

# College Illinois!® Prepaid Tuition Program

Supplemental Actuarial Soundness Valuation Report  
as of June 30, 2017





November 17, 2017

Mr. Eric Zarnikow  
Executive Director  
Illinois Student Assistance Commission  
1755 Lake Cook Road  
Deerfield, Illinois 60015-5209

**Re: College Illinois!® Prepaid Tuition Program  
Supplemental Actuarial Soundness Valuation Report as of June 30, 2017**

Dear Mr. Zarnikow:

In accordance with the request of the Illinois Student Assistance Commission ("ISAC"), Gabriel, Roeder, Smith & Company ("GRS") has performed projections of the College Illinois!® Prepaid Tuition Program ("Program" or "CIPTP") under alternative open group and closed group scenarios. The purpose of these projections is to provide additional information to ISAC regarding a range of potential outcomes of different future year contract sales scenarios.

Please note that the open group scenarios included in this report (1) were specifically requested by ISAC, (2) are presented for illustrative purposes only and (3) do not consider how increases in contract prices can impact future sales. Because there are many factors that may impact the decision to purchase or not to purchase a prepaid tuition contract in Illinois, including but not limited to (1) increasingly unaffordable college tuition, (2) uncertainty about the state's support and funding for higher education in Illinois, (3) contract prices, (4) the level of contribution premium over the expected costs, and (5) competing savings vehicles, etc., it is very difficult to assess the likelihood of selling a particular number of contracts. Therefore, GRS is unable to judge the reasonableness of these open group contract sales scenarios.

While the closing of the CIPTP has not occurred, we have also provided an alternate closed group projection assuming no new contract sales after June 30, 2017. Please note that this closed group scenario was specifically requested by ISAC and is also presented for illustrative purposes only.

For purposes of this analysis, we used the actuarial soundness valuation results from the June 30, 2017, Actuarial Soundness Valuation, and unless noted differently, the same actuarial assumptions and methods as used for the June 30, 2017, Actuarial Soundness Valuation.

The projection results summarized in this report involve actuarial calculations that require assumptions about future events. The major actuarial assumptions used in this analysis were provided by and are the responsibility of ISAC. We are unable to judge the reasonableness of some of these assumptions without performing a substantial amount of additional work beyond the scope of the assignment.

This supplemental report was prepared at the request of ISAC and is intended for use by ISAC and those designated or approved by ISAC. This report may be provided to parties other than ISAC only in its entirety and only with the permission of ISAC. This report should not be relied on for any purpose other than the purpose described above. GRS is not responsible for unauthorized use of this report.

Please understand that future actuarial measurements may differ significantly from the current measurements presented in this analysis due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law.

This supplemental report is one of multiple documents providing actuarial soundness valuation results for the College Illinois!® Prepaid Tuition Program as of June 30, 2017. Additional information regarding actuarial assumptions and methods, underlying financial and beneficiary data and important additional disclosures are provided in the June 30, 2017, Actuarial Soundness Valuation. Section D of this report contains a summary of the actuarial assumptions and methods.

This supplemental report is not a recommendation to anyone to participate or not participate in the CIPTP. GRS makes no representations or warranties to any person participating in or considering participation in the CIPTP.

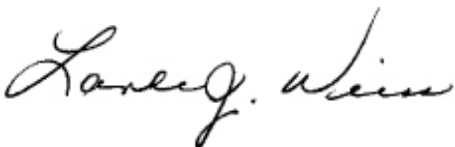
All calculations have been made in conformity with generally accepted actuarial principles and practices commonly applicable to similar types of arrangements. There are currently no Actuarial Standards of Practice which specifically relate to prepaid tuition plans. We have looked to the Actuarial Standards of Practice related to pensions for guidance due to their similar nature.

Lance J. Weiss and Amy Williams are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Lance J. Weiss and Amy Williams are independent of ISAC.

Respectfully submitted,

Gabriel, Roeder, Smith and Company



Lance J. Weiss, EA, MAAA, FCA  
Senior Consultant and Team Leader



Amy Williams, ASA, MAAA, FCA  
Consultant



# Table of Contents

		<u>Page</u>
<b>Section A</b>	Background	
	Purpose of Projections .....	1
	Illustrative Open and Closed Group Scenarios .....	1
	Historical Number of Contracts Sold by Enrollment Year.....	1
	Projection Assumptions .....	2
	Important Disclosure .....	3
<b>Section B</b>	Projection Results	
	Discussion of Scenario Results .....	3-5
	Summary Tables .....	6-8
<b>Section C</b>	Alternative Scenarios Projection Tables	
	Scenario 1 Closed Group -- Run-Off Scenario; Zero New Contracts Sold Per Year .....	9
	Scenario 2 Open Group -- 500 New Contracts Sold Per Year .....	10
	Scenario 3 Open Group -- 1,000 New Contracts Sold Per Year .....	11
	Scenario 4 Open Group -- 1,500 New Contracts Sold Per Year .....	12
	Scenario 5 Open Group -- 2,500 New Contracts Sold Per Year .....	13
	Scenario 6 Open Group -- 5% Annual Contract Sales Growth From 500 Contracts Sold in FY19 to 2,500 Contracts Sold and Then Stable at 2,500 Contracts Per Year .....	14
	Scenario 7 Open Group -- 10% Annual Contract Sales Growth From 500 Contracts Sold in FY19 to 2,500 Contracts Sold and Then Stable at 2,500 Contracts Per Year .....	15
	Scenario 8 Open Group -- 15% Annual Contract Sales Growth From 500 Contracts Sold in FY19 to 2,500 Contracts Sold and Then Stable at 2,500 Contracts Per Year .....	16
<b>Section D</b>	Actuarial Methods & Assumptions .....	17-22
<b>Section E</b>	Plan Provisions .....	23-25

## **SECTION A**

---

### **BACKGROUND**

# Background

## Purpose of Projections

In accordance with the request of the Illinois Student Assistance Commission (“ISAC”), Gabriel, Roeder, Smith & Company (“GRS”) has performed projections of the College Illinois!® Prepaid Tuition Program (“Program” or “CIPTP”) under alternative open group and closed group scenarios. The purpose of these projections is to provide additional information to ISAC regarding a range of potential outcomes of different future year contract sales scenarios.

The Actuarial Standards Board (ASB) recently adopted Actuarial Standards of Practice (ASOP) No. 51, *Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions*. ASOP No. 51 provides guidance to actuaries when performing certain actuarial services with respect to measuring obligations under a defined benefit pension plan and calculating actuarially determined contributions for such plans, with regard to the assessment and disclosure of the risk that actual future measurements may differ significantly from expected future measurements. The standard will be effective for any actuarial work product with a measurement date on or after November 1, 2018. There are currently no Actuarial Standards of Practice which specifically relate to prepaid tuition plans. We have looked to the Actuarial Standards of Practice related to pensions for guidance due to their similar nature. Future projection reports for CIPTP may contain additional risk metrics, projections or calculations in accordance with guidance from ASOP No. 51.

## Illustrative Open and Closed Group Scenarios

Please note that the open group scenarios included in this report (1) were specifically requested by ISAC, (2) are presented for illustrative purposes only and (3) do not consider how increases in contract prices can impact future sales. Because there are many factors that may impact the decision to purchase or not to purchase a prepaid tuition contract in Illinois, including but not limited to (1) increasingly unaffordable college tuition, (2) uncertainty about the state’s support and funding for higher education in Illinois, (3) contract prices, (4) the level of contribution premium over the expected costs, and (5) competing savings vehicles, etc., it is very difficult to assess the likelihood of selling a particular number of contracts. Therefore, GRS is unable to judge the reasonableness of these open group contract scenarios.

While the closing of the CIPTP has not occurred, we have also provided an alternate closed group projection assuming no new contract sales after June 30, 2017. Please note that this closed group scenario was specifically requested by ISAC and is also presented for illustrative purposes only.

## Historical Number of Contracts Sold by Enrollment Year

The chart on page D-1 in Section D of the June 30, 2017, Actuarial Soundness Valuation Report illustrates the number of contracts sold by enrollment year.

As this chart indicates, the number of contracts sold has decreased significantly during the last five enrollment years from the number sold per year in previous years.

- The average annual number of contracts sold beginning with the enrollment period 1999/2000 and ending with the enrollment period 2009/2010 was 5,235.

- The average annual number of contracts sold during the last seven-year period 2010/2011 to 2016/2017 was 559 including 2011/2012 when the plan was not open for new contract sales.
- The average annual number of contracts sold during the last seven-year period 2010/2011 to 2016/2017 was 652 excluding 2011/2012 when the plan was not open for new contract sales.

## Projection Assumptions

The projection results summarized in this supplemental report involve actuarial calculations that require assumptions about future events. The major actuarial assumptions used in this analysis were provided by and are the responsibility of ISAC. We are unable to judge the reasonableness of some of these assumptions without performing a substantial amount of additional work beyond the scope of the assignment.

For purposes of this analysis, we used the actuarial soundness valuation results from the June 30, 2017, Actuarial Soundness Valuation, and unless noted differently, the same actuarial assumptions and methods as used for the June 30, 2017, Actuarial Soundness Valuation. The contract prices for future new contracts were based on the prices for the enrollment period from January 18, 2017, through May 31, 2017, increased by actual tuition and fee increases for fiscal year 2018, and are assumed to increase each year by the tuition and fee increase assumption. The contract prices for the enrollment period from January 18, 2017, through May 31, 2017, were based on different investment return and tuition and fee increase assumptions than the assumptions used for the Actuarial Soundness Valuation as of June 30, 2017. (We have not recalculated prices for future contracts using the current assumptions for purposes of the open-group projections.)

For the June 30, 2017, Actuarial Soundness Valuation, and for those projection scenarios where the Trust assets are depleted in the future and the funded ratio remains low thereafter, we have incorporated a “select and ultimate” approach to the investment return assumption (and also the related discount rate for the liabilities). Under this “select and ultimate” approach to the investment return assumption, we have assumed that the net investment return and discount rate grade down from 6.50% to 3.75% in yearly increments based on the number of years until the Trust assets are depleted and are no longer available to pay benefits. Implicit in this approach is the assumption that once the Trust is completely exhausted, and ISAC is relying on additional payments from the State of Illinois, the State will be making payments to the College Illinois!® Prepaid Tuition Program from the State Portfolio. (The State Portfolio has assets of approximately \$12-\$14 billion, and provides the necessary liquidity to meet the state’s daily obligations while investing remaining funds in authorized short/long-term investment opportunities.) Based on input from ISAC, we have assumed that underlying return on such assets in the State Portfolio is 3.75%.

Considering the current asset allocation, liquidity requirements and deferment of the next enrollment period, we believe the net investment rate of return assumption of 6.50% in fiscal year 2018 grading down to 3.75% in 2025, on a select and ultimate basis, is consistent with applicable Actuarial Standards of Practice.

## Important Disclosure

This supplemental report is not a recommendation to anyone to participate or not participate in the CIPTP. GRS makes no representations or warranties to any person or persons participating in or considering participation in the CIPTP.

## **SECTION B**

---

### **PROJECTION RESULTS**



## Discussion of Scenario Results

### Scenario 1 – Closed Group -- Run-Off Scenario; Zero New Contracts Sold Per Year

While the closing of the Program has not occurred, we have provided the results of a closed group run-off projection scenario in Scenario 1. Under this illustrative closed group scenario, we have assumed that the program continues to operate but with no new contract sales after June 30, 2017. Under this scenario, future payments from current contract holders, current Trust assets and future investment income are projected to be insufficient by the year 2025 to make the required tuition payments and additional funds will be required to maintain solvency (\$542.2 million for the period 2025 to 2053). The CIPTP funded status is projected to decrease from 74.8% in 2017 to 0.7% in 2025 when additional solvency contributions are required) and then decrease to 0.0% in 2031 and remain at 0.0% for the remaining years in the projection period.

Under this scenario, the Trust assets are projected to be depleted in 2025. Therefore, we have incorporated a “select and ultimate” approach to the investment return assumption (and also the related discount rate for the liabilities). Under this “select and ultimate” approach to the investment return assumption, we have assumed that the net investment return and discount rate grade down from 6.50% for year ending June 30, 2018 to 3.75% beginning for year ending June 30, 2025, in equal yearly increments of 0.393%.

### Scenario 2 – Open Group -- 500 New Contracts Sold Per Year

Scenario 2 illustrates the results of an open group projection scenario assuming 500 new contracts are sold each year, beginning in fiscal year 2019. Under this illustrative new contract sales assumption, future payments from current and future contract holders, current Trust assets and future investment income are projected to be insufficient to make the required tuition payments in year 2026 and additional funds will be required to maintain solvency (\$459.7 million for the period 2026 to 2054). The CIPTP funded status is projected to decrease from 75.2% in 2017 to a low of 6.9% in 2026 (when additional solvency contributions are required) and then very slowly increase to only 14.6% in 2054.

Under this scenario, the Trust assets are projected to be depleted in 2026, and the funded ratio remains low for the remaining years in the projection period. Therefore, we have incorporated a “select and ultimate” approach to the investment return assumption (and also the related discount rate for the liabilities). Under this “select and ultimate” approach to the investment return assumption, we have assumed that the net investment return and discount rate grade down from 6.50% for year ending June 30, 2018 to 3.75% beginning for year ending June 30, 2026, in equal yearly increments of 0.344%.

### Scenario 3 – Open Group -- 1,000 New Contracts Sold Per Year

Scenario 3 illustrates the results of an open group projection scenario assuming 1,000 new contracts are sold each year, beginning in fiscal year 2019. Under this illustrative new contract sales assumption, future payments from current and future contract holders, current Trust assets and future investment income are projected to be insufficient to make the required tuition payments in year 2028 and additional funds will be required to maintain solvency (\$113.4 million for the period 2028 to 2033). The CIPTP funded status is projected to decrease from 76.0% in 2017 to a low of 12.7% in 2028 (when additional solvency contributions are required) and then very slowly increase to only 22.3% in 2054.

Under this scenario, the Trust assets are projected to be depleted in 2028, and the funded ratio remains low for the remaining years in the projection period. Therefore, we have incorporated a “select and ultimate” approach to the investment return assumption (and also the related discount rate for the liabilities). Under this “select and ultimate” approach to the investment return assumption, we have assumed that the net investment return and discount rate grade down from 6.50% for year ending June 30, 2018 to 3.75% beginning for year ending June 30, 2028, in equal yearly increments of 0.275%.

