

2015 ACTUARIAL VALUATION REPORT ON THE
TEACHERS' RETIREMENT SYSTEM OF LOUISIANA



ACTUARIAL VALUATION AS OF
JUNE 30, 2015
ISSUED APRIL 2016

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2015 ACTUARIAL VALUATION REPORT
TEACHERS' RETIREMENT SYSTEM OF LOUISIANA

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LOUISIANA LEGISLATIVE AUDITOR
DARYL G. PURPERA, CPA, CFE

April 8, 2016

The Honorable John A. Alario, Jr.,
President of the Senate
The Honorable Taylor Barras,
Speaker of the House of Representatives

Dear Senator Alario and Representative Barras:

This report provides the results of an actuarial valuation of the Teachers' Retirement System of Louisiana as of June 30, 2015, as required under R.S. 11:127(C).

The report contains our findings, conclusions, and recommendations. I hope this report will benefit you in your legislative decision-making process.

Sincerely,

Daryl G. Purpera, CPA, CFE
Legislative Auditor

DGP:PTR:ch

TRSL 2015 VALUATION

SUMMARY AND CONCLUSIONS

SUMMARY AND CONCLUSIONS

2015 Valuation Report on the Teachers' Retirement System of Louisiana

This valuation has been prepared as of June 30, 2015, based on plan provisions for the Teachers' Retirement System of Louisiana (TRSL) as documented in Title 11 of Louisiana Revised Statutes (R.S.), Sections 701 through 952. The purpose of the valuation, in general, is to:

1. Measure and compare plan assets and liabilities as of June 30, 2015.
2. Determine the actuarially calculated employer contribution requirements for FYE 2016.
3. Determine the sources and amounts of gains and losses between June 30, 2014, and June 30, 2015.
4. Calculate projected employer contribution rates for FYE 2017.
5. Show measures of funding for actuarial obligations of the retirement system.

The actuary for the Louisiana Legislative Auditor (LLA) is required by R.S. 11:127(C) to prepare an actuarial valuation for review by Public Retirement Systems' Actuarial Committee (PRSAC). More specifically, R.S. 11:127(C) states:

The actuaries for the public retirement systems, plans, and funds and for the legislative auditor shall submit annual actuarial valuations to the committee. The committee shall review and analyze all the assumptions and valuations submitted. The committee shall, with the consent of the majority of members present and voting, approve a single valuation for each public retirement system, plan, or fund. Once consent of the members is obtained, the actuarial valuations in the form of the official valuations adopted by the committee shall be submitted to the House and Senate committees on retirement and the Joint Legislative Committee on the Budget.

The actuarial valuation report for TRSL prepared by the LLA serves two purposes:

1. To provide PRSAC with assurance that actuarial mathematics, benefit formulas, and actuarial assumptions for the June 30, 2015 valuation were applied correctly, and
2. To provide PRSAC with a second opinion in regard to the assumptions and methods used to value assets, liabilities, employer contribution requirements, and the funded ratio.

As a result of his work, the LLA's actuary has reached the following conclusions:

1. When using the same methods and assumptions, the LLA and TRSL actuaries will obtain identical results.

2. In his August 2015 presentation to the Public Retirement Systems' Actuarial Committee on the sustainability of the Louisiana Retirement Systems, the LLA actuary identified the following risks:
 - a. The retirement systems cannot invest their way out of the unfunded accrued liability hole; contributions toward the unfunded accrued liability are necessary.
 - b. Employer contributions toward the unfunded accrued liability may need to be larger than current levels because of market volatility.
 - c. Assumptions and methods must be continuously monitored to keep additional unfunded liabilities from developing.
3. The LLA's actuary cannot support, endorse, or certify the following economic assumptions used by the TRSL's actuary: (1) the Investment Return assumption and (2) the Discount Rate assumption. Therefore, the LLA's actuary is required by Actuarial Standards of Practice to use an assumption set that he can support, endorse or certify.

The assumption set recommended and used by the LLA's actuary is compared below with the assumption set used by the TRSL's actuary. The LLA rates will first apply July 1, 2016.

Assumption	LLA's Actuary	TRSL's Actuary
Real Rate of Return on Investments	5.25%	5.60%
Rate of Inflation	2.50%	2.50%
Total Rate of Return on Investments	7.75%	8.10%
Rate of Return Diverted to Pay for Administrative Expenses	0.10%	0.10%
Rate of Return Diverted to Pay for the Gain Sharing/COLA Program	0.25%	0.25%
Discount Rate	7.40%	7.75%

The reader of this report should recognize that the LLA's actuary is not making any judgement about whether the TRSL's actuary is complying or not complying with Actuarial Standards of Practice. Professional actuarial opinions may differ and with both opinions being in compliance with Actuarial Standards of Practice. The reader of this report should also recognize:

1. The two actuaries might select the same assumption set if the range of reasonableness of the LLA's actuary and the range of reasonableness of the TRSL's actuary overlap.
2. The assumption set used by the LLA's actuary reflects the upper limit of his range of reasonableness. If he should use an assumption set that is any closer to the assumption set used by the TRSL's actuary, the LLA's actuary may be in conflict with Actuarial Standards of Practice because he would be using an assumption set that is outside his range of reasonableness. Based on his analysis, the future investment return assumption should range from 6.50% to 7.80%.

3. The TRSL's actuary complies with Actuarial Standards of Practice if she believes her assumption set to be "reasonable". Her range of reasonableness has not been identified.

The assumption sets shown above reflect the professional opinions of two actuaries preparing the same work product. The LLA's and TRSL's actuaries have spent considerable time and effort to reconcile their differences. If they had been able to do so, the LLA's actuary would have merely endorsed the valuation prepared by the TRSL's actuary. However, because their differences could not be resolved, the LLA's actuary is required to prepare an alternative report.

Basis for the Economic Assumptions Selected by the LLA's Actuary

The economic assumptions used in the preparation of this valuation report are based on our interpretation of Actuarial Standards of Practice, in particular, ASOP 27: The Selection of Economic Assumptions for Measuring Pension Obligations. This ASOP requires a rigorous examination of many different data elements pertaining to investments and the economy. Standards require the actuary to use this data and apply professional (actuarial) judgement in his selections.

The LLA actuary's recommendations for assuming a lower investment return assumption are supported by the following:

1. TRSL's average rate of return over the past 27 years is 8.25%. The average assumed rate of return over the same period of time is 8.73%. Although TRSL has achieved sufficient returns relative to regular benefit costs, losses have occurred relative to administrative expenses and gain sharing.
2. Historically, rates of return following a market downturn contain a component to recover some or all of the losses incurred. The investment community does not anticipate rates of return after 2009 to contain a recovery component.
3. Recent studies prepared for the LLA by Gabriel Roeder Smith (GRS) provide substantial evidence supporting a 2.50% inflation assumption. The actuaries for TRSL and for the LLA are both recommending and using a 2.50% assumption.
4. Investment return predictions become less credible the farther out you go from the current date. The inventory of investment opportunities available 15 years from now will look very different from the opportunities that exist today. Therefore, it is prudent to consider an investment horizon that ranges from 7 to 15 years.
5. The weighted average duration of liabilities for TRSL is 13.0 years. The duration for a typical public sector retirement system is 15 years. This means that TRSL bears a larger

market risk and interest rate risk than other systems and perhaps cannot accommodate the current level of earnings volatility.

6. The investment community is predicting rates of return to average 5.00% to 6.00% over the next 7 to 10 years. Substantial returns will be required after the 7 to 10 year period ends in order to achieve the assumed rate of return. For example, if TRSL earns only 5.5% over the next 10 years, it will have to earn 9.46% over the 20 years thereafter in order to achieve the 8.10% target.
7. LLA contracted independent consultants to determine a reasonable range of investment returns based on TRSL's asset allocation and investment policy. Results show that there is a 50/50 chance that the average rate will be 6.72%. Results also show that there is only a 37% chance that an average rate of 8.10% can be achieved.
8. According to a survey by the National Association of State Retirement Administrators (NASRA), the average assumed rate of return on investments for 126 large public retirement systems is 7.64%. The TRSL assumption is 46 basis points more than this average assumption. The average assumption has declined 32 basis points in the last 6 years. Many forecasters have stated that assumed rates of return are still too high.
9. The assumed rate of return used by TRSL (8.10%) is larger than 121 of the 126 systems in the NASRA survey.
10. According to NASRA about two-third of the 126 public retirement systems have reduced the assumed rate in the last 5 years; some more than once.
11. CalPERS recently reduced its assumed rate of return from 7.50% to a floating rate that could become as low as 6.50%. New York State Common Fund recently cut its assumed rate to 7.00%.

A more comprehensive discussion of the analysis that led to our assumption selection is given in Appendix B.

The Financial Effect of the Assumption Change

The financial effect of the assumption change is shown below.

	TRSL Actuary	LLA Actuary	Increase
Contributions, in Dollars	\$1,143 million	\$1,229 million	\$86 million
Employer Contribution Rate	25.4%	27.4%	2.0%

However, employer contributions in dollars, as recommended by LLA’s actuary for FYE 2017, is only \$20 million more than it was for FYE 2015, and the contribution rate is 0.3% less.

FYE	Contributions	Rate
2015	\$1,209 million	27.7%
2016	\$1,162 milion	26.2%
2017	\$1,229 million	27.4%

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This valuation report is a public document. This report has been prepared for the following persons:

Potential Users	Definitions	Identified Persons
Principal	A client or employer of the actuary.	1. The Legislative Auditor.
Intended Users	Any person the actuary identifies as able to rely on the actuarial findings of the report.	1. The Louisiana Legislature. 2. PRSAC. 3. TRSL.
Other User	Any recipient of the report who is not an intended user.	1. Other interested government entities or employees. 2. The public.

A brief summary of information developed in this valuation and in prior year valuations is presented on the following page.

		----- Prior Years -----	
	June 30, 2015	June 30, 2014	June 30, 2013
A. Membership Data			
(1) Retirees	74,712	73,195	71,031
(2) Actives	83,602	82,886	82,910
(3) DROP	2,283	2,291	2,451
(4) Terminated Vested	6,606	6,336	5,991
B. Annual Benefits	\$ 1,820,201,496	\$ 1,744,088,016	\$ 1,644,237,684
C. Total Payroll	3,815,649,662	3,764,954,727	3,726,325,750
D. Valuation Assets	17,457,243,695	16,145,772,807	14,669,155,950
E. Experience Account	226,356,559	218,148,161	219,736,906
F. Investment Returns			
(1) Market (Total Assets)	2.52%	18.44%	12.57%
(2) Market (excl. OPR & self-directed)	2.58%	18.90%	12.79%
(3) Net Actuarial Value	11.26%	13.14%	13.41%
(4) Rate for DROP Accounts	10.76%	12.64%	12.91%
G. Normal Costs			
(1) Total in Dollars	\$ 463,783,246	\$ 459,658,120	485,140,427
(2) Total Normal Cost Rate	12.15%	12.21%	13.02%
(3) Employer Normal Cost Rate	4.17%	4.23%	5.04%
H. Accrued Liability	\$ 28,646,296,897	\$ 28,119,536,564	\$ 26,017,708,304
I. Unfunded Accrued Liability	\$ 11,189,053,202	\$ 11,973,763,757	\$ 11,348,552,354
J. Funded Percentage	60.9%	57.4%	56.4%
K. Funding Requirements for the Fiscal Year Following the Valuation Date			
(1) Employees			
a) Contributions	\$ 310,329,613	\$ 306,132,676	\$ 302,615,214
b) Rate	7.98%	7.98%	7.98%
(2) Employers			
a) Contributions	\$ 1,125,847,380	\$ 1,158,523,507	\$ 1,155,693,972
b) Rate	25.8%	27.0%	27.3%
L. Funding Requirements for the Subsequent Fiscal Year			
(1) Employees			
a) Contributions	\$ 320,647,506	\$ 316,264,891	\$ 311,972,072
b) Rate	7.98%	7.98%	7.98%
(2) Employers			
a) Contributions	\$ 1,229,229,363	\$ 1,162,619,515	\$ 1,208,736,413
b) Rate	27.4%	26.2%	27.7%

Contribution Rates for FYE 2017

Contribution requirements for TRSL for FYE 2017 vary from sub plan to sub plan. And, the total contribution rate for each sub plan has one or more of the following component parts:

1. Total Normal Cost
2. Employee Normal Cost
3. Employer Normal Cost
4. UAL Costs that are shared by all sub plans
5. UAL Costs that are specific to a particular sub plan

Contribution rates are summarized below. More details are presented in Appendix A.

Projected Contribution Rates for FYE 2017						
	Status	Total NC %	Employee NC %	Employer NC %	Shared UAL %	Total Employer Cost %
Sub Plan	7/1/15	(A)	(B)	(C) = (A) - (B)	(D)	(E) = (C) + (D)
Regular Teachers	O	13.2594	8.0000	5.2594	22.2775	27.5369
Higher Education	O	11.9254	8.0000	3.9254	22.2775	26.2029
Lunch Plan A	C	19.2690	9.1000	10.1690	22.2775	32.4465
Lunch Plan B	O	12.7172	5.0000	7.7172	22.2775	29.9947
Total		13.0641	7.9824	5.0817	22.2775	27.3592

Status

- O – Plan is open to new members.
- C – Plan is closed to new members.

Sources and Amounts of Gains and Losses for FYE 2015

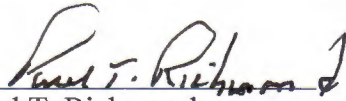
Gains and losses measured during FYE 2015 have been identified below, and the unfunded accrued liability at the end of the year has been reconciled with the unfunded accrued liability on June 30, 2014.


