



Virginia Sickness and Disability Program and Virginia Local Disability Program

**Actuarial Valuation of Self-Funded Long-Term Care Benefit
As of June 30, 2014**

Prepared for:
Virginia Retirement System

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EXECUTIVE SUMMARY

The self-funded long-term care benefit that is part of the VSDP and VLDP benefit started December 18, 2007 when Aetna Long-Term Care Insurance, the previous insurer, transferred the liability for the covered lives to VRS. Prior to that date, the benefits had been insured with Aetna since the VSDP long-term care program's inception in March of 2002.

This is the seventh valuation of the self-funded long-term care insurance benefits under VSDP. According to the VRS Finance Division, the fund balance for the VSDP and VLDP long-term care benefit as of June 30, 2014 was \$54,866,558. The projected required fund balance for the long-term care benefit as of June 30, 2014 is \$50,669,247. Based upon these values, the total needed employer contribution for Fiscal Year 2015 is \$4,183,202, assuming a 29 year amortization period of outstanding legacy liability and a 20 year amortization period of new unfunded liability as of June 30, 2014.

Table 1 below presents the key findings as of June 30, 2014 compared to expected values for June 30, 2014 that were developed in the last valuation report dated December 2, 2013.

Table 1 – Key Valuation Findings Summary (Dollars in Millions)

Key Valuation Findings Summary	Expected for June 30, 2014 [A]*	Actual as of June 30, 2014 [B]
Census Summary		
Active Members	76,897	78,432
Ported Members	922	1,208
Active Claimants	39	21
Expenses	\$0.52	\$0.76
Claims Incurred in FY2014	\$1.31	\$0.97
Paid Benefits	NA	\$0.25
Accrued Disabled Life Reserves	NA	\$0.51
Incurred But Not Reported Claims (IBNR)	NA	\$0.21
Contributions	\$4.91	\$3.30
Employer	\$4.66	\$3.00
Ported Members**	\$0.25	\$0.30
Investment earnings during FY2014	\$3.30	\$6.97
Fund balance on June 30, 2014***	\$48.31	\$54.87

*The values for June 30, 2014 can be found in Table 2 from the valuation report dated December 2, 2013

**The ported contribution amount reflects the actual ported contributions as of end of FY2014 from the fund data.

***The comparison of these two numbers is not necessarily appropriate. The value in [A] is our projected required fund balance on July 1, 2014 as of our July 1, 2013 valuation. This number does not take into consideration the actual fund balance as of July 1, 2013 (which was greater than the projected required fund balance by \$0.46 million). The value in [B] is the actual fund balance as of July 1, 2014.

Note that GASB results are not included in this report. They will be sent separately.

VALUATION

Milliman's valuation of VSDP's and VLDP's long-term care claim experience and fund balance are based on a comparison of actual experience for the past year to that projected in our last report, dated December 2, 2013. In that report, Milliman laid out expectations for the next years' experience based on previous experience of the VSDP covered group.

The method used to establish the expected fund needs was to compare the present value of expected future claims and expenses against the present value of the expected future contributions. The difference between the first item and the second item represents the needed fund balance as of the valuation date of June 30, 2014. To the extent that the fund balance is less than the needed amount, the shortfall is amortized over the next 20 years as an increase in needed employer contributions. To the extent that the reverse is true and the fund balance is larger than the needed amount, the excess could be amortized over the next 20 years as a decrease in the needed employer contributions. The amount to be amortized for any given valuation year will carry forward, and a new amount will be estimated in each successive valuation such that the expected fund is being adjusted on an ongoing basis to maintain its adequacy. The amortized amounts carried forward from prior valuations were changed to a 29 year amortization period in this valuation based on a decision made by VRS Board of Trustees.

Changes made in this year's valuation were for the following items, which will be discussed in more detail later in this report:

- Update to the FY2014 census,
- Adjustment to termination rates, and
- Adjustment to the claim selection factors.

PROJECTION AND BENCHMARKS FOR FISCAL YEAR 2015

Table 2 below presents our closed block 50 year projection of key elements for the long-term care benefit given current benefit levels. The fund balance values in Table 2 start from the projected balance as of June 30, 2014 and do not incorporate amortized gains/losses for the fund balances and contribution calculations in years going forward. The actual fund balance as of June 30, 2014 of \$54.87 million is approximately \$4.20 million above what we estimate is needed in our current projections.

Note that this projection does not incorporate possible future increases in the daily benefit amount, although increases equivalent to five years of compound inflation are scheduled to occur every five years. The first, and so far the only, such increase occurred in December 2007. The increase scheduled to occur in December 2013 may be considered for December 2015, and it is not reflected in our analysis. Such increases must be accompanied by a corresponding increase in contribution to cover the additional cost of the additional benefits. In other words, these inflation increases are not pre-funded.

