

September 11, 2009

Board of Directors  
Mississippi Prepaid Affordable College Tuition Program  
State Treasury Department  
501 North West Street, Suite 1101A  
Jackson, MS 39201

To the Board:

The attached report summarizes the actuarial valuation of the Mississippi Prepaid Affordable College Tuition Program ("the Program") as of June 30, 2009. The valuation compares the value of the assets of the prepaid program to the value of expected future tuition payments to beneficiaries. The following pages summarize the actuarial valuation of the trust fund as of June 30, 2009.

A comparison of the assets and liabilities of the trust fund shows that as of June 30, 2009 there remains a deficit of about \$86.8 million.

Our calculations were based on data furnished by InTuition Solutions, Inc. We have not audited the data and we cannot certify as to the accuracy or completeness of the data supplied. Our calculations are based on the actuarial valuation assumptions, chosen by the Board, as presented in this report.

The actuarial valuation summarized in this report has been performed using generally accepted actuarial principles and is based on actuarial assumptions, each of which we consider to be reasonable (taking into account the experience of the plan and reasonable future expectations). It is our opinion that the results fully and fairly disclose the actuarial position of the plan as of the valuation date. The undersigned is an actuary at BPS&M, a member of the American Academy of Actuaries, and has met the Qualification Standards of the American Academy of Actuaries to render actuarial opinions herein.

Sincerely,



Michael E. Brister  
Fellow, Society of Actuaries  
Principal

**MISSISSIPPI PREPAID AFFORDABLE COLLEGE TUITION  
PROGRAM**

**ACTUARIAL VALUATION  
AND REPORT**

**JUNE 30, 2009**



**Executive Summary** **1**

    Valuation Results ..... 1

    Contract Sales ..... 1

    Weighted Average Tuition ..... 1

    Actuarial Assumptions ..... 1

    Yearly Comparison of Selected Plan Year Information ..... 2

    Funded Status ..... 3

    Contract Sales ..... 4

    Historic Tuition/Fee Increases ..... 6

    Sensitivity of Results to Variations in Experience ..... 7

        Variations in Tuition ..... 7

        Variations in Investment Income ..... 7

        Break Even Interest Rate ..... 7

        Break Even Inflation Rates ..... 7

**Valuation Assumptions and Methods** **8**

    Actuarial Assumptions ..... 8

    Actuarial Methods ..... 8

**Appendices** **10**

### **Valuation Results**

As of June 30, 2009 the Program has an unfunded liability of about \$86.8 million. In other words, the value of expected liabilities of the trust exceeds the value of assets, including the value of future payments by contract purchasers, by \$86.8 million. The liability amounts are based on actuarial assumptions chosen by the Board. The Program's records administrator, InTuition Solutions, Inc., provided us with information relating to contracts in place as of June 30, 2009. Program staff provided us with information relating to assets and investment returns.

As shown in Appendix A, on a funded percentage basis, the plan is 72.7% funded. This compares to a funded percentage of 84.3% as of June 30, 2008. This decrease in the funded percentage is due to significantly lower than assumed return on assets. The return on assets was -16.9% (lower than the assumed 7.8%). The actuarial loss from lower than expected investment returns was offset by lower than expected tuition inflation. The increase in weighted average tuition for four-year universities and colleges was 0.2% (below the assumed 6.5%). The increase in weighted average tuition for junior and community colleges was 3.8% (below the assumed 6.0%).

### **Future Cash Flows**

We have analyzed the projected cash flows from the contracts in the plan as of June 30, 2009. Based on the assumed rate of investment return of 7.8% and the assumed rate of tuition inflation (6.5% for universities and colleges, 6.0% for junior and community colleges), we estimate that the required payments from the trust fund for existing contracts will exceed the asset balance, creating a cash deficit, beginning in the fiscal year ending June 30, 2022. A table summarizing our projected results is shown in Appendix B. This does not take into account the cash flow from the sale of contracts issued after June 30, 2009.

### **Contract Sales**

As of June 30, 2009 there were 21,729 participants enrolled in the Program. This compares to 20,416 participants in the Program as of June 30, 2008.

The majority of the current contracts are for four-year university (12,776 contracts or 59%). There were also 3,711 two-year junior college plus two-year university contracts (17% of the total) and 1,389 two-year junior college contracts (6% of the total). The other 3,853, or 18% of the contracts, are dispersed across the remaining contract types.

