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August 31, 2005

The Honorable Grady L. Patterson, Jr.  
Treasurer, State of South Carolina  
116 Wade Hampton Building  
Columbia, SC 29201

Dear Treasurer Patterson:

I have completed my actuarial analysis of the Fund ("the Fund") for the South Carolina Tuition Prepayment Program ("SCTPP" or "the Program") as of June 30, 2005. This report presents my findings with respect to the Fund's expected cash flows and adequacy of the Fund. The analyses have been prepared in accordance with generally accepted actuarial principles and practices commonly applicable to similar types of arrangements.

Currently the expected value of liabilities is \$167,356,221 and the value of assets is \$129,513,023, for a difference of \$37,843,198. The funded ratio is 77.4% of liabilities. These results are based on assumptions approved by SCTPP personnel after consultation with me.

It should be noted that in performing my additional analysis, I have not assumed any further sales of prepaid tuition contracts. Generally the sale of additional contracts will generate positive additional surplus which will offset the existing excess of liabilities over assets.

I appreciate the opportunity to serve the State of South Carolina. Any questions about the report should be directed to me at (770) 752-5656.

Very truly yours,

Robert B. Crompton  
Consulting Actuary  
Actuarial Resources Corporation

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## I. EXECUTIVE SUMMARY

The following are the key findings of my analysis.

### *Adequacy of the Fund*

The Fund's liabilities exceed its assets by \$37,843,198. The key results are shown below.

<b>Value as of June 30, 2005</b>	<b>Assets and Liabilities</b>
Assets	
Investments	\$104,310,152
Future Contract Payments	22,689,973
Future Payments From Columbia Mgt.	<u>2,512,899</u>
Total Assets	<u>\$129,513,023</u>
Liabilities and Surplus	
Future Contract Benefits	\$164,843,322
Future Expenses	<u>2,512,899</u>
Total Liabilities	\$167,356,221
Surplus	<u>(\$37,843,198)</u>
Total Liabilities and Surplus	<u>\$129,513,023</u>
Funded Ratio	77.4%

### *Adequacy Methodology*

In making my projections of the surplus in the table immediately above, I assume that the Program will not sell any additional prepaid tuition contracts. This is a conservative limitation that provides a static "snapshot view" of the Program as of June 30, 2005.

### *Investment Strategy*

Based on discussions with Program personnel, the investment strategy of SCTPP is anticipated to be 50% allocation of assets to domestic equities and 50% allocation to fixed income securities. We understand that this allocation is based on a review of the projected cash flows of the Program, combined with projected liquidity needs.

The objective of the increase in equity investment is to provide higher portfolio returns than would be available from a portfolio consisting mainly of fixed income investments. I have not reviewed the strategy nor am I expressing an opinion on the strategy.

Key economic assumptions are listed below.

<b>Key Assumptions</b>		
<b>Yield on Investments</b>		
All future years		7.25%
<b>Asset Allocation</b>		
Cash & fixed income		60%
Equities		40%
<b>Tuition Inflation</b>		
2006/07 - 2007/08	(2 years)	8.5%
2008/09 & later		7.0%
<b>Bias Load</b>		
All Years		3.0%

The assumption for investment returns is based on the recommendation of South Carolina Treasury investment personnel, who considered the likely returns of a 50% fixed income, 50% equity portfolio.

The tuition inflation assumptions are based on a combination of statistical models of tuition increases and on actuarial judgment. My statistical models use information from the past 25 years. The rates shown in the table above represent my long-term average estimate of tuition inflation plus some conservatism.

### III. RELIANCES & ACTUARIAL STANDARDS

In making the projections on which this report is based, I relied on the following information supplied to me as indicated below.

- Tuition and fee amounts at South Carolina public institutions of post-secondary education, supplied by the Office of the State Treasurer,
- Headcount at South Carolina public institutions of post-secondary education, supplied by the Office of the State Treasurer,
- Market value of assets of the Program's trust fund, supplied by the Office of the State Treasurer,
- Inventory of Program contracts, supplied by InTuition Solutions, Inc., the Program's records administrator,
- Assumptions regarding future investment returns on the Program's trust fund, supplied by the Office of the State Treasurer, after consultation with me regarding reasonableness and comparability to assumptions at other programs with similar investment profiles.