#### **Scenario 4 – Open Group -- 1,500 New Contracts Sold Per Year**

Scenario 4 illustrates the results of an open group projection scenario assuming 1,500 new contracts are sold each year, beginning in fiscal year 2019. Under this illustrative new contract sales assumption, future payments from current and future contract holders, current Trust assets and future investment income are projected to be sufficient to make the required tuition payments in all projection years. However, the CIPTP funded status is projected to decrease from 79.7% in 2017 to a low of 40.8% in 2029 before increasing to 78.1% in 2054.

Under this scenario, the Trust assets are not projected to be depleted during the projection period. Therefore, assuming that ISAC is able to maintain the current asset allocation throughout the entire projection period, we have used a flat investment return (and discount rate) assumption of 6.50% for this projection scenario.

#### **Scenario 5 – Open Group -- 2,500 New Contracts Sold Per Year**

Scenario 5 illustrates the results of an open group projection scenario assuming 2,500 new contracts are sold each year, beginning in fiscal year 2019. Under this illustrative new contract sales assumption, future payments from current and future contract holders, current Trust assets and future investment income are projected to be sufficient to make the required tuition payments in all projection years. However, the CIPTP funded status is projected to decrease from 79.7% in 2017 to a low of 64.0% in 2025 before increasing to 133.7% in 2054. The funded status is projected to first reach 100 percent in 2042.

Under this scenario, the Trust assets are not projected to be depleted during the projection period. Therefore, assuming that ISAC is able to maintain the current asset allocation throughout the entire projection period, we have used a flat investment return (and discount rate) assumption of 6.50% for this projection scenario.

#### **Scenario 6 – Open Group -- 5% Annual Contract Sales Growth From 500 Contracts Sold in FY19 to 2,500 Contracts Sold and Then Stable at 2,500 Contracts Per Year**

Scenario 6 illustrates the results of an open group projection scenario assuming 500 new contracts are sold in 2019 and then the number of new contract sales increases by 5.0% each year to 2,500 new contracts sold in 2052 and each future year. Under this illustrative new contract sales assumption, future payments from current and future contract holders, current Trust assets and future investment income are projected to be insufficient to make the required tuition payments in years 2027 through 2032 and additional solvency contributions will be required to maintain solvency (\$206.3 million for the period 2027 to 2032). The CIPTP funded status is projected to decrease from 79.7% in 2017 to a low of 10.4% in 2027 (and additional solvency contributions are required) before increasing to 92.4% in 2054.

Under this scenario, the Trust assets are projected to be depleted in 2027. However, because additional solvency contributions are only required for six years before the funded status is projected to increase,

we have used a flat investment return (and discount rate) assumption of 6.50% for this projection scenario. This assumes that ISAC is able to maintain the current asset allocation throughout most of the projection period.

### **Scenario 7 – Open Group -- 10% Annual Contract Sales Growth From 500 Contracts Sold in FY19 to 2,500 Contracts Sold and Then Stable at 2,500 Contracts Per Year**

Scenario 7 illustrates the results of an open group projection scenario assuming 500 new contracts are sold in 2019 and then the number of new contract sales increases by 10.0% each year to 2,500 new contracts sold in 2036 and each future year. Under this illustrative new contract sales assumption, future payments from contract holders, Trust assets and future investment income are projected to be insufficient to make the required tuition payments in years 2027 through 2030 and additional solvency contributions will be required to maintain solvency (\$108.7 million for the period 2027 through 2030). However, the CIPTP funded status is projected to decrease from 79.7% in 2017 to a low of 12.7% in 2027 (and additional solvency contributions are required) before increasing to 111.1% in 2054. The funded status is projected to first reach 100 percent in 2050.

Under this scenario, the Trust assets are projected to be depleted in 2027. However, because additional solvency contributions are only required for four years before the funded status is projected to increase, we have used a flat investment return (and discount rate) assumption of 6.50% for this projection scenario. This assumes that ISAC is able to maintain the current asset allocation throughout most of the projection period.

### **Scenario 8 – Open Group -- 15% Annual Contract Sales Growth From 500 Contracts Sold in FY19 to 2,500 Contracts Sold and Then Stable at 2,500 Contracts Per Year**

Scenario 8 illustrates the results of an open group projection scenario assuming 500 new contracts are sold in 2019 and then the number of new contract sales increases by 15.0% each year to 2,500 new contracts sold in 2031 and each future year. Under this illustrative new contract sales assumption, future payments from contract holders, Trust assets and future investment income are projected to be insufficient to make the required tuition payments in years 2028 through 2029 and additional solvency contributions will be required to maintain solvency (\$23.8 million for the period 2028 through 2029). However, the CIPTP funded status is projected to decrease from 79.7% in 2017 to a low of 18.0% in 2028 (and additional solvency contributions are required) before increasing to 111.0% in 2054. The funded status is projected to first reach 100 percent in 2050.

Under this scenario, the Trust assets are projected to be depleted in 2028. However, because additional solvency contributions are only required for two years before the funded status is projected to increase, we have used a flat investment return (and discount rate) assumption of 6.50% for this projection scenario. This assumes that ISAC is able to maintain the current asset allocation throughout most of the projection period.

## **Summary**

Under the scenarios in which 2,500 contracts are assumed to ultimately be sold each year (Scenarios 5 through 8), the funded status is projected to reach 90% or higher during the projection period.

## Summary Table

Scenario	Scenario Description	Discount Rate/Type	Tuition/Fee Increase	Year of Asset Depletion	Required Solvency Contributions	Funded Ratio			Funded Ratio Year	
						2017	2054	Minimum	Minimum	100%
1	Closed Group (Run-Off)	Select and Ultimate	5.00%	2025	\$ 542,188,617	74.8%	0.0%	0.0%	2031	NA
2	Open Group (500 New Contracts Per Year)	Select and Ultimate	5.00%	2026	\$ 459,675,237	75.2%	14.6%	6.9%	2026	NA
3	Open Group (1,000 New Contracts Per Year)	Select and Ultimate	5.00%	2028	\$ 113,439,313	76.0%	22.3%	12.7%	2028	NA
4	Open Group (1,500 New Contracts Per Year)	6.50%	5.00%	NA	\$ -	79.7%	78.1%	40.8%	2029	NA
5	Open Group (2,500 New Contracts Per Year)	6.50%	5.00%	NA	\$ -	79.7%	133.7%	64.0%	2025	2042
6	Open Group (5% Annual Growth)*	6.50%	5.00%	2027	\$ 206,300,140	79.7%	92.4%	10.4%	2027	NA
7	Open Group (10% Annual Growth)*	6.50%	5.00%	2027	\$ 108,703,136	79.7%	111.1%	12.7%	2027	2050
8	Open Group (15% Annual Growth)*	6.50%	5.00%	2028	\$ 23,799,621	79.7%	111.0%	18.0%	2028	2050

\*500 contracts assumed to be sold in FY 2019, with an annual increase in contract sales until a maximum of 2,500 contracts per year are sold annually.

**Scenario Summary - Projected Funded Ratio**  
**Projection Based on Data as of June 30, 2017**  
**Assumed Net Investment Return and Discount Rates Vary by Scenario**  
**Other Assumptions Based on Those Used in the Actuarial Valuation as of June 30, 2017**

Scenario Description		1	2	3	4	5	6	7	8
		Closed Group	Open Group	Open Group	Open Group	Open Group	Open Group <sup>a</sup>	Open Group <sup>a</sup>	Open Group <sup>a</sup>
Annual New Contracts		0	500	1,000	1,500	2,500	500	500	500
Increase in Annual New Contracts							5%	10%	15%
Annual WAT/Price Increase		5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Ultimate Discount Rate (UDR)		3.75%	3.75%	3.75%	6.50%	6.50%	6.50%	6.50%	6.50%
Year of Asset Depletion		2025	2026	2028	NA	NA	2027	2027	2028
Year Ending 6/30	2017	74.8%	75.2%	76.0%	79.7%	79.7%	79.7%	79.7%	79.7%
	2018	71.4%	71.8%	72.6%	76.7%	76.7%	76.7%	76.7%	76.7%
	2019	67.2%	67.0%	67.6%	72.1%	71.8%	72.4%	72.4%	72.4%
	2020	62.0%	61.8%	63.0%	68.9%	69.9%	67.8%	67.8%	67.8%
	2021	55.0%	55.3%	57.6%	65.1%	67.9%	61.9%	62.0%	62.0%
	2022	46.3%	47.7%	51.5%	61.2%	66.1%	55.1%	55.3%	55.5%
	2023	35.4%	38.9%	45.0%	57.2%	64.8%	47.1%	47.7%	48.2%
	2024	20.4%	28.4%	37.9%	53.3%	64.1%	37.6%	38.8%	40.2%
	2025	0.7%	16.0%	30.4%	49.5%	64.0%	26.5%	29.1%	31.9%
	2026	0.6%	6.9%	22.7%	46.1%	64.5%	13.9%	18.9%	24.2%
	2027	0.5%	8.0%	15.7%	43.5%	65.7%	10.4%	12.7%	18.6%
	2028	0.4%	9.2%	12.7%	41.6%	67.4%	12.2%	15.0%	18.0%
	2029	0.3%	10.3%	13.6%	40.8%	69.6%	14.0%	17.2%	20.6%
	2030	0.1%	11.3%	14.2%	40.9%	72.1%	15.5%	19.1%	24.8%
	2031	0.0%	12.1%	14.6%	41.7%	74.8%	16.8%	21.5%	31.2%
	2032	0.0%	12.8%	14.8%	43.0%	77.5%	17.8%	25.8%	38.0%
	2033	0.0%	13.2%	15.0%	44.5%	80.2%	18.9%	31.4%	44.3%
	2034	0.0%	13.5%	15.1%	46.2%	82.8%	21.1%	37.5%	50.1%
	2035	0.0%	13.8%	15.4%	47.9%	85.4%	24.0%	43.9%	55.3%
	2036	0.0%	13.9%	15.9%	49.6%	87.8%	27.4%	50.2%	60.0%
	2037	0.0%	14.0%	16.4%	51.3%	90.3%	31.0%	56.3%	64.3%
	2038	0.0%	14.1%	16.9%	53.0%	92.8%	34.9%	61.6%	68.2%
	2039	0.0%	14.1%	17.3%	54.5%	95.2%	38.7%	66.3%	71.7%
	2040	0.0%	14.2%	17.7%	56.0%	97.6%	42.6%	70.5%	74.9%
	2041	0.0%	14.2%	18.0%	57.4%	99.9%	46.4%	74.4%	77.9%
	2042	0.0%	14.2%	18.3%	58.8%	102.3%	50.2%	77.9%	80.8%
	2043	0.0%	14.3%	18.5%	60.3%	104.7%	54.0%	81.2%	83.5%
	2044	0.0%	14.3%	18.8%	61.7%	107.1%	57.7%	84.3%	86.1%
	2045	0.0%	14.3%	19.1%	63.2%	109.6%	61.4%	87.3%	88.6%
	2046	0.0%	14.4%	19.4%	64.7%	112.1%	65.1%	90.1%	91.1%
	2047	0.0%	14.4%	19.7%	66.2%	114.6%	68.7%	92.8%	93.6%
	2048	0.0%	14.4%	20.0%	67.8%	117.2%	72.3%	95.5%	96.0%
	2049	0.0%	14.5%	20.3%	69.4%	119.8%	75.7%	98.1%	98.5%
	2050	0.0%	14.5%	20.7%	71.1%	122.5%	79.2%	100.7%	100.9%
	2051	0.0%	14.5%	21.1%	72.8%	125.3%	82.5%	103.3%	103.4%
	2052	0.0%	14.6%	21.5%	74.5%	128.0%	85.8%	105.9%	105.9%
	2053	0.0%	14.6%	21.9%	76.3%	130.9%	89.2%	108.5%	108.4%
	2054	0.0%	14.6%	22.3%	78.1%	133.7%	92.4%	111.1%	111.0%
Minimum Funded Ratio		0.0%	6.9%	12.7%	40.8%	64.0%	10.4%	12.7%	18.0%

<sup>a</sup> 500 contracts assumed to be sold in FY 2019, with an annual increase in contract sales until a maximum of 2,500 contracts per year are sold annually.