### **Weighted Average Tuition**

The Weighted Average Tuition ("WAT") is the average of tuition and fees for in-state residency at Mississippi colleges and universities weighted in proportion to the number of Mississippi resident students attending each of the schools.

WAT for four-year universities is \$4,947 for the fall of 2009, an increase of 0.2% over the WAT of \$4,936 in the fall of 2008.

WAT for junior colleges is \$1,824 for the fall of 2009, an increase of 3.8% over the WAT of \$1,757 in the fall of 2008.

### **Actuarial Assumptions**

Tuition increases are assumed to be 6.5% per year for all future years at universities, and 6.0% per year for all future years at junior colleges. Investments are assumed to return 7.8% per year for all future years. These assumptions, the other assumptions and the methodology are described more fully in the body of this report.

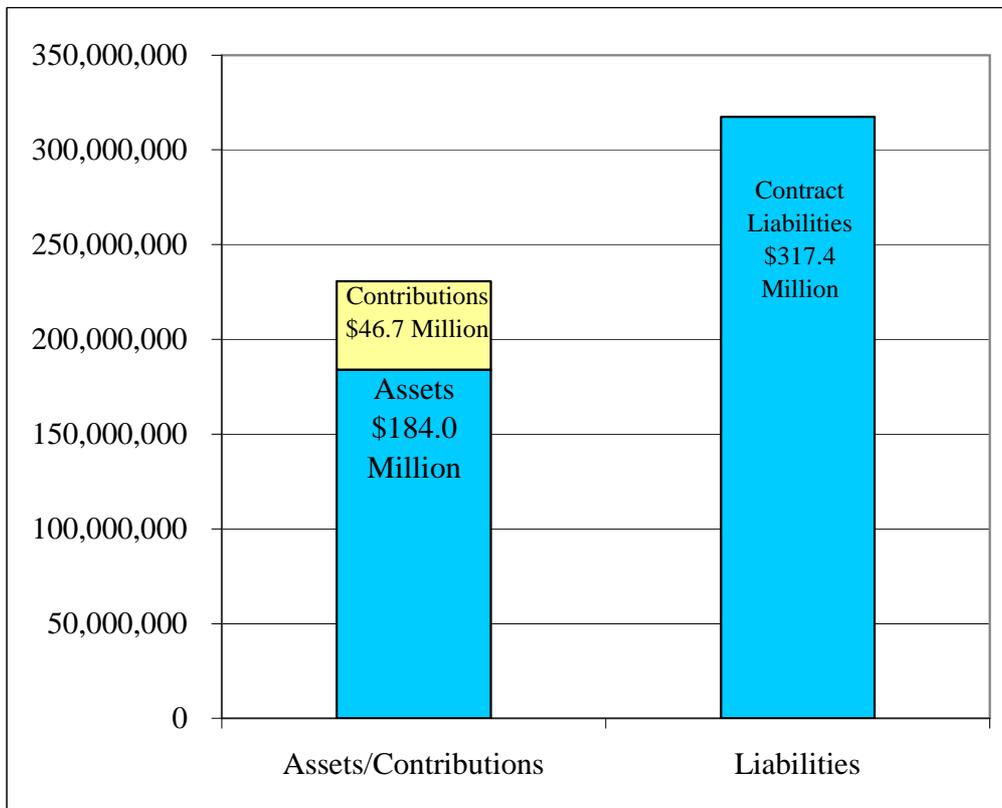
**Yearly Comparison of Selected Plan Year Information**

	<b>Plan Year</b>		
	<b>06/30/2007</b>	<b>06/30/2008</b>	<b>06/30/2009</b>
Number of Contracts	19,593	20,416	21,729
Present Value of Contract Liabilities	\$ 280,786,786	\$ 310,489,969	\$ 317,437,303
Present Value of Future Contributions	42,849,740	44,778,901	46,653,345
Market Value of Assets	224,421,205	217,033,205	183,977,882
Funded Ratio	95.2%	84.3%	72.7%
Surplus/(Deficit)	\$ (13,515,841)	\$ (48,677,862)	\$ (86,806,076)

