ACTUARIAL VALUATION OF THE

STATE OF ALASKA LONG
TERM CARE PROGRAM
as of 6/30/2019

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I. Purpose and Scope

The Segal Company ("Segal") retained Lewis & Ellis, Inc. ("L&E") to perform an actuarial analysis of Alaska's Long-Term Care ("LTC") Program as of June 30, 2019. Specifically, our assignment was to develop a projection of future cash flows and to evaluate the adequacy of current assets and premium levels based on those cash flows.

This report summarizes the results of our actuarial valuation of Alaska's LTC Program as of June 30, 2019. Please note that this report is not meant to serve as complete actuarial documentation for this valuation. Additional data/information can be provided upon request.

We developed projected values using a seriatim projection model and we used those projected values along with current program financial information to determine the financial standing of the program. Consistent with the purpose of the valuation, no membership growth was assumed. The projection period is 60 years for the LTC in force. Gains and losses are accumulated at the effective earned rate over the projection period. The value at the end of the projection period could then be discounted at the earned rate to determine the magnitude of the deficiency reserve if the ending value was negative.

The projections of earnings are further dependent on numerous other assumptions that are outlined in detail in the following sections of this report. They are based on program experience where available and otherwise on our knowledge of industry experience. We have not generated liabilities and reserves consistent with statutory reporting requirements as this self-funded plan is not subject to such requirements.

Most of the data utilized by L&E in determining the values was obtained from the State of Alaska representatives. We did not attempt to audit or verify the accuracy of this data; however, we did review the information for reasonableness and consistency. Any inaccuracies in this information could affect the results of this report, perhaps materially. The type of information provided includes, but is not limited to:

1. Electronic listing of State of Alaska members;

2. Claim payments from 2009 to June 30, 2019;

3. Plan descriptions and gross premium rates for the model

plan/age cells;

4. Financial Statements for 2013-2019;

This report has been prepared for Segal and the State of Alaska. L&E has developed this report for the purpose and with the limitations stated above. This report may not be shown or distributed to any other party without prior written consent from L&E. Should distribution be so authorized, any distribution of this report must be made in its entirety.

Although the valuation projects earnings, this report should not in any way be presented or construed as an actuarial appraisal in accordance with Actuarial Standards of Practice Number 19.

Any reader of this report must possess a substantial level of expertise in areas relevant to this analysis to appreciate the significance of the assumptions and the impact of these assumptions on the illustrated results. This report must be read in its entirety to be understood. The reader should be advised by, among other experts, an actuary competent in the area of actuarial projections of LTC blocks of business so as not to misinterpret any of the projected results.

In addition, any third party with access to this report acknowledges, as a condition of receipt, that L&E does not make any representations or warranty as to the accuracy or completeness of this report. This report is not intended as a representation of the future solvency of the Program and should not be viewed as such.

This actuarial valuation was performed based on the best estimate assumptions that are appropriate at the date of valuation. We do not reflect the potential for adverse deviations in actual future experiences in our best estimate assumptions. Assumptions could change as more information becomes known, which would impact the funded status reported in this valuation.

All source records and detail information are maintained at the Allen, Texas office of L&E, and members of L&E staff are available to explain any matter presented herein.

II. Summary

The purpose of the remainder of this report is to provide analysis of the reserve adequacy for all lines of business. Premiums, benefits and expenses were projected for 60 years for the State of Alaska's LTC program and then discounted back to June 30, 2019 at an appropriate discount rate. This present value was then compared to the total assets at June 30, 2019 to determine if the current assets are sufficient to fund future claims and expenses for the next 60 years.

The following table summarizes the present value of cash flows discounted at the net earned rates.

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Valuation Results
Funded Status and Margin as of June 30, 2019

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Component	($000)
1. PV of Future Benefits	$740,263
2. PV of Future Expenses	$7,108
3. PV of Future Premiums (PVFP)	$315,648
4. Valuation Liabilities (=3 – 1- 2)	($431,723)
5. Valuation Assets	$526,287
6. Valuation Margin (= 5 + 4)	$94,564
7. Margin as a % of PVFP (= 6/3)	30.0%
8. Funded Status (= 5/4)	121.9%

The Valuation Margin has fluctuated greatly over the last six years as a result of plan experience, investment returns, actuarial assumptions and the growth of the Program. The table below shows the margin/deficit for the Long-Term Care Program for the last three valuation reports ($000).

Valuation Date	Margin (Deficit)
June 30, 2009	$3,298
May 31, 2012	($70,875)
May 31, 2012 (Revised)	$30,280
June 30, 2015	$27,244
June 30, 2017	$7,372
June 30, 2019	$94,564

III. Methodology

The present value calculations needed to compute Program liabilities consider expected future benefits, expenses and premium revenue discounted to the current valuation date. The present value calculations consider all future variables that affect the members' continued participation in the LTC Program, as well as the benefits or expenses they will generate.