A.	Unfunded Accrued Liability on June 30, 2014		\$ 11,973,763,757
B.	Increases in the UAL Due to:		
	1. Interest on the UAL	\$ 927,966,691	
	2. Allocation to the Experience Account	0	
	3. Employer Contribution Shortfall	0	
	4. Assumption Change (Discount Rate)	0	
	5. Investment Loss	0	
	6. Experience Loss	<u>0</u>	
	7. Total Increases = B1 + B2 + B3 + B4 + B5 + B6		\$ 927,966,691
C.	Decreases in the UAL Due to:		
	1. Employer Amortization Payment	\$ 1,034,280,392	
	2. Legislative Allocation	10,384,806	
	3. Employer Contribution Surplus	91,284,653	
	4. Investment Gain	539,621,226	
	5. Experience Gain	<u>37,106,169</u>	
	6. Total Decreases = C1 + C2 + C3 + C4 + C5		\$ 1,712,677,246
D.	Unfunded Accrued Liability on June 30, 2015		
	= A + B7 - C6		\$ 11,189,053,202

Actuarial Certification

This report is considered to be a Statement of Actuarial Opinion. Therefore, I make the following certification:

I, Paul T. Richmond, am the Manager of Actuarial Services for the Louisiana Legislative Auditor. I am a member of the American Academy of Actuaries, an Associate in the Society of Actuaries, an Enrolled Actuary, and I meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinion contained herein.


Paul T. Richmond


Date

**SECTION I:
DEVELOPMENT OF EMPLOYER CONTRIBUTIONS**

1. Employer Contribution Requirements for FYE 2016 - Combined Plan

Employer contribution requirements for FYE 2016, as measured for all sub plans combined using assumptions and methods applicable to that fiscal year, are calculated below. These values have been determined as if the entire system had been measured as a single financial entity. Although R.S. 11:102D requires separate calculations of normal cost for each sub plan within TRSL, values in the aggregate are useful for comparisons with contribution requirements for prior years.

	<u>Dollar Amount</u>	<u>Percent of Salary</u>
A. Employer Portion of Normal Cost	\$ 162,207,376	4.172356%
B. Shared Amortization Payments	935,381,362	21.003564%
C. Contribution Variance Payments	<u>28,258,642</u>	<u>0.634535%</u>
D. Total Contribution = A + B + C	\$ 1,125,847,380	25.810455%
E. Projected Payroll for FYE 2016		
1. Projected Payroll for Normal Costs	3,887,668,656	
2. Projected Payroll for Amortization Costs	4,453,441,076	
F. Total Contribution Rate for FYE 2016		
1. Employer Normal Cost Rate = A / E1	4.17%	
2. Employer Amortization Cost Rate = (B + C) / E2	21.64%	
3. Total Employer Contribution Rate = F1 + F2	25.81%	
G. Minimum Contribution Rate	15.50%	
H. Minimum Required Contribution for FYE 2016 = A + E2 x (15.5% – F1)	\$ 666,782,250	15.500000%
I. Required Employer Contribution for FYE 2016 = The Greater of D and H	\$ 1,125,847,380	25.810455%

2. Employer Contribution Requirements for FYE 2017 - Combined Plan

Employer contribution requirements for FYE 2017, as measured for all sub plans combined using assumptions and methods applicable to that fiscal year, are calculated below. These values have been determined as if the entire system had been measured as a single financial entity. Although R.S. 11:102D requires separate calculations of normal cost for each sub plan within TRSL, values in the aggregate are useful for comparisons with contribution requirements for prior years. Contribution requirements by sub plan are presented in Appendix A.

	<u>Dollar Amount</u>	<u>Percent of Salary</u>
A. Employer Portion of Normal Cost	\$ 204,128,839	5.081717%
B. Shared Amortization Payments	1,022,373,788	22.218224%
C. Contribution Variance Payments	<u>2,726,736</u>	<u>0.059257%</u>
D. Total Contribution = A + B + C	\$ 1,229,229,363	27.359199%
E. Projected Payroll for FYE 2017		
1. Projected Payroll for Normal Costs	4,016,926,538	
2. Projected Payroll for Amortization Costs	4,601,509,857	
F. Total Contribution Rate for FYE 2017		
1. Employer Normal Cost Rate = A / E1	5.08%	
2. Employer Amortization Cost Rate = (B + C) / E2	22.28%	
3. Total Employer Contribution Rate = F1 + F2	27.36%	
G. Minimum Contribution Rate	15.50%	
H. Minimum Required Contribution for FYE 2017 = A + E2 x (15.5% – F1)	\$ 683,606,166	15.500000%
I. Required Employer Contribution for FYE 2017 = The Greater of D and H	\$ 1,229,229,363	27.359199%

3. Normal Cost Values - Combined Plan

Employer and Employee Normal Costs

Funding rules under R.S. 11:21 require normal costs to be determined in accordance with the Entry Age Normal (EAN) funding method. Employee contributions and actuarially calculated employer normal cost values for FYE 2016 are based on the valuation of normal costs as of June 30, 2015. The total normal cost percentage is calculated as the total normal cost for FYE 2016 divided by the payroll as of June 30, 2015. The employee normal cost is calculated as employee contributions collected in FYE 2015 divided by the June 30, 2015 payroll. The employer normal cost percentage is equal to the difference between the total normal cost percentage and the employee normal cost percentage. These percentages are then multiplied by the project payroll for FYE 2016 to determine dollar contribution amounts for that fiscal year.

Projected normal costs for FYE 2017 are calculated in a similar manner. The calculated normal cost percentages, however, are multiplied by projected payroll amounts for FYE 2017.

Normal costs and projected payroll values for FYE 2016 and 2017 are based on 7.75% and 7.40% discount rate respectively. These rates are equal to the assumed rate of return, minus the cost of administrative expenses (10 basis points) and the gain sharing/COLA program (25 basis points) as described in Section II of this report.

	<u>June 30, 2015 Valuation</u>		<u>June 30, 2014 Valuation</u>	
	<u>Actuarial</u>	<u>Projected</u>	<u>Actuarial</u>	<u>Projected</u>
A. Total Normal Cost				
1. Retirement Benefits	\$ 306,147,279	\$ 331,848,970	\$ 307,195,523	\$ 307,195,523
2. Disability Benefits	14,130,553	14,947,763	13,943,741	13,943,741
3. Survivor Benefits	10,664,199	11,304,418	10,441,698	10,441,698
4. Voluntary Benefits	<u>132,841,215</u>	<u>140,380,141</u>	<u>128,077,158</u>	<u>128,077,158</u>
5. Total Normal Cost	\$ 463,783,246	\$ 498,481,292	\$ 459,658,120	\$ 459,658,120
B. Payrolls				
1. On Valuation Date	\$ 3,815,649,662	\$ 3,815,649,662	\$ 3,764,954,727	\$ 3,764,954,727
2. Projected for FY after Valuation Date	3,887,668,656	n/a	3,835,455,925	n/a
3. Projected for 2nd FY after Valuation Date	n/a	4,016,926,538	n/a	3,962,399,789
4. ORP – Salary Adjustment Factor	1.14553	1.14553	1.14232	1.14232
C. Normal Cost Rates				
1. Total Normal Cost Rate = A5 / B1	12.154765%	13.064126%	12.208862%	12.208862%
2. Employee Normal Cost Rate	7.982409%	7.982409%	7.981650%	7.981650%
3. Employer Normal Cost Rate = C1 – C2	4.172356%	5.081717%	4.227212%	4.227212%

	<u>June 30, 2015 Valuation</u>		<u>June 30, 2014 Valuation</u>	
	<u>Actuarial</u>	<u>Projected</u>	<u>Actuarial</u>	<u>Projected</u>
D. Employer Normal Cost				
1. For 1st FY after Valuation Date = B2 x C3	\$ 162,207,376	n/a	\$ 162,132,853	n/a
2. For 2nd FY after Valuation Date = B3 x C3	n/a	\$ 204,128,839	n/a	\$ 167,499,039
E. Employee Normal Cost				
1. For 1st FY after Valuation Date = B2 x C2	\$ 310,329,613	n/a	\$ 306,132,668	n/a
2. For 2nd FY after Valuation Date = B3 x C2	n/a	\$ 320,647,506	n/a	\$ 316,264,883
F. Total Normal Cost				
1. For FYE 2016 = D1 + E1	\$ 472,536,989	n/a	\$ 468,265,514	n/a
2. For FYE 2017 = D2 + E2	n/a	\$ 524,776,345	n/a	\$ 483,763,922

Increases in Normal Costs Attributable to Assumption Changes

The discount rate will be changed from 7.75% to 7.40% on June 30, 2016. The effect on normal costs has been measured effective June 30, 2015. It is assumed that the increase in the normal cost would be proportionate if it had been measured on June 30, 2016 instead of June 30, 2015. Increases associated with the various components of the normal cost are shown below.

	<u>For FYE 2016</u>		<u>Increase/Decrease</u>
	<u>Old Assumptions</u>	<u>New Assumptions</u>	
A. Total Normal Cost			
1. Retirement Benefits	\$ 306,147,279	\$ 331,848,970	\$ 25,701,691
2. Disability Benefits	14,130,553	14,947,763	817,210
3. Survivor benefits	10,664,199	11,304,418	640,219
4. Voluntary Terminations	<u>132,841,215</u>	<u>140,380,141</u>	<u>7,538,926</u>
5. Total Normal Cost	\$ 463,783,246	\$ 498,481,292	\$ 34,698,046
B. Payrolls			
1. Projected Payroll on June 30, 2015	3,815,649,662	3,815,649,662	\$ 0
2. Projected Payroll for FYE 2016	3,887,668,656	3,887,668,656	0
3. Projected Payroll for FYE 2017	4,016,926,538	4,016,926,538	0
4. ORP - Salary Adjustment Factor	1.14553	1.14553	
C. Normal Cost Rates			
1. Total Normal Cost Rate	12.154765%	13.064126%	0.909361%
2. Employee Normal Cost Rate	<u>7.982409%</u>	<u>7.982409%</u>	<u>0.000000%</u>
3. Employer Normal Cost Rate = C1 - C2	4.172356%	5.081717%	0.909361%
D. Employer Normal Costs			
1. Projected Cost for FYE 2016 = B2 x C3	162,207,376	197,560,319	35,352,943
2. Projected Cost for FYE 2017 = B3 x C3	167,600,475	204,128,839	36,528,364
E. Employee Normal Costs			
1. Projected Cost for FYE 2016 = B2 x C2	310,329,612	310,329,612	0
2. Projected Cost for FYE 2017 = B3 x C2	320,647,506	320,647,506	0

4. Unfunded Accrued Liability

Unfunded Accrued Liability as of June 30, 2015

Funding rules under R.S. 11:21 require a measurement of the unfunded accrued liability for the plan to be calculated in accordance with the Entry Age Normal Funding method. This measurement is to be made for all sub plans combined. Accrued liability values as of June 30, 2015, are based on a 7.75% discount rate net of investment expenses, and other assumptions and methods applicable to FYE 2016 as described in Section IV of this report. The unfunded accrued liability is based on the actuarial value of assets measured on June 30, 2015.

The components of the unfunded accrued liability on June 30, 2015, and June 30, 2014 are shown below.

	<u>June 30, 2015</u>	<u>June 30, 2014</u>
A. Accrued Liability		
1. Accrued Liability for Active Members		
a. Retirement Benefits	\$ 7,642,648,734	\$ 7,636,213,675
b. Disability Benefits	141,698,457	140,404,692
c. Survivor Benefits	132,277,860	130,419,326
d. Voluntary Terminations	<u>231,997,284</u>	<u>198,762,939</u>
e. Total	\$ 8,148,622,335	\$ 8,105,800,632
f. Ratio of Active Liability to Total Accrued Liability	28.45%	28.83%
2. Accrued Liability for Retired and Inactive Members		
a. Regular Retirees	\$ 15,700,534,358	\$ 15,228,268,802
b. Disability Retirees	415,620,096	404,777,470
c. Survivors	1,004,696,859	966,519,254
d. Members with a Deferred Benefit	298,144,696	283,268,457
e. Contributions to Be Refunded	129,177,219	120,652,526
f. Deferred Benefits for DROP Members	1,822,045,328	1,873,717,151
g. Account Balances for DROP Members	<u>1,127,456,006</u>	<u>1,136,532,272</u>
h. Total	\$ 20,497,674,562	\$ 20,013,735,932
i. Ratio of Inactive Liability to Total Accrued Liability	71.55%	71.17%
3. Total Accrued Liability	\$ 28,646,296,897	\$ 28,119,536,564
B. Valuation Assets	\$ 17,457,243,695	\$ 16,145,772,807
C. Unfunded Accrued Liability	\$ 11,189,053,202	\$ 11,973,763,757
D. Funded Ratio = B / A3	60.94%	57.42%

The unfunded accrued liability on June 30, 2015, is reconciled below with the unfunded accrued liability on June 30, 2014.

A.	Unfunded Accrued Liability on June 30, 2014		\$ 11,973,763,757
B.	Increases in the UAL Due to:		
1.	Interest on the UAL	\$ 927,966,691	
2.	Allocation to the Experience Account	0	
3.	Employer Contribution Shortfall	0	
4.	Assumption Change (Discount Rate)	0	
5.	Investment Loss	0	
6.	Experience Loss	0	
7.	Total Increases = B1 + B2 + B3 + B4 + B5 + B6	<u>927,966,691</u>	\$ 927,966,691
C.	Decreases in the UAL Due to:		
1.	Employer Amortization Payment	\$ 1,034,280,392	
2.	Legislative Allocation	10,384,806	
3.	Employer Contribution Surplus	91,284,653	
4.	Investment Gain	539,621,226	
5.	Experience Gain	<u>37,106,169</u>	
6.	Total Decreases = C1 + C2 + C3 + C4 + C5		\$ 1,712,677,246
D.	Unfunded Accrued Liability on June 30, 2015		
	= A + B7 – C6		\$ 11,189,053,202

Projected Increases in Accrued Liabilities on June 30, 2016, Attributable to Assumption Changes

The discount rate assumption used to calculate accrued liabilities is changed from 7.75% to 7.4% by the LLA actuary effective June 30, 2016. Liabilities, before and after the changes, were calculated as of June 30, 2015. Accrued liabilities projected for June 30, 2016, are shown below.