**Funded Status**

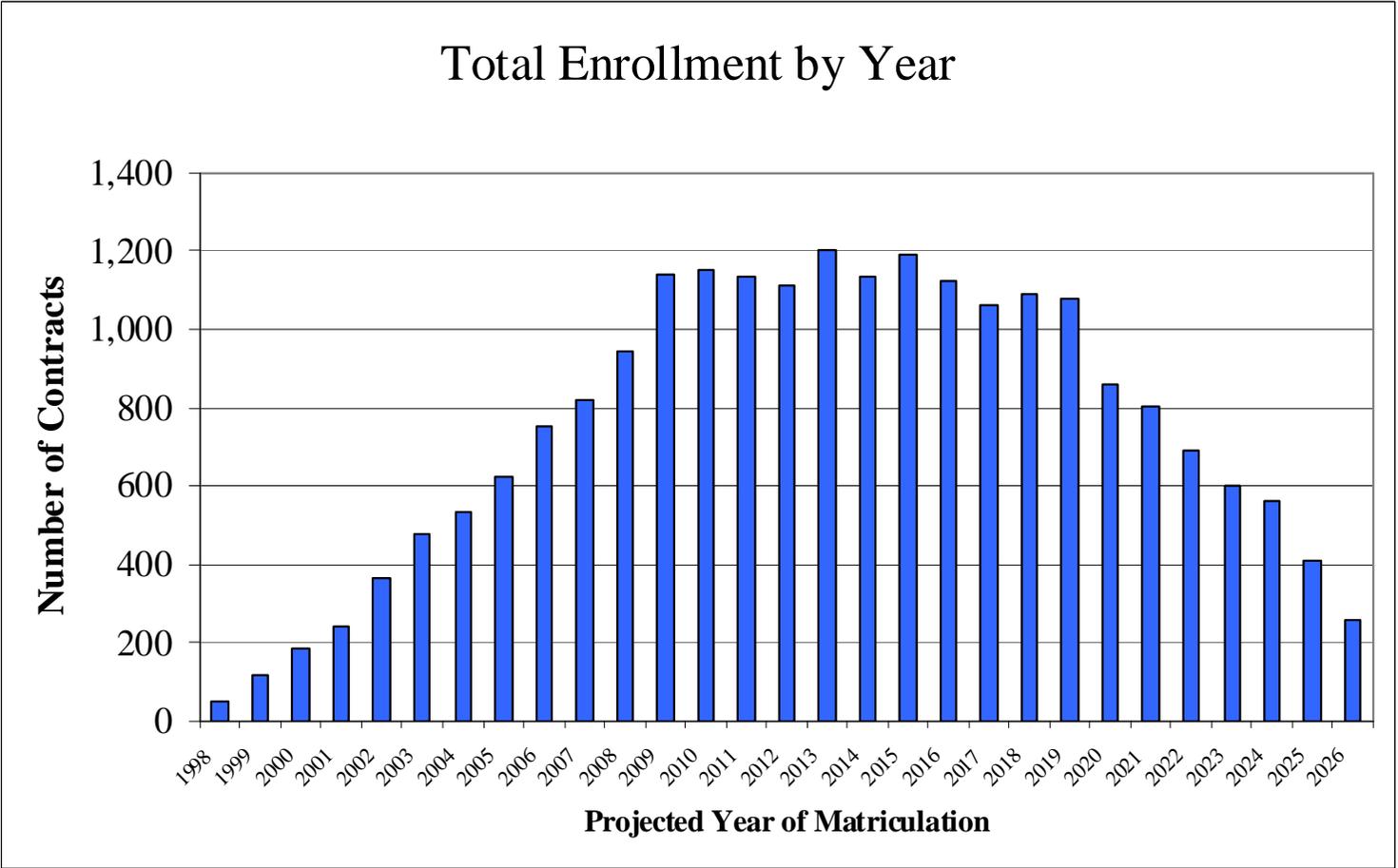
As of June 30, 2009 the expected liabilities of the Program exceeds the value of the assets of the Program (including the value of future payments by contract purchasers) by \$86.8 million. The funded ratio, assets divided by liabilities, is 72.7%, compared to 84.3% a year ago. The assumptions used to perform the actuarial valuation of the fund are described later in this report. The primary assumptions are:

Tuition increases	6.5% per year for four-year universities 6.0% per year for junior colleges
Investment return	7.8% per year

