ACTUARIAL VALUATION
OF THE
VIRGINIA529 prePAID
AS OF JUNE 30, 2015

By:

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Board of the Virginia College Savings Plan
Commonwealth of Virginia
Virginia College Savings Plan
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Ladies & Gentlemen:

This report presents the results of the actuarial valuation of the Virginia529 prePAID (prePAID) as of June 30, 2015.

Purpose

The main purposes of this report are:

- to calculate the actuarial present value of the obligations under the prepaid tuition contracts purchased through June 30, 2015 and compare the value of those obligations with the assets in prePAID as of that date;

- to review the experience and changes in the actuarial assumptions during the last year and indicate their effects on the results; and

- to set forth the basis for the actuarial assumptions and methods utilized in those calculations.

The results contained in this report are based on contract data and preliminary financial statements provided by the Virginia College Savings Plan. We have relied on this data in preparing this report.

Background

In 1994, the Virginia General Assembly established the Virginia Higher Education Tuition Trust Fund (subsequently renamed the Virginia College Savings Plan) to enhance the accessibility and affordability of higher education for all citizens of the Commonwealth. The prePAID fund consists of payments received pursuant to prepaid tuition contracts, bequests, endowments or grants from the United States government, its agencies and instrumentalities, and any other available sources of funds, public or private. Any moneys remaining in prePAID at the end of a biennium shall remain in prePAID. Interest and income earned from the investment of such funds shall remain in prePAID.

In 1998, the Virginia General Assembly passed legislation that requires the Governor to include in each year's state budget an amount to cover the Plan's obligations, which include prePAID, in the event "the Plan is unable to meet its current obligations." The Governor has included the provision in subsequent budget submissions to meet the prePAID obligations, and the General Assembly has included the provision in subsequent Appropriation Acts, including Chapter 665 of the 2015 Virginia Acts of Assembly (2015 Appropriation Act).

Program Design

The Virginia529 prePAID is one of four Section 529 options offered by the Virginia College Savings Plan. Under prePAID, participants purchase tuition contracts that provide coverage of tuition and mandatory fees at a public university and/or community college in Virginia. At redemption, the contract pays the current tuition and mandatory fees at the Virginia public university or community college that the beneficiary attends. The benefits vary if the beneficiary does not attend a Virginia public university or community college. With the establishment of the Virginia529 inVEST Program and other savings programs, contract holders have the option of rolling over the value of their prePAID contract into a savings account. The value of the prePAID contract for such rollovers is the accumulated contributions at the reasonable rate of interest set by the prePAID. This option to roll over the contract has effectively added a minimum benefit to the Program.

Statutory Requirements

The Code of Virginia, Title 23, Chapter 4.9 provides limited guidance for establishing the actuarial basis to evaluate prePAID. The Code requires an annual audit of prePAID and states in part that if the annual accounting and audit "reveal that there are insufficient funds to ensure the actuarial soundness of prePAID, the Board shall be authorized to adjust the terms of subsequent prepaid tuition contracts or arrange refunds for current purchasers to ensure actuarial soundness."

"Actuarial soundness" is not a precise concept and there is no generally accepted understanding of the meaning of this phrase within the actuarial profession, especially with respect to prepaid tuition plans. For purposes of this report, we have assumed that the phrase "actuarially sound," when applied to the Virginia529 prePAID, means that the Fund has sufficient assets (including the value of future installment payments due under current contracts) to cover the actuarially estimated value of the tuition obligations under those contracts (including any administrative costs associated with those contracts).

We have also interpreted these Sections to require that the actuarial liabilities be evaluated using sound actuarial principles that are generally consistent with the practices and principles widely used for retirement programs. Reference to other programs is necessary because of the innovative nature of a prepaid tuition program. No generally accepted standard of practice has evolved within the actuarial profession specifically addressing prepaid tuition programs. We chose the standards applicable to retirement programs because these programs generally provide for payments at some future date where that payment has a high probability of payment at, or close to, some specific age.

Valuation Basis

The assumptions selected for this report are intended to be "best estimates".

The method for determining the “best estimate” liability for the Program reflects the possible variability of inflation, tuition, and investment returns and the correlation between each of these variables. The methodology is described in the section below, Variability of Results and Valuation Basis.

prePAID Investment Policy

On June 25, 2009, the Board of the Virginia College Savings Plan adopted a new target asset allocation strategy for the Virginia529 prePAID.

The investment strategy is important because it sets forth acceptable investment allocations among asset classes. The asset allocation affects the magnitude and variability of expected investment returns and therefore the financial structure of the plan. For the valuation, we have assumed that prePAID investments will be allocated as shown below, based on the investment policy target allocations:

Asset Category	
Equities	32.5%
Core Fixed Income	25.0%
Non-Core Fixed Income	27.5%
Alternative Investments	15.0%

Actuarial Assumptions

The actuarial assumptions used to prepare this report are summarized in Appendix C. The two most significant of those assumptions are the rates of investment return and tuition growth in the future. The Virginia College Savings Plan selected both of these assumptions. They are:

* the investment return assumption of 6.25% per year, net of investment related expenses (this is lower than the assumption used to prepare the prior year’s report of 6.75%); and,

* the annual tuition growth rate assumptions summarized in the following table.

	Universities	Community Colleges
Fall 2016 and thereafter	6.5%	6.5%

The tuition growth assumptions are lower than the prior year's report of 7.5% per year for both community colleges and universities.

Summary of Results

The actuarial value of the obligations of the Virginia529 prePAID as of June 30, 2015 is summarized below and compared with the total assets of prePAID.