	<u>June 30, 2015</u> <u>Old Assumptions</u>	<u>June 30, 2015</u> <u>New Assumptions</u>	<u>Increase/</u> <u>(Decrease)</u>	
A.	Accrued Liability for Active Members	\$ 8,148,622,335	\$ 8,564,455,600	\$ 415,833,265
B.	Accrued Liability for Retired and Inactive	<u>20,497,674,562</u>	<u>21,026,995,663</u>	<u>529,321,101</u>
C.	Accrued Liability on June 30, 2015 = A + B	28,646,296,897	29,591,451,263	945,154,366
D.	Interest Adjustment	2,220,088,010	2,189,767,393	(30,320,617)
E.	Normal Cost	472,536,985	507,889,944	35,352,959
F.	Interest Adjustment for One Half Year	17,969,152	18,456,575	487,423
G.	Estimated Benefit Payments	2,008,403,199	2,008,403,199	0
H.	Interest Adjustment for One-Half Year	<u>76,373,497</u>	<u>72,984,795</u>	<u>(3,388,702)</u>
I.	Projected Accrued Liability on June 30, 2016 = C + D + E + F – G – H	\$ 29,272,114,348	\$ 30,226,177,181	\$ 954,062,833

Projected Unfunded Accrued Liability on June 30, 2016

The calculation of the projected unfunded accrued liability as of June 30, 2016, is shown below.

A. Unfunded Accrued Liability on June 30, 2015		\$	11,189,053,202
B. Increases in the UAL Due to:			
1. Interest on the UAL	\$	867,151,623	
2. Expected Employer Contribution Shortfall		0	
3. Recognition of Gain Sharing		0	
4. Change in Assumptions		<u>954,062,833</u>	
5. Total Increases = B1 + B2 + B3 + B4			\$ 1,821,214,456
C. Decreases in the UAL Due to:			
1. Employer Amortization Payment	\$	1,000,284,318	
2. Employer Contribution Surplus		<u>18,180,259</u>	
3. Total Decreases = C1 + C2			\$ 1,018,464,577
D. Unfunded Accrued Liability on June 30, 2016 = A + B5 – C3			\$ 11,991,803,081

5. Assets

A. Actuarial Value of Assets

The actuarial value of assets is the market value of assets adjusted to phase in realized and unrealized investment gains and losses that occurred over the four-year period immediately prior to the valuation date.

	<u>June 30, 2015</u>	<u>June 30, 2014</u>	<u>June 30, 2013</u>	<u>June 30, 2012</u>
A. Investment Gain/(Losses) Based on Market				
1. BOY Market Value	\$ 17,886,838,190	\$ 15,490,236,860	\$ 14,188,983,721	\$ 14,577,210,581
2. Contributions	1,581,664,935	1,538,445,595	1,423,250,702	1,418,546,185
3. Legislative Appropriations	10,384,806	5,578,791		
4. Benefit Payments	2,008,403,199	1,934,766,027	1,859,319,285	1,731,667,282
5. Administrative Expenses	19,265,221	17,522,895	17,661,969	18,864,917
6. EOY Market Value	17,896,379,678	17,900,035,458	15,490,236,860	14,188,983,721
7. Actual Investment Income = A6 – A1 – A2 – A3 + A4 + A5	445,160,167	2,818,063,134	1,754,983,691	(56,240,846)
8. Expected Investment Income Based on the Discount Rate	1,368,947,325	1,222,665,216	1,151,874,772	1,188,925,450
9. Gain/(Loss) = A7 – A8	\$ (923,787,158)	\$ 1,595,397,918	\$ 603,108,919	\$ (1,245,166,296)
		<u>Gain/(Loss)</u>	<u>Factor</u>	<u>Market Value Adjustment</u>
B. Market Value Adjustment		<u>(a)</u>	<u>(b)</u>	<u>(c) = (a) x (b)</u>
1. Adjustment for 2015		\$ (923,787,158)	80%	\$ (739,029,726)
2. Adjustment for 2014		1,595,397,918	60%	957,238,751
3. Adjustment for 2013		603,108,919	40%	241,243,568
4. Adjustment for 2012		(1,245,166,296)	20%	(249,033,259)
5. Total Market Value Adjustment				\$ 210,419,334
C. Preliminary Actuarial Value				
1. Market Value on June 30, 2015 = A5			\$ 17,896,379,678	
2. Market Value Adjustment = B5			<u>210,419,334</u>	
3. Preliminary Actuarial Value = C1 – C2			\$ 17,685,960,344	
D. Corridor Values				
1. 80% x Market Value			14,317,103,742	
2. 120% x Market Value			21,475,655,614	
E. Actuarial Value of Assets =				
Preliminary Value if Preliminary Value is inside the Corridor. Otherwise the Actuarial Value = the average between the Preliminary Value and the Corridor			\$ 17,685,960,344	

B. Investment Gain/(Loss)

The investment gain/(loss) is measured as the difference between actuarial and expected investment earnings during FYE 2015.

A. Components of the Gain/(Loss) Calculation	
1. Net Actuarial Value of Assets on June 30, 2014	\$ 15,925,875,606
2. Contributions for FYE 2015	1,476,028,253
3. Legislative Appropriations	10,384,806
4. Benefits Paid for FYE 2015	1,896,053,347
5. Administrative Expenses Paid for FYE 2015	19,265,221
6. Net Actuarial Value of Assets on June 30, 2015	\$ 17,264,803,247
7. Expected Rate of Return on Assets	7.75%
 B. Actual Investment Earnings = A6 – A1 – A2 – A3 + A4 + A5	 \$ 1,767,833,150
C. Expected Investment Earnings	1,217,550,478
D. Investment Gain/(Loss) = B – C	\$ 550,282,672

C. Allocation of Investment Gains to the Experience Account

According to R.S. 11:883.1, 50% of the total investment gain, not associated with DROP accounts, in excess of \$200 million will be transferred from the regular asset pool to the Experience Account. Beginning June 30, 2016, the \$200 million hurdle will be indexed by the increase in the actuarial value of assets, if any. Moreover, the transfer to the Experience Account is capped by the maximum COLA if the retirement system is less than 80% funded and two COLAs otherwise.

Funded Ratio	Maximum COLA
< 55%	0%
55% to < 65%	1.5%
65% to < 75%	2.0%
75% to < 80%	2.5%
80% +	3.0%

The amount of assets to be transferred under R.S. 11:883.1 from the regular pool of assets to the Experience Account is calculated below.

A. Excess Investment Earnings = Gross Investment Gain	\$ 550,282,672
B. Excess Investment Earnings Paid to DROP Accounts	
1. DROP Accounts Eligible for System Investment Earnings	
a. Total of all DROP and IBO accounts	\$ 1,127,456,006
b. DROP accounts for Actives not entitled to system earnings	177,131,921
c. Self-directed DROP accounts not entitled to system earnings	<u>421,157,097</u>
d. DROP accounts entitled to system earnings = B1a – B1b – B1c	529,166,988

2.	Rate of Return Attributable to Excess Earnings on DROP Accounts		
a.	Adjusted Actual rate of return on investments for DROP accounts		11.136600%
b.	Adjusted Expected rate of return for DROP accounts*		7.503750%
c.	Rate of return attributable to excess earnings = B2a – B2b		3.632850%
3.	Excess Investment Earnings Paid to DROP Accounts = B1d x B2c		19,223,843
C.	Investment Gain/(Loss) Paid to LSU Ext Service Account		
1.	LSU Ag Ext Service Account at Beginning of the Year		1,933,057
2.	Contributions to the LSU Ag Ext Service at the Beginning of the Year		1,851,985
3.	Benefit Payments from the LSU Ag Ext Service Account at Mid-Year		1,754,855
4.	Actual Rate of Return on Investments for LSU Ag Ext Service Accounts		11.255617%
5.	Expected Rate of Return for LSU Ag Ext Service Accounts		7.75%
6.	Actual Investment Earnings on LSU Ag Ext Service Account		329,903
7.	Expected Investment Earnings on LSU Ag Ext Service Account		226,609
8.	Excess Investment Earnings Paid to LSU Ag Ext Service Account = C6 – C7	\$	103,294
D.	Investment Gain/(Loss) Paid to the Experience Account		
1.	Experience Account Assets Entitled to System Earnings		218,148,161
2.	Expected Rate of Return on the Actuarial Value of Assets		7.75%
3.	Preliminary Expected Investment Earnings Payable to the EA = D1 x D2		16,906,482
4.	Maximum Fund in the Experience Account = Present Value of a 1.5% PBI		226,356,559
5.	Expected Investment Earnings Payable to the Experience Account		8,208,398
6.	Investment Earnings Payable to the EA = lesser of D5 and D3		8,208,398
7.	Expected Investment Earnings to be Treated as an Investment Gain		8,698,084
8.	Experience Account End of Period = lesser D1 + D3 and D4		226,356,559
9.	Maximum Excess Investment Earnings that Can be Applied to EA = D4 – D8	\$	0
E.	Miscellaneous Items	\$	32,393
F.	Net Excess Investment Earnings = A – B3 – C8 + D7 – D9 – E	\$	539,621,226
G.	Allocation of Excess Investment Earnings to the Experience Account		
1.	Net Excess Investment Earnings = F	\$	539,621,226
2.	Administrative Expense		0
3.	Threshold Gain		200,000,000
4.	Gain Available for Gain Sharing = G1 – G2 – G3	\$	339,621,226
5.	Gain Sharing Percentage		50%
6.	Preliminary Allocation of Excess Gains to the Experience Account		169,810,613
7.	Maximum Excess Investment Earnings that Can be Applied to EA = D9		0
8.	Allocation of Excess Gains to the Experience Account = lesser G6 and G7	\$	0

* [(Discount Rate – 50 Basis Points) / 100 x Adjustment Factor] x 100
= (7.75% - 0.5%)/100 * 1.035 * 100 = 7.503750%

D. Employer Shortfall/(Surplus)**Employer Contribution Shortfall/(Surplus) for FYE 2015**

Total contributions received from participating employers were higher in FYE 2015 than were expected. As a result, asset values are more than what they would have been otherwise. The unfunded accrued liability has decreased because of the contribution surplus. The surplus will be used to reduce the Experience Account Amortization Base (EAAB), without a recalculation of amortization payments. The calculation of the surplus as of June 30, 2015, is shown below.

A.	Actual Employer Contributions	
1.	Employer Contributions	\$ 1,120,150,411
2.	Employer Amortization Payments for ORP Members	133,771,593
3.	Other Appropriations	<u>41,721</u>
4.	Actual Employer Contributions = A1 + A2 + A3	\$ 1,253,963,725
B.	Expected Employer Contributions	
1.	Employee Contributions for Regular Teachers	\$ 319,059,649
2.	Employee Contribution Rate for Regular Teachers	8.00%
3.	Salaries upon which Employer Contributions Received = B1 / B2	3,988,245,613
4.	Employee Contributions for Lunch Plan A Members	100,553
5.	Employee Contribution Rate for Lunch Plan A Members	9.10%
6.	Salaries upon which Employer Contributions Were Received = B4 / B5	1,104,978
7.	Employee Contributions for Lunch Plan B Members	1,175,981
8.	Employee Contribution Rate for Lunch Plan B Members	5.00%
9.	Salaries upon which Employer Contributions Received = B7 / B8	23,519,620
10.	Total Salaries upon which Contributions Were Received = B3 + B6 + B9	\$ 4,012,870,211
11.	Employer Normal Cost Rate for FYE 2015	4.22721161%
12.	Employer Normal Costs = B10 x B11	169,632,515
13.	Contributions to the Employer Credit Account for FYE 2015	0
14.	Amortization Payments for FYE 2015	932,166,506
15.	Payment toward Contribution Variances for FYE 2015	<u>64,224,163</u>
16.	Expected Employer Contributions = B12 + B13 + B14 + B15	1,166,023,184
C.	Mid-Year Employer Shortfall/(Surplus) for FYE 2015 = B16 – A4	\$ (87,940,541)
D.	Interest at 7.75% for One-Half Year	<u>(3,344,113)</u>
E.	Employer Shortfall/(Surplus) on June 30, 2015 = C + D	\$ (91,284,654)

Projected Employer Contribution Shortfall/(Surplus) for FYE 2016

A surplus in employer contributions is expected to occur for FYE 2016 because the actual employer contribution rate, 25.8% of pay for FYE 2016, is less than the projected 26.2% rate of pay set by PRSAC a year ago. The expected surplus of employer contributions is calculated below.

A. Projected Employer Contribution Shortfall/(Surplus) for Regular Non-ORP Members		
1.	Actual Employer Contributions Required in Mid-Year for FYE 2016	\$ 1,003,018,513
2.	Projected Employer Contributions Expected in Mid-Year for FYE 2016	<u>1,018,569,188</u>
3.	Shortfall/(Surplus) of Regular Employer Contributions Expected Mid-Year for FYE 2016 = A1 – A2	\$ (15,550,675)
B. Projected Employer Contribution Shortfall/(Surplus) for ORP Members		
1.	Projected Employer Contribution Rate for FYE 2016	21.9852%
2.	Actual Employer Contribution Rate for FYE 2016	21.6381%
3.	Contribution Rate Shortfall for FYE 2016 = B2 – B1	(0.3471)%
4.	Actual OPR Payroll for FYE 2016	\$ 565,722,420
5.	Shortfall/(Surplus) of ORP Employer Contributions Expected Mid-Year for FYE 2016 = B3 x B4	\$ (1,963,564)
C.	Total Employer Contribution Shortfall/(Surplus) at Mid-Year 2016 = A3 + B5	\$ (17,514,239)
D.	Interest for One-Half Year	(666,014)
E.	Total Employer Contribution Shortfall/(Surplus) at FYE 2016	\$ (18,180,253)

E. Asset Allocation (Market Values)

	<u>June 30, 2015</u>	<u>June 30, 2014</u>
A. Short-Term Assets		
1.	Cash/Cash Equivalents \$ 236,026,000	\$ 205,397,273
2.	Short-Term Investments 990,777,882	871,504,691
B. Bonds		
1.	Domestic Issues 1,775,656,703	1,770,055,139
2.	International Issues 1,489,882,945	1,667,920,752
C. Equities		
1.	Domestic Stock 5,478,561,612	5,201,856,937
2.	International Stock 3,429,594,486	3,688,369,407
D. Other Assets		
1.	Fixed Assets 4,051,370	4,100,275
2.	Real Estate and Alternative Investments 4,358,084,637	4,312,950,822
E.	Receivables Minus Payables 133,744,043	177,880,162
F.	Other Adjustments <u>0</u>	<u>(13,197,268)</u>
G.	Total Assets \$ 17,896,379,678	\$ 17,886,838,190