The financial data in the second row in Table 2 provide the benchmarks for Fiscal Year 2015. The number of active and ported participants is the actual number as of June 30, 2014. To the extent that the covered census (active or ported members), contributions (employer or ported premium rates), claim levels, expense levels, investment income, or the total fund balance deviate from these benchmarks, VRS should be prepared to make adjustments to future contribution or benefit levels to compensate.

Table 2 – 50 Year Closed Block Projection of the Long-Term Care Fund Activity for Current Employees (Dollars In Millions)

FY	Number of Members		Starting Annual Contribution		Incurred Claims	Expenses	EOY Investment Income	EOY Required Fund Balance*
	BOY Active	BOY Ported	Active	Ported				
2014								\$50.67
2015	78,432	1,208	\$4.57	\$0.31	\$1.45	\$0.54	\$0.10	\$54.22
2016	70,161	2,312	\$4.11	\$0.56	\$1.64	\$0.54	\$3.88	\$61.33
2017	64,024	3,243	\$3.75	\$0.71	\$1.84	\$0.54	\$4.36	\$68.48
2018	59,172	4,060	\$3.44	\$0.85	\$2.00	\$0.54	\$4.85	\$75.65
2019	55,012	4,823	\$3.16	\$0.98	\$2.18	\$0.55	\$5.34	\$82.95
2020	51,263	5,562	\$2.90	\$1.18	\$2.41	\$0.57	\$5.84	\$90.38
2021	47,804	6,287	\$2.65	\$1.35	\$2.67	\$0.59	\$6.35	\$97.96
2022	44,577	7,003	\$2.42	\$1.46	\$2.96	\$0.61	\$6.87	\$105.66
2023	41,543	7,706	\$2.20	\$1.56	\$3.23	\$0.62	\$7.39	\$113.40
2024	38,675	8,395	\$1.99	\$1.65	\$3.52	\$0.64	\$7.92	\$121.24
2025	35,957	9,067	\$1.80	\$1.96	\$3.91	\$0.69	\$8.46	\$129.13
2026	33,377	9,719	\$1.62	\$2.08	\$4.29	\$0.72	\$8.99	\$137.21
2027	30,921	10,349	\$1.45	\$2.14	\$4.70	\$0.76	\$9.54	\$145.30
2028	28,578	10,953	\$1.30	\$2.19	\$5.14	\$0.79	\$10.09	\$153.34
2029	26,343	11,530	\$1.15	\$2.23	\$5.62	\$0.83	\$10.63	\$161.28
2030	24,213	12,074	\$1.02	\$2.65	\$6.26	\$0.92	\$11.17	\$169.05
2031	22,189	12,582	\$0.90	\$2.69	\$6.86	\$0.97	\$11.69	\$176.87
2032	20,270	13,050	\$0.79	\$2.68	\$7.48	\$1.03	\$12.21	\$184.40
2033	18,457	13,473	\$0.69	\$2.66	\$8.14	\$1.08	\$12.71	\$191.55

Table 2 – 50 Year Closed Block Projection of the Long-Term Care Fund Activity for Current Employees (Dollars In Millions)

FY	Number of Members		Starting Annual Contribution		Incurred Claims	Expenses	EOY Investment Income	EOY Required Fund Balance*
	BOY Active	BOY Ported	Active	Ported				
2034	16,748	13,848	\$0.61	\$2.63	\$8.84	\$1.14	\$13.18	\$198.24
2035	15,139	14,174	\$0.53	\$3.12	\$9.74	\$1.27	\$13.62	\$204.40
2036	13,628	14,449	\$0.46	\$3.07	\$10.52	\$1.33	\$14.02	\$210.28
2037	12,214	14,671	\$0.39	\$2.99	\$11.30	\$1.40	\$14.40	\$215.47
2038	10,898	14,837	\$0.34	\$2.89	\$12.07	\$1.47	\$14.73	\$219.89
2039	9,679	14,946	\$0.29	\$2.79	\$12.84	\$1.53	\$15.00	\$223.48
2040	8,550	15,000	\$0.25	\$3.26	\$13.80	\$1.66	\$15.23	\$226.20
2041	7,504	15,000	\$0.21	\$3.12	\$14.51	\$1.72	\$15.39	\$228.34
2042	6,541	14,947	\$0.18	\$2.98	\$15.16	\$1.77	\$15.51	\$229.56
2043	5,660	14,842	\$0.15	\$2.82	\$15.76	\$1.81	\$15.57	\$229.86
2044	4,866	14,681	\$0.13	\$2.67	\$16.28	\$1.85	\$15.56	\$229.24
2045	4,157	14,467	\$0.10	\$3.03	\$16.95	\$1.95	\$15.50	\$227.72
2046	3,528	14,202	\$0.09	\$2.85	\$17.31	\$1.97	\$15.38	\$225.63
2047	2,969	13,893	\$0.07	\$2.66	\$17.59	\$1.98	\$15.21	\$222.71
2048	2,477	13,542	\$0.06	\$2.48	\$17.78	\$1.98	\$15.00	\$219.03
2049	2,046	13,153	\$0.05	\$2.29	\$17.88	\$1.97	\$14.73	\$214.64
2050	1,677	12,729	\$0.04	\$2.54	\$18.09	\$2.02	\$14.42	\$209.62
2051	1,363	12,273	\$0.03	\$2.35	\$18.02	\$1.99	\$14.07	\$204.24
2052	1,099	11,789	\$0.02	\$2.15	\$17.87	\$1.96	\$13.69	\$198.34
2053	878	11,282	\$0.02	\$1.97	\$17.65	\$1.92	\$13.28	\$192.02
2054	692	10,761	\$0.02	\$1.79	\$17.36	\$1.88	\$12.84	\$185.33
2055	537	10,228	\$0.01	\$1.94	\$17.18	\$1.87	\$12.38	\$178.34
2056	410	9,689	\$0.01	\$1.76	\$16.79	\$1.82	\$11.90	\$171.24
2057	308	9,145	\$0.01	\$1.59	\$16.37	\$1.76	\$11.42	\$163.93
2058	231	8,600	\$0.00	\$1.43	\$15.90	\$1.70	\$10.92	\$156.48
2059	172	8,056	\$0.00	\$1.28	\$15.40	\$1.64	\$10.41	\$148.92
2060	129	7,519	\$0.00	\$1.35	\$14.99	\$1.61	\$9.90	\$141.31
2061	96	6,993	\$0.00	\$1.21	\$14.46	\$1.54	\$9.38	\$133.75
2062	71	6,479	\$0.00	\$1.08	\$13.92	\$1.48	\$8.87	\$126.18
2063	53	5,982	\$0.00	\$0.96	\$13.38	\$1.42	\$8.36	\$118.62
2064	39	5,502	\$0.00	\$0.85	\$12.84	\$1.35	\$7.84	\$111.08
2065	29	5,040	\$0.00	\$0.87	\$12.36	\$1.31	\$7.34	\$103.59