	Present Value of Obligations For Future Payments	Value of Total prePAID Assets	Actuarial Reserve/ (Deficit)
		(Amounts in Millions)	
Virginia529 prePAID:			
Tuition Obligations	$2,090.5	n/a	n/a
Administrative Expenses	26.3	n/a	n/a
Grand Total	$2,116.8	$2,663.2	$546.4

As indicated above, the Virginia529 prePAID has assets that exceed the "best estimate" of the obligations by roughly $546.4 million or 25.8%. Unfavorable future experience would adversely affect this position. It would be desirable to maintain and accumulate additional actuarial reserve over time to protect and strengthen this position.

The present value of future obligations for Administrative Expenses reflects the expected costs of maintaining each contract in place (as of June 30, 2015) until all tuition benefits have been paid and the expenses associated with making those payments. It does not include the future expenses of prePAID associated with general overhead and marketing attributable to future contracts. The $26.3 million administrative expense obligation is equivalent to about $396 per contract.

Actuarial Gain/Loss Analysis

During the 2015 fiscal year, the actuarial reserve position of prePAID improved from a surplus of $523.3 million to a surplus of $546.4 million or 25.8% of obligations. Actuarial gains add to the reserve while actuarial losses decrease the reserve. This year's increase to the reserve is mostly attributable to lower than expected tuition increases and changes in the economic assumptions offset by lower than expected investment returns. Each of the factors affecting the change in the actuarial reserve/(deficit) is discussed below.

There was a restatement of the beginning of year assets since last year's valuation that reduced the surplus by $9.5 million. This restatement was a result of implementing GASB Statement No. 68.

The actuarial surplus was expected to grow during the year by about $34.7 million due to the passage of time. (The obligations are calculated as present values which grow with interest with the passage of time.)

The rate of return on prePAID investments (net of investment management fees) for the fiscal year was 1.16% on a time-weighted basis and 1.22% on a dollar-weighted basis. For the previous valuation, a 6.75% rate of return was assumed. This produced a net actuarial loss of approximately $134.1 million.

The enrollment-weighted average university tuition and mandatory fee amount for the 2015-2016 school year increased by 5.7%, a smaller increase than the 7.5% rate assumed in the prior valuation. Enrollment-weighted tuition and mandatory fees at community colleges increased by about 5.5%, a smaller increase than the 7.5% rate assumed in the prior valuation. These smaller increases resulted in an actuarial gain of $21.5 million.

Payouts for some of the contract holders are based on the account balance brought forward at the reasonable rate or the account balance brought forward at the actual rate of return on the portfolio. See Appendices C and F for an explanation of the assumptions and the payouts. During the past year the actual rate of return on the portfolio was 1.16% (5.59% less than the 6.75% assumption). The lower than expected actual account balances resulted in an actuarial gain of approximately $8.0 million.

The Plan sold 3,305 new contracts during the year. Each contract was priced so as to contribute to the actuarial reserve. We estimate that the reserve was increased by approximately $9.8 million from these new contracts.

prePAID received $47.7 million in administrative fee revenue from all the Plan programs, including CollegeAmerica. Total agency operating expenses were $19.9 million, of which $6.4 million was expected to be provided by the prePAID program. The balance of the fee revenue, $34.2 million, is an increase to the reserve.

The investment return assumption was lowered from 6.75% to 6.25%. This decreased the reserve by $54.7 million.

The tuition assumption for both Universities and Community Colleges were lowered from 7.5% per year to 6.5% per year. This increased the reserve by $71.9 million.

The assumption for the reasonable rate was changed from 4.0% in all years to 0.08% for 2015-2016 and then 3.75% thereafter. The volatility and correlation assumptions for the investment returns and tuition increases were updated. The combined impact of these changes was a $29.0 million increase to the reserve.

Other experience gains added about $12.3 million to the reserve. These could be from rollovers, cancellations, forfeitures, or more beneficiaries attending colleges with lower tuition levels than assumed in last year's valuation or other variations from the actuarial assumptions.

In summary, the effect of experience and assumption changes on the actuarial reserve/ (deficit) can be summarized as follows:

(Amounts in Millions)

Actuarial Reserve / (Deficit) as of June 30, 2014	$ 523.3
Restatement of beginning net position due to GASB 68 implementation	(9.5)
Interest on the reserve at 6.75%	34.7
Investment gain / (loss)	(134.1)
Tuition gain / (loss)	21.5
Lower than expected actual account balances	8.0
Sales of new contracts	9.8
Administrative fee revenue from Virginia529	34.2
Change in investment return assumption	(54.7)
Change in tuition growth assumptions	71.9
Change in reasonable rate and other assumptions	29.0
Other experience gains	12.3
Actuarial Reserve / (Deficit) as of June 30, 2015	$ 546.4

Valuation Basis

The present values of the obligations shown above were based on assumptions which represent an estimate of anticipated experience under the Fund that are reasonably related to past educational cost and investment data. Differences between those projections and actual amounts will depend on the extent to which future experience conforms to the assumptions made for this analysis.

A prime source of variation will be normal fluctuations that occur in the rate of increase in tuition, investment returns, and expense inflation. One way of estimating the range of possible outcomes is to stochastically model the financial operation of prePAID using "Monte Carlo" techniques. This approach involves preparing 1,000 projections of financial results under randomly derived scenarios of tuition growth, investment returns, and expense inflation. Each of these scenarios is based on statistical factors such as standard deviation and correlation that were established by reviewing historical results adjusted where appropriate to reflect current conditions. By tabulating the results under all of these projections we estimated the probability that current assets, along with all anticipated contract payments plus investment returns, will be sufficient to cover the obligations of the Virginia529 prePAID.

We have summarized in the table below the results of this process. It is important to understand that these results are only illustrative of the range of results that are possible and are dependent on the assumptions utilized. The assumptions are presented in Appendix C.