Information was provided to Lewis & Ellis regarding product specifications and in force business. The information was all as of June 30, 2019. Seriatim records were used to project future premiums and claims using proprietary software and then summarized by various plans in spreadsheets. All items of income and expenses were projected, as well as all items affecting cash flows. The models recognize the timing of benefit payments, premium income, expenses and other significant cash flow items.

Appropriate considerations in plan modeling to major plans include the following:

   a. Type of coverage (nursing home, home health care, or both); Benefit period;
   b. Presence (or absence) of automatic inflation benefit;
   c. Level of premiums;
   d. Issue age range; and,
   e. Gender.

All of the above considerations were taken into account in determining the modeling for each individual.

Assumptions

L&E relied on Alaska personnel to provide a variety of information and data on the LTC insurance business in force. Although we did not independently verify nor audit this information supplied, we did review the information for reasonableness and consistency.

Alaska personnel supplied us with information regarding the gross premium rates, benefits, and coverage outlines for all of the LTC plans currently in force. The information was transmitted to us electronically.

Prior valuation studies were utilized when available and assumptions were validated against recent program experience. Future experience

is based on projected future claim costs. Actual results will almost certainly differ from projected results. Each assumption utilized for completing the calculations is shown in detail in the remainder of this section.

Loss ratios on Long Term Care business are typically quite low in the early durations, but increase significantly by policy duration and as the insured ages. Alaska's experience has been consistent with this pattern. The State of Alaska has established the Retiree LTC Insurance Fund to support future LTC liabilities. At June 30, 2019, the fund was approximately $526 million.

Except where the plan provides for an automatic increase in the claim costs, neither the claim costs nor gross premiums have been adjusted for possible future claims inflation.

Model Plans

The following model plans are listed with a brief description of each plan.

Benefit	Benefit Summary by Plan Option			
	Bronze	Silver	Gold	Platinum
Lifetime Max	$200,000*	$400,000	$300,000	$300,000
Inflation Protection	None	None	5% Simple to age 85	5% Compound to Age 85
Elimination Period	90 Day	90 Day	90 Day	90 Day
Benefit Trigger	2 of 5 ADLs	2 of 6 ADLs or CI	2 of 6 ADLs or CI	2 of 6 ADLs or CI
NH Daily Benefit	$125 in-state, $75 out-of-state	$200	$200	$200
ALF Daily Benefit	If approved	$150	$150	$150
HHC Daily Benefit	$75 in-state, $40 out-of-state	$125	$125	$125
Hospice Daily Benefit	Not covered	$125	$125	$125
Respite Benefit	Not covered	Up to $200 daily, 14 days per calendar year	Up to $200 daily, 14 days per calendar year	Up to $200 daily, 14 days per calendar year

Distribution

The following tables outline the distribution of business for the existing in-force[i]:

Benefit Option	Lives	Distribution
Bronze	4,971	22.4%
Silver	8,437	38.0%
Gold	5,887	26.5%
Platinum	2,910	13.1%
Total	22,205	100.0%

Gender	Lives	Distribution
Female	14,449	57.0%
Male	12,548	43.0%
Total	22,205	100.0%

Fiscal Year	Lives	Distribution
<2000	3,719	16.7%
2000-2006	6,523	29.4%
2007-2011	3,700	16.7%
2012-2015	4,874	22.0%
2017	943	4.2%
2018	970	4.4%
2019	1,476	6.6%
Total	22,205	100.0%

Lapses

The lapse assumption reflects the expected portion of participants who terminate their policies each year by not paying the renewal premiums. Lapse assumptions can vary based on a wide variety of factors, including the participants' age at enrollment and the number of years participants have their policies. In general, it is assumed that the longer that participants keep their policies, the less likely they are to lapse. Lapse rate assumptions greatly affect long-term care insurance premiums because when individuals lapse, future liabilities are immediately reduced although current assets are not affected.

Prior valuations have utilized ultimate lapse rate of 0.5%. We believe this is an appropriate ultimate lapse rate and therefore

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[i] The 2017 valuation reported listed more lives. There was an error in the 2017 valuation. That report summarized all policies issued instead of in-force policies.

the lapse assumptions are consistent with the prior actuarial valuation.

Policy Year	Voluntary Lapse Rate
1	2.3%
2	1.2%
3	1.0%
4	0.9%
5	0.8%
6	0.7%
7	0.6%
8+	0.5%

Mortality   Sex distinct 1994 GAM Table

Morbidity

For Long-Term Care insurance products, the substantial financial risks lie in morbidity assumptions. The morbidity assumptions reflect the amount of claim costs expected for participants. The key components driving claim costs are:

- Claim Incidence, which is the probability of going on claim
- Claim continuance, which is the length of time staying on claim, and
- Utilization, which is the level of claim payment.