## **SECTION C**

---

### **ALTERNATIVE SCENARIOS PROJECTION TABLES**

Closed Group Projections

Scenario 1 — Run-Off Scenario

Projection Based on Data as of June 30, 2017

Assumed Net Investment Return and Discount Rates Graded Down from 6.50% to 3.75% in 0.393% Yearly Increments

Other Assumptions Based on Those Used in the Actuarial Valuation as of June 30, 2017

Zero New Contracts Per Year

Year Ending 6/30	Assumed Net Rate of Return	Annual New Contracts	Assets							Liabilities				Unfunded Liability	Funded Ratio
			Contributions	Additional Required Solvency Contributions <sup>a</sup>	Tuition Payments, Refunds and Fees	Administrative Expenses	Net Investment Return	Market Value of Assets (EOY)	Total Present Value of Future Contributions	Total Fund Assets (MVA + PVFC)	Total Present Value of Future Benefits	Present Value of Future Admin Expenses	Total Present Value of Future Benefits, Fees and Expenses		
2017			\$ 23,659,545	\$ -	\$ 143,458,888	\$ 6,623,245	\$ 65,190,202	\$ 904,972,812	\$ 45,996,521	\$ 950,969,333	\$ 1,235,713,761	\$ 35,492,576	\$ 1,271,206,337	\$ 320,237,004	74.8%
2018	6.500%	0	13,277,529	-	152,763,917	4,887,821	54,204,937	814,803,540	35,284,039	850,087,579	1,158,384,569	32,755,419	1,191,139,988	341,052,409	71.4%
2019	6.107%	0	10,224,428	-	150,315,648	5,010,017	45,395,041	715,097,345	26,906,831	742,004,176	1,074,289,594	29,595,062	1,103,884,655	361,880,479	67.2%
2020	5.714%	0	8,164,461	-	151,572,146	5,135,267	36,675,741	603,230,134	20,049,808	623,279,942	979,832,092	26,006,180	1,005,838,272	382,558,330	62.0%
2021	5.321%	0	6,340,896	-	154,336,169	4,800,840	28,085,419	478,519,440	14,609,249	493,128,689	873,579,890	22,463,058	896,042,948	402,914,259	55.0%
2022	4.928%	0	5,413,559	-	144,250,848	4,387,246	20,094,824	355,389,729	9,783,848	365,173,577	768,867,461	19,075,989	787,943,450	422,769,873	46.3%
2023	4.535%	0	3,492,244	-	132,636,071	3,957,899	13,132,306	235,420,309	6,656,992	242,077,301	668,125,352	15,894,436	684,019,788	441,942,487	35.4%
2024	4.142%	0	2,396,891	-	127,636,988	3,525,292	7,111,434	113,766,354	4,486,698	118,253,052	565,545,574	12,955,223	578,500,797	460,247,745	20.4%
2025	3.750%	0	1,519,750	3,686,806	118,027,756	3,058,642	2,113,488	-	3,106,966	3,106,966	466,533,124	10,325,581	476,858,704	473,751,738	0.7%
2026	3.750%	0	1,048,299	108,633,535	107,095,603	2,586,231	-	-	2,155,704	2,155,704	374,942,950	8,078,513	383,021,464	380,865,760	0.6%
2027	3.750%	0	854,156	92,621,350	91,345,043	2,130,463	-	-	1,366,519	1,366,519	295,961,311	6,211,417	302,172,728	300,806,209	0.5%
2028	3.750%	0	581,569	80,917,790	79,775,636	1,723,723	-	-	825,390	825,390	225,802,197	4,688,599	230,490,796	229,665,406	0.4%
2029	3.750%	0	401,022	64,499,342	63,552,380	1,347,984	-	-	447,870	447,870	169,536,759	3,491,396	173,028,155	172,580,285	0.3%
2030	3.750%	0	294,104	50,316,788	49,573,497	1,037,395	-	-	165,098	165,098	125,399,942	2,565,656	127,965,598	127,800,500	0.1%
2031	3.750%	0	123,971	38,454,980	37,792,446	786,505	-	-	45,015	45,015	91,607,907	1,860,752	93,468,659	93,423,644	0.0%
2032	3.750%	0	45,851	28,646,836	28,103,760	588,926	-	-	-	-	66,417,348	1,330,663	67,748,010	67,748,010	0.0%
2033	3.750%	0	-	21,467,490	21,029,833	437,657	-	-	-	-	47,487,485	934,775	48,422,260	48,422,260	0.0%
2034	3.750%	0	-	15,875,874	15,555,133	320,741	-	-	-	-	33,424,158	643,130	34,067,287	34,067,287	0.0%
2035	3.750%	0	-	11,831,906	11,600,508	231,398	-	-	-	-	22,861,548	431,550	23,293,098	23,293,098	0.0%
2036	3.750%	0	-	8,542,496	8,380,267	162,229	-	-	-	-	15,182,906	282,490	15,465,396	15,465,396	0.0%
2037	3.750%	0	-	5,903,718	5,793,284	110,434	-	-	-	-	9,851,356	180,598	10,031,954	10,031,954	0.0%
2038	3.750%	0	-	4,025,521	3,952,075	73,446	-	-	-	-	6,195,287	112,560	6,307,847	6,307,847	0.0%
2039	3.750%	0	-	2,667,385	2,620,042	47,343	-	-	-	-	3,758,894	68,558	3,827,453	3,827,453	0.0%
2040	3.750%	0	-	1,611,788	1,582,345	29,443	-	-	-	-	2,288,112	41,140	2,329,251	2,329,251	0.0%
2041	3.750%	0	-	995,899	977,528	18,370	-	-	-	-	1,378,228	23,971	1,402,198	1,402,198	0.0%
2042	3.750%	0	-	640,207	628,865	11,342	-	-	-	-	789,364	13,317	802,680	802,680	0.0%
2043	3.750%	0	-	383,612	376,954	6,658	-	-	-	-	435,008	7,034	442,042	442,042	0.0%
2044	3.750%	0	-	227,327	223,566	3,761	-	-	-	-	223,601	3,467	227,068	227,068	0.0%
2045	3.750%	0	-	128,541	126,559	1,982	-	-	-	-	103,076	1,579	104,655	104,655	0.0%
2046	3.750%	0	-	66,478	65,542	936	-	-	-	-	40,182	684	40,866	40,866	0.0%
2047	3.750%	0	-	21,729	21,355	374	-	-	-	-	19,937	329	20,266	20,266	0.0%
2048	3.750%	0	-	11,390	11,200	190	-	-	-	-	9,277	147	9,424	9,424	0.0%
2049	3.750%	0	-	5,621	5,530	91	-	-	-	-	3,992	60	4,052	4,052	0.0%
2050	3.750%	0	-	2,572	2,532	40	-	-	-	-	1,562	22	1,584	1,584	0.0%
2051	3.750%	0	-	1,111	1,095	16	-	-	-	-	506	6	512	512	0.0%
2052	3.750%	0	-	414	409	5	-	-	-	-	108	1	109	109	0.0%
2053	3.750%	0	-	111	110	1	-	-	-	-	-	-	-	-	0.0%
2054	3.750%	0	-	-	-	-	-	-	-	-	-	-	-	-	0.0%

<sup>a</sup> Additional contributions in the amount of \$542,188,617 are needed over the years 2025 through 2053 to pay all benefits due.



Open Group Projections

Scenario 2 — Continuing Business Scenario

Projection Based on Data as of June 30, 2017

Assumed Net Investment Return and Discount Rates Graded Down from 6.50% to 3.75% in 0.344% Yearly Increments

Other Assumptions Based on Those Used in Actuarial Valuation as of June 30, 2017

500 New Contracts Per Year Beginning in FY 2019

Year Ending 6/30	Assumed Net Rate of Return	Annual New Contracts	Assets							Liabilities					
			Contributions	Additional Required Solvency Contributions <sup>o</sup>	Tuition Payments, Refunds and Fees	Administrative Expenses	Net Investment Return	Market Value of Assets (EOY)	Total Present Value of Future Contributions	Total Fund Assets (MVA + PVFC)	Total Present Value of Future Benefits	Present Value of Future Admin Expenses	Total Present Value of Future Benefits, Fees and Expenses	Unfunded Liability	Funded Ratio
2017			\$ 23,659,545	\$ -	\$ 143,458,888	\$ 6,623,245	\$ 65,190,202	\$ 904,972,812	\$ 45,893,324	\$ 950,866,136	\$ 1,228,565,451	\$ 35,314,775	\$ 1,263,880,226	\$ 313,014,090	75.2%
2018	6.500%	0	13,277,529	-	152,763,917	4,887,821	54,204,937	814,803,540	35,174,135	849,977,675	1,150,771,619	32,566,061	1,183,337,680	333,360,005	71.8%
2019	6.156%	500	10,224,428	-	150,315,648	6,958,546	45,700,707	713,454,481	34,240,439	747,694,920	1,081,980,502	34,428,071	1,116,408,573	368,713,653	67.0%
2020	5.812%	500	17,284,530	-	151,593,382	7,132,510	37,413,736	609,426,855	34,090,063	643,516,918	1,004,980,086	36,416,221	1,041,396,307	397,879,389	61.8%
2021	5.468%	500	17,494,818	-	154,622,666	7,310,824	29,427,062	494,415,245	34,516,312	528,931,557	918,251,396	38,225,542	956,476,938	427,545,381	55.3%
2022	5.124%	500	18,657,087	-	144,827,371	7,493,593	21,952,147	382,703,515	34,607,154	417,310,669	835,015,422	39,879,006	874,894,427	457,583,758	47.7%
2023	4.780%	500	18,892,510	-	133,515,280	7,680,933	15,404,289	275,804,101	35,328,133	311,132,234	757,282,544	41,772,737	799,055,281	487,923,047	38.9%
2024	4.436%	500	20,031,271	-	129,108,222	7,872,957	9,668,867	168,523,060	36,686,790	205,209,850	678,986,434	43,660,697	722,647,131	517,437,281	28.4%
2025	4.092%	500	20,619,267	-	120,176,250	8,069,781	4,715,998	65,612,295	38,548,578	104,160,873	605,089,815	45,472,095	650,561,909	546,401,036	16.0%
2026	3.750%	500	21,578,994	30,009,447	110,148,119	8,271,525	1,218,908	-	40,532,858	40,532,858	537,220,755	46,840,922	584,061,678	543,528,820	6.9%
2027	3.750%	500	22,818,626	81,343,433	95,683,745	8,478,314	-	-	42,526,870	42,526,870	482,365,959	48,203,313	530,569,272	488,042,402	8.0%
2028	3.750%	500	23,980,762	70,425,139	85,715,630	8,690,271	-	-	44,684,578	44,684,578	436,552,389	49,224,592	485,776,981	441,092,403	9.2%
2029	3.750%	500	25,221,441	55,034,624	71,348,536	8,907,529	-	-	46,963,632	46,963,632	404,701,923	50,017,812	454,719,735	407,756,103	10.3%
2030	3.750%	500	26,553,108	42,016,654	59,439,546	9,130,216	-	-	49,321,051	49,321,051	360,800,416	50,680,191	435,680,607	386,359,556	11.3%
2031	3.750%	500	27,859,484	31,340,217	49,841,229	9,358,472	-	-	51,847,252	51,847,252	375,578,672	51,315,546	426,894,218	375,046,966	12.1%
2032	3.750%	500	29,303,336	22,774,114	42,485,016	9,592,433	-	-	54,468,795	54,468,795	374,585,360	51,998,835	426,584,194	372,115,399	12.8%
2033	3.750%	500	30,837,295	16,910,625	37,915,675	9,832,245	-	-	57,192,234	57,192,234	379,819,779	52,774,757	432,594,536	375,402,302	13.2%
2034	3.750%	500	32,457,025	12,494,566	34,873,541	10,078,050	-	-	60,051,846	60,051,846	389,897,795	53,671,765	443,569,560	383,517,713	13.5%
2035	3.750%	500	34,079,877	9,666,016	33,415,891	10,330,002	-	-	63,054,438	63,054,438	403,565,604	54,673,366	458,238,970	395,184,532	13.8%
2036	3.750%	500	35,783,871	7,465,431	32,661,050	10,588,252	-	-	66,207,160	66,207,160	420,297,147	55,857,872	476,155,019	409,947,859	13.9%
2037	3.750%	500	37,573,064	5,816,809	32,536,915	10,852,958	-	-	69,517,518	69,517,518	439,362,706	57,240,156	496,602,862	427,085,344	14.0%
2038	3.750%	500	39,451,717	5,114,424	33,441,859	11,124,282	-	-	72,993,394	72,993,394	460,186,276	58,764,548	518,950,824	445,957,430	14.1%
2039	3.750%	500	41,424,303	4,831,453	34,853,367	11,402,389	-	-	76,643,064	76,643,064	482,554,913	60,373,101	542,928,015	466,284,951	14.1%
2040	3.750%	500	43,495,518	4,612,068	36,420,137	11,687,449	-	-	80,475,217	80,475,217	506,446,141	62,045,083	568,491,223	488,016,006	14.2%
2041	3.750%	500	45,670,294	4,614,877	38,305,535	11,979,635	-	-	84,498,978	84,498,978	531,661,082	63,756,583	595,417,664	510,918,686	14.2%
2042	3.750%	500	47,953,809	4,697,018	40,371,701	12,279,126	-	-	88,723,927	88,723,927	558,162,337	65,481,542	623,643,878	534,919,951	14.2%
2043	3.750%	500	50,351,499	4,710,023	42,475,418	12,586,104	-	-	93,160,123	93,160,123	586,038,646	67,212,269	653,250,915	560,090,792	14.3%
2044	3.750%	500	52,869,074	4,689,900	44,658,217	12,900,757	-	-	97,818,129	97,818,129	615,322,157	68,947,649	684,269,806	586,451,677	14.3%
2045	3.750%	500	55,512,528	4,651,612	46,940,864	13,223,276	-	-	102,709,036	102,709,036	646,081,050	70,686,434	716,767,484	614,058,448	14.3%
2046	3.750%	500	58,288,154	4,582,772	49,317,069	13,553,857	-	-	107,844,488	107,844,488	678,390,788	72,435,223	750,826,011	642,981,523	14.4%
2047	3.750%	500	61,202,562	4,480,015	51,789,873	13,892,704	-	-	113,236,712	113,236,712	712,320,764	74,202,803	786,523,567	673,286,855	14.4%
2048	3.750%	500	64,262,690	4,388,482	54,411,151	14,240,021	-	-	118,898,548	118,898,548	747,938,467	75,999,131	823,937,598	705,039,050	14.4%
2049	3.750%	500	67,475,825	4,265,895	57,145,698	14,596,022	-	-	124,843,475	124,843,475	785,336,405	77,836,251	863,172,656	738,329,181	14.5%
2050	3.750%	500	70,849,616	4,117,945	60,006,638	14,960,923	-	-	131,085,649	131,085,649	824,603,811	79,724,640	904,328,451	773,242,802	14.5%
2051	3.750%	500	74,392,097	3,951,987	63,009,138	15,334,946	-	-	137,639,931	137,639,931	865,834,290	81,672,115	947,506,405	809,866,474	14.5%
2052	3.750%	500	78,111,702	3,767,350	66,160,733	15,718,319	-	-	144,521,928	144,521,928	909,126,146	83,682,809	992,808,955	848,287,027	14.6%
2053	3.750%	500	82,017,287	3,563,336	69,469,346	16,111,277	-	-	151,748,024	151,748,024	954,582,518	85,759,275	1,040,341,793	888,593,769	14.6%
2054	3.750%	500	86,118,151	3,339,005	72,943,097	16,514,059	-	-	159,335,425	159,335,425	1,002,311,673	87,903,110	1,090,214,783	930,879,358	14.6%

<sup>o</sup> Additional contributions in the amount of \$459,675,237 are needed over the years 2026 through 2054 to pay all benefits due.