(Amounts in Millions)

Percentage of "Best Estimate" Reserve	Total prePAID Fund Value at June 30, 2015	Probability of prePAID Funds Exceeding Obligation
80%	$1,693.4	6%
90%	1,905.1	24%
100%	2,116.8	50%
110%	2,328.4	75%
120%	2,540.1	89%
126%	2,663.2	94%*
130%	2,751.8	96%
140%	2,963.5	99%
150%	3,175.2	99%

*actual Fund position.

The present value of obligations for future payments shown previously is the amount of assets necessary to have a 50% probability of meeting all program obligations, including administrative costs, associated with current contracts. The actual prePAID fund balance at June 30, 2015 of $2,663.2 million is 125.8% of the actuarially determined "Best Estimate" Reserve amount of $2,116.8 million. As indicated in the above table, this prePAID fund balance is estimated to have a 94% probability of being adequate to satisfy all prePAID obligations using current assumptions.

Cash Flow Projection

The table in Appendix E shows a cash flow projection based on a set of deterministic assumptions that produce the same Present Value of Obligations for Future Payments as the "best estimate" actuarial assumptions used in the Monte Carlo simulations. The deterministic cash flow projection assumes that University and Community College tuition increase 6.5% per year, and prePAID assets earn 5.93% each year. The starting Market Value of Invested Assets as of July 1, 2015 is $2,453.9 million. At the end of the 2040 Fiscal Year all tuition obligations associated with contracts already purchased are expected to have been paid resulting in a final cumulative surplus of $2,305.7 million. Since the actuarial assumptions are intended to represent "best estimates" of future expenses, there is a 50% chance that actual results will be better than this projection and a 50% chance that actual results will be worse.

Variability of Results

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: future experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and increases or decreases expected as part of the natural operation of the methodology used for these measurements. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Data Reliance

In performing this analysis, we relied on data and other information (some oral and some in writing) provided by the staff of the Virginia College Savings Plan. This information includes, but is not limited to, contractual provisions, contract holder data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

Actuarial Assumptions

All costs, liabilities, and other factors for prePAID have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of prePAID and reasonable expectations). Further, the actuarial assumptions in the aggregate are reasonable and are related to the experience of prePAID and to reasonable expectations. The following actuarial assumptions were set by the Virginia College Savings Plan:

1) the investment return assumption of 6.25% per year, and;

2) the tuition growth assumption for universities of 6.5% per year and the tuition growth assumption for community colleges of 6.5% per year.

Certification

Based on the foregoing assumptions, the Virginia529 prePAID has sufficient assets, including the value of future installment payments, to cover the actuarially estimated value of the tuition obligations under all contracts outstanding as of the valuation date (including any administrative costs associated with those contracts). This determination has been based on reasonable actuarial assumptions that represent the Virginia College Savings Plan's best estimate of anticipated experience under prePAID taking into account past experience and future expectations.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices.

Third Party Distribution

This report was prepared exclusively for the Virginia College Savings Plan for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning the Virginia College Savings Plan's operations, and uses the Virginia College Savings Plan's data, which Milliman has not audited. It is not for the use or benefit of any third party for any purpose. Any third party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs.

Qualifications

We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

We look forward to reviewing the results of our analyses with you at your earliest convenience.

Respectfully submitted,

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Virginia529 prePAID

I. Statement of Assets as of June 30, 2015

	Investments	Market Value
1)	Equities	$ 1,045,597,632
2)	Fixed Income including Accrued Interest	1,230,824,122
3)	REIT Fund and Real Estate	83,105,770
4)	Cash & Cash Equivalents	83,350,426
5)	Prepaid Assets	172,274
6)	Property & Equipment	9,143,079
7)	Accounts Receivable	15,005,432
8)	Other Receivables	4,523,056
9)	Accounts Payable	(1,064,087)
10)	Other Payables	(1,058,383)
11)	Deferred Inflow	(1,581,000)
12)	Deferred Outflow	1,066,765
13)	Accrued Liabilities	(15,203,101)
	Total Market Value of Investments	$ 2,453,881,985
	Present Value of Installment Contract Receivables	209,268,825
	Value of Total Fund Assets	$ 2,663,150,810

II. Reconciliation of Investments

1)	Market Value of Investments at June 30, 2014	$ 2,445,922,117
2)	Restatement of beginning net position	(9,498,000)
3)	Contract Purchase Payments	119,408,414
4)	Application Fees	122,901
5)	Administrative Fee Revenue	47,734,304
6)	Interest and Dividends	69,218,095
7)	Realized and Unrealized Gains/(Losses)	(34,395,874)
8)	Tuition Benefits Paid	(126,830,598)
9)	Refunds Paid	(13,018,489)
10)	Net Rollovers	(19,659,357)
11)	Administrative Expenses	(19,913,243)
12)	Investment Management Fees	(7,908,571)
13)	Net Transfers to the Commonwealth	(336,556)
14)	Net Effect of Changes in Accruals of Assets and Liabilities	3,036,842
15)	Market Value of Investments at June 30, 2015	$ 2,453,881,985

Time-weighted rate of return	1.16%
Dollar-weighted rate of return	1.22%

Appendix A

Virginia529 prePAID
Contract Data as of June 30, 2015 – Contracts Purchasing Tier I Units Only - Number of Contracts*