F. Income Statement (Market Value)

	FYE <u>June 30, 2015</u>	FYE <u>June 30, 2014</u>
A. Income		
1. Contribution Income		
a. Member Contributions	\$ 324,920,644	\$ 326,007,091
b. Employer Contributions	1,120,150,411	1,084,221,275
c. ORP Contributions	<u>133,771,593</u>	<u>124,874,274</u>
d. Total = A1a + A1b + A1c + A1d	1,578,842,648	1,535,102,640
2. Other Income		
a. IUAL Appropriations	10,384,806	5,578,791
b. Other Appropriations	41,721	48,165
c. LSU Coop/Ext	1,851,985	2,028,819
d. Miscellaneous	<u>928,581</u>	<u>1,265,971</u>
e. Total = A2a + A2b + A2c + A2d	13,207,093	8,921,746
3. Net Investment Income		
a. Investment Income	481,866,158	2,853,792,892
b. Investment Expense	<u>36,705,991</u>	<u>35,729,758</u>
c. Net Investment Income = A3a – A3b	445,160,167	2,818,063,134
4. Total Income = A1d + A2e + A3c	\$ 2,037,209,908	\$ 4,362,087,520
B. Expense		
1. Operating Expense		
a. General Administration	\$ 15,116,429	\$ 16,152,182
b. Post-Employment Benefits	1,685,836	1,047,832
c. Depreciation	384,426	322,881
d. Other Expenses	<u>2,078,530</u>	<u>0</u>
e. Total = B1a + B1b + B1c	19,265,221	17,522,895
2. Benefit Payments		
a. Pension Benefits	1,956,857,437	1,877,113,903
b. Return of Employee Contributions	<u>51,545,762</u>	<u>57,652,124</u>
c. Total = B2a + B2b	2,008,403,199	1,934,766,027
3. Total Expense = B1e + B2c	\$ 2,027,668,420	\$ 1,952,288,922
C. Net Income = A4 – B3	\$ 9,541,488	\$ 2,409,798,598

G. Allocation of Assets to Sub Accounts

	FYE	FYE
	<u>June 30, 2015</u>	<u>June 30, 2014</u>
A. Employer Credit Account		
1. Beginning Balance for Current Year	\$ 0	\$ 0
2. Allocation for Current Year	0	0
3. Disbursements for Current Year	0	0
4. Accumulated Interest for Current Year	<u>0</u>	<u>0</u>
5. Ending Balance for Current Year = A1 + A2 – A3 + A4	\$ 0	\$ 0
B. Initial UAL Amortization Fund		
1. Beginning Balance for Current Year	\$ 0	\$ 0
2. Allocation for Current Year	0	0
3. Disbursements for Current Year	0	0
4. Accumulated Interest	<u>0</u>	<u>0</u>
5. Ending Balance for Current Year = B1 + B2 – B3 + B4	\$ 0	\$ 0
C. Experience Account Fund		
1. Beginning Balance for Current Year	\$ 218,148,161	\$ 219,736,906
2. Allocation for Current Year	0	170,334,888
3. Disbursements for Current Year	0	(200,806,602)
4. Accumulated Interest	<u>8,208,398</u>	<u>28,882,969</u>
5. Ending Balance for Current Year = C1 + C2 + C3 + C4	\$ 226,356,559	\$ 218,148,161
D. LSU Ag/Ext Service		
1. Beginning Balance for Current Year	\$ 1,933,057	\$ 1,322,042
2. Allocation for Current Year	1,851,985	2,028,819
3. Disbursements for Current Year	1,754,855	1,746,982
4. Accumulated Interest	<u>329,903</u>	<u>329,178</u>
5. Ending Balance for Current Year = D1 + D2 – D3 + D4	\$ 2,360,090	\$ 1,933,057
E. Valuation Assets		
1. Actuarial Value of Assets	\$ 17,685,960,344	\$ 16,365,854,025
2. Employer Credit Account = A5	0	0
3. Initial UAL Amortization Fund = B5	0	0
4. Experience Account Fund = C5	226,356,559	218,148,161
5. LSU Ag/Ext Service = D5	<u>2,360,090</u>	<u>1,933,057</u>
6. Valuation Assets = E1 – E2 – E3 – E4 – E5	\$ 17,457,243,695	\$ 16,145,772,807

6. Rates of Return on Investments

A. Rates of Return on Investments Based on Market Values

The market value of assets includes funds that have been invested outside the trust fund by members with money in self-directed and ORP accounts. Column (a) shows the rate of return on investments with these account funds included; column (b) shows the rate of return associated with self-directed and ORP account funds; and column (c) shows the rate of return with these funds excluded.

	Market Value (a)	Self-Directed & ORP Values (b)	Net Market Value (c) = (a) – (b)
A. Asset Value on June 30, 2014	\$ 17,886,838,190	\$ 426,781,151	\$ 17,460,057,039
B. Contributions	1,592,049,741	105,636,682	1,486,413,059
C. Benefit Payments	2,008,403,199	112,349,852	1,896,053,347
D. Administrative Expenses	19,265,221	0	19,265,221
E. Asset Value on June 30, 2015	\$ 17,896,379,678	\$ 421,157,097	\$ 17,475,222,581
F. Investment Income = E – A – B + C + D	\$ 445,160,167	\$ 1,089,116	\$ 444,071,051
G. Unrounded Rates of Return	2.520178%	0.257216%	2.575757%
H. Rounded Rate of Return on Investments	2.52%	0.26%	2.58%

B. Rates of Return on Investments Based on Actuarial Value

The actuarial value of assets includes funds that have been invested outside the trust fund by members with money in ORP and self-directed accounts. Column (a) shows the rate of return on investments with these account funds included; column (b) shows the rate of return associated with ORP and self-directed account funds; and column (c) shows the rate of return with these funds excluded.

	Actuarial Value (a)	Self-Directed & ORP Values (b)	Net Actuarial Value (c) = (a) – (b)
A. Asset Value on June 30, 2014	\$ 16,352,656,757	\$ 426,781,151	\$ 15,925,875,606
B. Contributions	1,592,049,741	105,636,682	1,486,413,059
C. Benefit Payments	2,008,403,199	112,349,852	1,896,053,347
D. Administrative Expenses	19,265,221	0	19,265,221
E. Asset Value on June 30, 2015	\$ 17,685,960,344	\$ 421,157,097	\$ 17,264,803,247
F. Investment Income = E – A – B + C + D	\$ 1,768,922,266	\$ 1,089,116	\$ 1,767,833,150
G. Unrounded Rates of Return	10.966895%	0.257216%	11.255617%
H. Rounded Rate of Return on Investments	10.97%	0.26%	11.26%

C. Rate of Return to Be Granted on Drop Accounts

A. Rounded Rate of Return on the Net Actuarial Value of Assets	11.26%
B. Reduction for Administrative Expenses	<u>0.50%</u>
C. Rate of Return to Be Granted on DROP Accounts	10.76%

D. Summary of Rates of Return on Investments

	<u>Rates Measured on June 30</u>				
	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>
A. Total Market Value	2.52%	18.44%	12.57%	-0.39%	24.91%
B. Market Value Net of Self-Directed and ORP Accounts	2.58%	18.90%	12.79%	-0.32%	25.55%
C. Actuarial Value Net of Self-Directed and ORP Accounts	11.26%	13.14%	13.41%	5.05%	6.44%
D. Five-Year Geometric Average of the Actuarial Value Net of Self-Directed and ORP Accounts	9.80%	7.30%	1.96%	0.43%	2.30%
E. Interest Credited to Self-Directed and ORP Accounts	10.76%	12.64%	12.91%	4.95%	5.94%

7. Amortization Payments for FYE 2016

Year	Description	Amortization		Initial Liability	Years Remaining	Balance on June 30, 2015	Mid-Year Payment	Balance on June 30, 2016
		Method	Period					
Shared Bases								
2010	OAB	I	19	\$ 2,677,501,778	14	\$ 2,385,115,126	\$ 245,260,865	\$ 2,315,374,155
2010	EAAB	I	30	3,999,115,151	25	3,799,994,924	323,208,982	3,758,994,889
2009	Change in Liability	L	30	2,979,708,647	24	2,790,091,217	249,988,498	2,746,828,482
2010	Change in Liability	L	30	1,150,854,854	25	1,092,087,029	96,461,424	1,076,594,214
2011	Change in Liability	L	30	(175,198,199)	26	(168,287,214)	(14,671,243)	(166,100,327)
2012	Change in Liability	L	30	125,767,665	27	122,156,838	10,522,700	120,701,146
2013	Change in Liability	L	30	(248,560,781)	28	(243,890,714)	(20,779,159)	(241,222,917)
2013	Assumption Change	L	30	871,681,891	28	855,304,354	72,870,774	845,948,612
2013	Asset Valuation Method	L	30	(25,686,598)	28	(25,203,987)	(2,147,346)	(24,928,293)
2014	Liability Gain	L	30	(162,364,783)	29	(160,864,420)	(13,567,695)	(159,247,779)
2014	Assumption Change	L	30	570,933,583	29	565,657,762	47,708,948	559,973,064
2014	Funding Method	L	30	881,187,059	29	873,044,280	73,634,672	864,270,436
2014	Reduction in EA Deposit	L	5	(76,831,515)	4	(63,669,633)	(18,416,020)	(49,487,704)
2014	Gain from \$100-\$200M	L	5	(100,000,000)	4	(82,869,162)	(23,969,356)	(64,410,684)
2014	Remaining Invest. Gain	L	5	(247,166,403)	4	(204,824,727)	(59,244,195)	(159,201,571)
2015	Experience gain	L	30	(37,106,169)	30	(37,106,169)	(3,100,704)	(36,763,282)
2015	Investment Gain	L	30	<u>(339,621,226)</u>	30	<u>(339,621,226)</u>	<u>(28,379,783)</u>	<u>(336,482,891)</u>
Total				\$ 11,844,214,954		\$ 11,157,114,278	\$ 935,381,362	\$ 11,050,839,550
Employers Credit Balance								
2011	Contribution Variance	L	5	\$ 105,925,850	1	\$ 24,588,168	\$ 25,523,182	\$ 0
2013	Contribution Variance	L	5	<u>11,400,600</u>	3	<u>7,350,754</u>	<u>2,735,460</u>	<u>5,080,956</u>
Total				\$ 117,326,450		\$ 31,938,922	\$ 28,258,642	\$ 5,080,956
Grand Total						\$ 11,189,053,200	\$ 963,640,004	\$ 11,055,920,506

8. Amortization Payments for FYE 2017

<u>Year</u>	<u>Description</u>	<u>Amortization</u>		<u>Initial Liability</u>	<u>Years Remaining</u>	<u>Balance on June 30, 2016</u>	<u>Mid-Year Payment</u>	<u>Balance on June 30, 2017</u>
		<u>Method</u>	<u>Period</u>					
Shared Bases								
2010	OAB	I	19	\$ 2,677,501,778	13	\$ 2,315,374,155	\$ 256,333,260	\$ 2,221,063,506
2010	EAAB	I	30	3,999,115,151	24	3,740,814,630	334,598,561	3,670,877,136
2009	Change in Liability	L	30	2,979,708,647	23	2,746,828,482	243,225,824	2,698,029,209
2010	Change in Liability	L	30	1,150,854,854	24	1,076,594,214	93,778,877	1,059,075,411
2011	Change in Liability	L	30	(175,198,199)	25	(166,100,327)	(14,252,555)	(163,621,262)
2012	Change in Liability	L	30	125,767,665	26	120,701,146	10,215,036	119,046,783
2013	Change in Liability	L	30	(248,560,781)	27	(241,222,917)	(20,157,642)	(238,183,248)
2013	Assumption Change	L	30	871,681,891	27	845,948,612	70,691,165	835,288,748
2013	Asset Valuation Method	L	30	(25,686,598)	27	(24,928,293)	(2,083,117)	(24,614,170)
2014	Liability Gain	L	30	(162,364,783)	28	(159,247,779)	(13,153,117)	(157,401,017)
2014	Assumption Change	L	30	570,933,583	28	559,973,064	46,251,140	553,479,178
2014	Funding Method	L	30	881,187,059	28	864,270,436	71,384,671	854,247,679
2014	Reduction in EA Deposit	L	5	(76,831,515)	3	(49,487,704)	(18,329,262)	(34,154,452)
2014	Gain from \$100-\$200M	L	5	(100,000,000)	3	(64,410,684)	(23,856,438)	(44,453,701)
2014	Remaining Invest. Gain	L	5	(247,166,403)	3	(159,201,571)	(58,965,099)	(109,874,614)
2015	Experience gain	L	30	(37,106,169)	29	(36,763,282)	(3,004,037)	(36,370,562)
2015	Investment Gain	L	30	(339,621,226)	29	(336,482,891)	(27,495,019)	(332,888,445)
2016	Assump Change Disc Rt	L	30	<u>954,062,833</u>	30	<u>954,062,833</u>	<u>77,191,540</u>	<u>944,666,824</u>
Total				\$ 12,798,277,787		\$ 11,986,722,124	\$ 1,022,373,788	\$ 11,814,213,003
Employers Credit Balance								
2013	Contribution Variance	L	5	<u>\$ 11,400,600</u>	2	<u>\$ 5,080,956</u>	<u>\$ 2,726,736</u>	<u>\$ 2,631,122</u>
Total				\$ 11,400,600	2	\$ 5,080,956	\$ 2,726,736	\$ 2,631,122
Grand Total						\$ 11,991,803,080	\$ 1,025,100,524	\$ 11,816,844,125

SECTION II
VALUATION OF THE GAIN SHARING/COLA PROGRAM

1. Actuarial Basis for the Valuation of the Gain Sharing/COLA Program

A. Challenges in Interpreting Louisiana Law

The current gain sharing/COLA program was originally enacted during the 1991 legislative session. The program contained two components:

1. **Gain Sharing** – A portion of investment gains (and until 2004, investment losses) was to be transferred from the pool of assets reserved for regular retirement benefits to the Experience Account, which would be used to fund COLAs. Funds would remain in the Experience Account until a COLA was granted. The law limited the amount of assets that could be held in the Experience Account to no more than two times the cost of a full COLA. Whenever a COLA was granted, assets equal to the present value of the COLA benefits granted were then transferred back to the regular pool of assets to cover the COLA liabilities that had been created.
2. **COLAs** – COLAs would be granted if specified conditions were satisfied and if there were sufficient assets in the Experience Account to cover the additional liability created by the COLA grant.