There are no actuarial standards of practice that apply specifically to prepaid tuition plans. However, there are two general standards that we believe apply:

- Actuarial Standard of Practice #3 "Actuarial Communications". This standard sets general guidelines for actuarial communications. This report is in compliance with this standard.
- Actuarial Standard of Practice #23 "Data Quality". This standard sets guidelines on review of data supplied by a third-party. We have performed reasonableness and consistency checks on the data supplied to us by personnel of the Program and by the records administrator, and are in compliance with this standard. Our review of the data was not an audit of the data.

#### IV. DESCRIPTION OF THE PROGRAM

The Program was created in 1997 by the South Carolina Legislature to “...assist the citizens of South Carolina with the expense of college by providing an advanced payment program for tuition at a fixed and guaranteed level for public colleges and universities.” The Office of the South Carolina State Treasurer administers the Program. The Program is summarized below. This summary is provided for explanation purposes only, and the Program will be governed by the provisions of the enabling legislation and Treasury procedures.

##### *Types of Contracts Available*

There are currently two types of contracts available. Both types provide for tuition and mandatory fees imposed by public higher education institutions in the State of South Carolina.

The four-year college/university contract provides for up to eight semesters of tuition and fees at any accredited senior higher education institution. Program rules specify that this will not exceed 128 semester hours. The benefits provided for under this contract may also be used to provide for junior college tuition and fees or a combination of junior and senior college tuition and fees.

The two-year college/university contract provides for up to four semesters of tuition and fees at any accredited senior higher education institution. Program rules specify that this will not exceed 64 semester hours. The benefits provided for under this contract may also be used to provide for junior college tuition and fees or a combination of junior and senior college tuition and fees.

Both contracts require an enrollment fee at the time the enrollment form is submitted. Currently the enrollment fee is \$85.

##### *Payment Options Available*

There are currently three approved and published payment options for the Program:

- Lump-sum payments,
- 48 monthly installment payments and
- Extended payments, which are monthly installment payments which run until the year of anticipated matriculation of the beneficiary.

Additionally, the Program provides for additional forms of payment on an accommodation basis at the request of potential purchasers. These payment options typically provide for an initial lump sum coupled with installment payments.

### ***Residency Requirements***

There is no residency requirement for contract purchasers. However, there is a residency requirement for the contract beneficiary. The beneficiary is required to meet South Carolina residency requirements, be 21 years of age or younger and not have completed the tenth grade at the time the enrollment form is submitted to SCTPP.

### ***Refunds***

If the beneficiary dies or becomes disabled, then the purchaser will receive a refund equal to the lesser of the current Weighted Average Tuition or payments accumulated at interest. Applicable interest is determined by Treasury on a year-to-year basis.

If the beneficiary is awarded a scholarship, the contract owner may obtain a refund equal to the lesser of the current Weighted Average Tuition or payments accumulated at interest. This refund is available only after the beneficiary has reached his projected enrollment year.

Rollovers to the South Carolina Future Scholar Savings Program receive a refund equal to contract payments accumulated at 2% interest per year.

Voluntary terminations receive a refund equal to contract payments accumulated at 2% interest per year, less a deduction of the lesser of \$150 or 50% of the sum of all payments.

Involuntary terminations receive a refund equal to contract payments accumulated at 2% interest per year, less a deduction of the lesser of \$150 or 50% of the sum of all payments.

### ***Change of Beneficiary***

Generally, a contract owner can change the beneficiary at any time provided that the new beneficiary is the same age or younger than the original beneficiary, and is a member of the current beneficiary's immediate family.

### ***Age Limit on Benefits***

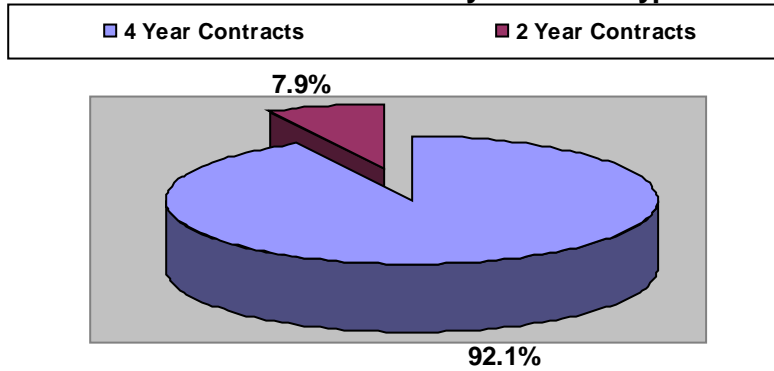
Benefits are available until the beneficiary is age 30. This limit may be extended to age 34 if the beneficiary has military service.