	Total Years of Community College Purchased Total Years of University Purchased											
Matriculation	0	0	0	0	0	0	0	0	0	0	**Total by Payout**	**Percent of**
Year	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	**Year**	**Total**
2000-2001	0	1	0	3	0	1	0	27	0	1	33	0.1%
2001-2002	0	3	0	2	0	0	0	42	0	2	49	0.1%
2002-2003	0	10	0	5	0	0	0	53	0	6	74	0.1%
2003-2004	0	4	0	11	0	1	0	83	0	3	102	0.2%
2004-2005	0	17	0	17	0	2	0	115	0	9	160	0.3%
2005-2006	0	26	0	33	0	4	0	210	0	14	287	0.5%
2006-2007	0	34	0	39	0	18	0	298	0	31	420	0.7%
2007-2008	0	38	0	60	0	11	0	371	0	33	513	0.8%
2008-2009	0	56	0	67	0	23	0	513	0	50	709	1.2%
2009-2010	0	68	0	82	0	28	0	658	0	60	896	1.5%
2010-2011	0	95	0	119	0	34	0	766	0	84	1,098	1.8%
2011-2012	0	115	0	144	0	35	0	1,190	0	117	1,601	2.6%
2012-2013	0	214	0	283	0	78	0	2,826	0	134	3,535	5.8%
2013-2014	0	258	1	393	0	153	1	2,872	0	124	3,802	6.3%
2014-2015	1	447	4	600	2	160	1	2,933	0	139	4,287	7.1%
2015-2016	1	570	7	675	2	125	3	2,921	0	122	4,426	7.3%
2016-2017	13	590	4	591	3	166	1	2,830	0	128	4,326	7.2%
2017-2018	57	635	9	580	6	169	3	2,630	1	141	4,231	7.0%
2018-2019	79	632	28	605	6	119	4	2,601	1	160	4,235	7.0%
2019-2020	104	569	23	553	11	130	3	2,320	1	140	3,854	6.4%
2020-2021	94	493	20	455	8	117	3	1,954	0	112	3,256	5.4%
2021-2022	107	549	24	486	17	128	3	1,941	2	128	3,385	5.6%
2022-2023	125	476	25	483	13	92	2	1,409	1	54	2,680	4.4%
2023-2024	109	453	22	351	13	84	4	1,261	0	64	2,361	3.9%
2024-2025	144	371	25	319	12	69	2	1,019	3	72	2,036	3.4%
2025-2026	117	340	21	288	9	38	2	869	0	46	1,730	2.9%
2026-2027	143	299	10	230	2	34	1	661	1	27	1,408	2.3%
2027-2028	113	302	21	245	9	42	3	593	2	33	1,363	2.3%
2028-2029	111	241	13	176	7	26	3	472	0	18	1,067	1.8%
2029-2030	88	205	10	118	2	11	1	353	0	14	802	1.3%
2030-2031	110	138	18	114	7	15	1	258	0	9	670	1.1%
2031-2032	127	118	13	90	5	5	2	189	1	11	561	0.9%
2032-2033	82	74	7	57	3	10	2	145	0	11	391	0.6%
2033-2034	15	18	2	14	0	3	1	49	0	5	107	0.2%
Total	1740	8,459	307	8,288	137	1,931	46	37,432	13	2,102	60,455	
Percent of Total	2.9%	14.0%	0.5%	13.7%	0.2%	3.2%	0.1%	61.9%	0.0%	3.5%		

* Table only includes contracts with at least one semester of tuition remaining.

Appendix B
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Virginia529 prePAID

Contract Data as of June 30, 2015 – Contracts Purchasing Tier II Units Only - Number of Contracts*

Matriculation Year	Total Years of Community College Purchased / Total Years of University Purchased														Total by Payout Year	Percent of Total
	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	8	10		
	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
2000-2001	0	1	0	4	0	0	0	0	0	0	0	0	0	0	5	0.2%
2001-2002	0	0	0	15	0	0	0	0	0	0	0	0	0	0	15	0.5%
2002-2003	0	2	0	10	0	0	0	0	0	0	0	0	0	0	12	0.4%
2003-2004	0	1	0	6	0	1	0	0	0	0	0	0	0	0	8	0.3%
2004-2005	0	2	0	18	0	2	0	0	0	0	0	0	0	0	22	0.7%
2005-2006	0	4	0	33	0	1	0	0	0	0	0	0	0	0	38	1.2%
2006-2007	0	1	0	24	0	3	0	0	0	0	0	0	0	0	28	0.9%
2007-2008	0	3	0	38	0	6	0	0	0	0	0	0	0	0	47	1.5%
2008-2009	0	3	0	35	0	3	0	0	0	0	0	0	0	0	41	1.3%
2009-2010	0	2	0	46	0	5	0	0	0	0	0	0	0	0	53	1.7%
2010-2011	0	14	0	63	0	5	0	0	0	0	0	0	0	0	82	2.6%
2011-2012	0	11	0	71	0	12	0	0	0	0	0	0	0	0	94	3.0%
2012-2013	1	25	0	90	0	18	0	0	0	0	0	0	0	0	134	4.3%
2013-2014	0	27	0	106	0	19	0	0	0	0	0	0	0	0	152	4.9%
2014-2015	0	46	0	155	0	28	0	0	0	0	0	0	0	0	229	7.4%
2015-2016	0	44	0	165	0	18	0	0	0	0	0	0	0	0	227	7.3%
2016-2017	2	51	0	142	0	12	0	2	0	0	0	0	0	0	209	6.7%
2017-2018	3	44	0	123	0	16	0	1	0	0	1	0	0	2	190	6.1%
2018-2019	10	35	1	106	1	16	0	1	0	1	0	0	0	2	173	5.6%
2019-2020	8	42	0	95	0	18	0	2	0	0	1	0	0	1	167	5.4%
2020-2021	5	42	1	94	1	11	0	0	0	0	0	0	0	1	155	5.0%
2021-2022	7	43	3	92	1	10	0	1	0	0	0	0	0	0	157	5.1%
2022-2023	9	38	0	86	1	3	0	3	0	0	0	0	0	0	140	4.5%
2023-2024	11	39	1	67	2	8	0	2	0	0	0	0	0	1	131	4.2%
2024-2025	3	37	0	47	1	5	0	1	0	0	0	0	1	0	95	3.1%
2025-2026	9	29	1	40	0	2	0	0	0	1	0	0	0	2	84	2.7%
2026-2027	7	11	0	40	0	10	0	2	1	0	0	1	0	0	72	2.3%
2027-2028	8	17	0	34	0	5	0	1	0	2	0	0	0	2	69	2.2%
2028-2029	10	20	1	35	1	2	0	2	0	0	0	0	1	0	72	2.3%
2029-2030	6	12	0	38	0	3	0	1	1	0	0	0	0	0	61	2.0%
2030-2031	19	11	0	20	1	1	1	4	0	0	0	0	0	0	57	1.8%
2031-2032	13	8	2	15	0	2	0	0	0	0	0	0	0	0	40	1.3%
2032-2033	8	8	0	11	0	1	0	0	0	2	0	0	0	0	30	1.0%
2033-2034	6	6	0	4	0	1	0	0	0	0	0	0	0	0	17	0.5%
Total	145	679	10	1,968	9	247	1	23	2	6	2	1	2	11	3,106	
Percent of Total	4.7%	21.9%	0.3%	63.4%	0.3%	8.0%	0.0%	0.7%	0.1%	0.2%	0.1%	0.0%	0.1%	0.4%		