Open Group Projections

Scenario 3 — Continuing Business Scenario

Projection Based on Data as of June 30, 2017

Assumed Net Investment Return and Discount Rates Graded Down from 6.50% to 3.75% in 0.275% Yearly Increments

Other Assumptions Based on Those Used in Actuarial Valuation as of June 30, 2017

1,000 New Contracts Per Year Beginning in FY 2019

Year Ending 6/30	Assumed Net Rate of Return	Annual New Contracts	Assets							Liabilities					
			Contributions	Additional Required Solvency Contributions <sup>o</sup>	Tuition Payments, Refunds and Fees	Administrative Expenses	Net Investment Return	Market Value of Assets (EOY)	Total Present Value of Future Contributions	Total Fund Assets (MVA + PVFC)	Total Present Value of Future Benefits	Present Value of Future Admin Expenses	Total Present Value of Future Benefits, Fees and Expenses	Unfunded Liability	Funded Ratio
2017			\$ 23,659,545	\$ -	\$ 143,458,888	\$ 6,623,245	\$ 65,190,202	\$ 904,972,812	\$ 45,737,842	\$ 950,710,654	\$ 1,216,684,307	\$ 35,025,291	\$ 1,251,709,598	\$ 300,998,944	76.0%
2018	6.500%	0	13,277,529	-	152,763,917	4,887,821	54,204,937	814,803,540	35,008,546	849,812,086	1,138,118,201	32,257,760	1,170,375,961	320,563,875	72.6%
2019	6.225%	1,000	10,224,428	-	150,315,648	6,958,546	46,213,690	713,967,464	41,406,676	755,374,140	1,083,838,327	34,111,112	1,117,949,439	362,575,299	67.6%
2020	5.950%	1,000	26,404,598	-	151,614,617	7,132,510	38,600,759	620,225,694	47,838,341	668,064,035	1,023,649,435	36,103,112	1,059,752,547	391,688,512	63.0%
2021	5.675%	1,000	28,648,740	-	154,909,162	7,310,824	31,460,022	518,114,470	54,009,633	572,124,103	955,998,765	37,923,591	993,922,357	421,798,254	57.6%
2022	5.400%	1,000	31,900,615	-	145,403,894	7,493,593	24,754,217	421,871,815	58,913,808	480,785,623	894,059,399	39,590,001	933,649,400	452,863,777	51.5%
2023	5.125%	1,000	34,292,776	-	134,394,490	7,680,933	18,893,509	332,982,677	63,417,882	396,400,559	839,505,329	41,489,062	880,994,391	484,593,832	45.0%
2024	4.850%	1,000	37,665,650	-	130,579,456	7,872,957	13,734,518	245,930,432	68,308,788	314,239,220	786,107,150	43,366,455	829,473,605	515,234,385	37.9%
2025	4.575%	1,000	39,718,783	-	122,324,744	8,069,781	9,200,306	164,454,997	73,525,454	237,980,451	738,494,749	45,144,236	783,638,986	545,658,535	30.4%
2026	4.300%	1,000	42,109,690	-	113,200,636	8,271,525	5,383,230	90,475,756	78,728,255	169,204,011	661,616,689	46,616,689	744,399,842	575,195,831	22.7%
2027	4.025%	1,000	44,783,096	-	100,022,447	8,478,314	2,371,981	29,130,072	83,687,222	112,817,294	668,770,608	48,111,501	716,882,109	604,064,815	15.7%
2028	3.750%	1,000	47,379,956	23,294,705	91,655,624	8,690,271	541,162	-	88,543,766	88,543,766	647,302,580	49,152,434	696,455,014	607,911,248	12.7%
2029	3.750%	1,000	50,041,859	38,010,363	79,144,693	8,907,529	-	-	93,479,394	93,479,394	639,867,088	49,965,528	689,832,616	596,353,222	13.6%
2030	3.750%	1,000	52,812,113	25,623,699	69,305,596	9,130,216	-	-	98,477,005	98,477,005	644,600,889	50,646,560	695,247,449	596,770,444	14.2%
2031	3.750%	1,000	55,594,997	15,653,488	61,890,013	9,358,472	-	-	103,649,489	103,649,489	659,549,437	51,297,146	710,846,583	607,197,094	14.6%
2032	3.750%	1,000	58,560,821	7,897,885	56,866,272	9,592,433	-	-	108,937,589	108,937,589	682,753,372	51,990,874	734,744,245	625,806,656	14.8%
2033	3.750%	1,000	61,674,589	2,959,173	54,801,517	9,832,245	-	-	114,384,469	114,384,469	712,152,072	52,773,600	764,925,672	650,541,203	15.0%
2034	3.750%	1,000	64,914,051	-	54,191,948	10,078,050	11,965	656,018	120,103,692	120,759,710	746,371,431	53,674,403	800,045,833	679,286,123	15.1%
2035	3.750%	1,000	68,159,753	-	55,231,274	10,330,002	72,874	3,327,369	126,108,877	129,436,246	784,269,661	54,677,641	838,947,302	709,511,056	15.4%
2036	3.750%	1,000	71,567,741	-	56,941,833	10,588,252	199,786	7,564,811	132,414,321	139,979,132	825,411,388	55,864,068	881,275,456	741,296,324	15.9%
2037	3.750%	1,000	75,146,128	-	59,280,546	10,852,958	376,802	12,954,237	139,035,037	151,989,274	868,874,056	57,248,957	926,123,013	774,133,739	16.4%
2038	3.750%	1,000	78,903,435	-	62,931,644	11,124,282	575,838	18,377,584	145,986,788	164,364,372	914,177,265	58,776,731	972,953,996	808,589,624	16.9%
2039	3.750%	1,000	82,848,606	-	67,086,693	11,402,389	770,148	23,507,256	153,286,128	176,793,384	961,350,932	60,388,274	1,021,739,207	844,945,823	17.3%
2040	3.750%	1,000	86,991,037	-	71,257,929	11,687,449	956,680	28,509,595	160,950,434	189,460,029	1,010,604,170	62,061,255	1,072,665,424	883,205,395	17.7%
2041	3.750%	1,000	91,340,588	-	75,633,541	11,979,635	1,138,356	33,375,362	168,997,956	202,373,318	1,061,943,936	63,770,712	1,125,714,647	923,341,329	18.0%
2042	3.750%	1,000	95,907,618	-	80,114,538	12,279,126	1,316,856	38,206,172	177,447,854	215,654,026	1,115,535,311	65,489,326	1,181,024,636	965,370,610	18.3%
2043	3.750%	1,000	100,702,999	-	84,573,883	12,586,104	1,498,552	43,247,736	186,320,246	229,567,982	1,171,642,285	67,211,920	1,238,854,205	1,009,286,223	18.5%
2044	3.750%	1,000	105,738,149	-	89,092,868	12,900,757	1,691,354	48,683,614	195,636,259	244,319,873	1,230,420,714	68,941,311	1,299,362,025	1,055,042,152	18.8%
2045	3.750%	1,000	111,025,056	-	93,755,170	13,223,276	1,900,811	54,631,035	205,418,072	260,049,107	1,292,059,024	70,677,120	1,362,736,144	1,102,687,037	19.1%
2046	3.750%	1,000	116,576,309	-	98,568,595	13,553,857	2,131,405	61,216,297	215,688,975	276,905,272	1,356,741,393	72,425,528	1,429,166,921	1,152,261,649	19.4%
2047	3.750%	1,000	122,405,124	-	103,558,390	13,892,704	2,387,644	68,557,971	226,473,424	295,031,395	1,424,621,591	74,194,665	1,498,816,256	1,203,784,861	19.7%
2048	3.750%	1,000	128,525,381	-	108,811,102	14,240,021	2,672,622	76,704,851	237,797,095	314,501,946	1,495,867,657	75,993,609	1,571,861,266	1,257,359,320	20.0%
2049	3.750%	1,000	134,951,650	-	114,285,867	14,596,022	2,989,193	85,763,805	249,686,950	335,450,755	1,570,668,818	77,833,415	1,648,502,233	1,313,051,478	20.3%
2050	3.750%	1,000	141,699,232	-	120,010,743	14,960,923	3,341,124	95,832,495	262,171,298	358,003,793	1,649,206,061	79,724,029	1,728,930,090	1,370,926,297	20.7%
2051	3.750%	1,000	148,784,194	-	126,017,181	15,334,946	3,731,787	106,996,349	275,279,862	382,276,211	1,731,668,075	81,673,105	1,813,341,180	1,431,064,969	21.1%
2052	3.750%	1,000	156,223,403	-	132,321,058	15,718,319	4,164,401	119,344,776	289,043,856	408,388,632	1,818,252,183	83,684,667	1,901,936,850	1,493,548,218	21.5%
2053	3.750%	1,000	164,034,574	-	138,938,582	16,111,277	4,642,342	132,971,833	303,496,048	436,467,881	1,909,165,035	85,761,459	1,994,926,494	1,558,458,613	21.9%
2054	3.750%	1,000	172,236,302	-	145,886,194	16,514,059	5,169,172	147,977,054	318,670,851	466,647,905	2,004,623,347	87,905,316	2,092,528,663	1,625,880,758	22.3%

<sup>o</sup> Additional contributions in the amount of \$113,439,313 are needed over the years 2028 through 2033 to pay all benefits due.

Open Group Projections

Scenario 4 — Continuing Business Scenario

Projection Based on Data as of June 30, 2017

6.50% Assumed Net Investment Return

Other Assumptions Based on Those Used in Actuarial Valuation as of June 30, 2017

1,500 New Contracts Per Year Beginning in FY 2019

Year Ending 6/30	Assumed Net Rate of Return	Annual New Contracts	Assets							Liabilities					
			Contributions	Additional Required Solvency Contributions	Tuition Payments, Refunds and Fees	Administrative Expenses	Net Investment Return	Market Value of Assets (EOY)	Total Present Value of Future Contributions	Total Fund Assets (MVA + PVFC)	Total Present Value of Future Benefits	Present Value of Future Admin Expenses	Total Present Value of Future Benefits, Fees and Expenses	Unfunded Liability	Funded Ratio
2017			\$ 23,659,545	\$ -	\$ 143,458,888	\$ 6,623,245	\$ 65,190,202	\$ 904,972,812	\$ 45,100,689	\$ 950,073,501	\$ 1,158,066,530	\$ 33,645,606	\$ 1,191,712,136	\$ 241,638,635	79.7%
2018	6.500%	0	13,277,529	-	152,763,917	4,887,821	54,204,937	814,803,540	34,329,978	849,133,518	1,075,690,268	30,788,396	1,106,478,665	257,345,147	76.7%
2019	6.500%	1,500	10,224,428	-	150,315,648	6,958,546	48,258,347	716,012,121	47,378,360	763,390,481	1,026,929,396	32,356,127	1,059,285,523	295,895,042	72.1%
2020	6.500%	1,500	35,524,667	-	151,635,853	7,132,510	42,598,423	635,366,848	59,584,202	694,951,050	974,706,588	34,060,508	1,008,767,096	313,816,046	68.9%
2021	6.500%	1,500	39,802,662	-	155,195,659	7,310,824	37,373,720	550,036,777	70,600,174	620,636,951	917,255,668	35,610,511	952,866,179	332,229,228	65.1%
2022	6.500%	1,500	45,144,144	-	145,980,417	7,493,593	32,287,094	473,994,005	79,346,413	553,340,418	867,553,825	37,023,120	904,576,945	351,236,527	61.2%
2023	6.500%	1,500	49,693,042	-	135,273,699	7,680,933	27,826,324	408,558,739	86,598,326	495,157,065	826,887,976	38,644,279	865,532,254	370,375,189	57.2%
2024	6.500%	1,500	55,300,030	-	132,050,690	7,872,957	23,849,346	347,784,468	93,930,681	441,715,149	788,859,916	40,220,895	829,080,810	387,365,661	53.3%
2025	6.500%	1,500	58,818,300	-	124,473,238	8,069,781	20,247,657	294,307,407	101,379,382	395,686,789	757,807,615	41,679,788	799,487,403	403,800,614	49.5%
2026	6.500%	1,500	62,640,385	-	116,253,152	8,271,525	17,150,404	249,573,519	108,683,559	358,257,078	734,483,061	42,828,502	777,311,562	419,054,484	46.1%
2027	6.500%	1,500	66,747,566	-	104,361,149	8,478,314	14,747,874	218,229,496	115,710,885	333,940,381	723,507,853	43,965,920	767,473,773	433,533,392	43.5%
2028	6.500%	1,500	70,779,149	-	97,595,618	8,690,271	13,049,114	195,771,870	122,740,604	318,512,474	720,709,158	44,794,211	765,503,369	446,990,895	41.6%
2029	6.500%	1,500	74,862,278	-	86,940,849	8,907,529	12,053,860	186,839,630	129,807,357	316,646,987	730,894,315	45,425,314	776,319,628	459,672,641	40.8%
2030	6.500%	1,500	79,071,117	-	79,171,645	9,130,216	11,849,299	189,458,185	136,912,540	326,370,725	752,383,350	45,955,682	798,339,031	471,968,306	40.9%
2031	6.500%	1,500	83,330,509	-	73,938,796	9,358,472	12,315,845	201,807,271	144,185,134	345,992,405	783,327,966	46,488,170	829,816,135	483,823,730	41.7%
2032	6.500%	1,500	87,818,305	-	71,247,528	9,592,433	13,340,698	222,126,312	151,574,097	373,700,409	821,806,728	47,081,384	868,888,112	495,187,703	43.0%
2033	6.500%	1,500	92,511,884	-	71,687,358	9,832,245	14,789,835	247,908,428	159,152,802	407,061,230	865,997,841	47,772,847	913,770,688	506,709,458	44.5%
2034	6.500%	1,500	97,371,076	-	73,510,356	10,078,050	16,554,933	278,246,031	167,110,442	445,356,473	914,594,920	48,580,555	963,175,475	517,819,002	46.2%
2035	6.500%	1,500	102,239,630	-	77,046,657	10,330,002	18,561,434	311,670,436	175,465,964	487,136,400	966,594,126	49,482,792	1,016,076,918	528,940,518	47.9%
2036	6.500%	1,500	107,351,612	-	81,222,615	10,588,252	20,755,701	347,966,882	184,239,262	532,206,144	1,021,656,369	50,569,661	1,072,226,030	540,019,886	49.6%
2037	6.500%	1,500	112,719,192	-	86,024,177	10,852,958	23,124,609	386,933,548	193,451,225	580,384,773	1,078,649,363	51,859,016	1,130,508,379	550,123,606	51.3%
2038	6.500%	1,500	118,355,152	-	92,421,428	11,124,282	25,624,411	427,367,401	203,123,787	630,491,188	1,137,146,265	53,290,349	1,190,436,614	559,945,426	53.0%
2039	6.500%	1,500	124,272,909	-	99,320,018	11,402,389	28,212,340	469,130,243	213,279,976	682,410,219	1,197,369,593	54,800,569	1,252,170,162	569,759,943	54.5%
2040	6.500%	1,500	130,486,555	-	106,095,720	11,687,449	30,899,826	512,733,455	223,943,975	736,677,430	1,259,712,174	56,363,947	1,316,076,120	579,398,690	56.0%
2041	6.500%	1,500	137,010,883	-	112,961,548	11,979,635	33,713,765	558,516,919	235,141,173	793,658,092	1,324,340,593	57,951,826	1,382,292,418	588,634,326	57.4%
2042	6.500%	1,500	143,861,427	-	119,857,374	12,279,126	36,678,661	606,920,507	246,898,232	853,818,739	1,391,576,652	59,534,432	1,451,111,083	597,292,344	58.8%
2043	6.500%	1,500	151,054,498	-	126,672,347	12,586,104	39,827,169	658,543,723	259,243,144	917,786,867	1,461,817,186	61,105,506	1,522,922,693	605,135,826	60.3%
2044	6.500%	1,500	158,607,223	-	133,527,519	12,900,757	43,194,927	713,917,597	272,205,301	986,122,898	1,535,301,583	62,668,491	1,597,970,073	611,847,175	61.7%
2045	6.500%	1,500	166,537,584	-	140,569,475	13,223,276	46,812,330	773,474,760	285,815,566	1,059,290,326	1,612,298,645	64,225,883	1,676,524,528	617,234,202	63.2%
2046	6.500%	1,500	174,864,463	-	147,820,122	13,553,857	50,707,398	837,672,642	300,106,344	1,137,778,986	1,693,061,673	65,788,195	1,758,849,868	621,070,882	64.7%
2047	6.500%	1,500	183,607,687	-	155,326,908	13,892,704	54,908,973	906,969,690	315,111,661	1,222,081,351	1,777,788,311	67,367,099	1,845,155,410	623,074,059	66.2%
2048	6.500%	1,500	192,788,071	-	163,211,054	14,240,021	59,443,635	981,750,321	330,867,244	1,312,617,565	1,866,705,044	68,975,169	1,935,680,213	623,062,648	67.8%
2049	6.500%	1,500	202,427,474	-	171,426,035	14,596,022	64,338,563	1,062,494,291	347,410,607	1,409,904,898	1,960,054,366	70,625,643	2,030,680,009	620,775,111	69.4%
2050	6.500%	1,500	212,548,848	-	180,014,849	14,960,923	69,624,263	1,149,691,630	364,781,137	1,514,472,767	2,058,063,895	72,329,119	2,130,393,015	615,920,248	71.1%
2051	6.500%	1,500	223,176,291	-	189,025,224	15,334,946	75,331,853	1,243,839,604	383,020,194	1,626,859,798	2,160,970,138	74,092,566	2,235,062,705	608,202,907	72.8%
2052	6.500%	1,500	234,335,105	-	198,481,382	15,718,319	81,493,673	1,345,468,681	402,171,203	1,747,639,884	2,269,019,886	75,918,411	2,344,938,297	597,298,413	74.5%
2053	6.500%	1,500	246,051,860	-	208,407,817	16,111,277	88,144,262	1,455,145,709	422,279,764	1,877,425,473	2,382,471,293	77,808,128	2,460,279,421	582,853,948	76.3%
2054	6.500%	1,500	258,354,453	-	218,829,291	16,514,059	95,320,559	1,573,477,371	443,393,752	2,016,871,123	2,501,594,947	79,762,670	2,581,357,617	564,486,494	78.1%