## V. SUMMARY OF CONTRACT DATA AND CURRENT ASSETS

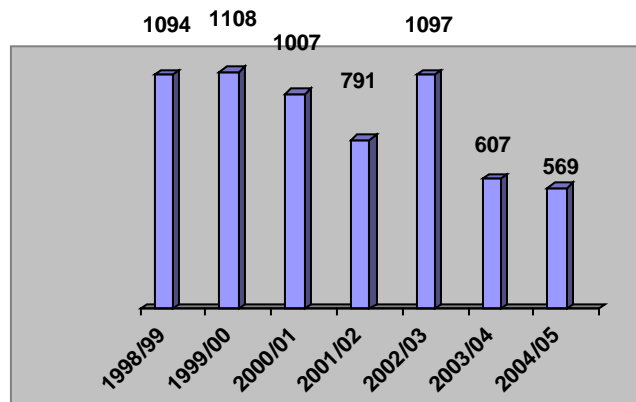
### *Contract Data*

Data on the number of outstanding contracts, contributions, was provided by InTuition, Inc., the Program's records administrator. The graphs below summarize the data provided concerning these contracts.

**Distribution of Contracts by Contract Type**

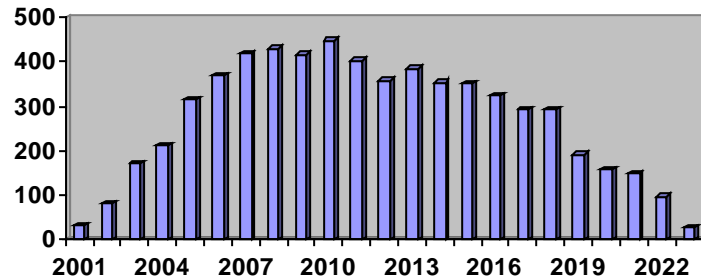


**Distribution of Contracts by Enrollment Year**





### Distribution By Year of Matriculation



### *Current Assets*

As of June 30, 2005 the Program’s assets were deployed in a mix of fixed income investments and equity investments. The allocation of assets to each class is shown in the following table.

### Fund Investments

The market value of Program assets is shown in the table below.

<b>Market value of assets held as of June 30, 2005</b>		
	<u>Amount</u>	<u>% Of Total</u>
Cash & Fixed Income	\$73,794,735	62.0%
Equity Investments	\$39,653,514	38.0%
<b>TOTAL</b>	<b>\$104,310,152</b>	<b>100.0%</b>

### Investment Strategy

The investment strategy is designed to achieve a rate of return in excess of anticipated increases in the WAT. The Fund's asset allocation anticipates that the amount invested in equities will move to approximately 50% and that the fixed income portion will move to approximately 50%.

## VI. ACTUARIAL METHODS AND ASSUMPTIONS

### *Methods*

The actuarial method for the determination of the adequacy of the Fund consists of projecting future tuition rates, future expenses based on the average anticipated number of contracts and future utilization of contracts. Future benefits and expenses are discounted using the assumed investment yield as the interest discount rate. The assumed discount rate is based on the current and anticipated mix of assets of the Fund.

For the projection of future benefits, the analysis proceeds as follows:

- Project future tuition rates for all years under consideration. Future tuition is based on the assumptions for tuition inflation.
- Determine the nominal cost of future benefit payments.
- Determine the nominal value of expenses.
- Determine the nominal value of future contract payments and revenue from Columbia Management.
- Determine the present value of future contract benefits, future expenses and future revenue based on the investment yield assumptions.
- Perform projections for all of the Program's beneficiaries to determine if the Fund is adequate in the aggregate.
- In making my projections of the surplus, I assume that the Program will not sell any more contracts. This is a conservative limitation that provides a static “snapshot view” of the Program as of June 30, 2005.

A dynamic view of the Program, which would include a reasonable projection of future contributions, provides a more realistic view of the Program since the Program is run with the intention of continuing to accept contributions. New contracts are projected to provide additional amounts of surplus, which provides protection against adverse fluctuations in experience.

## *Assumptions*

Actuarial assumptions used to determine financial soundness of programs are of two general types: economic and demographic. Demographic assumptions determine the expected exposure to financial claims and generally answer the question "How and when will people use their contractual benefits?" Economic assumptions are concerned with the expected level of benefit usage and answer the question "What is the expected value of benefit usage?" The assumptions that I used were those that were approved by the South Carolina Treasurer's Office, after consultation with us.