*End of the year fund balance includes investment earnings of 7.0%. This table presents simplified timing of cash flow for presentation purposes.

INCOME STATEMENT

Income to the long-term care fund during the past fiscal year (July 1, 2013 through June 30, 2014) is presented in Table 3 below.

Table 3 – Income Statement of the Long-Term Care Fund – FY2014

Revenues

Employer contributions	\$2,998,197
LTCG – Portability Contributions	\$301,841
Net Investment income	<u>\$6,969,852</u>
Total Revenue	\$10,269,890

Expenses

Paid Claims	\$251,016
TPA administrative services charges	679,841
VRS administration expenses	68,314
Other Expenses	5,487
Transfer to the VLDP Program for LTC funding	<u>10,000</u>
Total operating expenses	\$1,014,658

Net increase (decrease) **\$9,255,232**

Investment income was higher than expected during the last fiscal year. Instead of the projected investment income of \$3.30 million (7.0% earning rate for one year), according to VRS end of year financial statement, the fund experienced a gain of \$6.97 million in investment income.

The actual expense levels were higher than expectations. LTC administration expenses and other costs were \$0.72 million in Fiscal Year 2014 compared to \$0.52 million expected. Expected expenses are \$0.54 million for Fiscal Year 2015. We did not make any adjustment to the expense assumptions in our projections during this valuation, but recommend that going forward this is reviewed and possibly adjusted next year, if necessary.

INCURRED CLAIMS STATEMENT

We restate the incurred claims which are composed of the disabled life reserve and the incurred but not reported reserve at each valuation incorporating the available information about the actual incurred claims. Table 4 presents the details behind the calculation of incurred claims on an actuarial basis for Fiscal Years 2013 and 2014. You will note that we have increased the IBNR reserve estimate in this year's valuation in order to ensure that the adequate amount is held going forward.

Table 4 - FY2013-FY2014 Incurred Claims and Reserves					
FY2013 Valuation					
Claims incurred in FY2013	Claims Paid in FY2013 (1)	Reserve Value at 6/30/2013 (2)	Claims Paid in FY2014 (3)	Restated Reserve Value at 6/30/2014 (4)	Adequacy Test (2) - PV[3,4]
Disabled Life Reserve (Known as of June 30, 2013)	\$3,759	\$60,818	\$53,855	\$180,785	-\$160,203
IBNR (Unknown as of June 30, 2013)	\$0	\$12,915	\$0	\$0	\$12,915
Total	\$3,759	\$73,734	\$53,855	\$180,785	-\$147,288
FY2014 Valuation					
Claims incurred in FY2014			Claims Paid in FY2014 (5)	Reserve Value at 6/30/2014 (6)	
Disabled Life Reserve (Known as of June 30, 2014)			\$3,410	\$78,740	
IBNR (Unknown as of June 30, 2014)			\$0	\$205,784	
Total			\$3,410	\$284,524	
Fiscal Year	Actuarial Basis Incurred Claims, (1)+(3)+(4)				
FY2008	\$127,702				
FY2009	\$203,057				
FY2010	\$327,916				
FY2011	\$406,653				
FY2012	\$205,100				
FY2013	\$238,399				
FY2014*	\$287,934				

*For FY2014, the fully incurred claim cost estimate is used.