* Table only includes contracts with at least one semester of tuition remaining.

Virginia529 prePAID

Contract Data as of June 30, 2015 – Contracts Purchasing Tier I and Tier II Units - Number of Contracts*

	Total Years of Community College Purchased Total Years of University Purchased																																					
Matriculation	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1	1	1	1	1	1.5	1.5	1.5	1.5	1.5	2	2	2	2	2	2	2	2.5	2.5	3	3	3	3	3	4	5	10	Total by Payout	Percent of
Year	0.5	1	1.5	2	2.5	3.5	0.5	1	1.5	2	2.5	3	4	5	0.5	1	1.5	2	2.5	0.5	1	1.5	2	3	4	5	1.5	2.5	1	2	3	4	5	1	5	5	Year	Total
2000-2001	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.0%
2001-2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.1%
2002-2003	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	5	0.2%
2003-2004	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	6	0.2%
2004-2005	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	8	0	1	0	0	0	0	0	0	0	0	0	0	0	11	0.4%
2005-2006	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	13	0	1	0	0	0	0	0	0	0	1	0	0	0	18	0.6%
2006-2007	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	23	1	0	1	0	0	0	0	0	0	0	0	0	0	29	1.0%
2007-2008	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	23	1	0	0	0	0	1	0	0	0	0	0	0	0	27	1.0%
2008-2009	0	0	0	0	0	0	0	5	0	1	0	3	0	0	0	0	0	0	0	0	5	0	39	0	0	0	0	0	1	0	0	0	3	0	0	0	57	2.0%
2009-2010	0	0	0	0	0	0	0	5	0	0	0	1	0	0	0	0	0	0	0	0	2	0	46	2	0	1	0	0	1	0	0	0	1	0	0	0	59	2.1%
2010-2011	0	0	0	0	0	0	0	5	0	2	0	5	0	0	0	0	0	0	0	0	2	0	62	4	0	1	0	0	0	0	0	0	3	0	0	0	84	3.0%
2011-2012	0	0	0	0	0	0	0	7	0	7	0	3	0	0	0	0	0	0	0	0	5	0	98	0	2	0	0	0	1	1	0	0	3	0	0	0	127	4.5%
2012-2013	0	0	0	0	0	0	0	12	0	6	0	10	1	0	0	0	0	0	0	0	4	0	118	2	0	0	0	0	1	0	1	0	1	0	0	0	156	5.6%
2013-2014	0	0	0	0	0	0	0	12	0	10	0	17	2	0	0	0	0	0	0	0	3	0	146	3	1	1	0	0	0	2	1	0	2	0	0	0	200	7.1%
2014-2015	0	0	0	0	0	0	0	14	0	7	0	17	0	1	1	0	0	0	0	0	14	0	175	3	0	0	0	0	0	0	0	0	1	0	0	0	233	8.3%
2015-2016	0	0	0	0	0	0	1	14	0	5	0	7	0	0	0	0	0	0	0	0	20	0	144	1	1	0	0	0	3	0	1	0	3	0	0	0	200	7.1%
2016-2017	0	0	0	1	0	0	0	10	0	6	0	7	0	1	0	0	0	0	0	0	17	0	151	0	3	0	0	0	1	0	0	0	2	0	0	0	199	7.1%
2017-2018	1	1	1	0	0	0	1	22	0	5	0	7	0	0	0	2	0	0	0	0	9	0	143	5	1	0	0	0	1	0	0	0	1	0	0	0	200	7.1%
2018-2019	0	1	0	0	0	0	0	14	0	3	0	7	2	0	1	0	0	0	0	0	7	1	135	2	0	0	0	0	3	0	1	0	1	0	1	0	179	6.4%
2019-2020	1	0	2	0	0	0	0	23	0	3	0	8	1	1	0	0	0	0	0	1	9	1	132	3	0	0	0	0	1	0	0	0	2	0	0	0	188	6.7%
2020-2021	2	0	1	0	0	0	0	10	0	4	0	4	1	0	0	0	1	0	0	0	13	0	100	4	0	0	0	0	2	0	0	0	0	0	0	0	142	5.1%
2021-2022	1	1	0	0	1	0	0	11	0	0	2	5	2	0	0	0	0	0	0	0	6	0	94	1	0	1	0	0	3	0	1	0	4	0	0	0	133	4.8%
2022-2023	0	0	0	0	0	0	0	6	0	4	1	5	1	0	0	0	0	0	0	0	7	1	70	4	0	0	0	1	3	1	0	0	0	1	1	0	106	3.8%
2023-2024	0	0	0	0	0	0	1	4	0	3	0	7	1	0	0	1	0	0	1	2	8	0	64	3	1	0	0	0	0	0	0	0	2	0	0	0	98	3.5%
2024-2025	0	0	0	0	0	0	1	2	1	2	0	4	0	1	0	0	0	1	0	0	7	0	55	0	0	1	0	0	0	0	0	0	0	0	0	0	75	2.7%
2025-2026	0	0	0	0	0	1	1	2	2	7	0	3	1	0	0	0	0	0	0	0	4	0	40	4	0	0	0	1	0	0	0	0	1	0	0	0	67	2.4%
2026-2027	1	0	1	0	0	0	0	3	0	1	0	3	2	0	0	0	0	0	0	0	5	0	27	0	0	0	0	0	0	0	0	0	1	0	0	0	44	1.6%
2027-2028	1	1	0	0	0	0	1	3	0	2	0	2	1	0	0	0	0	0	0	0	4	0	27	1	0	1	0	0	0	1	0	0	0	0	0	0	45	1.6%
2028-2029	3	0	0	0	0	0	0	4	0	2	0	3	1	0	0	0	0	0	0	0	4	0	17	0	0	0	1	0	0	0	0	0	0	0	0	0	35	1.3%
2029-2030	0	0	0	0	0	0	1	3	0	2	0	1	0	0	0	0	0	0	0	0	1	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	22	0.8%
2030-2031	0	0	1	0	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	4	0	9	0	1	0	0	0	0	0	0	0	0	0	0	1	21	0.8%
2031-2032	2	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0.5%
2032-2033	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0	10	0.4%
2033-2034	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0.2%
Total	15	4	8	2	1	1	9	198	4	85	3	132	17	4	2	3	1	1	1	3	168	3	1,996	45	13	7	1	2	22	5	5	1	32	1	2	1	2,798	
Percent of Total	0.5%	0.1%	0.3%	0.1%	0.0%	0.0%	0.3%	7.1%	0.1%	3.0%	0.1%	4.7%	0.6%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	6.0%	0.1%	71.3%	1.6%	0.5%	0.3%	0.0%	0.1%	0.8%	0.2%	0.2%	0.0%	1.1%	0.0%	0.1%	0.0%		