Although the program has been modified several times since its inception, the basic format has remained unchanged; there is a gain sharing component and a COLA grant component.

The Gain Sharing component is a legislative mandate. Transfers to the Experience Account occur automatically. No approvals are necessary; if the conditions are satisfied, a transfer must occur unless the Experience Account has been capped out.

The COLA component is not a legislative mandate. Historically and currently, a COLA can be granted only if specified conditions are satisfied, there are sufficient assets in the Experience Account to pay for the COLA, and the COLA grant is approved by the TRSL's board and the legislature.

The structure of the gain sharing/COLA program creates an actuarial dilemma. If we assume the COLA component is not part of current law, then the only liability that must be accounted for are transfers to the Experience Account. However, if COLA grants are not part of current law, then the Experience Account will reach its limit and no additional transfers will occur. The only additional liability that will be incurred by the system is the difference between the Experience Account limit and the amount already in the Experience Account.

Alternatively, if we assume the COLA component is part of current law, we must further assume the frequency for which the TRSL's board will recommend and the legislature will enact a COLA payment when all other conditions necessary for a COLA grant have been satisfied. Monte Carlo simulations then allow us to estimate the average annual transfer to the Experience Account.

In light of this discussion set forth above, we have valued the gain sharing/COLA program in accordance with the following assumptions and methods.

1. The COLA component is part of current law that must be valued.
2. The TRSL board and the legislature will grant a COLA 50% of the time if there are sufficient funds in the Experience Account and if all other necessary conditions have been satisfied.

Using stochastic modeling, we can then determine the portion of the investment return assumption that must be allocated to pay for estimated transfers to the Experience Account. We have determined the investment return assumption should be reduced by 25 basis points to account for the gain/sharing/COLA program. This is our current best estimate. We expect this estimate will change for future valuations as we refine our assumptions, methods and procedures.

B. Gains and Losses Associated with the Gain Sharing/COLA Account

If the discount rate used to value plan liabilities is 25 basis points less than the investment return assumption, then funding for the gain sharing/COLA program has been accounted for actuarially. An experience gain will occur if no investment gain is transferred to the Experience Account or if the transfer amount is less than the projected estimate. An experience loss will occur if the amount transferred is greater than the projected transfer.

The Louisiana Constitution provides the following.

F) Benefit Provisions; Legislative Enactment. Benefit provisions for members of any public retirement system, plan, or fund that is subject to legislative authority shall be altered only by legislative enactment. No such benefit provisions having an actuarial cost shall be enacted unless approved by two-thirds of the elected members of each house of the legislature. Furthermore, no such benefit provision for any member of a state retirement system having an actuarial cost shall be approved by the legislature unless a funding source providing new or additional funds sufficient to pay all such actuarial cost within ten years of the effective date of the benefit provision is identified in such enactment. This Paragraph shall be implemented as provided by law.

Underlining added to identify relevant content.

For the purpose of this valuation, we have assumed that the constitutional language applies only if the COLA approved by the legislature exceeds that which would have been granted under current law. Therefore, an additional liability is created only to the extent that the cost of the COLA grant exceeds the cost of the COLA grant that otherwise would be available under current law. Such an increase would be subject to 10-year amortization.

C. Experience Account Transfers for the June 30, 2015 Valuation

No investment gains were transferred to the Experience Account on June 30, 2015. Investment gains for FYE 2015 were less than the \$200 million threshold applicable for FYE 2015. Calculations associated with this analysis are shown in Section I(5)(C).

2. Summary of Benefit Provisions for the Gain Sharing/COLA Program

Benefit and funding provisions associated with the TRSL gain sharing/COLA program are contained in R.S. 11:102.2 and 11:883.1. According to R.S. 883.1, a special account, called the Experience Account, is established and maintained to fund COLAs. Experience Account rules have changed several times since the Account's inception in 1991. For example, Act 497 of the 2009 session required all funds in the Experience Account to be transferred back to the regular pool of assets. The balance in the Experience Account was set to \$0. Additional changes were made to Experience Account rules by Act 399 of the 2014 session. Provisions associated with the gain sharing/COLA program as amended through Act 399 are summarized below.

A. Experience Account Provisions

Rules pertaining to debits and credits to the Experience Account are summarized below.

1. The first transaction on June 30 of a given year is the transfer of assets from the Experience Account, if any, to the regular pool of assets to offset the liability associated with any COLA grant that becomes effective on the next day, July 1.
2. The second transaction is the transfer of investment earnings on the balance in the Experience Account on the July 1 prior to the valuation date. Assets in the Experience Account are invested in the same manner as assets in the regular pool of assets. The Experience Account is credited with investment earnings based on the actuarial rate of return on assets for the system as a whole. The following rules apply.
 - a. If the Experience Account balance on the prior July 1 plus investment earnings for the FYE on the valuation date is less than the maximum amount allowed in the Experience Account on the valuation date, then all investment earnings on the July 1 balance may be credited.
 - b. If the Experience Account balance on the prior July 1 plus investment earnings for the FYE on the valuation date equals or exceeds the maximum amount allowed in the Experience Account on the valuation date, then investment earnings on the Experience Account balance will be reduced sufficiently to restrict the Experience Account balance on the valuation date to the maximum limit.
 - c. Any investment earnings not credited to the Experience Account are transferred to or retained by the regular pool of assets.
 - d. These credits, if any, occur on the June 30 valuation date.

3. The third transaction is the transfer of the allocation of investment gains as calculated in accordance with TRSL's interpretation of the law. On each valuation date, TRSL calculates the amount of investment gain or loss that has occurred during the system's fiscal year. The investment gain for this purpose, based on an interpretation of law made by the legal staff for TRSL, increases the investment gain that otherwise would be calculated. Under TRSL's interpretation, the *actual* investment gain is calculated net of investment expenses, but the *expected* investment gain is determined as net of investment expenses, net of administrative expenses and net of gain sharing. The following rules apply.
- a. This transaction occurs after items 1 and 2 have been completed.
 - b. Fifty percent (50%) of any investment gain as determined by TRSL that exceeds a specified threshold (currently set at \$200 million) potentially will be transferred from the regular pool of assets to the Experience Account. The effective date of this transfer is June 30 of the fiscal year in which the investment gain occurs. The \$200 million threshold is indexed: the threshold value will increase (but not decrease) in any year by the ratio of the actuarial value of assets at the end of the year to the actuarial value of assets at the beginning of the year. The first such increase may occur no earlier than June 30, 2016.
 - c. The transfer amount may not exceed the amounts shown in Table 1.

Table 1

Funded Ratio on Valuation Date	Transfer May Not Exceed:
At least 80%	The difference between <u>two</u> times the cost of a full 3% COLA and the amount already in the Experience Account.
At least 75% but less than 80%	The difference between the cost of a full 2.5% COLA and the amount already in the Experience Account.
At least 65% but less than 75%	The difference between the cost of a full 2.0% COLA and the amount already in the Experience Account.
At least 55% but less than 65%	The difference between the cost of a full 1.5% COLA and the amount already in the Experience Account.
Less than 55%	No transfer is allowed.

- d. If the Experience Account balance (on June 30) plus the investment gain allocation to the Experience Account is less than the maximum amount allowed in the Experience Account, then the full allocation will be transferred from the regular pool of assets and credited to the Experience Account.

- e. If the Experience Account balance plus the investment gain allocation equals or exceeds the maximum amount, then the allocation is reduced sufficiently to restrict the Experience Account on the valuation date to the maximum.
- f. Any gain allocation not transferred to the Experience Account is retained by the regular pool of assets.
- g. These credits, if any, will occur on the June 30 valuation date.

The value of the Experience Account balance cannot be less than \$0, except under special circumstances.

B. Benefit Provisions

Current law provides a legal template that the legislature may choose to adopt in the enactment of cost-of-living adjustment. This template specifies eligibility criteria, which is generally age 60 with one year of retirement, and the basis for the amount of a COLA grant, which is the CPI-U. There is no requirement that COLA legislation follow the template. Nor is there any guarantee that COLAs in the future will even be based on the balance in the Experience Account.

The COLA template contains the following provisions:

1. Eligibility:

The following retirees and beneficiaries of TRSL will be eligible for a COLA to be paid on the July 1 following the date the board of trustees and the legislature approve a COLA.

- a. Each retiree who satisfies all of the following criteria on the July 1 immediately following the valuation date:
 - Has received a benefit for at least one year, and
 - Has attained at least age 60.
- b. Each non-retiree beneficiary (including each survivor of a deceased active member) receiving a benefit on the July 1 immediately following the valuation date who satisfies all of the following criteria:
 - The deceased member or beneficiary or both combined have received benefits for at least one year, and
 - The deceased member would have been at least age 60 had he lived.

- c. Each disability retiree and each beneficiary who is receiving benefits based on the death of a disability retiree, who also on the valuation date has been receiving benefits for at least one year.
2. COLAs:
 - a. The maximum COLA that may be granted on the July 1 immediately following the valuation date is equal to the lesser of:
 - 1). 3% x the benefit payable on the valuation date,
 - 2). The increase in the CPI-U for the calendar year immediately prior to the valuation date (December to December) x the benefit payable on the valuation date.
 - b. If the rate of return on the actuarial value of assets for the FYE on the June 30 prior to the valuation date is less than 8.25% (8.25% is hard coded into the law), then a COLA may be granted on July 1. However, the maximum COLA that may be granted is the lesser of:
 - 1). 2% x the benefit payable on the valuation date,
 - 2). The increase in the CPI-U for the calendar year immediately prior to the valuation date (December to December) x the benefit payable on the valuation date.
 - c. No COLA may be granted on July 1 if the actuarial return on system assets for the FYE on the June 30 prior to the valuation date is less than the discount rate on that date (currently 7.75%) and the funded ratio of the system is less than 80%.
 - d. If the balance in the Experience Account is less than the actuarial present value of the full COLA determined above, then no COLA may be granted.
 - e. COLAs will be based on the portion of a retiree's benefit on the valuation date that is less than \$60,000. This limit is indexed to the CPI-U.
 3. The amount of COLA that may be granted in a single year also depends on the funded ratio of the system (see Table 2 on the next page).

Table 2

Funded Percentage of the System	Maximum COLA Percentage
At least 80%	3.0%
At least 75% but less than 80%	2.5%
At least 65% but less than 75%	2.0%
At least 55% but less than 65%	1.5%
Less than 55%	No COLA

C. Approval Process

Prior to the June 30, 2011 Valuation

A COLA potentially becomes payable whenever there is an increase in the cost of living based on the Consumer Price Index for all urban consumers (CPI-U) and other specified numerical measures are satisfied. Prior to June 30, 2011, a COLA could be granted only in accordance with the following approval process.

1. The actuary for TRSL must determine that the necessary conditions exist for a COLA to be granted and then determines the actuarial cost that will be incurred by the Experience Account should such an increase be approved.
2. The TRSL's actuary must also declare that there are sufficient dollars in the Experience Account to cover the actuarial cost of the COLA.
3. The actuary for the Louisiana Legislative Auditor must review the actuarial cost analysis and must not disagree with the assessment prepared by the TRSL's actuary.
4. The TRSL's board of trustees must approve the COLA.
5. The TRSL's board of trustees must ask the Speaker of the House and the President of the Senate for a concurrent resolution to authorize the COLA. A COLA is granted with a 50% majority vote by the legislature on the concurrent resolution.
6. The COLA becomes effective on the first day of the fiscal year following the legislative session.

Effective with the June 30, 2011 Valuation

As discussed above, we believe it is more likely than not that COLAs will be granted only if a bill to make such a grant is introduced to the legislature, the bill passes both houses with a two-thirds vote, and is then signed into law by the governor. This is not to be construed as a legal opinion. It is merely our best judgment based on information available to us during the preparation of this valuation report.

This valuation has recognized a liability associated with automatic transfers of investment gains to the Experience Account.

3. Compliance with Actuarial Standards of Practice

The method we are using to account for the TRSLs' gain sharing/COLA program as described in Section II(1)(A) and (B) complies with Actuarial Standards of Practice.

According to Section 3.5.3 of Actuarial Standards of Practice No. 4:

*Plan Provisions that are Difficult to Measure— Some **plan provisions** may create pension obligations that are difficult to appropriately measure using traditional valuation procedures. Examples of such **plan provisions** include the following:*

- a. gain sharing provisions that trigger benefit increases when investment returns are favorable but do not trigger benefit decreases when investment returns are unfavorable;*
- b. floor-offset provisions that provide a minimum defined benefit in the event a **participant's** account balance in a separate plan falls below some threshold;*
- c. benefit provisions that are tied to an external index, but subject to a floor or ceiling, such as certain cost of living adjustment provisions and cash balance crediting provisions; and*
- d. benefit provisions that may be triggered by an event such as a plant shutdown or a change in control of the plan sponsor.*

*For such **plan provisions**, the actuary **should consider** using alternative valuation procedures, such as stochastic modeling, option-pricing techniques, or deterministic procedures in conjunction with assumptions that are adjusted to reflect the impact of variations in experience from year to year. When selecting alternative valuation procedures for such **plan provisions**, the actuary should use professional judgment based on the purpose of the measurement and other relevant factors.*

According to Section 2.1 of Actuarial Standards of Practice No. 1:

The words “must” and “should” are used to provide guidance in the ASOPs. “Must” as used in the ASOPs means that the ASB does not anticipate that the actuary will have any reasonable alternative but to follow a particular course of action. In contrast, the word “should” indicates what is normally the appropriate practice for an actuary to follow when rendering actuarial services. Situations may arise where the actuary applies professional judgment and concludes that complying with this practice would be inappropriate, given the nature and purpose of the assignment and the principal's needs, or that under the circumstances it would not be reasonable or practical to follow the practice.

Failure to follow a course of action denoted by either the term “must” or “should” constitutes a deviation from the guidance of the ASOP. In either event, the actuary is directed to ASOP No. 41, Actuarial Communications.

The terms “must” and “should” are generally followed by a verb or phrase denoting action(s), such as “disclose,” “document,” “consider,” or “take into account.” For example, the phrase “should consider” is often used to suggest potential courses of action. If, after consideration, in the actuary’s professional judgment an action is not appropriate, the action is not required and failure to take this action is not a deviation from the guidance in the standard.

Bold, italics and underline have been added for emphasis and identification.