### Economic Assumptions

Economic assumptions are used to estimate the annual tuition rates at two and four year colleges, increases in Fund expenses, and Fund earnings on assets invested. Because inflation is a major component of the rate of increase in tuition rates and of investment returns, I considered these rates together. I believe that the difference in these rates is more important than the absolute level of the rates. The following paragraphs describe the economic assumptions used in this study.

#### *Federal Income Tax*

I assumed that Fund earnings are exempt from Federal Income Tax.

#### *Annual Tuition Rates and Bias Load*

My assumptions were guided by my observations of historic tuition increases, trends in postsecondary enrollment in South Carolina and the level of legislative appropriations for postsecondary schools in South Carolina.

The Bias Load assumption accounts for Program enrollment at institutions that are more expensive than the Weighted Average Tuition. The choice of this assumption was based on a review of Program experience and what I have seen in other prepaid tuition programs.

The assumptions for tuition inflation and bias load are shown in the table immediately below.

<b>Tuition Inflation</b>	
2006/07 - 2007/08	8.5%
2009/10 & later	7.0%
<b>Bias Load</b>	
All Years	3.0%

*Fund Earnings Rate*

In setting my assumptions for the yield on assets, I relied on input from Treasurer’s Office personnel

My investment yield assumptions are as follows:

7.25% for all future.

These assumptions are based upon the recommendation of the Program’s in-house investment advisor.

Although I do not expect the Fund to realize these exact rates in any year, I believe they represent reasonable earnings rates over the time horizon of this report. In some years the Fund will have yields in excess of the assumed rate, while in other years the Fund will earn less than this rate.

*Annual Expenses*

The Program incurs expenses for records administration and for day-to-day operations of Treasury staff who work with the Program. In making my projections, I used the Program’s current records administration expenses, which are incurred based on inventory counts, and an additional aggregate expense for all other expense incurrals. The records administration expenses are assumed to increase at 2% per year. The actual current expense rates are shown in the table

<b>Records Expense Item</b>	<b>Expense Rate</b>
Active contracts, pre-matriculation	\$3.25 per month
Paid in full contract, pre-matriculation	\$1.40 per month
Tuition payments	\$5.00 per payment
All contracts, post-matriculation	\$1.40 per month

The aggregate expenses for the Program, excluding records administration, are \$305,224.

Demographic Assumptions

The demographic assumptions used in this report are based on my experience with similar types of liabilities. My choice of assumptions is based on recent experience and my best estimates as to future events. These assumptions are as follows:

*Mortality and Disability*

I assumed that there would be no terminations due to death or disability.

*At-Will Termination of Contract*

My projections include assumptions regarding voluntary termination of contracts prior to matriculation. These assumptions vary by payment type and by number of years from contract purchase. These assumptions are shown in the following table.

	<b>Lump Sum</b>	<b>48 Months Payments</b>	<b>Extended Payments</b>
Year of purchase	2.0%	5.0%	8.0%
Year of purchase+1	2.0%	4.0%	7.0%
Year of purchase+2	2.0%	3.0%	6.0%
Year of purchase+3	1.5%	2.0%	5.0%
Year of purchase+4	1.5%	1.0%	4.0%
Year of purchase+5	1.5%	1.0%	3.0%
Year of purchase+6	1.5%	1.0%	2.0%
Year of purchase+7	1.0%	1.0%	2.0%
Year of purchase+8	1.0%	1.0%	2.0%
Thereafter	1.0%	1.0%	1.0%

*Matriculation Percent*

All beneficiaries are assumed to matriculate at the matriculation date specified in the application, except for those who are projected to terminate.

*Utilization of Benefits*

Four-year contract beneficiaries are assumed to use their benefits ratably over four years, while two-year contract beneficiaries are assumed to use their benefits ratably over two years. However, for contracts which are past their anticipated matriculation date, but have not used any benefits, all benefits are projected to be used completely over the next two years.

I believe that this is a conservative assumption since experience at other prepaid tuition programs, and universities in general, indicates that the average student takes somewhat longer than four years to complete a four-year degree.

### *Dropout Rate*

All beneficiaries are assumed to use 100% of their contractual benefits once they have enrolled in college.

### *Frequency of Beneficiary Replacement*

Since all surviving beneficiaries are expected to matriculate and are expected to use their benefits until completion, the assumption is made that no replacement of beneficiaries will occur.