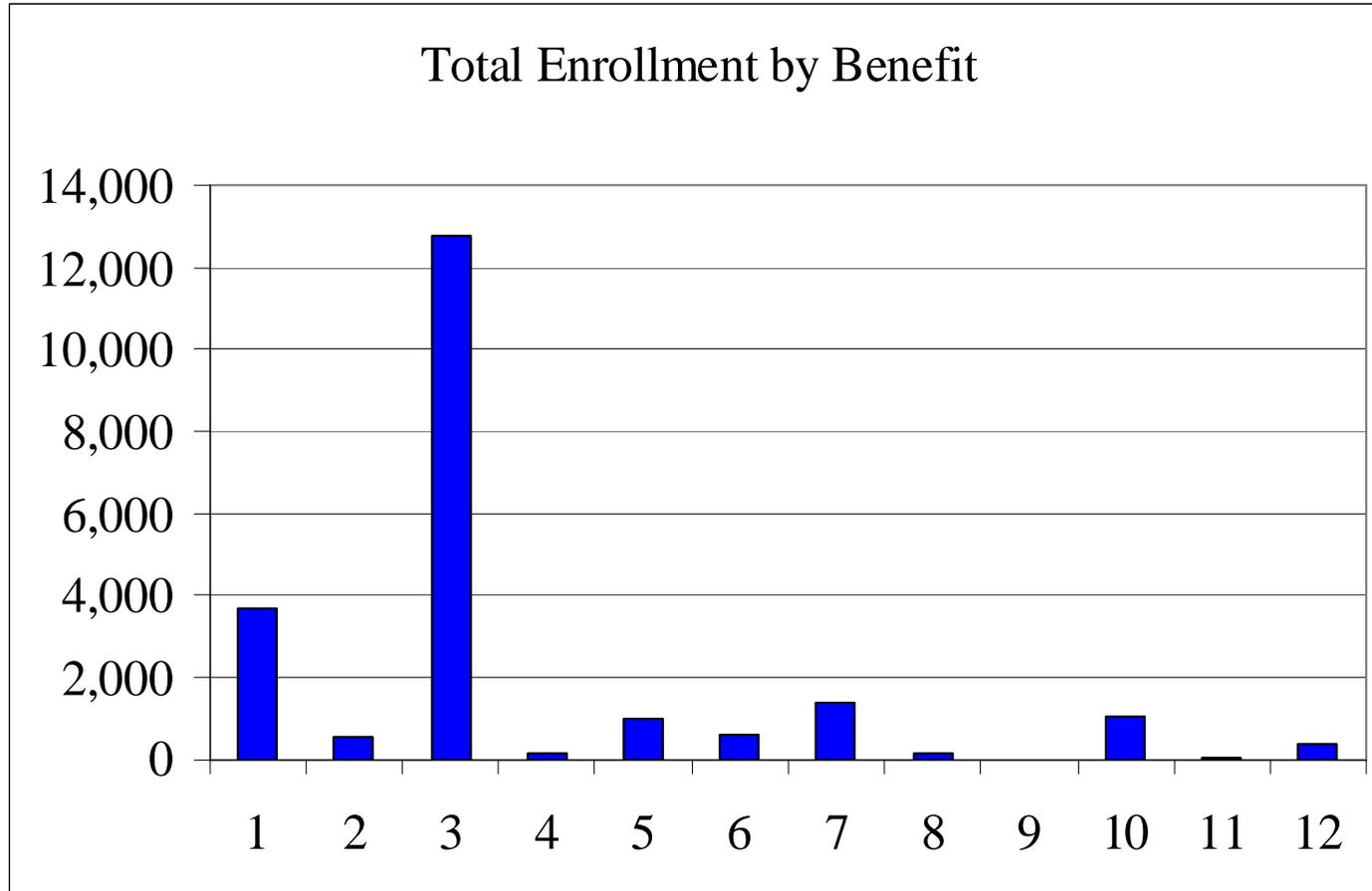


**Contract Sales**

Contracts can be purchased for a wide range of ages from newborn through high school senior. The chart below illustrates, based on current participation, the total number of active contracts by expected year of college or university matriculation.



Contracts can be purchased for a variety of plans, from one year to five years of tuition and for junior college, four-year university, or various combinations thereof. The chart below illustrates the total number of current enrollees by type of contract.