It would be preferable to use the experience from the Alaska LTC Program. However, there have been less than 1,200 claims since the inception of the Program in 1987. Since this data is not fully credible the expected claim costs were developed from L&E's expected incidence rates and continuance tables and adjusted for State of Alaska's experience relative to L&E's expected costs.

Claim Reserve (Claims Payable)

The financial statements included a liability of claims payable. We calculated the claim liability by using the seriatim listing that was provided that contained Pending Claims as of the valuation date. We used this L&E continuance tables in order to calculate the present value of amounts not yet due (PVANYD). There were only 329 open claims which limits the credibility of the experience. We also reviewed the overall experience of the Alaska LTC Program Experience by calendar year.

Fiscal Year	Claims Payable ($000)	Source
2013	16,822	Alaska
2014	21,612	Alaska
2015	26,630	L&E
2016	28,574	L&E
2017	31,352	L&E
2018	34,802	L&E
2019	36,015	L&E

Actual Experience to Projected Values

The Alaska LTC Program covers less than 22,000 lives. In addition, LTC experience fluctuates on several factors including demographics, the economy and access to facilities. We compared the prior valuation to recent experience:

	Paid Claims			
Fiscal Year	Actual	Projected	Actual – Projected	Actual/ Projected
2018	13,401	12,800	601	104.6%
2019	14,439	12,791	1,648	112.9%

Claim costs were developed based on a combination of Alaska experience, industry experience, client data and actuarial judgment. To project future claim experience the claim cost models were calibrated to produce loss ratios that are similar to recent experience.

The future projected claims were generated by applying the claim costs to the 6/30/2019 census. The projected claims (which are used in the actuarial valuation) are somewhat greater than recent experience. The incurred loss ratios are consistent with recent experience.

Expenses

We reviewed the actual expenses provided in the financial statements. The administrative expenses have averaged 1.4% for fiscal years 2013 through 2019. Typical LTC insurance industry expense assumptions are significantly higher than this. This projection assumes administration expenses of 2.0% of premium

increasing by 1.5% per year.

Discount Rate   Assumes a level 5.0% earned interest rate.

The discount rate is a major component of the valuation process and is used to determine present values of the future premiums, expenses and benefits. We reviewed the Program investment returns over the last five fiscal years. We calculated investment returns based on investment income and the average balance of the fund at the beginning and end of each fiscal year:

	Investment Results ($000)		
Fiscal Year	Net Investment Income	Average Fund Balance	Fund Return
2013	16,961	274,218	6.2%
2014	36,114	305,279	11.8%
2015	10,182	341,080	3.0%
2016	14,478	376,669	3.8%
2017	28,892	415,207	7.0%
2018	20,001	456,686	4.4%
2019	39,328	502,959	7.8%
Average	23,721	394,985	6.0%

Based on recent investment experience, the prior valuation rate and input from the State of Alaska we selected a 5.0% earned rate for the LTC valuation. This rate was assumed for all future years of the projection.

The assumed discount rate is 25 basis points less than the expected return of the Retiree LTC Insurance Investment Guidelines. The discount rate is also 110 basis points less than the average return over the last five years. The Sensitivity Analysis section includes results based on changing the discount rate.

Rate Increases

If the State of Alaska LTC Program has a deficit[ii] (liabilities in excess of assets) it can be recovered only through actuarial gains

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[ii] Commercial LTC insurance programs are required to maintain statutory reserves and additional surplus. These two items could be another resource to mitigate rate increases.

or increases in future premiums. The actuarial valuation does not dictate a premium adjustment at this time. It is important that the financial progress of the Program be monitored closely so that the State of Alaska can act quickly to adjust future premiums to maintain the Program's solvency.

Regarding all assumptions previously discussed, actual experience may differ from that assumed in the projections. To the extent actual experience is different from the assumptions underlying this report, so will actual results differ from the projected results shown here. Sensitivity of results to changes in assumptions is provided in the Sensitivity Analysis section.

IV. Sensitivity Analysis

We ran sensitivity tests to determine if the reported assets are sufficient with respect to morbidity, voluntary lapses, mortality, and investment earning. Results are highly sensitive to the assumptions underlying the calculations.