## VII. ADEQUACY OF THE FUND AS OF JUNE 30, 2005

In determining the adequacy of the Fund, I estimated the future disbursements for higher education expenses of beneficiaries, expenses and refunds for terminated contracts. I also projected the future assets based on current assets and expected earnings on assets. I believe these estimates are reasonable based on the information available and my past experience and judgment.

The estimates of the prospective assets and liabilities of the Fund are summarized in the table on the following page and demonstrate the financial position of the Fund. The value of all assets is \$129,513,023 while the expected value of all liabilities is \$167,356,221. The expected present value of the excess of liabilities over assets is \$37,843,198.

The Program's surplus is the amount of funds over and above that amount which is necessary to meet benefit usage and expenses on my baseline assumptions. Surplus provides protection for events that are more adverse than my baseline assumptions.

The surplus will change from year to year due to positive and negative cash flows and due to the change in the present value of future benefit usage and expense payments because of the passage of time. The surplus will also change due to the variance of experience from the assumptions. These variances include tuition increases, investment income and expenses.

The surplus will also change due to the growth of the program and due to the updating of the assumptions to reflect the Program's emerging experience. The changes for the year ending June 30, 2005 are summarized in the table below.

<b>Progression of Surplus</b>	
Surplus at June 30, 2004	(\$ 33,086,949)
Projected Decrease to June 30, 2005	(2,398,804)
Loss from Unfavorable Tuition Inflation	(4,425,053)
Loss due to Unfavorable Investment Experience	(964,468)
Gain due to Additional Contract Sales plus Other Experience Items	2,537,272
Changes Due to Change In Assumptions	494,794
Surplus at June 30, 2005	(\$ 37,843,198)



In the following chart I show the value of expected future benefit usage, expected future payments, current assets and expected surplus as of the end of each future year for contracts in place as of June 30, 2005. Note that existing assets are projected to be sufficient to meet future liabilities through 2017.

**PRESENT VALUE OF ASSETS AND LIABILITIES**

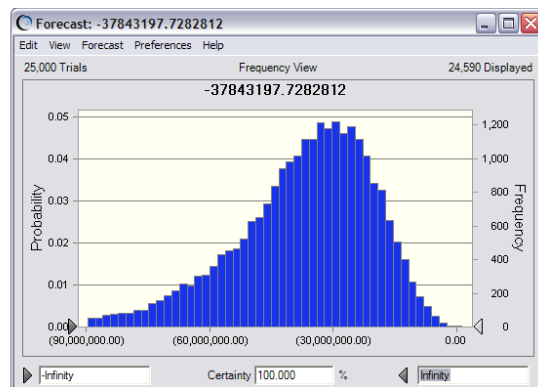
Fiscal Year Ending	Value of Assets	Present Value of Future Benefits And Expenses	Surplus/ (Deficit)
2005	\$ 129,513,023	167,356,221	(37,843,198)
2006	129,168,142	169,754,972	(40,586,830)
2007	126,689,433	170,218,808	(43,529,375)
2008	122,003,422	168,688,677	(46,685,254)
2009	114,968,600	165,038,535	(50,069,935)
2010	106,136,022	159,836,027	(53,700,006)
2011	95,145,650	152,738,906	(57,593,256)
2012	82,736,285	144,505,053	(61,768,767)
2013	69,484,095	135,731,098	(66,247,003)
2014	54,729,215	125,779,125	(71,049,910)
2015	39,104,592	115,305,621	(76,201,029)
2016	22,115,024	103,840,627	(81,725,604)
2017	3,335,755	90,986,465	(87,650,710)
2018	(16,363,511)	77,641,875	(94,005,386)
2019	(37,528,532)	63,292,244	(100,820,777)
2020	(58,542,476)	49,587,807	(108,130,283)
2021	(79,087,705)	36,882,024	(115,969,729)
2022	(99,433,688)	24,943,846	(124,377,534)
2023	(118,022,082)	15,372,824	(133,394,905)
2024	(135,000,482)	8,065,553	(143,066,036)
2025	(150,427,864)	3,010,460	(153,438,323)
2026	(164,037,243)	525,359	(164,562,602)
2027	(172,423,086)	- 0 -	(172,423,086)

## VIII. STOCHASTIC ANALYSIS

I believe that when there is a significant amount of uncertainty about conditions prevailing in the future it is important to test for adequacy under other possible assumptions.

I have performed stochastic analysis of the Program as of June 30, 2005 in order to gain a better understanding of the likelihood of various results. Stochastic analysis involves a large number (25,000 in this case) of statistically generated scenarios based on the statistical parameters of investment returns and tuition inflation. Stochastic analysis provides information on how likely it is that the Program will not have a deficit based on current contracts. The results of both bases are shown in the table and chart below.