Open Group Projections

Scenario 5 — Continuing Business Scenario

Projection Based on Data as of June 30, 2017

6.50% Assumed Net Investment Return

Other Assumptions Based on Those Used in Actuarial Valuation as of June 30, 2017

2,500 New Contracts Per Year Beginning in FY 2019

Year Ending 6/30	Assumed Net Rate of Return	Annual New Contracts	Assets						Liabilities					Unfunded Liability	Funded Ratio
			Contributions	Additional Required Solvency Contributions	Tuition Payments, Refunds and Fees	Administrative Expenses	Net Investment Return	Market Value of Assets (EOY)	Total Present Value of Future Contributions	Total Fund Assets (MVA + PVFC)	Total Present Value of Future Benefits	Present Value of Future Admin Expenses	Total Present Value of Future Benefits, Fees and Expenses		
2017			\$ 23,659,545	\$ -	\$ 143,458,888	\$ 6,623,245	\$ 65,190,202	\$ 904,972,812	\$ 45,100,689	\$ 950,073,501	\$ 1,158,066,530	\$ 33,645,606	\$ 1,191,712,136	\$ 241,638,635	79.7%
2018	6.500%	0	13,277,529	-	152,763,917	4,887,821	54,204,937	814,803,540	34,329,978	849,133,518	1,075,690,268	30,788,396	1,106,478,665	257,345,147	76.7%
2019	6.500%	2,500	10,224,428	-	150,315,648	6,958,546	48,258,347	716,012,121	61,623,976	777,636,097	1,051,224,903	32,356,127	1,083,581,030	305,944,933	71.8%
2020	6.500%	2,500	53,764,804	-	151,678,325	7,132,510	43,180,536	654,146,626	86,457,034	740,603,660	1,025,546,285	34,060,508	1,059,606,793	319,003,133	69.9%
2021	6.500%	2,500	62,110,505	-	155,768,652	7,310,824	39,289,698	592,467,353	108,344,228	700,811,581	997,044,134	35,610,511	1,032,654,645	331,843,064	67.9%
2022	6.500%	2,500	71,631,200	-	147,133,464	7,493,593	35,855,476	545,326,972	126,039,802	671,366,774	978,889,699	37,023,120	1,015,912,819	344,546,045	66.1%
2023	6.500%	2,500	80,493,575	-	137,032,118	7,680,933	33,391,977	514,499,473	140,125,686	654,625,159	972,008,707	38,644,279	1,010,652,985	356,027,826	64.8%
2024	6.500%	2,500	90,568,789	-	134,993,158	7,872,957	31,769,559	493,971,706	153,722,004	647,693,710	970,042,900	40,220,895	1,010,263,794	362,570,084	64.1%
2025	6.500%	2,500	97,017,333	-	128,770,226	8,069,781	30,834,298	484,983,331	166,998,188	651,981,519	977,084,210	41,679,788	1,018,763,998	366,782,479	64.0%
2026	6.500%	2,500	103,701,776	-	122,358,185	8,271,525	30,662,536	488,717,933	179,765,153	668,483,086	993,305,546	42,828,502	1,036,134,047	367,650,961	64.5%
2027	6.500%	2,500	110,676,506	-	113,038,553	8,478,314	31,419,900	509,297,472	191,975,699	701,273,171	1,022,854,077	43,965,920	1,066,819,997	365,546,826	65.7%
2028	6.500%	2,500	117,577,536	-	109,475,606	8,690,271	33,085,516	541,794,647	204,035,087	745,829,734	1,061,180,102	44,794,211	1,105,974,313	360,144,579	67.4%
2029	6.500%	2,500	124,503,115	-	102,533,162	8,907,529	35,634,498	590,491,569	216,054,291	806,545,860	1,112,778,789	45,425,314	1,158,204,102	351,658,242	69.6%
2030	6.500%	2,500	131,589,126	-	98,903,744	9,130,216	39,135,443	653,182,178	228,079,670	881,261,848	1,175,850,433	45,955,682	1,221,806,114	340,544,266	72.1%
2031	6.500%	2,500	138,801,535	-	98,036,363	9,358,472	43,461,491	728,050,369	240,278,937	968,329,306	1,248,347,784	46,488,170	1,294,835,953	326,506,647	74.8%
2032	6.500%	2,500	146,333,275	-	100,010,040	9,592,433	48,498,233	813,279,403	252,623,495	1,065,902,898	1,328,096,300	47,081,384	1,375,177,684	309,274,786	77.5%
2033	6.500%	2,500	154,186,473	-	105,459,042	9,832,245	54,107,355	906,281,944	265,254,670	1,171,536,614	1,413,513,715	47,772,847	1,461,286,562	289,749,948	80.2%
2034	6.500%	2,500	162,285,127	-	112,147,171	10,078,050	60,189,778	1,006,531,628	278,517,403	1,285,049,031	1,503,272,616	48,580,555	1,551,853,171	266,804,140	82.8%
2035	6.500%	2,500	170,399,384	-	120,677,424	10,330,002	66,684,640	1,112,608,226	292,443,273	1,405,051,499	1,596,550,623	49,482,792	1,646,033,415	240,981,916	85.4%
2036	6.500%	2,500	178,919,353	-	129,784,181	10,588,252	73,552,588	1,224,707,734	307,065,437	1,531,773,171	1,693,148,013	50,569,661	1,743,717,674	211,944,503	87.8%
2037	6.500%	2,500	187,865,320	-	139,511,438	10,852,958	80,805,596	1,343,014,254	322,418,709	1,665,432,963	1,791,497,252	51,859,016	1,843,356,268	177,923,305	90.3%
2038	6.500%	2,500	197,258,586	-	151,400,996	11,124,282	88,406,988	1,466,154,550	338,539,644	1,804,694,194	1,891,304,726	53,290,349	1,944,595,075	139,900,881	92.8%
2039	6.500%	2,500	207,121,516	-	163,786,669	11,402,389	96,321,513	1,594,408,521	355,466,626	1,949,875,147	1,993,223,470	54,800,569	2,048,024,039	98,148,892	95.2%
2040	6.500%	2,500	217,477,591	-	175,771,304	11,687,449	104,596,808	1,729,024,167	373,239,958	2,102,264,125	2,098,060,899	56,363,947	2,154,424,845	52,160,720	97.6%
2041	6.500%	2,500	228,351,471	-	187,617,561	11,979,635	113,306,373	1,871,084,814	391,901,956	2,262,986,770	2,206,352,603	57,951,826	2,264,304,428	1,317,658	99.9%
2042	6.500%	2,500	239,769,045	-	199,343,047	12,279,126	122,520,886	2,021,752,572	411,497,053	2,433,249,625	2,318,788,043	59,534,432	2,378,322,474	(54,927,151)	102.3%
2043	6.500%	2,500	251,757,497	-	210,869,276	12,586,104	132,319,256	2,182,373,945	432,071,906	2,614,445,851	2,436,082,027	61,105,506	2,497,187,534	(117,258,317)	104.7%
2044	6.500%	2,500	264,345,372	-	222,396,821	12,900,757	142,783,498	2,354,205,237	453,675,501	2,807,880,738	2,558,691,636	62,668,491	2,621,360,126	(186,520,612)	107.1%
2045	6.500%	2,500	277,562,640	-	234,198,086	13,223,276	153,987,511	2,538,334,026	476,359,276	3,014,693,302	2,687,097,763	64,225,883	2,751,323,646	(263,369,656)	109.6%
2046	6.500%	2,500	291,440,772	-	246,323,175	13,553,857	166,001,384	2,735,899,150	500,177,240	3,236,076,390	2,821,743,570	65,788,195	2,887,531,765	(348,544,625)	112.1%
2047	6.500%	2,500	306,012,811	-	258,863,943	13,892,704	178,897,255	2,948,052,569	525,186,102	3,473,238,671	2,962,967,643	67,367,099	3,030,334,742	(442,903,929)	114.6%
2048	6.500%	2,500	321,313,451	-	272,010,956	14,240,021	192,745,008	3,175,860,051	551,445,407	3,727,305,458	3,111,169,067	68,975,169	3,180,144,236	(547,161,222)	117.2%
2049	6.500%	2,500	337,379,124	-	285,706,372	14,596,022	207,616,928	3,420,553,709	579,017,678	3,999,571,387	3,266,754,685	70,625,643	3,337,380,328	(662,191,059)	119.8%
2050	6.500%	2,500	354,248,080	-	300,023,061	14,960,923	223,591,986	3,683,409,791	607,968,562	4,291,378,353	3,430,105,474	72,329,119	3,502,434,594	(788,943,759)	122.5%
2051	6.500%	2,500	371,960,484	-	315,041,310	15,334,946	240,751,848	3,965,745,867	638,366,990	4,604,112,857	3,601,616,567	74,092,566	3,675,709,134	(928,403,723)	125.3%
2052	6.500%	2,500	390,558,508	-	330,802,031	15,718,319	259,182,190	4,268,966,215	670,285,339	4,939,251,554	3,781,699,739	75,918,411	3,857,618,150	(1,081,633,404)	128.0%
2053	6.500%	2,500	410,086,434	-	347,346,289	16,111,277	278,974,386	4,594,569,469	703,799,606	5,298,369,075	3,970,785,489	77,808,128	4,048,593,617	(1,249,775,458)	130.9%
2054	6.500%	2,500	430,590,756	-	364,715,485	16,514,059	300,226,000	4,944,156,681	738,989,586	5,683,146,267	4,169,324,911	79,762,670	4,249,087,581	(1,434,058,686)	133.7%

Open Group Projections

Scenario 6 — Continuing Business Scenario

Projection Based on Data as of June 30, 2017

6.50% Assumed Net Investment Return

Other Assumptions Based on Those Used in Actuarial Valuation as of June 30, 2017

5% Annual Sales Growth from 500 Contracts Sold in FY 2019 to 2,500 New Contracts Per Year