BALANCE SHEET

The balance sheet for the long-term care benefit is presented in Table 5 below. As of FY2014, VRS decided to begin amortizing all of its outstanding gain/loss over a 30-year period (i.e., starting with the last valuation). This means that in this year's valuation, the 29-year amortization period applies to the outstanding amounts from prior years.

Table 5 – Balance Sheet for the Long-Term Care Benefit Fund as of June 30, 2014

Assets	
Actual Fund balance	\$54,866,558
Outstanding Amortization Amount	
First Year Amount, July 1, 2007	\$3,939,600
Second Year Amount, July 1, 2008	\$5,627,305
Third Year Amount, July 1, 2009	-\$9,566,904
Fourth Year Amount, July 1, 2010	-\$3,794,178
Fifth Year Amount, July 1, 2011	-\$1,600,640
Sixth Year Amount, July 1, 2012	\$7,285,165
Seventh Year Amount, July 1, 2013	-\$2,350,487
Eighth Year Amount, July 1, 2014	-\$3,737,172
Subtotal	-\$4,197,311
TOTAL	\$50,669,247
Liabilities	
ALR and Expense Reserve	\$49,949,004
Disabled Reserve	\$514,460
IBNR	\$205,784
TOTAL	\$50,669,247

CONTRIBUTION AND RESERVE BUILD-UP GIVEN CHANGES IN ASSUMPTIONS

As noted above, Milliman made three changes to our assumptions for this valuation.

Table 6 presents the list of the changes in modeling assumptions and their expected impact on total employer contributions and needed reserves, respectively. The totals are presented in each row, showing the cumulative impact of each added change to the model. Also presented are the incremental impacts of each change in terms of dollars and percentage impact on totals.

Table 6 – FY2015 Contribution and Fund Amount Build Up - 29 Year Amortization Schedule

	LTC Census	% Change	Annual Contribution	% Change	Fund (Beginning of Year)	% Change
Projected FY2014 Value as of 6/30/2013 (a)	76,897		\$4,656,083		\$45,146,264	
Projected FY2015 Value as of 6/30/2013 (b)	NA		NA		\$51,586,721	
		2.0%				
Adjusted to Reflect Actual Population as of 6/30/2014 (c)	78,432		\$4,660,416	0.1%	\$51,282,532	-0.6%
Adjusted to Reflect Porting Rates Update	NA		\$4,636,911	-0.5%	\$50,858,134	-0.8%
Adjusted to Reflect Claim Experience Update	NA		\$4,573,442	-1.4%	\$50,669,247	-0.4%
Adjusted to Reflect the Amortization of Gain/Loss	NA		\$4,183,202	-8.5%	\$54,866,558	8.3%
Projected FY2015 Value as of 6/30/2014	78,432		\$4,183,202		\$54,866,558	

The rows in the table represent:

- (a) FY2014 values from the 2013 VSDP Long-Term Care valuation report projections.
- (b) FY2015 calculated fund balance (contribution method) derived from the FY2014 beginning of year fund balance.
- (c) FY2015 values adjusted to reflect the active LTC census as of June 30, 2014.

ASSUMPTION CHANGES

Milliman updated three assumptions while completing this valuation. A change was made to the census, the claim selection factors, and the termination rates. These changes are described below.

Census

The first factor to impact our estimate of required employer contribution is the size and composition of the most recent actively employed census. This is a straightforward change, the impact of which was a 0.1% increase in the annual contribution and a 0.6% decrease in the required fund reserve.

The SPORS/VaLORS population represents a relatively small portion of the total eligible population at 13.8%. The age-gender distributions for this group and the remaining participants are in Appendix A. The SPORS/VaLORS population is significantly younger, with an average age of 38 in FY2014, and is also mostly male in gender (70%). The average age for the remaining population is 46, with a male percentage of 40%. In combination, these two characteristics make this population a much less expensive group in terms of the needed annual LTC contributions.

Distributions of the current and past year census by age and gender and a comparison of the total census to the SPORS/VaLORS census are presented in Appendix A.

Claim Selection Factors

We reviewed the actual emerging claim experience to date and revised our claim selection factors to partially reflect the favorable claim experience. These factors were reduced to reflect the fact that actual morbidity in the early years of the program is much lower than what the 2011 Milliman *Long-Term Care Guidelines* assumptions suggest, likely reflecting the value of covering all employees who are actively at work.

The small change reflecting the emerging claim experience had an overall impact of -1.4% on the annual contribution and -0.4% on the required fund reserve.

Appendix C presents tables of selection factors used to adjust these values for the VSDP and VLDP population for actively employed and ported members.