* Table only includes contracts with at least one semester of tuition remaining.

Virginia529 prePAID

Participant Data as of June 30, 2015 – Remaining Years of Tuition

Expected Payout Year	University Years	Community College Years
2015-2016	20,320	1,271
2016-2017	17,646	1,054
2017-2018	16,493	877
2018-2019	15,784	814
2019-2020	13,933	705
2020-2021	13,023	679
2021-2022	12,275	633
2022-2023	10,755	551
2023-2024	9,386	484
2024-2025	8,101	417
2025-2026	6,748	353
2026-2027	5,624	294
2027-2028	4,737	255
2028-2029	3,931	223
2029-2030	3,153	192
2030-2031	2,534	165
2031-2032	1,994	130
2032-2033	1,510	100
2033-2034	1,042	73
2034-2035	657	44
2035-2036	382	25
2036-2037	175	14
2037-2038	68	7
2038-2039	25	3
2039-2040	5	1
Total	170,301	9,364

Virginia529 prePAID

Summary of Actuarial Assumptions

Investment / Economic Assumptions for Simulation Model:

The standard deviation and correlation assumptions are based on actual historical returns and tuition growth. Expected return assumptions are based on Milliman's investment assumptions, but are adjusted so that the expected annualized return on the portfolio is 6.25%, which is the assumption set by the Board.

	Inflation	Reason-able Rate	Global Equity	Non-Core Fixed Income	Core Fixed Income	Alternative Investments	University Tuition	CC Tuition
Expected Arithmetic Mean Annual Return	2.50%	3.75%	9.00%	5.50%	3.69%	8.50%	6.57%	6.61%
Standard Deviation	2.00%	2.00%	17.30%	10.40%	4.85%	14.90%	4.45%	6.85%
Correlation:								
Inflation	1.00	0.59	0.24	0.08	0.26	0.24	0.18	-0.04
Reasonable Rate		1.00	0.23	0.18	0.47	0.00	0.00	-0.24
Global Equity			1.00	0.58	0.09	0.56	0.07	-0.14
Non-Core Fixed Income				1.00	0.57	0.35	0.35	-0.02
Core Fixed Income					1.00	-0.22	0.30	0.23
Alternative Investments						1.00	-0.17	-0.30
University Tuition							1.00	0.60
CC Tuition								1.00

Based on the economic assumptions above, the expected long-term annualized compound rate of return on investments is 6.25%. The expected long-term annualized compound rate of tuition growth is 6.5% per year for university and community college tuition. The Reasonable Rate for 2015-2016 was set equal to 0.08% for all simulations.

Matriculation and Bias:

Starting in the year of matriculation, it is assumed that 76% of beneficiaries will attend a public university in Virginia, 7.6% will attend a private university in Virginia, 11.4% will attend a university in another state, and 5.0% will request a cancellation, transfer, or rollover to a savings plan. Weighted average tuition for four-year public universities in Virginia was adjusted with an 8.0% load to add a bias for matriculation at more expensive schools. Weighted average tuition for two-year community colleges in Virginia was adjusted with a 1.0% load to add a bias for matriculation at more expensive schools. The highest tuition for a public university in Virginia was assumed to be 50% higher than weighted average tuition. Out-of-state students and contracts requesting a rollover are assumed to receive a benefit equal to the payments made on the contract plus interest at the composite reasonable rate of return.

Summary of Actuarial Assumptions
(continued)

Combination Contracts:

For combination contracts a portion of the remaining university and community college years are assumed to be paid each year. For combination contracts currently in payout with only university years or community college years remaining, the applicable remaining years are assumed to be paid.