Year Ending 6/30	Assumed Net Rate of Return	Annual New Contracts	Assets							Liabilities					
			Contributions	Additional Required Solvency Contributions <sup>o</sup>	Tuition Payments, Refunds and Fees	Administrative Expenses	Net Investment Return	Market Value of Assets (EOY)	Total Present Value of Future Contributions	Total Fund Assets (MVA + PVFC)	Total Present Value of Future Benefits	Present Value of Future Admin Expenses	Total Present Value of Future Benefits, Fees and Expenses	Unfunded Liability	Funded Ratio
2017			\$ 23,659,545	\$ -	\$ 143,458,888	\$ 6,623,245	\$ 65,190,202	\$ 904,972,812	\$ 45,100,689	\$ 950,073,501	\$ 1,158,066,530	\$ 33,645,606	\$ 1,191,712,136	\$ 241,638,635	79.7%
2018	6.500%	0	13,277,529	-	152,763,917	4,887,821	54,204,937	814,803,540	34,329,978	849,133,518	1,075,690,268	30,788,396	1,106,478,665	257,345,147	76.7%
2019	6.500%	500	10,224,428	-	150,315,648	6,958,546	48,258,347	716,012,121	33,132,744	749,144,865	1,002,633,889	32,356,127	1,034,990,016	285,845,151	72.4%
2020	6.500%	525	17,284,530	-	151,593,382	7,132,510	42,016,309	616,587,068	33,085,317	649,672,385	924,504,648	34,060,508	958,565,156	308,892,771	67.8%
2021	6.500%	551	17,973,621	-	154,623,781	7,310,824	35,473,082	508,099,166	33,973,810	542,072,976	839,504,870	35,610,511	875,115,381	333,042,405	61.9%
2022	6.500%	579	19,770,549	-	144,843,641	7,493,593	28,785,853	404,318,334	34,876,059	439,194,393	760,558,928	37,023,120	797,582,048	358,387,655	55.1%
2023	6.500%	608	20,815,387	-	133,563,486	7,680,933	22,428,363	306,317,665	36,747,563	343,065,228	689,475,741	38,644,279	728,120,019	385,054,791	47.1%
2024	6.500%	638	22,959,756	-	129,207,527	7,872,957	16,260,112	208,457,049	39,597,898	248,054,947	619,984,967	40,220,895	660,205,861	412,150,914	37.6%
2025	6.500%	670	24,773,727	-	120,362,973	8,069,781	10,233,825	115,031,848	43,348,139	158,379,987	556,856,681	41,679,788	598,536,469	440,156,482	26.5%
2026	6.500%	704	27,162,012	-	110,466,778	8,271,525	4,547,694	28,003,251	47,689,746	152,620,628	42,828,502	544,449,129	468,756,132	13.9%	
2027	6.500%	739	30,051,764	45,722,843	96,195,323	8,478,314	895,778	-	52,433,741	52,433,741	459,576,677	43,965,920	503,542,597	451,108,856	10.4%
2028	6.500%	776	33,108,432	62,089,266	86,507,427	8,690,271	-	-	57,766,979	57,766,979	427,141,142	44,794,211	471,935,353	414,168,374	12.2%
2029	6.500%	814	36,513,154	44,927,717	72,533,342	8,907,529	-	-	63,688,150	63,688,150	409,657,681	45,425,314	455,082,994	391,394,844	14.0%
2030	6.500%	855	40,305,294	29,980,015	61,155,093	9,130,216	-	-	70,200,211	70,200,211	405,804,979	45,955,682	451,760,660	381,560,449	15.5%
2031	6.500%	898	44,399,866	17,209,193	52,250,587	9,358,472	-	-	77,445,886	77,445,886	414,193,963	46,488,170	460,682,132	383,236,246	16.8%
2032	6.500%	943	48,995,222	6,371,106	45,773,894	9,592,433	-	-	85,410,558	85,410,558	433,438,037	47,081,384	480,519,421	395,108,863	17.8%
2033	6.500%	990	54,083,617	-	42,296,679	9,832,245	62,527	2,017,220	94,165,140	96,182,360	461,779,841	47,772,847	509,552,688	413,370,328	18.9%
2034	6.500%	1,039	59,705,054	-	40,590,104	10,078,050	420,195	11,474,315	103,817,067	115,291,382	498,275,421	48,580,555	546,855,976	431,564,594	21.1%
2035	6.500%	1,091	65,824,822	-	40,732,619	10,330,002	1,218,049	27,454,565	114,458,317	141,912,882	542,115,332	49,482,792	591,598,124	449,685,242	24.0%
2036	6.500%	1,146	72,571,866	-	41,873,049	10,588,252	2,427,851	49,992,981	126,190,294	176,183,275	593,240,250	50,569,661	643,809,911	467,626,636	27.4%
2037	6.500%	1,203	80,010,483	-	43,967,886	10,852,958	4,055,319	79,237,939	139,124,799	218,362,738	651,418,895	51,859,016	703,277,911	484,915,173	31.0%
2038	6.500%	1,263	88,211,557	-	47,448,545	11,124,282	6,098,561	114,975,230	153,385,091	268,360,321	716,593,268	53,290,349	769,883,617	501,523,296	34.9%
2039	6.500%	1,327	97,253,242	-	51,843,952	11,402,389	8,561,215	157,543,346	169,107,063	326,650,409	789,112,400	54,800,569	843,912,969	517,262,560	38.7%
2040	6.500%	1,393	107,221,699	-	56,844,506	11,687,449	11,477,939	207,711,029	186,440,537	394,151,566	869,579,957	56,363,947	925,943,903	531,792,337	42.6%
2041	6.500%	1,463	118,211,923	-	62,652,386	11,979,635	14,895,267	266,186,197	205,550,692	471,736,889	958,493,939	57,951,826	1,016,445,764	544,708,875	46.4%
2042	6.500%	1,536	130,328,645	-	69,173,825	12,279,126	18,865,557	333,927,448	226,619,638	560,547,086	1,056,590,380	59,534,432	1,116,124,811	555,577,725	50.2%
2043	6.500%	1,613	143,687,331	-	76,316,259	12,586,104	23,457,766	412,170,182	249,848,151	662,018,333	1,164,819,838	61,105,506	1,225,925,345	563,907,012	54.0%
2044	6.500%	1,693	158,415,283	-	84,177,913	12,900,757	28,753,120	502,259,915	275,457,586	777,717,501	1,284,173,392	62,668,491	1,346,841,882	569,124,381	57.7%
2045	6.500%	1,778	174,652,849	-	92,844,148	13,223,276	34,840,831	605,686,171	303,691,989	909,378,160	1,415,782,219	64,225,883	1,480,008,102	570,629,942	61.4%
2046	6.500%	1,867	192,554,766	-	102,383,190	13,553,857	41,820,477	724,124,367	334,820,418	1,058,944,785	1,560,899,921	65,788,195	1,626,688,116	567,743,331	65.1%
2047	6.500%	1,960	212,291,630	-	112,880,977	13,892,704	49,803,664	859,445,980	369,139,510	1,228,585,490	1,720,900,339	67,367,099	1,788,267,438	559,681,948	68.7%
2048	6.500%	2,058	234,051,522	-	124,481,941	14,240,021	58,913,426	1,013,688,966	406,976,310	1,420,665,276	1,897,293,203	68,975,169	1,966,268,372	545,603,096	72.3%
2049	6.500%	2,161	258,041,803	-	137,254,741	14,596,022	69,286,661	1,189,166,667	448,691,382	1,637,858,049	2,091,766,259	70,625,643	2,162,391,902	524,533,853	75.7%
2050	6.500%	2,269	284,491,088	-	151,326,716	14,960,923	81,076,969	1,388,447,085	494,682,249	1,883,129,334	2,306,172,663	72,329,119	2,378,501,783	495,372,449	79.2%
2051	6.500%	2,382	313,651,424	-	166,839,740	15,334,946	94,454,787	1,614,378,610	545,387,179	2,159,765,789	2,542,555,559	74,092,566	2,616,648,126	456,882,337	82.5%
2052	6.500%	2,500	345,800,695	-	183,941,895	15,718,319	109,609,406	1,870,128,497	601,175,736	2,471,304,233	2,802,973,824	75,918,411	2,878,892,235	407,588,002	85.8%
2053	6.500%	2,500	381,099,775	-	202,796,154	16,111,277	126,746,621	2,159,067,462	653,346,563	2,812,414,025	3,074,122,565	77,808,128	3,151,930,693	339,516,668	89.2%
2054	6.500%	2,500	408,159,607	-	223,550,934	16,514,059	145,716,458	2,472,878,534	702,592,047	3,175,470,581	3,355,624,698	79,762,670	3,435,387,368	259,916,787	92.4%

<sup>o</sup> Additional contributions in the amount of \$206,300,140 are needed over the years 2027 through 2032 to pay all benefits due.

Open Group Projections

Scenario 7— Continuing Business Scenario

Projection Based on Data as of June 30, 2017

6.50% Assumed Net Investment Return

Other Assumptions Based on Those Used in Actuarial Valuation as of June 30, 2017

10% Annual Sales Growth from 500 Contracts Sold in FY 2019 to 2,500 New Contracts Per Year

Year Ending 6/30	Assumed Net Rate of Return	Annual New Contracts	Assets							Liabilities					
			Contributions	Additional Required Solvency Contributions <sup>o</sup>	Tuition Payments, Refunds and Fees	Administrative Expenses	Net Investment Return	Market Value of Assets (EOY)	Total Present Value of Future Contributions	Total Fund Assets (MVA + PVFC)	Total Present Value of Future Benefits	Present Value of Future Admin Expenses	Total Present Value of Future Benefits, Fees and Expenses	Unfunded Liability	Funded Ratio
2017			\$ 23,659,545	\$ -	\$ 143,458,888	\$ 6,623,245	\$ 65,190,202	\$ 904,972,812	\$ 45,100,689	\$ 950,073,501	\$ 1,158,066,530	\$ 33,645,606	\$ 1,191,712,136	\$ 241,638,635	79.7%
2018	6.500%	0	13,277,529	-	152,763,917	4,887,821	54,204,937	814,803,540	34,329,978	849,133,518	1,075,690,268	30,788,396	1,106,478,665	257,345,147	76.7%
2019	6.500%	500	10,224,428	-	150,315,648	6,958,546	48,258,347	716,012,121	33,132,744	749,144,865	1,002,633,889	32,356,127	1,034,990,016	285,845,151	72.4%
2020	6.500%	550	17,284,530	-	151,593,382	7,132,510	42,016,309	616,587,068	33,459,264	650,046,332	925,142,405	34,060,508	959,202,913	309,156,581	67.8%
2021	6.500%	605	18,452,425	-	154,624,895	7,310,824	35,488,362	508,592,136	35,130,763	543,722,899	841,609,504	35,610,511	877,220,015	333,497,116	62.0%
2022	6.500%	666	20,934,285	-	144,860,029	7,493,593	28,854,598	406,027,397	37,261,800	443,289,197	765,191,205	37,023,120	802,214,325	358,925,128	55.3%
2023	6.500%	732	22,913,244	-	133,613,535	7,680,933	22,604,958	310,251,131	40,845,504	351,096,635	697,976,488	38,644,279	736,620,766	385,524,131	47.7%
2024	6.500%	805	26,292,247	-	129,314,023	7,872,957	16,618,982	215,975,380	45,929,136	261,904,516	634,017,446	40,220,895	674,238,340	412,333,824	38.8%
2025	6.500%	886	29,702,304	-	120,568,429	8,069,781	10,873,601	127,913,076	52,516,813	180,429,889	578,466,420	41,679,788	620,146,208	439,716,319	29.1%
2026	6.500%	974	34,075,352	-	110,826,678	8,271,525	5,594,607	48,484,832	60,400,406	108,885,238	533,297,983	42,828,502	576,126,484	467,241,246	18.9%
2027	6.500%	1,072	39,407,642	15,822,884	96,787,995	8,478,314	1,550,951	-	69,510,054	69,510,054	504,321,015	43,965,920	548,286,935	478,776,881	12.7%
2028	6.500%	1,179	45,447,345	50,689,528	87,446,602	8,690,271	-	-	80,173,924	80,173,924	488,537,981	44,794,211	533,332,192	453,158,268	15.0%
2029	6.500%	1,297	52,472,259	30,406,779	73,971,509	8,907,529	-	-	92,558,996	92,558,996	491,970,796	45,425,314	537,396,109	444,837,113	17.2%
2030	6.500%	1,427	60,633,947	11,783,945	63,287,676	9,130,216	-	-	106,866,727	106,866,727	514,085,106	45,955,682	560,040,787	457,174,060	19.1%
2031	6.500%	1,569	69,980,048	-	55,321,754	9,358,472	169,533	5,469,355	123,472,726	128,942,081	554,410,178	46,488,170	600,898,347	471,956,266	21.5%
2032	6.500%	1,726	80,864,816	-	50,080,145	9,592,433	1,033,413	27,695,005	142,635,135	170,330,140	612,628,542	47,081,384	659,709,926	489,379,786	25.8%
2033	6.500%	1,899	93,462,840	-	48,198,080	9,832,245	2,933,604	66,061,124	164,743,580	230,804,704	688,225,821	47,772,847	735,998,668	505,193,964	31.4%
2034	6.500%	2,089	108,027,447	-	48,522,732	10,078,050	5,875,052	121,362,841	190,278,835	311,641,676	787,119,958	48,580,555	830,296,513	568,544,837	37.5%
2035	6.500%	2,297	124,771,701	-	51,209,140	10,330,002	9,911,291	194,506,691	219,772,055	414,278,746	893,990,747	49,482,792	943,473,539	529,194,793	43.9%
2036	6.500%	2,500	144,111,315	-	55,502,868	10,588,252	15,138,674	287,665,560	252,947,463	540,613,023	1,025,463,682	50,569,661	1,076,033,343	535,420,320	50.2%
2037	6.500%	2,500	165,309,956	-	61,466,046	10,852,958	21,672,891	402,329,403	282,839,605	685,169,008	1,164,826,423	51,859,016	1,216,685,439	531,516,431	56.3%
2038	6.500%	2,500	179,761,743	-	69,604,549	11,124,282	29,319,313	530,681,628	309,916,830	840,598,458	1,311,049,783	53,290,349	1,364,340,132	523,741,674	61.6%
2039	6.500%	2,500	194,011,938	-	79,338,537	11,402,389	37,797,777	671,750,417	334,804,205	1,006,554,622	1,463,295,242	54,800,569	1,518,095,811	511,541,189	66.3%
2040	6.500%	2,500	207,961,132	-	90,457,080	11,687,449	47,048,678	824,615,698	358,324,693	1,182,940,391	1,620,753,898	56,363,947	1,677,117,844	494,177,453	70.5%
2041	6.500%	2,500	221,481,031	-	103,249,787	11,979,635	56,998,836	987,866,142	381,436,078	1,369,302,220	1,782,527,092	57,951,826	1,840,478,917	471,176,697	74.4%
2042	6.500%	2,500	234,518,134	-	117,456,034	12,279,126	67,563,136	1,160,212,252	404,407,780	1,564,620,032	1,947,778,124	59,534,432	2,007,312,555	442,692,523	77.9%
2043	6.500%	2,500	247,826,361	-	132,996,064	12,586,104	78,684,422	1,341,140,867	427,474,918	1,768,615,785	2,115,859,792	61,105,506	2,176,965,299	408,349,514	81.2%
2044	6.500%	2,500	261,483,821	-	149,815,258	12,900,757	90,333,578	1,530,242,251	450,865,250	1,981,107,501	2,286,311,940	62,668,491	2,348,980,430	367,872,929	84.3%
2045	6.500%	2,500	275,541,744	-	167,669,251	13,223,276	102,493,421	1,727,384,889	474,788,338	2,202,173,227	2,458,924,048	64,225,883	2,523,149,931	320,976,704	87.3%
2046	6.500%	2,500	290,062,870	-	186,331,548	13,553,857	115,164,648	1,932,727,002	499,413,899	2,432,140,901	2,633,683,564	65,788,195	2,699,471,759	267,330,858	90.1%
2047	6.500%	2,500	305,131,301	-	205,622,064	13,892,704	128,365,989	2,146,709,524	524,894,226	2,671,603,750	2,810,744,221	67,367,099	2,878,111,320	206,507,570	92.8%
2048	6.500%	2,500	320,808,520	-	225,440,194	14,240,021	142,131,281	2,369,969,110	551,378,698	2,921,347,808	2,990,355,983	68,975,169	3,059,331,152	137,983,344	95.5%
2049	6.500%	2,500	337,142,553	-	245,681,831	14,596,022	156,506,769	2,603,340,579	579,017,678	3,182,358,257	3,172,954,987	70,625,643	3,243,580,630	61,222,373	98.1%
2050	6.500%	2,500	354,179,237	-	266,237,568	14,960,923	171,551,673	2,847,872,998	607,968,562	3,455,841,560	3,359,158,342	72,329,119	3,431,487,462	(24,354,098)	100.7%
2051	6.500%	2,500	371,960,484	-	286,989,107	15,334,946	187,339,301	3,104,848,730	638,366,990	3,743,215,720	3,549,551,873	74,092,566	3,623,644,440	(119,571,280)	103.3%
2052	6.500%	2,500	390,558,508	-	308,036,269	15,718,319	203,952,116	3,375,604,766	670,285,339	4,045,890,105	3,744,812,332	75,918,411	3,820,730,743	(225,159,362)	105.9%
2053	6.500%	2,500	410,086,434	-	329,360,145	16,111,277	221,481,239	3,661,701,017	703,799,606	4,365,500,623	3,945,615,376	77,808,128	4,023,423,504	(342,077,119)	108.5%
2054	6.500%	2,500	430,590,756	-	351,038,030	16,514,059	240,027,070	3,964,766,754	738,989,586	4,703,756,340	4,152,693,854	79,762,670	4,232,456,524	(171,299,816)	111.1%