Termination Rates

In the FY2009 valuation, we studied VRS employment termination experience over the last seven years, from which we developed two-dimensional gender specific termination assumptions by participant's age and accrued service. This year, we updated the termination rates to more accurately reflect the actual termination experience through FY2014 at younger and older ages. For added conservatism, we adjusted these rates to reflect 90% of actual experience (i.e. lowered the rates by 10%). This change had an impact of -0.5% on employer contributions and -0.8% on the needed fund balance.

The revised termination rates used in this year's valuation can be found in Appendix E.

PORTING PREMIUMS

VRS and their third party administrator (TPA) will need to be able to determine the appropriate premium (“porting premium”) for members who choose to port their long-term care coverage upon employment termination. While employed, a person has the amount of coverage currently in place for the entire employed group. Upon termination, that person has the option to port the amount of coverage current for the group. The issue is what that person will pay to port the coverage.

In order to assist VRS in calculating the correct porting premiums for various employment/eligibility scenarios, Milliman previously prepared an Excel spreadsheet to calculate porting premiums. The user must enter the employee’s date of birth and dates of hire/termination for a maximum three hire/termination events. If applicable, the user also indicates whether the individual has ported the coverage upon previous termination and whether the individual has purchased additional coverage for any inflation increases offered by VSDP and VLDP during the porting period. The final porting premium is the output of the model. Because VRS did not elect to increase benefits by 5% which would have been effective as of December 2014, this model will not need to be updated. Going forward, if benefits are increased the model will need to be updated in order to accommodate the changing premium rates associated with the scheduled increase

We have performed an adequacy examination along with sensitivity testing of porting premiums under a no inflation increase scenario and believe that the current porting premiums are still adequate. This will need to be monitored going forward.

SUMMARY OF BENEFITS

The VRS benefit is a two year maximum coverage period with a \$96 per day indemnity benefit paid for service in the nursing home, for a lifetime maximum benefit of \$70,080. The daily benefit for home health care usage is half that daily amount and the same lifetime maximum, which therefore uses the maximum “pot of money” more slowly and results in twice the coverage duration. The benefit schedule includes the possibility of an increase for inflation every 5 years in the amount of 5% compounded annually since the last inflation increase, accompanied by a corresponding increase in premium. The benefits were increased to \$96 per day starting in December 2007.

ASSUMPTIONS

We used the assumptions presented in this section to create the expected values for the long-term care benefit. Note that the assumptions used may differ from those used for the VSDP and VLDP disability benefits valuation in some cases.

Census

Distributions of the current and past year census by age and gender and a comparison of the total census to the SPORS/VaLORS census are presented in Appendix A.

Porting Rates

Porting rates represent the probability that an individual will choose to port the coverage upon employment termination. Porting rate assumptions are based upon experience over the first five years of the program, with substantial increases over the life of the program. We analyzed the aggregate past porting experience as of June 30, 2014 and made no modifications to the porting rates.

In estimating the financial needs of the program, the contribution level is very sensitive to porting rates; therefore they will require careful monitoring as the program continues to develop.

Porting rates by age and employment duration are presented in Appendix B.

Morbidity

Our claim cost assumptions are based upon the proprietary 2011 Milliman *Long Term Care Guidelines* (LTCGs). These *Guidelines* provide a flexible, but consistent, basis for the determination of claim costs for a wide variety of long term care benefit packages. These rating structures can be used to anticipate future claim levels, evaluate past experience and establish inter-relationships between different long term care (LTC) coverage options. The *Guidelines* are used by many of the smaller companies in the insurance industry (who do not have enough of their own experience to price their coverage) to develop long-term care premiums. The *Guidelines* are based on insured experience, studied and updated in 2011.

Part of the morbidity assumption used to estimate costs associated with the self-funded plan includes adjustments for selection. Selection is the extent to which participants represent a risk level different than the average insured person with long-term care coverage through an employer. A positively select group is one where the claim risk of the group is assumed to be less than average, whereas an adversely select group is one where the claim risk is assumed to be higher than average.

The VRS plan participants are actively at work, and therefore assumed to be positively select and less likely to use LTC benefits in the early years of coverage. Over time, this effect is assumed to wear off.

We assumed people who port their coverage are adversely select, and therefore more expensive than average. Please refer to Appendix C for tables of selection factors used to adjust morbidity values for the VSDP and VLDP population for actively employed and ported members, and Appendix D for sample claim rates and expected length of stay prior to applying the selection factor adjustments.

Employment Termination

In the FY2009 valuation, we studied VRS employment termination experience over the last seven years, from which we developed two-dimensional gender specific termination assumptions by participant's age and accrued service. This year, we updated the termination rates to more accurately reflect the actual termination experience through FY2014 at younger and older ages. For added conservatism, we adjusted these rates to reflect 90% of actual experience (i.e. lowered the rates by 10%). This change had an impact of -0.5% on employer contributions and -0.8% on the needed fund balance.

The turnover values for selected ages and accrued service are presented in the Appendix E.

