0.062280	0.093400	60	0.062230	0.077800	0.052578	0.078900
36	0.066116	0.082600	0.062240	0.093400	61	0.063334	0.079200	0.053011	0.079500
37	0.066038	0.082500	0.062200	0.093300	62	0.064438	0.080500	0.053444	0.080200
38	0.065908	0.082400	0.062051	0.093100	63	0.066292	0.082900	0.057296	0.085900
39	0.065777	0.082200	0.061902	0.092900	64	0.068146	0.085200	0.061148	0.091700
40	0.065647	0.082100	0.061753	0.092600	65+	0.070000	0.087500	0.065000	0.097500
41	0.065516	0.081900	0.061604	0.092400					
42	0.065386	0.081700	0.061455	0.092200					
43	0.065175	0.081500	0.061081	0.091600					
44	0.064965	0.081200	0.060706	0.091100					

Table 6 – Withdrawal Rates (Ultimate)

NGNMRS

Age	Female		Male		Age	Female		Male	
	Current	Proposed	Current	Proposed		Current	Proposed	Current	Proposed
22	0.089621	0.170300	0.089621	0.134400	45	0.053593	0.101800	0.053593	0.080400
23	0.085762	0.162900	0.085762	0.128600	46	0.051041	0.097000	0.051041	0.076600
24	0.082654	0.157000	0.082654	0.124000	47	0.047548	0.090300	0.047548	0.071300
25	0.080193	0.152400	0.080193	0.120300	48	0.043086	0.081900	0.043086	0.064600
26	0.078275	0.148700	0.078275	0.117400	49	0.037790	0.071800	0.037790	0.056700
27	0.076794	0.145900	0.076794	0.115200	50	0.032580	0.061900	0.032580	0.048900
28	0.075648	0.143700	0.075648	0.113500	51	0.028500	0.054200	0.028500	0.042700
29	0.074735	0.142000	0.074735	0.112100	52	0.025530	0.048500	0.025530	0.038300
30	0.073955	0.140500	0.073955	0.110900	53	0.023415	0.044500	0.023415	0.035100
31	0.073215	0.139100	0.073215	0.109800	54	0.021825	0.041500	0.021825	0.032700
32	0.072431	0.137600	0.072431	0.108600	55	0.020670	0.039300	0.020670	0.031000
33	0.071529	0.135900	0.071529	0.107300	56	0.020130	0.038200	0.020130	0.030200
34	0.070452	0.133900	0.070452	0.105700	57	0.020205	0.038400	0.020205	0.030300
35	0.069165	0.131400	0.069165	0.103700	58	0.020760	0.039400	0.020760	0.031100
36	0.067656	0.128500	0.067656	0.101500	59	0.021810	0.041400	0.021810	0.032700
37	0.065945	0.125300	0.065945	0.098900	60	0.021810	0.045000	0.021810	0.035000
38	0.064121	0.121800	0.064121	0.096200					
39	0.062309	0.118400	0.062309	0.093500					
40	0.060618	0.115200	0.060618	0.090900					
41	0.059132	0.112400	0.059132	0.088700					
42	0.057884	0.110000	0.057884	0.086800					
43	0.056726	0.107800	0.056726	0.085100					
44	0.055397	0.105300	0.055397	0.083100					

Table 7 – Disability Rates

PERS P/F

Age	Unisex Current	Male Proposed	Female Proposed	Age	Unisex Current	Male Proposed	Female Proposed
20	0.000224	0.000179	0.000112	40	0.001027	0.000822	0.000514
21	0.000224	0.000179	0.000112	41	0.001068	0.000854	0.000534
22	0.000224	0.000179	0.000112	42	0.001108	0.000887	0.000554
23	0.000305	0.000244	0.000153	43	0.001221	0.000977	0.000611
24	0.000387	0.000310	0.000194	44	0.001333	0.001066	0.000666
25	0.000468	0.000374	0.000234	45	0.001446	0.001157	0.000723
26	0.000550	0.000440	0.000275	46	0.001559	0.001247	0.000780
27	0.000631	0.000505	0.000316	47	0.001671	0.001337	0.000836
28	0.000658	0.000526	0.000329	48	0.001828	0.001462	0.000914
29	0.000685	0.000548	0.000342	49	0.001985	0.001588	0.000992
30	0.000712	0.000570	0.000356	50	0.002142	0.001714	0.001071
31	0.000739	0.000591	0.000369	51	0.002299	0.001839	0.001150
32	0.000765	0.000612	0.000383	52	0.002456	0.001965	0.001228
33	0.000793	0.000634	0.000396	53	0.002868	0.002294	0.001434
34	0.000821	0.000657	0.000410	54	0.003280	0.002624	0.001640
35	0.000849	0.000679	0.000425				
36	0.000877	0.000702	0.000439				
37	0.000905	0.000724	0.000452				
38	0.000946	0.000757	0.000473				
39	0.000986	0.000789	0.000493				