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SECTION III
BASIS FOR THE VALUATION

1. Introduction

The June 30, 2015 valuation is used to determine actuarial liabilities as of June 30, 2015, actual employer contribution requirements for FYE 2016, and projected employer contribution requirements for FYE 2017. Census data, actuarial methods, and actuarial assumptions used in the preparation of June 30, 2015 assets, liabilities, and employer contribution requirements for FYE 2016 are shown in this section of the report. Additional information is provided whenever a change has been made since the June 30, 2014 valuation or it is expected that a change will be made in the preparation of the June 30, 2016 valuation.

2. Census Data

Census data used in the preparation of the June 30, 2015 valuation is summarized below. The census data was provided by TRSL. The accuracy of the data was confirmed by Financial Audit Services within the Louisiana Legislative Auditor. A comparison with census summaries prepared by the TRSL's actuary confirmed the reasonability of the census data used in preparing this report.

Membership Status	June 30 Valuation Date		
	2015	2014	2013
Regular Teachers	70,881	70,210	69,832
Higher Education	8,803	8,580	8,807
Lunch Plan A	10	15	22
Lunch Plan B	1,192	1,216	1,187
Post DROP	<u>2,716</u>	<u>2,865</u>	<u>3,062</u>
Total Active Members	83,602	82,886	82,910
Retired and Inactive Members			
Regular Retirees	63,819	62,564	60,714
Disability Retirees	4,121	4,089	4,049
Survivors	6,772	6,541	6,268
DROP Participants	2,283	2,291	2,451
Vested & Reciprocal	6,606	6,334	5,991
Inactive Non-Vested (Due Refunds)	<u>19,005</u>	<u>18,574</u>	<u>18,355</u>
Total Inactive Members	102,606	100,393	97,828
Total Active and Inactive Members	186,208	183,279	180,738
Terminated Due Refund	(19,005)	(18,574)	(18,355)
Total Members	167,203	164,705	162,383

Membership Reconciliation

	Active (Pre DROP)	Active After DROP	Terminated Vested	In DROP	Retired, Disabled, Survivor	Total
Members on June 30, 2014	80,021	2,865	6,334	2,291	73,194	164,705
Additions to Census						
Added to Membership	8,303		9		72	8,384
Data Revisions	(41)		43	1		3
Total Additions	8,262		52	1	72	8,387
Change in Status						
Active to Term Vested	(1,337)		1,337			0
Active to In DROP	(690)			690		0
Active to Retired	(1,833)				1,833	0
Active to Disabled	(175)				175	0
Active to Survivor	(33)				33	0
Terminated Vested to Active	492		(492)			0
Terminated Vested to Retiree			(192)		192	0
Terminated to Disabled			(9)		9	0
Terminated to Survivor			(12)		12	0
In DROP to Active after DROP		475		(475)		0
In DROP to Retired				(549)	549	0
In DROP to Survivor				(1)	1	0
Active after DROP to Retired		(625)			625	0
Active after DROP to Survivor		(4)			4	0
Disabled to Active	1				(1)	0
Retired to Active	6				(6)	0
Data Revisions	(4)	9	(1)	331	(335)	0
Total Changes	(3,573)	(145)	631	(4)	3,091	0
Eliminated from Census						
Refunded or Due Refund	(3,731)		(389)		(1)	(4,121)
Deceased	(46)	(4)	(27)	(2)	(1,652)	(1,731)
Data Revisions	(47)		(18)	(3)		(68)
Total Eliminated	(3,824)	(4)	(434)	(5)	(1,653)	(5,920)
Members on June 30, 2015 (Excluding Duplications)	80,886	2,716	6,583	2,283	74,704	167,172
Duplicated Records			23		8	31
Members on June 30, 2015 (Including Duplications)	80,886	2,716	6,606	2,283	74,712	167,203

**TRSL MEMBERSHIP PROFILE
ALL MEMBERS**

CELLS DEPICT Member Count
Total Salary

Valuation Date 6/30/2015

Age/Service	(0-1)	[1-5]	[5-10]	[10-15]	[15-20]	[20-25]	[25-30]	[30-35]	[35+]	TOTAL
[0-24]	727	1,227	-	-	-	-	-	-	-	1,954
	\$30,194,192	49,929,863	-	-	-	-	-	-	-	\$ 80,124,055
[25-29]	1,094	4,964	1,082	1	-	-	-	-	-	7,141
	44,790,928	207,488,696	47,733,012	19,907	-	-	-	-	-	300,032,543
[30-34]	968	3,712	4,556	1,126	3	-	-	-	-	10,365
	40,846,161	153,554,647	207,044,343	55,872,889	77,964	-	-	-	-	457,396,004
[35-39]	699	2,714	3,262	3,617	958	3	-	-	-	11,253
	29,131,780	108,718,701	142,256,579	182,544,529	51,923,987	97,702	-	-	-	514,673,278
[40-44]	556	2,273	2,683	2,471	3,127	858	1	-	-	11,969
	23,369,403	90,765,483	111,242,343	118,959,724	171,292,298	49,873,812	63,543	-	-	565,566,606
[45-49]	411	1,719	2,290	2,041	2,120	2,403	762	5	-	11,751
	15,986,061	66,240,655	89,161,988	90,769,255	106,000,052	138,220,048	45,104,392	182,638	-	551,665,089
[50-54]	375	1,407	1,915	1,847	1,993	1,782	2,024	111	2	11,456
	15,326,996	52,991,477	71,821,688	73,703,502	88,913,709	90,021,986	118,982,418	6,700,016	76,749	518,538,541
[55-59]	282	966	1,410	1,497	1,730	1,647	298	114	46	7,990
	12,067,486	36,262,030	54,202,425	60,553,256	73,298,256	77,242,917	16,281,046	7,182,591	3,558,685	340,648,692
[60-64]	123	526	856	783	806	965	318	151	107	4,635
	5,351,173	22,340,482	36,280,963	34,163,725	35,409,435	45,084,736	17,671,976	11,528,586	9,430,625	217,261,701
[65-69]	46	178	335	284	271	279	220	125	72	1,810
	1,773,453	7,345,260	14,425,575	13,404,086	12,839,440	13,806,210	12,444,614	9,190,599	6,956,878	92,186,115
[70+]	11	47	104	83	65	64	61	71	56	562
	452,316	1,758,747	4,106,489	4,578,439	2,593,040	3,049,541	3,627,465	6,238,641	5,369,994	31,774,672
TOTAL	5,292	19,733	18,493	13,750	11,073	8,001	3,684	577	283	80,886
	\$219,289,949	797,396,041	778,275,405	634,569,312	542,348,181	417,396,952	214,175,454	41,023,071	25,392,931	\$ 3,669,867,296

AVERAGES Attained Age 44.24
 Service Years 10.65
 Annual Salary \$ 45,371

TRSL MEMBERSHIP PROFILE
Active - Regular K-12

CELLS DEPICT Member Count
 Total Salary

Valuation Date 6/30/2015

Age/Service	(0-1)	[1-5)	[5-10)	[10-15)	[15-20)	[20-25)	[25-30)	[30-35)	[35+	TOTAL
[0-24)	612	1,172	-	-	-	-	-	-	-	1,784
	\$ 25,550,168	48,059,602	-	-	-	-	-	-	-	\$ 73,609,770
[25-29)	856	4,513	1,042	1	-	-	-	-	-	6,412
	34,005,958	189,614,593	45,784,318	19,907	-	-	-	-	-	269,424,776
[30-34)	703	3,080	4,195	1,090	3	-	-	-	-	9,071
	26,771,782	122,425,410	189,972,632	53,961,401	77,964	-	-	-	-	393,209,189
[35-39)	522	2,232	2,870	3,390	938	3	-	-	-	9,955
	19,287,472	83,320,135	121,302,357	170,566,611	50,891,412	97,702	-	-	-	445,465,689
[40-44)	436	1,902	2,333	2,255	3,024	838	1	-	-	10,789
	15,937,183	70,278,158	92,344,439	106,107,180	164,645,258	48,696,748	63,543	-	-	498,072,509
[45-49)	325	1,414	1,957	1,813	1,980	2,309	743	5	-	10,546
	11,546,922	51,036,947	71,735,716	76,868,533	97,977,307	132,544,792	43,826,982	182,638	-	485,719,837
[50-54)	285	1,081	1,617	1,598	1,836	1,667	1,950	93	1	10,128
	9,818,339	36,495,686	57,250,676	60,773,041	80,622,138	83,479,166	113,976,339	5,862,566	53,093	448,331,044
[55-59)	190	705	1,127	1,281	1,580	1,505	222	90	40	6,740
	6,186,443	23,144,533	39,033,918	48,422,668	66,265,972	69,349,158	12,624,186	5,497,837	3,063,174	273,587,889
[60-64)	75	370	668	637	741	889	258	82	72	3,792
	2,388,132	12,596,835	24,238,639	24,643,863	31,895,067	40,471,360	12,474,189	5,023,913	5,566,997	159,298,995
[65-69)	32	114	247	206	229	228	174	73	19	1,322
	1,127,096	4,109,306	9,110,197	8,097,661	10,117,257	10,491,789	8,894,562	3,610,908	1,475,847	57,034,623
[70+	3	27	70	47	51	52	42	31	19	342
	72,056	874,004	1,950,928	1,686,536	1,912,186	2,071,269	1,902,293	1,304,307	744,895	12,518,474
TOTAL	4,039	16,610	16,126	12,318	10,382	7,491	3,390	374	151	70,881
	\$ 152,691,551	641,955,209	652,723,820	551,147,401	504,404,561	387,201,984	193,762,094	21,482,169	10,904,006	\$3,116,272,795

AVERAGES Attained Age 43.93
 Service Years 10.93
 Annual Salary \$ 43,965

TRSL MEMBERSHIP PROFILE
Higher Education

CELLS DEPICT Member Count
 Total Salary

Valuation Date 6/30/2015

Age/Service	(0-1)	[1-5)	[5-10)	[10-15)	[15-20)	[20-25)	[25-30)	[30-35)	[35+	TOTAL
[0-24)	111	50	-	-	-	-	-	-	-	161
	\$ 4,599,536	1,773,424	-	-	-	-	-	-	-	\$ 6,372,960
[25-29)	236	438	39	-	-	-	-	-	-	713
	10,747,959	17,671,227	1,928,396	-	-	-	-	-	-	30,347,582
[30-34)	256	607	348	36	-	-	-	-	-	1,247
	13,932,322	30,704,576	16,825,191	1,911,488	-	-	-	-	-	63,373,577
[35-39)	167	438	375	216	19	-	-	-	-	1,215
	9,675,724	24,668,203	20,637,816	11,778,644	1,010,378	-	-	-	-	67,770,765
[40-44)	116	335	316	199	100	19	-	-	-	1,085
	7,367,600	19,901,537	18,197,211	12,511,787	6,588,675	1,154,867	-	-	-	65,721,677
[45-49)	79	250	274	197	120	87	18	-	-	1,025
	4,307,473	14,290,647	16,373,723	13,258,659	7,587,561	5,513,270	1,260,083	-	-	62,591,416
[50-54)	74	253	231	180	112	92	66	10	-	1,018
	5,192,692	15,315,705	13,390,250	11,599,176	7,370,440	6,092,831	4,830,247	645,936	-	64,437,277
[55-59)	84	189	225	174	100	102	39	20	5	938
	5,731,376	11,935,235	14,151,207	11,297,470	5,980,207	6,970,022	2,842,302	1,607,709	464,735	60,980,263
[60-64)	42	138	153	134	54	69	53	66	35	744
	2,840,203	9,442,915	11,412,865	9,300,809	3,330,346	4,475,728	5,006,647	6,450,611	3,863,628	56,123,752
[65-69)	14	52	76	71	38	50	46	51	51	449
	646,356	3,055,948	5,112,267	5,172,730	2,637,880	3,231,921	3,550,052	5,560,666	5,428,935	34,396,755
[70+)	7	19	30	34	14	12	17	38	37	208
	356,210	874,251	2,093,475	2,858,965	680,854	978,272	1,688,095	4,882,486	4,625,099	19,037,707
TOTAL	1,186	2,769	2,067	1,241	557	431	239	185	128	8,803
	\$ 65,397,452	149,633,668	120,122,401	79,689,728	35,186,341	28,416,911	19,177,426	19,147,408	14,382,397	\$ 531,153,732

AVERAGES Attained Age 45.78
 Service Years 8.51
 Annual Salary \$ 60,338

TRSL MEMBERSHIP PROFILE
School Lunch A

CELLS DEPICT Member Count
 Total Salary

Valuation Date 6/30/2015

Age/Service	(0-1)	[1-5)	[5-10)	[10-15)	[15-20)	[20-25)	[25-30)	[30-35)	[35+	TOTAL
[0-24)	-	-	-	-	-	-	-	-	-	-
	\$ -	-	-	-	-	-	-	-	-	\$ -
[25-29)	-	-	-	-	-	-	-	-	-	-
[30-34)	-	-	-	-	-	-	-	-	-	-
[35-39)	-	-	-	-	-	-	-	-	-	-
[40-44)	-	-	-	-	-	-	-	-	-	-
[45-49)	-	-	-	-	-	-	-	-	-	-
[50-54)	-	-	-	-	-	-	-	-	-	-
[55-59)	-	-	-	-	-	-	-	2	1	3
	-	-	-	-	-	-	-	39,632	30,776	70,408
[60-64)	-	-	-	-	-	-	1	2	-	3
	-	-	-	-	-	-	27,906	36,182	-	64,088
[65-69)	-	-	-	-	-	-	-	1	1	2
	-	-	-	-	-	-	-	19,025	33,853	52,878
[70+	-	-	-	-	-	-	-	2	-	2
	-	-	-	-	-	-	-	51,848	-	51,848
TOTAL	-	-	-	-	-	-	1	7	2	10
	\$ -	-	-	-	-	-	27,906	146,687	64,629	\$ 239,222