Type of Contract	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>	<u>10</u>	<u>11</u>	<u>12</u>
Years Junior College	2	1	0	0	0	0	2	1	1	0	1	2
Years Four-Year College	2	3	4	3	2	1	0	0	1	5	4	3

**Historic Tuition/Fee Increases**

The average tuition for four-year universities is assumed to increase 6.5% per year. The average tuition for junior and community colleges is 6.0% per year. The chart below illustrates the actual increases over the last twenty years compared to that assumption.

<b>Four Year Colleges and Universities</b>					<b>Junior and Community Colleges</b>			
Fiscal Year	Average	Annual	Weighted	Annual	Average	Annual	Weighted	Annual
Ending	Tuition/ Fees	Increase	Average Tuition	Increase	Tuition/ Fees	Increase	Average Tuition	Increase
1991	1,908	3.86%			686	6.19%		
1992	2,083	9.17%			728	6.12%		
1993	2,314	11.09%			818	12.36%		
1994	2,317	0.13%			942	15.16%		
1995	2,371	2.33%			938	-0.42%		
1996	2,399	1.18%			938	0.00%		
1997	2,426	1.13%			953	1.60%		
1998	2,513	3.59%	2,501		960	0.73%		
1999	2,764	9.99%	2,570	2.76%	971	1.15%		
2000	2,764	0.00%	2,862	11.36%	1,015	4.53%		
2001	2,864	3.62%	2,962	3.49%	1,083	6.70%		
2002	3,294	15.01%	3,408	15.06%	1,283	18.47%		
2003	3,578	8.62%	3,716	9.04%	1,395	8.73%	1392	
2004	3,599	0.59%	3,747	0.83%	1,411	1.15%	1,417	1.80%
2005	3,850	6.97%	3,988	6.43%	1,561	10.63%	1,571	10.87%
2006	4,037	4.86%	4,179	4.79%	1,692	8.39%	1,677	6.75%
2007	4,295	6.39%	4,445	6.35%	1,712	1.18%	1,696	1.13%
2008	4,563	6.24%	4,758	7.05%	1,726	0.82%	1,712	0.92%
2009	4,742	3.92%	4,936	3.74%	1,766	2.32%	1,757	2.64%
2010	4,742	0.00%	4,947	0.22%	1,835	3.91%	1,824	3.83%
<b>Compound Annual Increase</b>								
20 Years		4.86%				5.36%		
15 Years		4.73%				4.58%		
10 Years		5.55%		5.63%		6.10%		
5 Years		4.26%		4.40%		3.29%		3.03%

**Sensitivity of Results to Variations in Experience**

The table below was prepared to illustrate how variations in future experience will affect the current surplus/ (deficit) of the Program. The Program surplus/ (deficit) as of June 30, 2009 is (\$86.8) million under the base set of assumptions as stated in this report.

**Variations in Tuition**

Baseline Assumptions	Surplus/(Deficit):	(\$86.8) million
University tuition inflation higher all years by 25 basis points	Surplus/(Deficit):	(\$93.2) million
University tuition lower in all years by 25 basis points	Surplus/(Deficit):	(\$80.5) million
Bias Load is 4% rather than 3%	Surplus/(Deficit):	(\$89.9) million
Bias Load is 2% rather than 3%	Surplus/(Deficit):	(\$83.7) million

**Variations in Investment Income**

Investment income rate lower in all years by 25 basis points	Surplus/(Deficit):	(\$92.4) million
Investment income rate higher in all years by 25 basis points	Surplus/(Deficit):	(\$81.4) million

**Break Even Interest Rate**

An investment earnings rate of 12.87% is required for the Program to satisfy all future benefits and expenses in the projection period if other experience is consistent with the actuarial assumptions. This rate is greater than last year's result of 10.31%.

**Break Even Inflation Rates**

Maintaining the current relationship that the university inflation rate is 50 basis points greater than the junior college inflation rate, a 2.3% university inflation rate and a 1.8% junior college inflation rate are required for the Program to satisfy all future benefits and expenses in the projection period if other experience is consistent with the actuarial assumptions. These equivalent rates are less than last year's results.

## VALUATION ASSUMPTIONS AND METHODS

### Actuarial Assumptions

The assumptions used in the actuarial valuation of the Program are described below. These assumptions were developed by the Board.

**Tuition Increases:** The Weighted Average Tuition for four-year universities is assumed to increase at 6.5% per year. The Weighted Average Tuition for junior colleges is assumed to increase at 6.0% per year.