Utilization:

It is assumed that participants will begin utilizing their contract at the following rates, and then redeem up to two semesters of tuition per year until the contract is depleted:

Years since Matriculation Year	Number of Semesters of Tuition Purchased						
	1 - 2	3 - 4	5 - 6	7 - 8	9 - 10	11-12	13+
0	50%	60%	60%	80%	85%	85%	100%
1	15%	10%	20%	10%	8%	15%	
2	10%	15%	10%	5%	7%		
3	10%	5%	5%	5%			
4	5%	5%	5%				
5	5%	5%					
6	5%						

Forfeiture: It is assumed that contracts will be forfeited prior to the year of matriculation at a rate of 0.5% per year.

Expenses: The expenses included in the present value of future obligations are those relating to:

Annual Maintenance Expense per Contract = $55.58
Annual Distribution Cost per Contract in Payment Status = $24.61

The expense assumptions were developed from a cost analysis by Virginia College Savings Plan staff with adjustments for anticipated increases since the analysis was performed in 2013.

These expenses are assumed to increase annually at the rate of inflation plus 0.5%.

Summary of Actuarial Assumptions
(continued)

Rationale for Assumptions:

All of the actuarial assumptions with the exception of the investment return, the tuition growth rate, and the reasonable rate, were based on the results of an experience study performed in 2014 (see the Experience Study report dated September 22, 2014).

The reasonable rate assumption was based on the current money market yield used to set the rate and forecasts of future short-term interest rates from a survey of economists published in the *June 2015 Blue Chip Financial Forecasts.*

The investment return assumption is set by the Board based on recommendations from Virginia529's investment consultant.

The tuition growth assumptions are also set by the Board. Milliman assisted Virginia529 staff in 2015 with a historical analysis of long-term tuition growth at public colleges in Virginia.

Virginia529 prePAID

Derivation of Enrollment-Weighted Average Tuition and Mandatory Fees at Four Year Universities Based on Projected Enrollment for 2015-2016

School	Tuition and Fees 2015-2016	Fall On Campus In-State Undergraduate FTE for 2015-2016	Percent Distribution
Christopher Newport	$12,526	4,824	3.66%
George Mason	10,952	17,918	13.61%
James Madison	10,066	13,260	10.07%
Longwood	11,910	4,044	3.07%
Mary Washington	11,130	3,890	2.96%
Norfolk State	8,366	4,971	3.78%
Old Dominion	9,768	16,175	12.29%
Radford	9,809	8,292	6.30%
University of Virginia 2015 Students	14,476	2,590	1.97%
University of Virginia Returning Students	13,476	7,770	5.90%
UVA - Wise	9,220	1,509	1.15%
Virginia Commonwealth Post-2012 Enrollment	12,772	15,213	11.56%
Virginia Commonwealth Pre-2013 Enrollment	10,951	5,071	3.85%
Virginia Military Institute	16,536	904	0.69%
Virginia Tech	12,485	17,557	13.34%
Virginia State	8,226	3,465	2.63%
William & Mary - 2015 Students	19,372	1,045	0.79%
William & Mary - 2014 Students	17,822	1,045	0.79%
William & Mary - 2013 Students	15,822	1,045	0.79%
William & Mary - Returning Students	14,658	1,045	0.79%
Weighted Average Tuition and Fees*	**$11,409**	131,632	100.00%

* Assumes that 2013, 2014, 2015, and returning students are each 25% of total FTE for William & Mary. Assumes that 2015 students are 25% of total FTE for UVA. Assumes that post-2012 students are 75% of total FTE for VCU.

Virginia529 prePAID

Derivation of Enrollment-Weighted Average Tuition and Mandatory Fees at Community Colleges

School	Tuition and Fees 2015-2016	Annualized In-State FTE Academic Year 2014-2015	Percent Distribution
Blue Ridge	$5,354	2,769	2.46%
Central Virginia	4,768	2,552	2.27%
Dabney S. Lancaster	4,656	723	0.64%
Danville	4,640	2,322	2.06%
Eastern Shore	4,688	475	0.42%
Germanna	4,880	4,427	3.94%
J Sargeant Reynolds	4,963	7,246	6.44%
John Tyler	4,560	5,453	4.85%
Lord Fairfax	4,683	3,877	3.45%
Mountain Empire	4,656	1,730	1.54%
New River	4,642	2,767	2.46%
Northern Virginia	5,480	31,711	28.19%
Patrick Henry	4,651	1,999	1.78%
Paul D Camp	4,629	771	0.69%
Piedmont Virginia	4,741	2,896	2.57%
Rappahannock	4,757	1,838	1.63%
Richard Bland	5,496	1,014	0.90%
Southside Virginia	4,640	3,242	2.88%
Southwest Virginia	4,624	1,773	1.58%
Thomas Nelson	4,710	6,351	5.65%
Tidewater	5,515	18,167	16.15%
Virginia Highlands	4,656	1,604	1.43%
Virginia Western	5,027	4,837	4.30%
Wytheville	4,672	1,942	1.73%
Weighted Average Tuition and Fees	**$5,101**	112,486	100.00%

Virginia529 prePAID

History of Enrollment-Weighted Average Tuition and Mandatory Fees
at Four Year Universities and Community Colleges in Virginia