	<b>Results</b>
Proportion with Surplus	0.01%
Largest Surplus	1,378,654
75 <sup>th</sup> Percentile Surplus	(25,045,799)
50 <sup>th</sup> Percentile Surplus	(34,769,337)
25 <sup>th</sup> Percentile Surplus	(47,104,768)
Smallest Surplus	(238,414,269)
Mean Surplus	(37,947,829)



The reader is cautioned in interpreting these results because we have made two significant changes in approach compared to prior years' stochastic analysis:

- All scenario results are discounted using the assumptions discussed earlier in this report – namely, 7.25% for all years. In prior years we used the scenario investment returns to discount each scenario. This change results in a smaller range of results, as well as being more consistent with the manner in which the discount rate is set in practice.
- We implemented this analysis using Crystal Ball®, a spreadsheet-based statistical engine used for this sort of work. This change allowed us to generate more scenarios than in prior years (25,000 this year versus 5,000 in prior years). The

use of such a large number of scenarios is important where there is significant volatility, such as exists for the Program.

The most important measures from the table immediately above are the *Proportion with surplus* and the *50<sup>th</sup> Percentile Surplus amounts*. The *Proportion with surplus* probabilities of 18.0% indicates that there is approximately a 2/11's probability that the Program will have a surplus.

The *50<sup>th</sup> Percentile Surplus amounts* measure is a "best-estimate" measure of results. If my assumptions are neither conservative (that is they understate results) nor aggressive (that is they overstate results) then the 50<sup>th</sup> Percentile measure should be close to my projected result. The table above indicates that my assumptions are somewhat conservative since the results of stochastic analysis are about \$6.4 million better than my projection.

The *Smallest Surplus* measure indicates what happens if economic events continue adversely for the lifetime of the current contracts – continued economic recession resulting in small appropriations leading to high tuition increases, coupled with negative returns in the equity market until the end of the projection horizon.

## IX. BREAK-EVEN INVESTMENT RETURN & SENSITIVITY TESTING

I calculated the levelized investment return necessary to provide a break-even result on the Program's surplus. This break-even return rate is shown in the table below.

Break-even investment return	11.35% per year
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I also investigated the effect of variances in both university inflation and investment yield assumptions from those anticipated by the adequacy test assumptions. These scenarios are described below and are based on level adjustments to the baseline adequacy assumptions discussed earlier in this report.

- 1) Tuition inflation lower than adequacy test assumptions by 0.25% every year.
- 2) Tuition inflation higher than adequacy test assumptions by 0.25% every year.
- 3) Investment yields higher than adequacy test assumptions by 0.25% every year.
- 4) Investment yields lower than adequacy test assumptions by 0.25% every year.
- 5) Tuition inflation higher and investment yields lower than adequacy test assumptions by 0.25% every year.

The Surplus for each of these scenarios is shown below.

Sensitivity Testing Results		
<u>Scenario</u>	<u>Surplus</u>	<u>Variance From Baseline</u>
1	(35,033,129)	2,810,069
2	(40,718,824)	(2,875,626)
3	(35,008,534)	2,834,664
4	(40,760,295)	(2,917,097)
5	(43,712,849)	(5,869,651)

## X. CHANGES IN ACTUARIAL ASSUMPTIONS

Since the last Actuarial Report, there has been one material changes in the assumptions used for the projections on which the results are based. This change and the rationale for the change are discussed below.

### *Changes in Revenue from Columbia Management*

Last year we assumed that there would be \$181,500 per year in revenue from Columbia Management (formerly Bank of America). Based on continuing growth in this revenue, we have revised our revenue projections to be equal to projected expenses each year into the future, consistent with the Program's intentions with respect to the fees from the Future Scholar Program.

### *Quantification of Change*

The effect of this change is to decrease the deficit by \$494,794. Without these changes, the deficit would have been (\$37,348,404).

## XI. EXPECTED USE OF FUNDS

The Fund is expected to pay benefits and expenses in the following proportions:

- Tuition payments - 93.3%
- Expenses - 1.5%.

We note that this lifetime average expense ratio is higher than the Program's current expense ratio. The reason for the apparent discrepancy is that our projections assume no further contract sales, resulting in an increasing amount of overhead per contract remaining as time passes

- Payments of refunds to contract owners - 5.2%

These results are shown graphically below.