**Investment Return:** Invested assets are assumed to earn 7.8% per year. The Program is exempt from Federal Income Tax.

**Enrollment of MPACT Beneficiaries:** Beneficiaries are assumed to attend college or university full time commencing with the expected matriculation date (the Fall following high school graduation). Further, it is assumed that the contract beneficiaries will not attend the available colleges and universities in the same proportion as the headcount information that was used to determine the 2009/10 Weighted Average Tuition, but rather attend on average more expensive schools than those included in the aforementioned information. Accordingly, a 3% “bias load” was added to the university Weighted Average Tuition to allow for anti-selection toward matriculation at schools with higher tuition.

**Contract Cancellations:** It was assumed that there would be no contract cancellations.

**Deaths and Disability:** Mortality and disability decrements were not used.

### Actuarial Methods

The actuarial valuation of the Program is based on projections of tuition and required fees expected to be paid on behalf of Program beneficiaries, and on amounts paid into the Program from contract installment payments. This actuarial valuation is based on the data described and corresponding sources of data described below.

<u>Data</u>	<u>Source</u>
Tuition & required fees at four-year universities	Mississippi Institutions of Higher Learning
Headcount at four-year universities	Mississippi Institutions of Higher Learning
MPACT active contract inventory	InTuition Solutions, Inc.
Tuition & required fees at junior colleges	State Board of Community & Junior Colleges
Headcount at junior colleges	State Board of Community & Junior Colleges

**MPACT Beneficiaries (Appendix C):** The future payments expected to be made to and from the trust fund have been determined based on the number of contracts shown in Appendix C. This information is based on actual enrollment in the program as provided by the above sources.

**Weighted Average Tuition: Four-Year Universities (Appendix D):** The Weighted Average Tuition for public four-year universities in Mississippi is the average of tuition and required fees at each of the four-year universities, weighted by full-time equivalent resident enrollment headcount at each university.

Resident enrollment headcount is the number of undergraduate students eligible to pay in-state tuition at Mississippi four-year universities. The full-time headcounts as of Fall 2008 were used to determine the Weighted Average Tuition.

## VALUATION ASSUMPTIONS AND METHODS

**Weighted Average Tuition: Junior and Community Colleges (Appendix E):** The Weighted Average Tuition for junior and community colleges was determined using the same methodology as for four-year universities, except the weighting was based on the average full-time headcounts at each college for the Fall 2007 and Fall 2008 semesters.

**Annual Increases in Weighted Average Tuition (Appendix F):** The one-year increase in Weighted Average Tuition is shown along with the actual required tuition and fees for all applicable schools. The Weighted Average Tuition rates are used to calculate the prices charged to new contracts for the upcoming year.

**Appendix A**

**Funded Status**

Market Value of Assets	183,977,882
Actuarial Present Value of future contract installment payments	<u>46,653,345</u>
Subtotal	230,631,227
Actuarial present value of future payments of tuition and fees	317,437,303
Surplus/(Deficit)	(86,806,076)

**Appendix B**

**Projected Future Cash Flows**

<b>Plan Year Beginning</b>	<b>Market Value BOY</b>	<b>Projected Tuition Payments</b>	<b>Projected Contract Payments</b>	<b>Investment Income</b>	<b>Market Value EOY</b>
2009	183,977,882	(17,196,869)	11,691,400	14,135,562	192,607,975
2010	192,607,975	(22,330,129)	10,541,312	14,563,658	195,382,816
2011	195,382,816	(28,759,366)	9,137,676	14,474,614	190,235,739
2012	190,235,739	(36,013,381)	7,658,256	13,732,538	175,613,152
2013	175,613,152	(26,746,761)	5,992,884	12,888,425	167,747,700
2014	167,747,700	(28,235,745)	4,242,619	12,148,589	155,903,162
2015	155,903,162	(30,526,346)	3,599,715	11,110,308	140,086,840
2016	140,086,840	(32,839,824)	3,035,537	9,764,406	120,046,959
2017	120,046,959	(34,257,568)	2,453,826	8,123,317	96,366,534
2018	96,366,534	(36,295,855)	1,809,930	6,171,639	68,052,247
2019	68,052,247	(37,213,600)	1,289,717	3,907,044	36,035,408
2020	36,035,408	(37,678,154)	985,405	1,379,745	722,403
2021	722,403	(37,894,623)	738,251	(1,392,751)	(37,826,720)
2022	(37,826,720)	(36,654,619)	592,141	(4,356,921)	(78,246,119)
2023	(78,246,119)	(34,090,007)	432,954	(7,415,822)	(119,318,994)
2024	(119,318,994)	(32,332,662)	277,395	(10,557,037)	(161,931,298)
2025	(161,931,298)	(29,799,823)	132,729	(13,787,658)	(205,386,050)
2026	(205,386,050)	(25,782,712)	12,883	(17,025,135)	(248,181,014)
2027	(248,181,014)	(19,089,599)	-	(20,102,613)	(287,373,227)
2028	(287,373,227)	(11,867,594)	-	(22,877,948)	(322,118,768)
2029	(322,118,768)	(5,373,001)	-	(25,334,811)	(352,826,580)
2030	(352,826,580)	(896,016)	-	(27,555,418)	(381,278,014)