AVERAGES Attained Age 64.41
 Service Years 33.29
 Annual Salary \$ 23,922

**TRSL MEMBERSHIP PROFILE
School Lunch B**

CELLS DEPICT Member Count
 Total Salary

Valuation Date 6/30/2015

Age/Service	(0-1)	[1-5)	[5-10)	[10-15)	[15-20)	[20-25)	[25-30)	[30-35)	[35+	TOTAL
[0-24)	4	5	-	-	-	-	-	-	-	9
	\$ 44,488	96,837	-	-	-	-	-	-	-	\$ 141,325
[25-29)	2	13	1	-	-	-	-	-	-	16
	37,012	202,876	20,298	-	-	-	-	-	-	260,186
[30-34)	9	25	13	-	-	-	-	-	-	47
	142,058	424,661	246,520	-	-	-	-	-	-	813,239
[35-39)	10	44	17	11	1	-	-	-	-	83
	168,585	730,363	316,406	199,274	22,197	-	-	-	-	1,436,825
[40-44)	4	36	34	17	3	1	-	-	-	95
	64,619	585,788	700,693	340,757	58,365	22,197	-	-	-	1,772,419
[45-49)	7	55	59	31	20	7	1	-	-	180
	131,666	913,061	1,052,549	642,063	435,184	161,986	17,327	-	-	3,353,836
[50-54)	16	73	67	69	45	23	8	8	1	310
	315,965	1,180,086	1,180,762	1,331,285	921,131	449,989	175,832	191,514	23,656	5,770,220
[55-59)	8	72	58	42	50	40	37	2	-	309
	149,666	1,182,262	1,017,300	833,118	1,052,077	923,737	814,558	37,413	-	6,010,131
[60-64)	6	18	35	12	11	7	6	1	-	96
	122,838	300,732	629,459	219,053	184,022	137,648	163,234	17,880	-	1,774,866
[65-69)	-	12	12	7	4	1	-	-	1	37
	-	180,006	203,111	133,695	84,303	82,500	-	-	18,243	701,858
[70+	1	1	4	2	-	-	2	-	-	10
	24,050	10,492	62,086	32,938	-	-	37,077	-	-	166,643
TOTAL	67	354	300	191	134	79	54	11	2	1,192
	\$ 1,200,946	5,807,164	5,429,184	3,732,183	2,757,279	1,778,057	1,208,028	246,807	41,899	\$ 22,201,547

AVERAGES Attained Age 51.25
 Service Years 9.61
 Annual Salary \$ 18,625

**TRSL MEMBERSHIP PROFILE
DROP Participants**

CELLS DEPICT Member Count
Total Benefits

Valuation Date 6/30/2015

Age/Years Retired	(0-1)	[1-2)	[2-3)	[3-4)	[4-5)	[5-10)	[10-14)	[15-20)	[20+	TOTAL
[0-40)	-	-	-	-	-	-	-	-	-	-
	\$ -	-	-	-	-	-	-	-	-	\$ -
[40-44)	-	-	-	-	-	-	-	-	-	-
[45-49)	3	1	-	-	-	-	-	-	-	4
	87,720	24,132	-	-	-	-	-	-	-	111,852
[50-54)	168	185	91	2	-	-	-	-	-	446
	7,085,412	7,838,316	3,882,384	108,096	-	-	-	-	-	18,914,208
[55-59)	327	474	423	21	-	-	-	-	-	1,245
	10,527,852	17,076,096	16,010,460	1,017,240	-	-	-	-	-	44,631,648
[60-64)	145	231	184	14	-	-	-	-	-	574
	2,764,032	4,861,260	4,170,564	472,356	-	-	-	-	-	12,268,212
[65-69)	3	4	3	-	-	-	-	-	-	10
	13,392	29,952	27,348	-	-	-	-	-	-	70,692
[70-74)	1	-	2	-	-	-	-	-	-	3
	3,168	-	12,324	-	-	-	-	-	-	15,492
[75-79)	-	1	-	-	-	-	-	-	-	1
	-	98,340	-	-	-	-	-	-	-	98,340
[80-84)	-	-	-	-	-	-	-	-	-	-
[85-89)	-	-	-	-	-	-	-	-	-	-
90+	-	-	-	-	-	-	-	-	-	-
TOTAL	647	896	703	37	-	-	-	-	-	2,283
	\$ 20,481,576	29,928,096	24,103,080	1,597,692	-	-	-	-	-	\$ 76,110,444

AVERAGES Attained Age 57.51
Years Retired 1.50
Yearly Benefit \$ 33,338

**TRSL MEMBERSHIP PROFILE
Active After DROP**

CELLS DEPICT Member Count
 Total Salary
 Total Benefit

Valuation Date 6/30/2015

Age/Credited Service	(0-1)	[1-2)	[2-3)	[3-4)	[4-5)	[5-10)	[10-14)	[15-20)	[20+	TOTAL
[0-45)	-	-	-	-	-	-	-	-	-	-
	\$ -	-	-	-	-	-	-	-	-	\$ -
	\$ -	-	-	-	-	-	-	-	-	\$ -
[45-49)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
[50-54)	21	11	5	2	-	-	-	-	-	39
	355,417	512,976	171,309	53,939	-	-	-	-	-	1,093,641
	805,056	361,896	121,488	34,056	-	-	-	-	-	1,322,496
[55-59)	257	200	115	80	48	38	-	-	-	738
	6,493,658	11,485,231	7,264,573	4,805,092	3,016,616	1,967,233	-	-	-	35,032,403
	9,873,180	7,726,128	4,886,556	3,093,660	1,868,352	1,105,884	-	-	-	28,553,760
[60-64)	175	140	163	122	127	381	5	-	-	1,113
	3,599,146	6,483,598	9,537,315	8,032,445	8,118,157	25,884,468	275,919	-	-	61,931,048
	3,763,740	3,178,200	5,524,788	4,736,436	4,635,168	13,503,636	141,216	-	-	35,483,184
[65-69)	8	14	85	76	50	252	91	2	-	578
	217,549	598,100	3,870,220	3,297,940	2,145,533	15,298,537	7,093,124	165,062	-	32,686,065
	54,216	207,996	1,498,164	1,265,616	827,736	6,704,364	3,073,428	63,168	-	13,694,688
[70+)	3	1	2	4	5	86	104	41	2	248
	55,503	17,372	106,287	132,078	233,631	3,699,836	7,165,826	3,439,760	188,917	15,039,210
	16,896	2,988	21,240	22,320	78,252	1,075,488	2,551,620	1,274,820	69,792	5,113,416
TOTAL	464	366	370	284	230	757	200	43	2	2,716
	\$ 10,721,273	19,097,277	20,949,704	16,321,494	13,513,937	46,850,074	14,534,869	3,604,822	188,917	\$ 145,782,367
	\$ 14,513,088	11,477,208	12,052,236	9,152,088	7,409,508	22,389,372	5,766,264	1,337,988	69,792	\$ 84,167,544

AVERAGES Attained Age 62.99
 Service Years 4.40
 Annual Salary \$ 53,675
 Yearly Benefit \$ 30,990

TRSL MEMBERSHIP PROFILE
Regular Retirees

CELLS DEPICT Member Count
 Total Benefits

Valuation Date 6/30/2015

Age/Years Retired	(0-1)	[1-2)	[2-3)	[3-4)	[4-5)	[5-10)	[10-14)	[15-20)	[20+	TOTAL
[0-40)	2	-	-	-	-	-	-	-	-	2
	\$ 11,088	-	-	-	-	-	-	-	-	\$ 11,088
[40-44)	25	27	12	1	2	1	-	-	-	68
	576,372	524,448	276,144	22,680	32,880	38,388	-	-	-	1,470,912
[45-49)	82	100	143	89	38	63	1	1	1	518
	1,880,232	2,147,148	3,206,484	2,000,376	836,316	1,237,104	9,348	10,968	1,188	11,329,164
[50-54)	277	181	190	143	65	303	94	11	1	1,265
	10,017,900	5,246,628	5,094,360	3,476,292	1,571,016	6,013,152	1,546,932	372,636	42,876	33,381,792
[55-59)	776	791	723	502	311	781	422	199	8	4,513
	27,257,208	29,525,580	26,991,036	17,971,968	10,762,200	20,673,132	6,808,212	2,507,640	157,164	142,654,140
[60-64)	895	1,150	1,388	1,249	997	4,242	1,043	743	297	12,004
	23,190,768	32,951,856	43,045,308	40,537,344	31,759,836	135,107,940	22,849,392	10,297,740	3,458,496	343,198,680
[65-69)	482	625	900	968	793	5,293	3,983	910	998	14,952
	12,618,672	17,790,564	25,523,268	26,277,456	22,725,480	147,258,168	117,687,840	16,955,280	13,239,456	400,076,184
[70-74)	126	174	205	290	266	2,493	3,978	2,605	1,391	11,528
	3,804,528	5,309,040	6,358,344	8,267,568	8,275,032	63,347,172	100,892,820	71,222,028	23,538,936	291,015,468
[75-79)	41	37	58	66	81	684	1,901	2,633	2,646	8,147
	1,096,512	1,132,080	1,754,088	2,169,120	2,275,512	19,506,588	44,480,160	62,680,596	60,359,196	195,453,852
[80-84)	23	9	9	16	20	196	461	1,350	3,898	5,982
	430,428	167,388	265,536	594,708	626,040	5,872,272	11,948,508	31,401,780	83,905,932	135,212,592
[85-89)	10	1	2	1	7	46	115	285	2,726	3,193
	224,160	18,684	44,448	55,524	392,400	1,720,968	2,883,720	7,425,600	51,255,660	64,021,164
90+	2	-	4	3	1	7	10	46	1,574	1,647
	37,416	-	108,036	79,548	9,348	158,868	196,344	1,185,792	26,080,836	27,856,188
TOTAL	2,741	3,095	3,634	3,328	2,581	14,109	12,008	8,783	13,540	63,819
	\$ 81,145,284	94,813,416	112,667,052	101,452,584	79,266,060	400,933,752	309,303,276	204,060,060	262,039,740	\$1,645,681,224

AVERAGES Attained Age 70.60
 Years Retired 12.56
 Yearly Benefit \$ 25,787

**TRSL MEMBERSHIP PROFILE
Disability Retirees**

CELLS DEPICT Member Count
Total Benefits

Valuation Date 6/30/2015

Age/Years Retired	(0-1)	[1-2)	[2-3)	[3-4)	[4-5)	[5-10)	[10-14)	[15-20)	[20+	TOTAL
[0-40)	15	8	5	4	3	7	-	-	-	42
	\$ 236,748	160,224	97,320	46,800	41,904	98,904	-	-	-	\$ 681,900
[40-44)	8	15	9	10	7	18	4	-	-	71
	194,004	356,364	174,612	169,332	115,392	257,280	46,392	-	-	1,313,376
[45-49)	30	28	25	15	20	34	25	5	2	184
	751,428	566,232	508,296	367,092	381,720	490,692	284,052	46,668	21,900	3,418,080
[50-54)	31	26	46	28	19	84	50	28	11	323
	469,944	469,056	789,912	391,728	439,020	1,107,012	539,220	240,432	123,900	4,570,224
[55-59)	39	46	46	39	38	145	122	57	40	572
	595,404	737,832	715,824	596,724	530,076	1,889,232	1,420,800	634,224	401,988	7,522,104
[60-64)	21	39	34	31	35	196	171	110	141	778
	320,004	571,212	554,256	409,848	456,276	2,605,956	1,943,700	1,239,564	1,653,012	9,753,828
[65-69)	7	6	14	7	16	185	214	144	210	803
	97,236	99,792	182,880	140,712	249,588	2,193,756	2,189,400	1,447,872	2,420,112	9,021,348
[70-74)	1	-	2	3	8	23	118	169	265	589
	32,820	-	18,480	31,368	109,476	364,056	1,251,084	1,566,312	2,965,488	6,339,084
[75-79)	-	1	-	-	1	5	24	100	282	413
	-	11,316	-	-	12,840	72,636	210,876	859,620	2,838,204	4,005,492
[80-84)	-	-	-	-	-	3	4	7	212	226
	-	-	-	-	-	22,752	36,828	56,760	2,134,452	2,250,792
[85-89)	-	-	-	-	-	-	1	1	75	77
	-	-	-	-	-	-	8,688	36,804	792,516	838,008
90+	-	-	-	-	-	-	-	-	43	43
	-	-	-	-	-	-	-	-	437,856	437,856
TOTAL	152	169	181	137	147	700	733	621	1,281	4,121
	\$ 2,697,588	2,972,028	3,041,580	2,153,604	2,336,292	9,102,276	7,931,040	6,128,256	13,789,428	\$ 50,152,092

AVERAGES Attained Age 65.52
 Years Retired 14.93
 Yearly Benefit \$ 12,170

TRSL MEMBERSHIP PROFILE
Survivor Benefits

CELLS DEPICT Member Count
 Total Benefits

Valuation Date 6/30/2015

Age/Years Retired	(0-1)	[1-2)	[2-3)	[3-4)	[4-5)	[5-10)	[10-14)	[15-20)	[20+	TOTAL
[0-40)	37	42	58	30	33	108	46	20	4	378
	\$ 461,100	534,240	765,660	370,356	379,176	1,263,384	424,428	214,020	35,052	\$ 4,447,416
[40-44)	13	16	10	11	7	29	21	11	4	122
	138,756	220,152	112,812	198,756	89,724	396,900	279,792	121,068	24,972	1,582,932
[45-49)	15	11	10	12	10	45	42	20	16	181
	212,052	77,172	184,896	196,968	135,348	484,680	535,968	216,240	213,348	2,256,672
[50-54)	12	20	20	14	16	66	51	34	16	249
	161,280	274,848	387,912	222,456	150,408	720,924	718,932	473,004	230,700	3,340,464
[55-59)	25	34	31	31	27	114	60	44	35	401
	649,404	521,232	478,632	606,108	435,936	1,674,444	806,016	512,124	363,012	6,046,908
[60-64)	39	52	33	40	35	146	95	67	65	572
	1,056,348	1,544,352	808,992	894,156	849,660	3,148,980	1,606,176	993,444	787,464	11,689,572
[65-69)	67	78	75	47	58	219	158	98	104	904
	1,543,776	2,103,432	1,779,324	1,064,856	1,216,500	4,931,760	3,202,992	1,627,884	1,454,916	18,925,440
[70-74)	54	68	62	65	57	220	163	128	161	978
	1,164,504	1,730,724	1,184,544	1,501,608	1,458,888	4,728,276	3,299,496	2,598,660	2,529,144	20,195,844
[75-79)	67	62	65	63	60	240	171	137	195	1,060
	1,880,544	1,527,480	1,500,744	1,508,760	1,485,864	5,071,308	3,546,960	2,964,960	3,194,736	22,681,356
[80-84)	53	55	55	67	41	210	140	123	227	971
	1,092,948	1,125,252	1,274,760	1,167,552	597,780	4,006,548	2,782,320	2,574,024	3,678,720	18,299,904
[85-89)	33	42	30	27	27	127	92	69	152	599
	639,864	587,880	357,348	433,068	360,600	2,044,224	1,586,244	1,251,768	2,507,328	9,768,324
90+	7	18	17	14	12	64	67	55	103	357
	61,044	275,172	286,116	193,584	270,084	954,696	850,596	743,736	1,498,320	5,133,348
TOTAL	422	498	466	421	383	1,588	1,106	806	1,082	6,772
	\$ 9,061,620	10,521,936	9,121,740	8,358,228	7,429,968	29,426,124	19,639,920	14,290,932	16,517,712	\$ 124,368,180