Mortality

We used the Static 1994 Group Annuity Mortality table (GAM) to estimate the long term death rates, which is presented in Appendix F. The following setbacks were used (and assuming 100% death rate at age 120):

For State Employees and Judges:

- a. Pre-Retirement – one year setback in age for males and females.
- b. Post-Retirement – one year setback in age for males and females.

For SPORS and VaLORS:

- a. Pre-Retirement – one year setback in age for males and females.
- b. Post-Retirement – four year setback in age for males and females.

Interest

Investment income return used in this pricing was 7.0%. We were instructed to use this assumption by VRS as this is the interest rate assumption used in valuing VRS' pension obligations, and it is assumed that this investment performance will be mirrored in the self-funded long-term care program over the long term. Judging the reasonableness of this assumption would require significant work outside the scope of this engagement.

Expenses

We used the same expense schedule as we have used in our last valuation. Expenses include the following:

- TPA (Long-Term Care Group),
- ongoing costs to administer the program
 - expenses, salaries and benefits within VRS
 - costs for consulting services
- claims expense, which include adjudication and administration
- new member expense to set up the administration for a new hire

A breakdown of expense assumptions is presented in Appendix G.

APPENDIX A: VSDP AND VLDP CENSUS DATA

Current Active Census as of 6/30/2014

Age, 2014	Females	Males	Total	Females	Males	Total
<20	45	63	108	0%	0%	0%
20-29	5,289	4,839	10,128	7%	6%	13%
30-39	9,070	7,473	16,543	12%	10%	21%
40-49	10,977	8,574	19,551	14%	11%	25%
50-59	13,051	8,890	21,941	17%	11%	28%
60-69	5,296	4,294	9,590	7%	5%	12%
70-79	202	365	567	0%	0%	1%
80-89	4	17	21	0%	0%	0%
Total	43,934	34,515	78,449	56%	44%	100%

Prior Active Census as of 6/30/2013

Age, 2013	Females	Males	Total	Females	Males	Total
<20	4	8	12	0%	0%	0%
20-29	4,262	3,938	8,200	6%	5%	11%
30-39	8,807	7,146	15,953	11%	9%	21%
40-49	10,685	8,389	19,074	14%	11%	25%
50-59	13,089	8,877	21,966	17%	12%	29%
60-69	6,093	4,888	10,981	8%	6%	14%
70-79	257	427	684	0%	1%	1%
80-89	7	20	27	0%	0%	0%
Total	43,204	33,693	76,897	56%	44%	100%

SPORS/VaLORS Population Distribution as of 6/30/2014

Age, 2014	Other		SPORS/VaLORS		Other		SPORS/VaLORS	
	Female	Male	Female	Male	Female	Male	Female	Male
<20	40	37	5	26	0%	0%	0%	0%
20-29	4,602	2,928	687	1,911	7%	4%	7%	20%
30-39	8,290	5,542	780	1,931	12%	8%	8%	20%
40-49	10,228	6,871	749	1,703	15%	10%	8%	18%
50-59	12,552	7,968	499	922	18%	12%	5%	10%
60-69	5,208	4,087	88	207	8%	6%	1%	2%
70-79	198	359	4	6	0%	1%	0%	0%
80-89	4	17	0	0	0%	0%	0%	0%
Subtotal	41,122	27,809	2,812	6,706	60%	40%	30%	70%
Total	68,931		9,518		88%		12%	

APPENDIX B: PORTING RATES

Current Selected Policy Porting Rate Assumptions by Policy Issue Age and Policy Duration

Policy Duration (in years)

Issue Age	0	5	10	15	20	25	30	35	40	45	50
25	0.1000	0.1010	0.1144	0.1313	0.1739	0.2555	0.3693	0.5263	0.6812	0.8874	1.0000
30	0.1000	0.1019	0.1234	0.1534	0.2185	0.3194	0.4537	0.5822	0.7574	0.9609	1.0000
35	0.1000	0.1021	0.1303	0.1778	0.2683	0.3935	0.5001	0.6454	0.8406	1.0000	1.0000
40	0.1000	0.1063	0.1608	0.2383	0.3423	0.4320	0.5526	0.7169	0.9230	1.0000	1.0000
45	0.1001	0.1177	0.2001	0.2931	0.3754	0.4755	0.6119	0.7978	0.9983	1.0000	1.0000
50	0.1027	0.1304	0.2244	0.3262	0.4116	0.5247	0.6790	0.8833	1.0000	1.0000	1.0000
55	0.1072	0.1410	0.2422	0.3585	0.4524	0.5804	0.7549	0.9624	1.0000	1.0000	1.0000
60	0.1162	0.1596	0.2667	0.3924	0.4986	0.6434	0.8407	1.0000	1.0000	1.0000	1.0000
65	0.1329	0.1887	0.2999	0.4307	0.5508	0.7146	0.9257	1.0000	1.0000	1.0000	1.0000
70	0.1485	0.2129	0.3308	0.4741	0.6099	0.7952	0.9985	1.0000	1.0000	1.0000	1.0000
75	0.1700	0.2444	0.3693	0.5231	0.6768	0.8863	1.0000	1.0000	1.0000	1.0000	1.0000
80	0.1875	0.2682	0.4043	0.5786	0.7524	0.9645	1.0000	1.0000	1.0000	1.0000	1.0000
85	0.1941	0.2770	0.4310	0.6413	0.8379	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
90	0.2012	0.2863	0.4601	0.7123	0.9347	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
95	0.2088	0.2960	0.4917	0.7925	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100	0.2171	0.3063	0.5261	0.8833	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
105	0.2259	0.3171	0.5635	0.9860	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
110	0.2354	0.3284	0.6042	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
115	0.2457	0.3404	0.6485	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
120	0.2567	0.3529	0.6966	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