**Appendix C**

Projected Enrollment Year	Type of Contract												Total Enrollment by Yr	Percent of Total
	2 + 2	1 + 3	4 Yr Univ	3 Yr Univ	2 Yr Univ	1 Yr Univ	2 Yr Jr Coll	1 Yr Jr Coll	1 + 1	5 Yr Univ	1 + 4	2 + 3		
1998	-	2	37	-	2	3	5	-	-	-	-	-	49	0.23%
1999	-	4	90	-	5	8	7	1	-	-	-	-	115	0.55%
2000	1	7	145	2	7	4	13	5	-	1	-	-	185	0.88%
2001	2	4	192	1	14	7	17	2	-	3	-	-	242	1.15%
2002	2	19	277	1	17	7	36	5	-	1	-	-	365	1.73%
2003	4	18	362	5	18	14	41	3	2	9	1	2	479	2.27%
2004	3	13	397	4	28	29	46	4	-	8	-	4	536	2.55%
2005	10	21	436	4	39	28	60	2	-	15	3	6	624	2.96%
2006	6	31	544	6	38	31	63	5	-	20	-	7	751	3.57%
2007	27	21	563	5	36	36	75	12	-	32	4	10	821	3.90%
2008	66	21	664	6	37	25	84	6	-	23	2	8	942	4.47%
2009	221	32	655	9	48	51	77	10	-	30	1	8	1,142	5.42%
2010	254	31	637	6	49	34	90	2	-	34	4	11	1,152	5.47%
2011	237	28	644	3	53	38	70	8	-	40	-	14	1,135	5.39%
2012	269	23	605	9	58	31	57	10	-	39	1	14	1,116	5.30%
2013	288	36	634	6	71	27	77	9	-	42	1	13	1,204	5.72%
2014	253	30	647	6	45	25	55	8	-	48	-	21	1,138	5.40%
2015	285	38	688	3	40	26	53	6	-	42	1	12	1,194	5.67%
2016	241	20	632	7	48	26	67	11	-	45	2	25	1,124	5.34%
2017	233	26	546	5	48	20	68	9	-	71	4	30	1,060	5.03%
2018	222	23	590	7	39	25	56	8	-	92	5	22	1,089	5.17%
2019	219	27	577	6	47	19	59	6	-	89	3	27	1,079	5.12%
2020	202	8	454	4	38	22	35	8	-	56	4	32	863	4.10%
2021	201	10	377	3	37	25	46	4	-	75	2	21	801	3.80%
2022	132	8	385	2	37	17	35	1	-	53	1	18	689	3.27%
2023	109	8	340	3	25	11	40	1	-	51	-	13	601	2.85%
2024	102	3	319	3	19	8	22	5	-	56	1	23	561	2.66%
2025	72	5	220	5	18	12	15	2	-	42	-	20	411	2.01%
2026	50	6	119	3	12	7	20	-	-	33	-	11	261	1.27%
	3,711	523	12,776	124	973	616	1,389	153	2	1,050	40	372	21,729	

**Appendix D**

**Weighted Average Tuition Calculation – Four Year Universities**

<b>Institution</b>	<b>Full-Time Equivalent Enrollment Fall 2008</b>	<b>Percentage of Total</b>	<b>Tuition and Required Fees 2010 Fiscal Year</b>
Alcorn State University	2,535	4.93%	4,498
Delta State University	2,810	5.47%	4,449
Jackson State University	5,944	11.56%	4,634
Mississippi State University	12,802	24.90%	5,150
Mississippi University for Women	1,835	3.57%	4,423
Mississippi Valley State University	2,281	4.44%	4,575
University of Mississippi	12,276	23.88%	5,107
University of Southern Mississippi	10,928	21.26%	5,096
<b>Total</b>	<b>51,411</b>		
		<b>Weighted Average</b>	<b>4,947.00</b>
		<b>Semester Hour</b>	<b>154.59</b>
		<b>Quarter Hour</b>	<b>103.06</b>