Sensitivity Results **($000)**

Scenario	Sufficiency (Deficiency)	
	5.00%	5.25%
Base	94,564	119,216
Increase morbidity by 3.5%	67,465	93,198
Increase morbidity by 5.0%	56,351	82,547
Voluntary lapse @ 150%	117,732	140,839
Voluntary lapse @ 50%	67,376	93,693
Mortality @ 90%	30,443	59,162

Stress Testing

We ran sensitivity tests to determine what investment rate would be required if the assumptions were all equally adverse. The 4% adverse projections assumed that claims and expenses are 4% greater and that the termination[iii] (lapse and mortality) rates are 96% of projected. We also tested the projected experience as 5% adverse. We then determined what investment rate would be required so that there is no future deficiency:

Adverse Experience	Required Investment Return
4.00%	4.70%
5.00%	4.82%

[iii] Lower lapse and mortality rates increase future claims since more future policyholders will go on claim.

Appendix A

**State of Alaska LTC Program Actuarial Valuation
Summary of Yearly Cash Flows at 6/30/2019**

Fiscal Year	Lives	Earned Premium	Expenses	Paid Claims	Incurred Claims	Loss Ratio
2018	21,539	32,402,068	648,041	17,998,682	17,522,283	54%
2019	20,798	31,287,077	635,128	20,602,267	19,441,115	62%
2020	20,078	30,204,907	622,357	23,205,851	21,537,362	71%
2021	19,357	29,120,416	609,012	23,684,714	23,810,317	82%
2022	18,632	28,028,931	594,978	25,304,791	26,251,931	94%
2023	17,901	26,929,355	580,211	24,814,641	28,892,384	107%
2024	17,164	25,820,757	564,671	27,335,207	31,716,972	123%
2025	16,421	24,702,766	548,325	30,038,416	34,704,733	140%
2026	15,671	23,575,248	531,147	32,911,868	37,833,119	160%
2027	14,915	22,437,356	513,093	35,941,771	41,101,035	183%
2028	14,153	21,291,280	494,188	39,108,766	44,451,361	209%
2029	13,387	20,139,502	474,466	42,385,467	47,862,721	238%
2030	12,620	18,984,937	453,975	45,740,332	51,303,330	270%
2031	11,853	17,830,938	432,776	49,138,679	54,709,105	307%
2032	11,089	16,681,221	410,944	52,528,199	57,990,349	348%
2033	10,330	15,539,793	388,567	55,843,631	61,088,114	393%
2034	9,580	14,410,972	365,746	59,020,294	63,951,959	444%
2035	8,841	13,299,454	342,599	61,995,229	66,501,189	500%
2036	8,117	12,210,251	319,259	64,710,679	68,725,713	563%
2037	7,411	11,148,524	295,871	67,118,913	70,571,587	633%
2038	6,727	10,119,466	272,589	69,160,024	71,888,325	710%
2039	6,068	9,128,176	249,575	70,757,858	72,665,056	796%
2040	5,437	8,179,556	226,993	71,857,947	72,914,833	891%
2041	4,838	7,278,222	205,010	72,422,141	72,525,754	996%
2042	4,273	6,428,316	183,786	72,415,881	71,567,740	1113%
2043	3,745	5,633,356	163,474	71,819,032	69,991,232	1242%
2044	3,255	4,896,177	144,213	70,628,547	67,824,571	1385%
2045	2,804	4,218,824	126,126	68,853,006	65,146,608	1544%
2046	2,395	3,602,496	109,316	66,530,321	61,992,650	1721%
2047	2,026	3,047,490	93,861	63,708,376	58,430,529	1917%
2048	1,697	2,553,125	79,815	60,437,298	54,502,135	2135%
2049	1,408	2,117,757	67,198	56,773,519	50,281,392	2374%
2050	1,156	1,738,835	56,002	52,785,415	45,884,947	2639%
2051	939	1,413,011	46,191	48,567,987	41,454,886	2934%
2052	755	1,136,312	37,703	44,227,361	37,057,780	3261%
2053	601	904,295	30,455	39,860,111	32,771,969	3624%
2054	473	712,217	24,346	35,550,320	28,673,624	4026%
2055	369	555,214	19,263	31,375,127	24,816,101	4470%
2056	285	428,484	15,089	27,402,640	21,268,120	4964%
2057	218	327,449	11,704	23,688,228	18,037,254	5508%
2058	165	247,869	8,993	20,273,540	15,159,909	6116%
2059	124	185,920	6,846	17,186,861	12,642,116	6800%
2060	92	138,235	5,167	14,441,424	10,447,327	7558%
2061	68	101,920	3,867	12,030,238	8,561,421	8400%
2062	50	74,545	2,870	9,936,364	6,957,017	9333%
2063	36	54,106	2,115	8,137,720	5,600,143	10350%
2064	26	38,983	1,546	6,606,881	4,467,392	11460%
2063+	-	91,606	3,808	23,368,322	14,903,198	16269%
Total PV Future:		315,647,962	7,107,671	740,263,181	759,420,417	241%