APPENDIX C: CLAIM SELECTION FACTORS

VRS-Specific Adjustments To Claim Rates (Selection Factors)

Actively Employed Members			
Policy Year	Issue Age		
	<50	50-64	65+
1	0.133	0.138	0.164
2	0.217	0.222	0.256
3	0.284	0.289	0.342
4	0.334	0.341	0.438
5	0.367	0.375	0.520
6	0.439	0.447	0.547
7	0.473	0.482	0.573
8	0.500	0.511	0.593
9	0.527	0.538	0.612
10	0.561	0.573	0.634
11	0.599	0.612	0.673
12	0.643	0.658	0.719
13	0.702	0.718	0.755
14	0.769	0.787	0.797
15	0.836	0.836	0.840
16	0.851	0.851	0.855
17	0.869	0.869	0.872
18	0.890	0.890	0.893
19	0.915	0.915	0.918
20+	0.945	0.945	0.947

VRS-Specific Adjustments To Claim Rates (Selection Factors)

Ported Members		
Porting rate	Initial (First Year of Porting)	Ultimate
0%	2.35	1.19
5%	2.29	1.18
10%	2.22	1.18
15%	2.16	1.17
20%	2.09	1.16
25%	2.03	1.16
30%	1.96	1.15
35%	1.90	1.14
40%	1.83	1.13
45%	1.77	1.13
50%	1.70	1.12
55%	1.64	1.11
60%	1.57	1.11
65%	1.51	1.10
70%	1.44	1.09
75%	1.38	1.09
80%	1.31	1.08
85%	1.25	1.07
90%	1.18	1.06
95%	1.12	1.06
100%	1.05	1.05

APPENDIX D: CLAIM INCIDENCE RATES AND LENGTH OF STAY

Claims Probabilities (Incidence Rates)				
Gender	Male	Female	Male	Female
Age	Nursing Facility		Home Health	
25	0.00001	0.00001	0.00008	0.00008
30	0.00003	0.00002	0.00010	0.000101
35	0.00008	0.00005	0.00012	0.000127
40	0.00013	0.00009	0.00018	0.000148
45	0.00021	0.00014	0.00028	0.000173
50	0.00031	0.00020	0.00039	0.000285
55	0.00047	0.00029	0.00053	0.00047
60	0.00060	0.00065	0.00085	0.000922
65	0.00100	0.00107	0.00150	0.001624
70	0.00210	0.00191	0.00249	0.002953
75	0.00480	0.00507	0.00482	0.005411
80	0.01023	0.01327	0.00895	0.00917
85	0.02155	0.03171	0.01541	0.01511
90	0.04111	0.06180	0.02249	0.020418
95	0.05844	0.08370	0.02522	0.021901
100	0.07276	0.09756	0.02598	0.021978
105	0.09059	0.11372	0.02677	0.022056
110	0.11279	0.13255	0.02758	0.022133

Length Of Stay (In Months) By Age And Type Of Claim

Gender	Male	Female	Male	Female
	Nursing Facility		Home Health	
Age				
25	11.15	13.96	19.14	12.54
30	11.60	14.42	18.81	12.47
35	12.04	14.98	18.67	12.45
40	12.29	14.87	16.77	13.48
45	12.50	14.77	14.99	14.56
50	12.90	14.16	15.36	13.78
55	13.30	13.52	15.77	13.02
60	12.99	14.12	15.15	12.40
65	13.36	14.30	12.84	12.80
70	14.00	14.32	11.80	13.53
75	13.99	15.09	11.50	13.50
80	13.76	15.61	10.90	13.18
85	13.62	15.90	10.05	12.86
90	13.09	16.19	8.78	12.70
95	12.30	16.51	8.23	12.66
100	11.32	16.10	8.70	13.34
105	9.84	14.77	9.56	14.60
110	8.31	13.32	9.33	14.89

APPENDIX E: TERMINATION RATE ASSUMPTIONS

Current Assumption: Selected Employment Turnover Assumptions by Hire Age And Accrued Service

Female

Employment Duration (years)