**Appendix E**

**Weighted Average Tuition Calculation – Junior and Community Colleges**

	<b>Resident Enrollment Fall 2007</b>	<b>Resident Enrollment Fall 2008</b>	<b>Average Resident Enrollment</b>	<b>Percent of Total</b>	<b>Tuition and Required Fees 2010 Fiscal Yr</b>
Coahoma CC	2,144	2,060	2,102	3.04%	1,900
Copiah-Lincoln CC	3,161	3,260	3,211	4.65%	1,800
East Central CC	2,228	2,342	2,285	3.31%	1,830
East Mississippi CC	4,010	4,168	4,089	5.92%	2,000
Hinds CC	9,825	9,970	9,898	14.33%	1,760
Holmes CC	5,108	5,611	5,360	7.76%	1,588
Itawamba CC	5,864	6,550	6,207	8.98%	1,660
Jones CC	4,559	4,677	4,618	6.68%	2,120
Meridian CC	3,536	3,614	3,575	5.17%	1,780
Mississippi Delta CC	2,888	2,898	2,893	4.19%	1,920
Mississippi Gulf CC	8,858	9,107	8,983	13.00%	1,972
Northeast Mississippi CC	3,342	3,190	3,266	4.73%	1,890
Northwest Mississippi CC	6,436	6,786	6,611	9.57%	1,700
Pearl River CC	3,917	4,244	4,081	5.91%	1,806
Southwest Mississippi CC	1,843	1,983	1,913	2.77%	1,800
<b>Total</b>	<b>67,719</b>	<b>70,460</b>	<b>69,090</b>	<b>100.00%</b>	
			<b>Weighted Average</b>		<b>1,824.00</b>
			Semester Hour		<b>57.00</b>
			Quarter Hour		<b>38.00</b>

**Appendix F**

**Annual Increase in Weighted Average Tuition**

<b>Weighted Average Tuition</b>	<b>2008-2009</b>	<b>2009-2010</b>	<b>Increase</b>	<b>% Change</b>
<b>Universities</b>				
1 Year	4,936.00	4,947.00	11.00	0.22%
4 Year	19,744.00	19,788.00	44.00	0.22%
Per Semester Hour	154.25	154.59	0.34	0.22%
Per Quarter Hour	102.83	103.06	0.23	0.22%
Lump Sum Payment One Year	5,256.84	5,269.00	12.16	0.23%
<b>Community Colleges</b>				
1 Year	1,756.78	1,824.00	67.22	3.83%
2 Year	3,513.56	3,648.00	134.44	3.83%
Per Semester Hour	54.90	57.00	2.10	3.83%
Per Quarter Hour	36.60	38.00	1.40	3.83%
Lump Sum Payment One Year	1,862.19	1,933.00	70.81	3.80%

**Tuition and Required Fees Fiscal 2010**

	<b>1 Year</b>	<b>4 Year</b>
Alcorn State University	4,498	17,992
Delta State University	4,449	17,796
Jackson State University	4,634	18,536
Mississippi State University	5,150	20,600
Mississippi University for Woman	4,423	17,692
Mississippi Valley State University	4,575	18,300
University of Mississippi	5,107	20,428
University of Southern Mississippi	5,096	20,384
	<b>1 Year</b>	<b>2 Year</b>
Coahoma CC	1,900	3,800
Copiah-Lincoln CC	1,800	3,600
East Central CC	1,830	3,660
East Mississippi CC	2,000	4,000
Hinds CC	1,760	3,520
Holmes CC	1,588	3,176
Itawamba CC	1,660	3,320
Jones CC	2,120	4,240
Meridian CC	1,780	3,560
Mississippi Delta CC	1,920	3,840
Mississippi Gulf Coast CC	1,972	3,944
Northeast Mississippi CC	1,890	3,780
Northwest Mississippi CC	1,700	3,400
Pearl River CC	1,806	3,612
Southwest Mississippi CC	1,800	3,600