Academic Year	University Tuition and Fees	% Increase	Community College Tuition and Fees	% Increase
1988-1989	$2,377		$778	
1989-1990	2,544	7.0%	798	2.5%
1990-1991	2,702	6.2%	894	12.0%
1991-1992	2,985	10.5%	1,050	17.4%
1992-1993	3,357	12.5%	1,230	17.1%
1993-1994	3,659	9.0%	1,320	7.3%
1994-1995	3,789	3.6%	1,359	3.0%
1995-1996	3,949	4.2%	1,445	6.3%
1996-1997	4,002	1.3%	1,445	0.0%
1997-1998	4,095	2.3%	1,445	0.0%
1998-1999	4,217	3.0%	1,445	0.0%
1999-2000	3,721	(11.8%)	1,159	(19.8%)
2000-2001	3,793	1.9%	1,159	0.0%
2001-2002	3,843	1.3%	1,159	0.0%
2002-2003	4,122	7.3%	1,671	44.3%
2003-2004	5,033	22.1%	1,882	12.6%
2004-2005	5,559	10.5%	2,006	6.5%
2005-2006	5,990	7.8%	2,135	6.4%
2006-2007	6,529	9.0%	2,269	6.3%
2007-2008	6,966	6.7%	2,404	5.9%
2008-2009	7,562	8.6%	2,584	7.5%
2009-2010	7,912	4.6%	2,781	7.6%
2010-2011	8,803	11.3%	3,285	18.1%
2011-2012	9,507	8.0%	4,179*	27.2%*
2012-2013	9,856	3.7%	4,426	5.9%
2013-2014	10,225	3.7%	4,619	4.4%
2014-2015	10,797	5.6%	4,835	4.7%
2015-2016	11,409	5.7%	5,101	5.5%

* Starting with the 2011-2012 year, Community College Tuition and Fees is measured as an enrollment-weighted average. Prior to that, a non-enrollment-weighted average was used. Enrollment numbers taken from SCHEV's website.

Compounded Increase in Average Tuition

Over last 5 years:	5.3%	9.2%
Over last 10 years:	6.7%	9.1%
Over last 15 years	7.6%	10.4%
Over last 20 years:	5.4%	6.5%
Over last 25 years:	5.9%	7.2%

Virginia529 prePAID

Cash Flow Projection
(amounts in millions)

Fiscal Year	Beginning Balance	Installment Payments*	Tuition Benefits	Expenses	Investment Income	Ending Balance
2016	$2,453.9	$49.9	$239.2	$4.1	$136.1	$2,396.6
2017	2,396.6	41.4	221.4	4.1	133.4	2,345.9
2018	2,345.9	34.4	221.0	3.9	130.2	2,285.6
2019	2,285.6	28.6	226.4	3.7	126.2	2,210.3
2020	2,210.3	23.6	214.2	3.0	122.2	2,138.9
2021	2,138.9	19.4	214.2	2.7	117.9	2,059.3
2022	2,059.3	15.9	216.1	2.4	112.8	1,969.5
2023	1,969.5	13.0	203.3	2.2	108.1	1,885.1
2024	1,885.1	10.3	190.6	1.9	103.6	1,806.5
2025	1,806.5	8.0	176.7	1.6	99.4	1,735.6
2026	1,735.6	6.0	158.3	1.4	96.2	1,678.1
2027	1,678.1	4.6	141.2	1.2	93.3	1,633.6
2028	1,633.6	3.2	127.5	1.0	91.4	1,599.7
2029	1,599.7	2.2	113.3	0.8	89.8	1,577.6
2030	1,577.6	1.4	97.2	0.6	89.2	1,570.4
2031	1,570.4	0.8	83.4	0.5	89.5	1,576.8
2032	1,576.8	0.4	69.8	0.4	90.4	1,597.4
2033	1,597.4	0.1	56.4	0.3	92.2	1,633.0
2034	1,633.0	0.0	41.3	0.2	95.1	1,686.6
2035	1,686.6	0.0	27.5	0.1	98.7	1,757.7
2036	1,757.7	0.0	17.0	0.1	103.5	1,844.1
2037	1,844.1	0.0	8.3	0.0	108.9	1,944.7
2038	1,944.7	0.0	3.5	0.0	115.2	2,056.4
2039	2,056.4	0.0	1.3	0.0	121.8	2,176.9
2040	2,176.9	0.0	0.3	0.0	129.1	2,305.7

* Future installment payments for contracts as of June 30, 2015.

Appendix E

prePAID Tuition Benefits

For beneficiaries attending a Virginia public college, university, or community college, prePAID will pay the full amount of in-state undergraduate tuition and all mandatory fees for a normal full-time course load for a general course of study on a semester-by-semester basis for the type of school and number of years purchased. The prePAID payments to in-state public schools will not exceed the actual cost of the in-state undergraduate tuition and mandatory fees. The contract-holder has the option to transfer the total amount of all payments, accumulated at the reasonable rate of return, to a Virginia529 savings program, and request a distribution from the respective program to pay for qualified higher education expenses.

For beneficiaries attending a Virginia independent (private) college or university, prePAID will pay to the Virginia private school, including certain private career schools, the lesser of 1) the payments made on the contract plus the actual rate of return earned on the Fund or 2) the highest in-state undergraduate tuition and mandatory fees at a Virginia public school in the same academic year the benefits are used. All payments will be made directly to the school on a semester-by-semester basis following the school's add-drop period. The student or his or her family is responsible for any additional expenses not covered by prePAID. The contract-holder has the option to transfer the total amount of all payments, accumulated at the reasonable rate of return, to a Virginia529 savings program and request a distribution from the respective program to pay for qualified higher education expenses.

For beneficiaries attending an out-of-state public or private college or university, prePAID will pay the lesser of 1) the payments made on the contract plus interest at the composite reasonable rate of return or 2) the average in-state undergraduate tuition and mandatory fees at Virginia public schools for the same academic year the benefits are used. All payments will be made directly to the school on a semester-by-semester basis. The student or his or her family is responsible for any additional expenses not covered by prePAID. The contract-holder has the option to transfer the total amount of all payments, accumulated at the reasonable rate of return, to a Virginia529 savings program and request a distribution from the respective program to pay for qualified higher education expenses.

The reasonable rate of return tracks the quarterly performance of the Institutional Money Funds Index as reported in the Money Fund Monitor by iMoneyNet.