Hire Age	0	5	10	15	20	25	30	35	40	41+
20	0.553	0.182	0.121	0.063	0.030	0.022	0.056	0.073	0.099	0.119
25	0.296	0.117	0.062	0.040	0.023	0.025	0.072	0.098	0.158	0.218
30	0.289	0.103	0.057	0.031	0.022	0.032	0.085	0.181	0.242	0.254
35	0.287	0.078	0.047	0.029	0.027	0.052	0.137	0.249	0.257	0.246
40	0.273	0.063	0.043	0.032	0.041	0.106	0.239	0.268	0.333	0.367
45	0.258	0.055	0.038	0.037	0.091	0.232	0.259	0.263	0.352	0.360
50	0.244	0.046	0.042	0.076	0.215	0.279	0.264	0.316	0.355	0.363
55	0.225	0.053	0.083	0.192	0.256	0.261	0.292	0.403	0.455	0.465
60	0.253	0.076	0.174	0.243	0.247	0.305	0.362	0.501	0.565	0.578
65	0.352	0.106	0.227	0.274	0.308	0.397	0.471	0.655	0.741	0.757
70	0.387	0.117	0.204	0.287	0.371	0.479	0.572	0.800	0.800	0.800
71+	0.373	0.123	0.225	0.300	0.387	0.501	0.598	0.800	0.800	0.800

Male

Employment Duration (years)

Hire Age	0	5	10	15	20	25	30	35	40	41+
20	0.478	0.172	0.077	0.052	0.035	0.046	0.115	0.155	0.158	0.160
25	0.289	0.093	0.047	0.029	0.020	0.023	0.056	0.096	0.196	0.244
30	0.272	0.088	0.047	0.030	0.028	0.043	0.090	0.147	0.220	0.226
35	0.244	0.077	0.043	0.026	0.030	0.066	0.141	0.218	0.237	0.238
40	0.240	0.063	0.037	0.030	0.046	0.115	0.226	0.262	0.294	0.313
45	0.243	0.054	0.035	0.041	0.105	0.229	0.285	0.281	0.340	0.328
50	0.221	0.048	0.043	0.082	0.211	0.313	0.343	0.342	0.307	0.296
55	0.210	0.051	0.080	0.178	0.259	0.316	0.366	0.378	0.339	0.326
60	0.215	0.081	0.160	0.235	0.267	0.308	0.342	0.353	0.316	0.305
65	0.236	0.127	0.209	0.246	0.275	0.304	0.337	0.348	0.312	0.301
70	0.209	0.132	0.195	0.223	0.244	0.270	0.300	0.310	0.277	0.268
71+	0.202	0.139	0.203	0.232	0.254	0.281	0.312	0.322	0.289	0.279

APPENDIX F: MORTALITY RATES

Mortality Rates								
State Employees & Judges			SPORS/VaLORS					
Pre- and Post- Retirement			Pre-Retirement			Post-Retirement		
Age	Male	Female	Age	Male	Female	Age	Male	Female
25	0.00062	0.00029	25	0.00062	0.00029	25	0.00053	0.00029
30	0.00078	0.00033	30	0.00078	0.00033	30	0.00070	0.00029
35	0.00085	0.00045	35	0.00085	0.00045	35	0.00082	0.00037
40	0.00100	0.00065	40	0.00100	0.00065	40	0.00086	0.00051
45	0.00146	0.00092	45	0.00146	0.00092	45	0.00116	0.00077
50	0.00233	0.00131	50	0.00233	0.00131	50	0.00172	0.00103
55	0.00398	0.00208	55	0.00398	0.00208	55	0.00287	0.00157
60	0.00709	0.00386	60	0.00709	0.00386	60	0.00495	0.00256
65	0.01294	0.00762	65	0.01294	0.00762	65	0.00899	0.00509
70	0.02173	0.01271	70	0.02173	0.01271	70	0.01624	0.00969
75	0.03405	0.02038	75	0.03405	0.02038	75	0.02595	0.01495
80	0.05586	0.03536	80	0.05586	0.03536	80	0.04086	0.02533
85	0.08961	0.06098	85	0.08961	0.06098	85	0.06862	0.04395
90	0.13945	0.10459	90	0.13945	0.10459	90	0.10579	0.07535
95	0.21570	0.17068	95	0.21570	0.17068	95	0.16726	0.12875
100	0.30130	0.25671	100	0.30130	0.25671	100	0.25151	0.20254
105	0.38786	0.36102	105	0.38786	0.36102	105	0.33346	0.29663
110	0.47315	0.46447	110	0.47315	0.46447	110	0.42560	0.40522
115	0.50000	0.50000	115	0.50000	0.50000	115	0.49636	0.49511
120	1.00000	1.00000	120	1.00000	1.00000	120	1.00000	1.00000

APPENDIX G: EXPENSE ASSUMPTIONS

Expense Assumptions

Annual TPA Fee (Long-Term Care Group)	2% of Premium
Ongoing costs to administer the program	6% of Premium
Claims expense, adjudication and administration	10% of Claim
New member expense to set up the administration	\$25 Per Member