PERS Others

Age	Female		Male		Age	Female		Male	
	Current	Proposed	Current	Proposed		Current	Proposed	Current	Proposed
20	0.000188	0.000376	0.000218	0.000327	40	0.000381	0.000762	0.000489	0.000734
21	0.000188	0.000376	0.000218	0.000327	41	0.000397	0.000794	0.000510	0.000765
22	0.000188	0.000376	0.000218	0.000327	42	0.000413	0.000826	0.000531	0.000797
23	0.000200	0.000400	0.000240	0.000360	43	0.000454	0.000908	0.000586	0.000879
24	0.000212	0.000424	0.000261	0.000392	44	0.000495	0.000990	0.000641	0.000962
25	0.000224	0.000448	0.000283	0.000425	45	0.000536	0.001072	0.000695	0.001043
26	0.000236	0.000472	0.000304	0.000456	46	0.000577	0.001154	0.000750	0.001125
27	0.000248	0.000496	0.000326	0.000489	47	0.000618	0.001236	0.000805	0.001208
28	0.000255	0.000510	0.000334	0.000501	48	0.000680	0.001360	0.000886	0.001329
29	0.000262	0.000524	0.000342	0.000513	49	0.000742	0.001484	0.000967	0.001451
30	0.000269	0.000538	0.000349	0.000524	50	0.000804	0.001608	0.001048	0.001572
31	0.000277	0.000554	0.000357	0.000536	51	0.000867	0.001734	0.001129	0.001694
32	0.000284	0.000568	0.000365	0.000548	52	0.000929	0.001858	0.001210	0.001815
33	0.000293	0.000586	0.000377	0.000566	53	0.001084	0.002168	0.001421	0.002132
34	0.000303	0.000606	0.000389	0.000584	54	0.001239	0.002478	0.001633	0.002450
35	0.000312	0.000629	0.000401	0.000602					
36	0.000322	0.000644	0.000413	0.000620					
37	0.000331	0.000662	0.000425	0.000638					
38	0.000348	0.000696	0.000446	0.000669					
39	0.000364	0.000728	0.000467	0.000701					

Table 7 – Disability Rates

TRS

Age	Female		Male		Age	Female		Male	
	Current	Proposed	Current	Proposed		Current	Proposed	Current	Proposed
20	0.000560	0.000612	0.000560	0.000337	40	0.000703	0.000703	0.000703	0.000387
21	0.000563	0.000612	0.000563	0.000337	41	0.000718	0.000718	0.000718	0.000395
22	0.000565	0.000612	0.000565	0.000337	42	0.000733	0.000733	0.000733	0.000403
23	0.000574	0.000612	0.000574	0.000337	43	0.000770	0.000770	0.000770	0.000423
24	0.000583	0.000612	0.000583	0.000337	44	0.000806	0.000806	0.000806	0.000443
25	0.000593	0.000612	0.000593	0.000337	45	0.000843	0.000843	0.000843	0.000464
26	0.000602	0.000612	0.000602	0.000337	46	0.000879	0.000879	0.000879	0.000483
27	0.000611	0.000612	0.000611	0.000337	47	0.000916	0.000916	0.000916	0.000504
28	0.000611	0.000612	0.000611	0.000337	48	0.000975	0.000975	0.000975	0.000536
29	0.000612	0.000612	0.000612	0.000337	49	0.001034	0.001034	0.001034	0.000569
30	0.000612	0.000612	0.000612	0.000337	50	0.001093	0.001093	0.001093	0.000601
31	0.000613	0.000613	0.000613	0.000337	51	0.001152	0.001152	0.001152	0.000634
32	0.000613	0.000613	0.000613	0.000337	52	0.001211	0.001211	0.001211	0.000666
33	0.000622	0.000622	0.000622	0.000342	53	0.001356	0.001356	0.001356	0.000746
34	0.000631	0.000631	0.000631	0.000347	54	0.001501	0.001501	0.001501	0.000826
35	0.000641	0.000641	0.000641	0.000353					
36	0.000650	0.000650	0.000650	0.000357					
37	0.000659	0.000659	0.000659	0.000362					
38	0.000674	0.000674	0.000674	0.000371					
39	0.000689	0.000689	0.000689	0.000379					

Table 8 – DCR Healthcare Participation Rates

If Retire Directly from Disability

Age	Current	Proposed
<55	73.00%	75.0%
55	73.00%	75.0%
56	77.50%	77.5%
57	79.75%	80.0%
58	82.00%	82.5%
59	84.25%	85.0%
60	86.50%	87.5%
61	88.75%	90.0%
62	91.00%	92.5%
63	93.25%	95.0%
64	95.50%	97.5%
65+	94.40%	100.0%

If Retire Directly from Employment (pre-age 65)

Age	Current	Proposed*
55	40%	50%
56	50%	55%
57	55%	60%
58	60%	65%
59	65%	70%
60	70%	75%
61	75%	80%
62	80%	85%
63	85%	90%
64	90%	95%
65	N/A	100%

* Proposed assumption is a combination of (i) the proposed service-based rates for retirement from employment at age 65+, and (ii) the proposed age-based rates for retirement from employment before age 65.

If Retire Directly from Employment (age 65+)

Years of Service	Current	Proposed
< 15	70.5%	75%
15-19	75.2%	80%
20-24	79.9%	85%
25-29	89.3%	90%
30+	94.0%	95%

Table 9 – Healthcare Morbidity

Age	Current		Proposed	
	Medical	Prescription Drugs	Medical	Prescription Drugs
< 45	2.0%	4.5%	2.0%	4.5%
45-54	2.5%	3.5%	2.5%	3.5%
55-64	3.5%	3.0%	2.5%	1.5%
65-74	4.0%	1.5%	3.0%	2.0%
75-84	1.5%	0.5%	2.0%	(0.5)%
85-94	0.5%	0.0%	0.3%	(2.5)%
95	0.5%	0.0%	0.0%	0.0%
96+	0.0%	0.0%	0.0%	0.0%