<sup>o</sup> Additional contributions in the amount of \$108,703,136 are needed over the years 2027 through 2030 to pay all benefits due.

**Open Group Projections**  
**Scenario 8 — Continuing Business Scenario**  
**Projection Based on Data as of June 30, 2017**  
**6.50% Assumed Net Investment Return**  
**Other Assumptions Based on Those Used in Actuarial Valuation as of June 30, 2017**  
**15% Annual Sales Growth from 500 Contracts Sold in FY 2019 to 2,500 New Contracts Per Year**

Year Ending 6/30	Assumed Net Rate of Return	Annual New Contracts	Assets							Liabilities					
			Contributions	Additional Required Solvency Contributions <sup>o</sup>	Tuition Payments, Refunds and Fees	Administrative Expenses	Net Investment Return	Market Value of Assets (EOY)	Total Present Value of Future Contributions	Total Fund Assets (MVA + PVFC)	Total Present Value of Future Benefits	Present Value of Future Admin Expenses	Total Present Value of Future Benefits, Fees and Expenses	Unfunded Liability	Funded Ratio
2017			\$ 23,659,545	\$ -	\$ 143,458,888	\$ 6,623,245	\$ 65,190,202	\$ 904,972,812	\$ 45,100,689	\$ 950,073,501	\$ 1,158,066,530	\$ 33,645,606	\$ 1,191,712,136	\$ 241,638,635	79.7%
2018	6.500%	0	13,277,529	-	152,763,917	4,887,821	54,204,937	814,803,540	34,329,978	849,133,518	1,075,690,268	30,788,396	1,106,478,665	257,345,147	76.7%
2019	6.500%	500	10,224,428	-	150,315,648	6,958,546	48,258,347	716,012,121	33,132,744	749,144,865	1,002,633,889	32,356,127	1,034,990,016	285,845,151	72.4%
2020	6.500%	575	17,284,530	-	151,593,382	7,132,510	42,016,309	616,587,068	33,833,212	650,420,280	925,780,162	34,060,508	959,840,670	309,420,390	67.8%
2021	6.500%	661	18,931,229	-	154,626,010	7,310,824	35,503,643	509,085,106	36,326,981	545,412,087	843,781,102	35,610,511	879,391,613	333,979,526	62.0%
2022	6.500%	760	22,148,296	-	144,876,533	7,493,593	28,924,948	407,788,224	39,816,433	447,604,657	770,125,328	37,023,120	807,148,448	359,543,791	55.5%
2023	6.500%	875	25,194,000	-	133,665,446	7,680,933	22,790,709	314,426,554	45,397,886	359,824,440	707,328,104	38,644,279	745,972,382	386,147,942	48.2%
2024	6.500%	1,006	30,065,862	-	129,428,022	7,872,957	17,007,449	224,198,886	53,239,393	277,438,279	649,969,927	40,220,895	690,190,821	412,752,542	40.2%
2025	6.500%	1,157	35,513,450	-	120,794,128	8,069,781	11,586,798	142,435,226	63,532,434	205,967,660	603,867,970	41,679,788	645,547,758	439,580,098	31.9%
2026	6.500%	1,330	42,571,895	-	111,232,595	8,271,525	6,797,353	72,300,354	76,303,964	148,604,318	571,822,975	42,828,502	614,651,476	466,047,158	24.2%
2027	6.500%	1,530	51,401,138	-	97,474,020	8,478,314	2,954,519	20,703,677	91,776,411	112,480,088	560,659,996	43,965,920	604,625,916	492,145,828	18.6%
2028	6.500%	1,759	61,953,550	13,931,500	88,560,733	8,690,271	662,277	-	110,640,861	110,640,861	568,633,508	44,794,211	613,427,719	502,786,858	18.0%
2029	6.500%	2,023	74,758,955	9,868,121	75,719,547	8,907,529	-	-	133,515,012	133,515,012	603,309,244	45,425,314	648,734,557	515,219,545	20.6%
2030	6.500%	2,326	90,278,873	-	65,945,437	9,130,216	486,326	15,689,546	161,157,524	176,847,070	666,056,199	45,955,682	712,011,880	562,101,810	24.8%
2031	6.500%	2,500	108,944,137	-	59,250,995	9,358,472	2,310,061	58,334,277	190,150,631	248,484,908	751,111,726	46,488,170	797,599,895	549,114,987	31.2%
2032	6.500%	2,500	125,844,885	-	55,731,634	9,592,433	5,727,690	124,582,784	215,808,112	340,390,896	849,601,990	47,081,384	896,683,284	556,292,388	38.0%
2033	6.500%	2,500	138,128,867	-	55,979,801	9,832,245	10,411,178	207,310,783	238,589,602	445,900,385	959,004,994	47,772,847	1,006,777,841	560,877,456	44.3%
2034	6.500%	2,500	150,130,615	-	58,766,903	10,078,050	16,075,397	304,671,842	259,186,392	563,858,234	1,077,378,788	48,580,555	1,125,959,343	612,011,109	50.1%
2035	6.500%	2,500	161,613,155	-	64,322,177	10,330,002	22,585,410	414,218,228	278,534,785	692,753,013	1,202,783,624	49,482,792	1,252,266,416	559,513,403	55.3%
2036	6.500%	2,500	172,447,343	-	71,828,171	10,588,252	29,804,127	534,053,275	297,352,274	831,405,549	1,333,968,006	50,569,661	1,384,537,667	553,132,118	60.0%
2037	6.500%	2,500	182,924,008	-	81,195,038	10,852,958	37,620,439	662,549,726	315,880,801	978,430,527	1,469,374,754	51,859,019	1,521,233,770	542,803,243	64.3%
2038	6.500%	2,500	193,569,968	-	92,869,126	11,124,282	45,931,141	798,057,427	334,339,610	1,132,397,037	1,607,645,748	53,290,349	1,660,936,097	528,539,060	68.2%
2039	6.500%	2,500	204,444,317	-	106,226,445	11,402,389	54,650,819	939,523,729	352,939,610	1,292,463,339	1,747,987,297	54,800,569	1,802,787,866	510,324,527	71.7%
2040	6.500%	2,500	215,591,892	-	120,673,165	11,687,449	63,731,475	1,086,486,482	371,863,757	1,458,350,239	1,890,001,654	56,363,947	1,946,365,600	488,015,361	74.9%
2041	6.500%	2,500	227,077,162	-	136,146,748	11,979,635	73,147,128	1,238,584,388	391,261,470	1,629,845,858	2,033,305,265	57,951,826	2,091,257,090	461,411,232	77.9%
2042	6.500%	2,500	238,969,454	-	152,311,745	12,279,126	82,887,235	1,395,850,206	411,270,261	1,807,120,467	2,177,817,915	59,534,432	2,237,352,346	430,231,879	80.8%
2043	6.500%	2,500	251,316,286	-	168,886,937	12,586,104	92,964,435	1,558,657,886	432,027,047	1,990,684,933	2,323,713,640	61,105,506	2,384,819,147	394,134,214	83.5%
2044	6.500%	2,500	264,154,793	-	185,802,610	12,900,757	103,406,447	1,727,515,759	453,675,501	2,181,191,260	2,471,308,675	62,668,491	2,533,977,165	352,785,905	86.1%
2045	6.500%	2,500	277,516,347	-	202,909,583	13,223,276	114,252,082	1,903,151,329	476,359,276	2,379,510,605	2,621,052,601	64,225,883	2,685,278,484	305,767,879	88.6%
2046	6.500%	2,500	291,440,772	-	220,142,947	13,553,857	125,551,972	2,086,447,269	500,177,240	2,586,624,509	2,773,416,280	65,788,195	2,839,204,475	252,579,966	91.1%
2047	6.500%	2,500	306,012,811	-	237,535,400	13,892,704	137,365,148	2,278,397,124	525,186,102	2,803,583,226	2,928,914,191	67,367,099	2,996,281,290	192,698,064	93.6%
2048	6.500%	2,500	321,313,451	-	255,135,657	14,240,021	149,757,218	2,480,092,115	551,445,407	3,031,537,522	3,088,051,858	68,975,169	3,157,027,027	125,489,505	96.0%
2049	6.500%	2,500	337,379,124	-	272,964,255	14,596,022	162,799,611	2,692,710,573	579,017,678	3,271,728,251	3,251,550,730	70,625,643	3,322,176,373	50,448,122	98.5%
2050	6.500%	2,500	354,248,080	-	290,899,051	14,960,923	176,574,044	2,917,672,723	607,968,562	3,525,641,285	3,420,396,944	72,329,119	3,492,726,064	(32,915,221)	100.9%
2051	6.500%	2,500	371,960,484	-	308,758,601	15,334,946	191,179,912	3,156,719,572	638,366,990	3,795,086,562	3,595,595,937	74,092,566	3,669,688,504	(125,398,058)	103.4%
2052	6.500%	2,500	390,558,508	-	326,616,950	15,718,319	206,729,355	3,411,672,166	670,285,339	4,081,957,505	3,778,069,385	75,918,411	3,853,987,796	(227,969,709)	105.9%
2053	6.500%	2,500	410,086,434	-	344,650,894	16,111,277	223,336,494	3,684,332,923	703,799,606	4,388,132,529	3,968,657,927	77,808,128	4,046,466,055	(341,666,474)	108.4%
2054	6.500%	2,500	430,590,756	-	363,030,617	16,514,059	241,114,521	3,976,493,524	738,989,586	4,715,483,110	4,168,121,964	79,762,670	4,247,884,634	(467,598,476)	111.0%

<sup>o</sup> Additional contributions in the amount of \$23,799,621 are needed over the years 2028 through 2029 to pay all benefits due.

## SECTION D

---

### ACTUARIAL METHODS AND ASSUMPTIONS



## Actuarial Valuation Methods

**Actuarial Value of Assets** – The Actuarial Value of Assets is equal to the Market Value of Assets.

## Actuarial Valuation Assumptions

The rationale for the assumptions (except as indicated) may be found in the experience study report covering the period July 1, 2011, through June 30, 2014, which was issued on August 26, 2015. The assumptions were adopted for first use in the actuarial valuation as of June 30, 2015.

**The actuarial assumptions used in the actuarial soundness valuation and the projection scenarios are shown in this Section.**

**Measurement Date** June 30, 2017

### Net Investment Return Rate

Select and ultimate rate structure beginning with 6.50 percent for fiscal year 2018 and grading down in increments of 0.393 percent to an ultimate investment return rate of 3.75 percent for fiscal years on and after fiscal year 2025, compounded annually. Includes inflation assumption of 2.50 percent. (First effective with the actuarial soundness valuation as of June 30, 2017, and provided by ISAC.)

Considering the current asset allocation, liquidity requirements and deferment of the next enrollment period, we believe the net investment rate of return assumption of 6.50 percent in fiscal year 2018 grading down to 3.75 percent in 2025, on a select and ultimate basis, is consistent with applicable Actuarial Standards of Practice.

For the open group scenarios in which new contracts are assumed to be sold, a net investment rate of return assumption of 6.50 percent was used for scenarios in which (1) there was no depletion date, or (2) there was a depletion date, but the funded status increased significantly after they depletion date. A select and ultimate rate was used for scenarios in which there was a depletion date and the funded status remained low for the duration of the projection period.

## Weighted Average Tuition and Fees (WATF) by Contract Type Based on the Freshman Tuition Rates Adjusted for Differential Tuition (Blended)

	Contract Type			
	Choice 1	Choice 2	Choice 3	
	Community College	University	University Plus	Legacy†
2017-2018 Weighted Tuition	\$3,862	\$10,675	\$13,884	\$11,525
2017-2018 Weighted Fees	494	3,729	3,832	3,756
2017-2018 Total WATF	4,356	14,404	17,716	15,281

†Legacy contracts refer to contracts sold prior to October 2008. These contracts can be used for full tuition and fees at any public University in the State of Illinois, including UIUC.

For continuing students at public universities and students attending community colleges, fees are combined with tuition in our projections and follow their respective tuition inflation assumptions.

### Weighted Average Tuition and Fees (WATF) Increase from Prior Year

	Contract Type			
	Choice 1	Choice 2	Choice 3	
	Community College	University	University Plus	Legacy
2017-2018 Total WATF	\$4,356	\$14,404	\$17,716	\$15,281
2016-2017 Total WATF	4,157	14,158	17,798	15,045
WATF Increase	4.79%	1.74%	-0.46%	1.57%

### Bias Load

“Legacy,” Choice 1 and Choice 2 contract beneficiaries were assumed on average to attend more expensive schools than indicated by the headcount information that was used to determine the 2017-2018 WATF. The following bias loads were used to recognize this bias toward enrollment at more expensive schools. No bias load was applied to the “University Plus” beneficiaries due to the separation of UIUC.

	Contract Type			
	Choice 1	Choice 2	Choice 3	
	Community College	University	University Plus	Legacy
Bias Load	5.50%	2.50%	0.00%	4.00%

### Tuition and Fee Increase Assumption

Tuition and Fee Increase Assumption - June 30, 2017, Actuarial Valuation				
Effective Date	Community College	University	University Plus	Legacy
6/30/2017 and Beyond	5.00%	5.00%	5.00%	5.00%

(First effective with the actuarial soundness valuation as of June 30, 2016, and provided by ISAC.)

These assumptions were chosen by ISAC and consider historical Illinois public tuition and fee inflation, typically over a 20-year horizon, as well as current economic and political conditions.

### Truth in Tuition

Under Illinois’ Truth-in-Tuition law, the state’s 12 public colleges and universities are required to charge incoming resident freshmen a fixed tuition rate for the first four years of college. The Truth in Tuition law does not apply to community colleges.

For contract beneficiaries with a Choice 2, Choice 3 or Legacy contract, it was assumed that their tuition will not increase in their second, third and fourth year of school. If they attend school beyond four years, it was assumed that their tuition would increase to the amount charged the year after the year they first

enrolled. For contract beneficiaries with a Choice 1 contract, it was assumed that tuition will increase for each year enrolled. The fee portion of the WATF is assumed to increase each year for all contract types.

The following table shows the WAT (excluding fees) for the past four years that would be used for contract beneficiaries under the Truth-in-Tuition law. (Choice 1 is shown for informational purposes only.)

	Contract Type			
	Choice 1	Choice 2	Choice 3	
	Community College	University	University Plus	Legacy
2017-2018 Weighted Tuition	\$3,862	\$10,675	\$13,884	\$11,525
2016-2017 Weighted Tuition	3,698	10,410	14,136	11,318
2015-2016 Weighted Tuition	3,549	10,082	14,136	11,022
2014-2015 Weighted Tuition	3,331	9,903	14,145	10,871
2013-2014 Weighted Tuition	3,186	9,633	13,841	10,557

### Rates of Cancellation

These rates are used to measure the probability of eligible contract beneficiaries cancelling their contracts before and after projected college entrance date. The rates apply to contract beneficiaries who have not yet matriculated and those who have matriculated, but have not used credits within the past year. Once the contract beneficiaries are assumed to have matriculated and started using benefits, the cancellation rates do not apply.

Years From Projected College Entrance Year	Cancellation Rate	Years From Projected College Entrance Year	Cancellation Rate
-17	8.0%	-3	1.0%
-16	7.0%	-2	1.0%
-15	6.0%	-1	1.5%
-14	4.0%	0	1.5%
-13	4.0%	1	3.0%
-12	3.0%	2	3.0%
-11	3.0%	3	5.0%
-10	3.0%	4	5.0%
-9	2.0%	5	7.5%
-8	1.5%	6	7.5%
-7	1.5%	7	5.0%
-6	1.5%	8	5.0%
-5	1.5%	9	5.0%
-4	1.0%	10	100.0%

In the event of a cancellation, it was assumed that a refund will be paid equal to the amount of all contract payments made accumulated with applicable interest, less benefits paid. (Two percent annual interest is applicable to contracts purchased prior to the 2013/2014 enrollment period. No interest is applicable to contracts purchased during or after the 2013/2014 enrollment period.)

## Rates of Enrollment

These rates are used to measure the probability of eligible contract beneficiaries matriculating at and beyond their projected college entrance date. The rates apply to contract beneficiaries who have not yet matriculated and those who have matriculated, but have not used credits within the past year.

Years From Projected College Entrance Year	Matriculation Rate
0	70%
1	35%
2	40%
3	30%
4	20%
5	15%
6	15%
7	10%
8	10%
9	10%
10	0%

## Utilization of Benefits

The following rates apply to contract beneficiaries who have not yet matriculated and those who have matriculated, but have not used credits within the past year. For those who have matriculated, the projected college entrance year is assumed to be the valuation year. Contract beneficiaries are assumed to use the benefits as described by the CIPTP Master Agreement.

Distribution of Benefit Utilization									
Number of Years Since Matriculation	Number of Semesters Purchased								
	1	2	3	4	5	6	7	8	9
1	73%	73%	49%	37%	29%	24%	21%	18%	16%
2	20%	20%	28%	35%	26%	24%	21%	18%	16%
3	7%	7%	14%	17%	19%	22%	21%	18%	16%
4			5%	6%	13%	15%	21%	18%	16%
5			5%	6%	7%	9%	8%	13%	16%
6					3%	4%	3%	6%	8%
7					2%	2%	2%	4%	6%
8							1%	2%	4%
9							1%	2%	1%

For contract beneficiaries who have matriculated and have used credits within the past year, it is assumed that the contract beneficiaries will utilize 22 credits per year until benefits are fully depleted.

## Administrative Expenses

Administrative expenses of the Program are assumed to be paid through a combination of investment earnings and fees assessed on purchasers. Marketing expenses were excluded from the liabilities (present value of future administrative expenses) for current contract beneficiaries as it is assumed those costs should be applicable to future contracts. Administrative expenses are projected to increase by the rate of the inflation assumption of 2.50 percent for two years and then decline at the same rate the present value of benefits declines (combined with a 2.50 percent increase for inflation). The present value of future administrative expenses was determined to be equal to approximately 2.8 percent of the total liabilities.

First effective with the actuarial soundness valuation as of June 30, 2017, the calculation of the total administrative expenses related to marketing was changed from an assumption of 12 percent of total administrative expenses to incorporate actual marketing expenses in the prior fiscal year, as provided by ISAC. The amount of administrative expenses assumed to be non-marketing related is the basis for the present value of future administrative expenses for current contract beneficiaries.

Fiscal Year	Assumed Current Contract Beneficiary Expenses			
	Marketing	Other Administration	Total Administrative Expenses	Marketing % of Total
2017	\$1,854,639	\$4,768,606	\$6,623,245	28.00%
2018	0	4,887,821	4,887,821	
2019	0	5,010,017	5,010,017	

For the open group scenarios (in which new contracts are assumed to be sold), marketing expenses are allocated to the year the contracts were sold and non-marketing expenses are allocated over the duration of the contract period until all tuition benefits are assumed to be paid. Marketing expenses are assumed to increase from the amount in fiscal year 2017 by 2.5 percent annually.

## Mortality and Disability

No assumption is made for death or disability. Valuing the rate of incidence is expected to be immaterial.

## Data Adjustments

The following contract beneficiary records were excluded from the actuarial valuation:

- Records with a payment status indicating they were cancelled;
- Records with a contract usage status of depleted; and
- Records with the number of contract units used equal to the number of contract units purchased.

The projected college entrance year was adjusted for contract beneficiaries who are not scheduled to have completed payments for the contract by the college entrance year provided in the data.

The account balance that is eligible to be refunded is calculated by GRS based on the contract payment information provided, increased with applicable interest, less any tuition and fee benefits paid to date. Two percent annual interest is applicable to contracts purchased prior to the 2013/2014 enrollment period. No interest is applicable to contracts purchased during or after the 2013/2014 enrollment period.

## Future Beneficiary Profile

The characteristics of future beneficiaries are assumed to be the same as the characteristics of 2016 new beneficiaries, including the following:

- Distribution of number of years until projected college entrance date at time of contract purchase;
- Distribution of contract type and number of years of tuition benefits purchased; and
- Distribution of contract payment options (lump sum, monthly or annual payments over a period of between five and 15 years depending on beneficiary age at contract purchase).

## Assumed Future Contract Prices

Pricing for contracts sold for the period January 18, 2017, through May 31, 2017, were based on the following pricing methodology and underlying assumptions which were developed by and are the responsibility of ISAC.

- Discount Rate of 7.0 percent.
- Tuition and Fee Increases of 6.0 percent for all years for all contract types
- Stabilization Fee of 15 percent of the Present Value of Tuition and Fee Benefits (“PVB”) for Choice 1 contracts, 23 percent of the PVB for Choice 2 contracts and 25 percent of the PVB for Choice 3 contracts.
- Administrative Fee of 3.0 percent of the sum of the PVB and the Stabilization Fee.
- Weighted Average Tuition and Fees (“WATF”) for FY 2017 equal to the WATF for FY 2016 increased by 6.0 percent for Choice 1, 3.0 percent for Choice 2, and 0.0 percent for Choice 3. Increase amounts are based on expected increases in the WATF.
- All payments are assumed to be made at the beginning of the year.
- The price increase limitation of 9.0 percent more than the prior year price for Choice 1 contracts has been eliminated.
- The provisions of Truth in Tuition will be included in the PVB calculations for multi-year contracts with credit values greater than 30. Please note that the provisions of Truth in Tuition do not apply towards fees. Fees are assumed to increase by 6.0 percent for all years.
- Benefits are assumed to be utilized in the first year in which the contract holder is eligible to attend college and also are assumed to be used at a rate of 30 credits per year.
- Prices will be determined according to single year age groups.
- Benefits may not be used until the third anniversary after the First Payment Date.
- Prices for “Combo” packages consisting of either (1) four University semesters combined with four Community College semesters or (2) four University Plus semesters combined with four Community College semesters were based on present values assuming the four Community College semesters were used first and as such are not equal to the sum of the separate lump sum prices for four University or University Plus semesters combined with four Community College semesters.
- Monthly and annual installment payments are calculated assuming an interest rate of 7.75 percent.
- A \$3 processing fee per payment for monthly and annual installment payments.

Contract prices are assumed to increase each year by the tuition and fee increase assumption, which is 5.00 percent per year. Prices were not recalculated for future years to take into account the change in the investment return assumption from 7.00 percent to 6.50 percent. Changes in assumptions affect the stabilization fees that were calculated for the 2016-2017 enrollment period.

## **SECTION E**

---

### **PLAN PROVISIONS**

## Plan Provisions

*(This is a summary only; the full terms and conditions of the College Illinois!® Prepaid Tuition Program are included in the Illinois Prepaid Tuition Act, 110 ILCS 979 (the “Act”) and ISAC Administrative Rules (23 Ill. Adm. Code 2775, et. seq.) (“ISAC Rules”).*

### **A. Type of Contract**

Three types of contracts are available for purchase: Choice 1 - Community College, Choice 2 – University and Choice 3 – University Plus.

### **B. Benefit**

Covered benefits include tuition and mandatory fees at an Illinois public university or community college based on the in-state or in-district undergraduate rate for a full-time student.

Mandatory fees are fees that are required upon enrollment for all students attending the particular institution.

The benefit does not include any optional fees, expenses or cost of supplies.

The benefit shall never be less than the amount paid for the contract.

Benefits are available for use three years after the first payment due date. The plan must be paid in full prior to the use of any benefits. In addition, the beneficiary has up to 10 years from the projected college enrollment date to start using program benefits. Once the beneficiary starts using the prepaid benefits, they have 10 years to finish using benefits.

### **A. Type of Contract**

Three types of contracts are available for purchase: Choice 1 - Community College, Choice 2 – University and Choice 3 – University Plus.

### **B. Benefit**

Covered benefits include tuition and mandatory fees at an Illinois public university or community college based on the in-state or in-district undergraduate rate for a full-time student.

Mandatory fees are fees that are required upon enrollment for all students attending the particular institution.

The benefit does not include any optional fees, expenses or cost of supplies.

Benefit shall never be less than payment amount.



**C. Member Contributions**

The Program offers a variety of payment options, including the following:

- Lump Sum;
- 5-year installment plans paid monthly or annually;
- Extended installment plans of 6 to 15 years, depending on age, paid monthly or annually; and
- Down payment options are available for monthly installment plans.

**D. Private or Out-of-State Institutions**

For beneficiaries attending a private or out-of-state institution, the plan will pay an amount based upon the weighted average tuition and mandatory fees at Illinois public universities or community colleges depending on the type of contract purchased.

**E. Scholarship**

If a qualified beneficiary is awarded a grant or scholarship that duplicates the benefits covered by a prepaid tuition contract, the purchaser may request a refund in semester installments.

Illinois public university or community college – the installments will be in an amount equal to the current cost of in-state or in-district registration fees at that institution, less any benefits used to pay registration fees not covered by the scholarship and any applicable fees.

Illinois Private Institution or an eligible Out-of-State Institution – the installments will be in an amount equal to the current average mean-weighted credit hour value of registration fees at Illinois public universities or Illinois community colleges, depending on the type of the purchased contract, less any benefits used to pay registration fees not covered by the scholarship and any applicable fees.

**F. Not Attending an Institution of Higher Education (Transfer)**

Benefits can be transferred to a member of the “family” as defined in Section 529 of the Internal Revenue Code.

Purchasers can also choose to postpone the beneficiary’s use of contract benefits to a later time or receive a refund.

**G. Cancellation/Refunds**

Refund equal to all contract payments made accumulated with applicable interest, less benefits paid and applicable cancellation fees. (Two percent annual interest is applicable to contracts purchased prior to the 2013/2014 enrollment period. No interest is applicable to contracts purchased during or after the 2013/2014 enrollment period.)

***H. Death/Disability of Qualified Beneficiary***

Refund equal to the value of the mean-weighted average cost of tuition at the colleges for the type of contract purchased will be made to the purchaser.

***I. Other Ancillary Benefits***

There are no ancillary benefits.

***J. Truth in Tuition***

Under Illinois' Truth-in-Tuition law, enacted with the fall 2004 semester, the state's 12 public colleges and universities are required to charge incoming resident freshmen a fixed tuition rate for the first four years of college.

***K. Changes from Previous Valuation***

None.