AVERAGES Attained Age 70.10
 Years Retired 10.96
 Yearly Benefit \$ 18,365

TRSL MEMBERSHIP PROFILE
Vested Termination

CELLS DEPICT Member Count
Total Benefit

Valuation Date 6/30/2015

Age/Service	(0-1)	[1-5)	[5-10)	[10-15)	[15-20)	[20-25)	[25-30)	[30-35)	[35+)	TOTAL
<20	-	-	-	-	-	-	-	-	-	-
	\$ -	-	-	-	-	-	-	-	-	\$ -
[20-25)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
[25-29)	-	-	68	-	-	-	-	-	-	68
	-	-	402,168	-	-	-	-	-	-	402,168
[30-34)	-	1	612	20	-	-	-	-	-	633
	-	6,054	4,488,296	250,879	-	-	-	-	-	4,745,229
[35-39)	-	3	716	244	3	-	-	-	-	966
	-	10,407	5,511,470	3,427,602	48,119	-	-	-	-	8,997,598
[40-44)	1	5	728	287	64	2	-	-	-	1,087
	537	15,836	5,017,672	3,623,819	1,106,290	71,924	-	-	-	9,836,078
[45-49)	-	5	641	324	107	12	1	-	-	1,090
	-	15,116	4,145,639	3,880,723	1,881,866	312,401	30,612	-	-	10,266,357
[50-54)	-	4	555	383	148	31	11	1	-	1,133
	-	13,263	3,529,518	4,042,634	2,083,021	696,341	441,348	45,884	-	10,852,010
[55-59)	-	3	556	395	193	14	5	-	-	1,166
	-	2,935	3,530,621	3,981,732	2,743,469	299,780	137,541	-	-	10,696,077
[60-64)	2	2	157	93	37	14	4	-	-	309
	490	3,640	886,983	857,522	532,052	385,892	64,218	-	-	2,730,795
[65-69)	-	4	44	28	6	4	3	-	-	89
	-	6,637	209,267	234,027	48,524	103,906	93,623	-	-	695,985
[70+)	-	-	24	15	9	8	3	4	2	65
	-	-	158,088	70,660	80,445	181,908	81,563	86,462	63,165	722,291
TOTAL	3	27	4,077	1,774	558	77	24	1	2	6,606
	\$ 1,027	73,888	27,721,633	20,298,939	8,443,341	1,870,244	767,342	45,884	63,165	\$ 59,944,588

AVERAGES Attained Age 47.47
Service Years 9.52
Yearly Benefit \$ 9,074

3. Plan Provisions

A. SUMMARY OF PLAN PROVISIONS

EFFECTIVE DATE:

August 1, 1936

EMPLOYER:

The State of Louisiana, the parish school board, the city school board, the State Board of Education, the State Board of Supervisors, University or any other agency of and within the State by which a teacher is paid.

ELIGIBILITY FOR PARTICIPATION:

In general, with few exceptions, all teachers shall become members of this system as a condition of their employment. R.S. 11:721

SERVICE:

Service as a "Teacher", within the meaning of paragraph R.S. 11:701(33)

CREDITABLE SERVICE:

"Prior Service" plus "Membership Service" for which credit is allowable. "Prior Service" means allowable service rendered prior to the date of establishment of the retirement system and "Membership Service" means service as a teacher rendered while a member of the retirement system.

ADDITIONAL CREDITABLE SERVICE:

1. Credit for service canceled by withdrawal of accumulated contributions may be restored by a member by paying the amount withdrawn plus interest.
2. Service rendered in the public school system of another state may be purchased at the actuarial cost of the additional retirement benefit, or at the member's option receive service credit based on the funds actually transferred.
3. Credit for service in non-public or parochial schools may be purchased at the actuarial cost of the additional retirement benefit, or at the member's option receive service credit based on the funds actually transferred.
4. Maximum of 4 years of credit for military service may be obtained for each member, contingent on payment of actuarial cost.

5. Credit for legislative service of a former teacher, who is now a legislator, may be purchased at the actuarial cost.
6. Conversion of Sick Leave to Membership Service: At retirement, or at death before retirement of member with surviving spouse or dependent or both who are entitled to benefits, unused accumulated sick leave will be added to membership service. Conversion of unused sick and annual leave cannot be used to obtain retirement eligibility. Leave accumulated after January 30, 1990, can be converted to a maximum one year service credit. Leave is converted on the following basis:

Leave Earned Prior to 6/30/88	
Accumulated Sick Days	Fraction of Year Credit
25-45	0.25 year
46-90	0.50 year
91-135	0.75 year
136-180	1.00 year
181-225	1.25 years
226-270	1.50 years
271-315	1.75 years
316-360	2.00 years

Leave Earned After 6/29/88				
Accumulated Sick Days (by Member Classification)				Fraction of Year Credit
9 Month	10 Month	11 Month	12 Month	
10-18	11-20	12-22	13-24	0.1
19-36	21-40	23-44	25-48	0.2
37-54	41-60	45-66	49-72	0.3
55-72	61-80	67-88	73-96	0.4
73-90	81-100	89-110	97-120	0.5
91-108	101-120	111-132	121-144	0.6
109-126	121-140	133-154	145-168	0.7
127-144	141-160	155-176	169-192	0.8
145-162	161-180	177-198	193-216	0.9
163-180	181-200	199-220	217-240	1.0

EARNABLE COMPENSATION:

The compensation earned by a member for qualifying service.

FINAL AVERAGE COMPENSATION

For members whose first employment makes them eligible for membership in a Louisiana state retirement system on or after January 1, 2011, the average annual earnable compensation is the highest 60 successive months of employment. The average compensation for purposes of computing benefits cannot increase more than 15% per year.

For all other members, the average annual earnable compensation is the highest 36 successive months of employment; the average compensation for purposes of computing benefits cannot increase more than 10% per year.

Per R.S.11:892, if the maximum benefit accrual (100%) is reached, employee contributions are discontinued, average final compensation is not limited to the years for which employee contributions were made. Compensation is limited by the Internal Revenue Code Section 401(a)(17) compensation limit.

Includes workmen's compensation, and PIP's program in accordance with the following:

Years of Participation	% of Earnings to Be Included
3	60%
4	80%
5	100%

However, if member completed at least two years and subsequently becomes disabled, he shall receive 40% of such earnings. If he has completed one year and becomes disabled, he shall receive 20% of such earnings.

ACCUMULATED CONTRIBUTIONS:

Sum of all amounts deducted from compensation of members.

EMPLOYEE CONTRIBUTIONS:

8% of earnable compensation. Prior to July 1, 1989, 7% of earnable compensation.

EMPLOYER CONTRIBUTIONS:

Determined in accordance with Louisiana Revised Statutes Sections 102 and 102.2, which require the employer rate to be actuarially determined and set annually, based on the Public Retirement Systems' Actuarial Committee's recommendation to the Legislature.

NORMAL RETIREMENT BENEFIT:

Eligibility and Benefit:

After submitting written application to the Board, members are eligible for the following:

1. Members whose first employment making them eligible for membership in a Louisiana state retirement system on or after July 1, 2015, may retire with a 2.5% accrual rate after attaining age 62 with at least 5 years of service credit. Members are eligible for an actuarially reduced benefit with 20 years of service at any age.

2. Members whose first employment makes them eligible for membership in a Louisiana state retirement system on or after January 1, 2011, and before July 1, 2015, may retire with a 2.5% accrual rate after attaining age 60 with at least 5 years of service credit. Members are eligible for an actuarially reduced benefit with 20 years of service at any age.

3. For all other members:

If hired on or after July 1, 1999, members are eligible for a 2.5% accrual rate at the earliest of age 60 with five years of service, age 55 with 25 years of service, or at any age with 30 years of service. Members may retire with an actuarially reduced benefit with 20 years of service at any age.

If hired before July 1, 1999, members are eligible for a 2% accrual rate at the earliest of age 60 with five years of service, or at any age with 20 years of service and are eligible for a 2.5% accrual rate at the earliest of age 65 with 20 years of service, age 55 with 25 years of service, or at any age with 30 years of service.

Benefit:

Annuity, which shall be the actuarial equivalent of accumulated employee contributions at retirement date, and Annual pension, which, together with annuity, provides total allowance equal to the applicable accrual rate times final average compensation times years of creditable service (including unused sick leave). Members hired before June 30, 1986, receive an additional \$300 annual supplemental benefit (Act 608 of 1986).

- A. Annual benefit may not exceed 100% of average earnable compensation.
- B. Legislator's benefit is calculated based on either Teacher's or Legislator's salary but not both- for new legislators (their option to choose); employee contribution to be 12% of either salary and expense allowance as legislator, not both.
- C. For Members employed on or after July 1, 1999, the annual pension cannot exceed the maximum benefit provided under Section 415(b) of the Internal Revenue Service Code and related Federal Regulations as adjusted for inflation and form of benefit other than life annuity or qualified joint and survivor annuity for retirement ages as follows:

Age	Maximum	Age	Maximum	Age	Maximum
48	\$ 63,236	56	\$ 123,573	64	\$ 210,000
49	68,621	57	134,737	65	210,000
50	74,504	58	147,011	66	210,000
51	80,937	59	160,525	67	210,000
52	87,975	60	175,424	68	210,000
53	95,683	61	191,862	69	210,000
54	104,132	62	210,000	70	210,000
55	113,401	63	210,000		

DISABILITY RETIREMENT:Eligibility:

Members whose first employment makes them eligible for membership in a Louisiana state retirement system on or after January 1, 2011, are eligible with 10 years of service credit. All other members are eligible with 5 years of service; certification of disability by medical board (medical examination required once in every year for the first 5 years of disability retirement, and once in every 3 years thereafter, until age 60).

Benefit: Act 572 of 1995

- (1) If ineligible for service retirement at disability, disability pension will be 2.5% of average compensation multiplied by years of service. Benefit is limited to 50% of average compensation, but will not be less than the lesser of 40% of the state minimum salary for a beginning teacher with a bachelor's degree or 75% of average compensation.
- (2) Additional 50% of member's benefit payable if minor child is present, but total amount to family limited to 75% of final average compensation.
- (3) Member will become a regular retiree upon attainment of the earliest age for retirement eligibility as if the member continued in service, without further change in compensation. Benefit is based on years of creditable service but not less than the disability benefit. Benefit for minor children continue as long as the retiree has a minor child.
- (4) Upon death of a disability retiree, surviving spouse, married to retiree at least two years prior to death of the disability retiree, shall receive 75% of disability benefit. Upon death of an unmarried retiree with minor children, the benefit shall equal 50% of disability benefit.
- (5) Upon recovery of disability as determined by the board of trustees, upon advice of the medical board, and returns to active membership for at least three years starting no later than one year after recovery, then he shall be credited with one year of service for each year disabled for purposes of establishing benefit eligibility, but not for computation of benefits.

SURVIVOR'S BENEFITS (Effective July 13, 1978):Eligibility and Benefit:

1. Surviving Spouse with minor children of an active member with 5 years of creditable service with at least 2 years earned immediately prior to death; or a member with 20 years of creditable service regardless of when earned or whether in active service at time of death will receive:

The greater of:

A.) \$600 per month, or

B.) 50% of benefit that would have been payable upon service retirement at age 60 had member continued in service to age 60 without change in compensation. 50% of spouse's benefit payable for each minor child (not greater than two), with total benefit to family at least equal to the Option 2, accrued Benefit based on actual service credit. Benefits to spouse cease upon remarriage, but resumes upon subsequent divorce or death of new spouse; however, if the member was eligible to retire or had reached age 55 on the date of his death, benefits shall not cease upon remarriage. When minor children are no longer present, spouse's benefit reverts to benefit in B, for eligible spouse. If a deceased member had less than 10 years, then the spouse will receive a refund of any remaining member contributions and monthly survivor benefits will cease.

2. Surviving Spouse without minor children of either an active member with 10 years of creditable service with at least 2 years earned immediately prior to death, or a member with 20 years of creditable service regardless of when earned or whether in active service at time of death will receive:

The greater of:

A.) \$600 per month, or

B.) Option 2 equivalent of accrued benefit based on actual service. Spouse's benefit is payable for life. Benefits to spouse cease upon remarriage, but resumes upon subsequent divorce or death of new spouse; however, if the member was eligible to retire on the date of his death, benefits shall not cease upon remarriage.

3. Beneficiary not eligible for 1 or 2 will receive return of member's accumulated contributions.

OPTIONAL FORMS OF BENEFIT:

In lieu of receiving a normal retirement benefit, members may elect to receive an actuarial equivalent retirement allowance in a reduced form as follows:

Option 1 If a member dies before receiving present value of annuity in monthly payments, balance paid to designated beneficiary.

Option 2 Reduced retirement allowance, if member dies, to be continued to designated beneficiary for his lifetime.

Option 3 One-half of reduced retirement allowance, if member dies, to be continued to designated beneficiary for his lifetime.

Option 4 Other benefits of equal actuarial value may be elected with approval of board.

Options 2A, 3A, 4A

Same as Options 2, 3, and 4, except that reduced benefit reverts back to maximum if beneficiary predeceases retiree.

Automatic COLA Option

Members may choose an irrevocable election at retirement to receive an actuarially reduced benefit which increases 2.5% annually. The increase begins on the first retirement anniversary date, but not before the retiree attains age 55 or would have attained age 55 in the case of a surviving spouse. This option can be chosen in combination with the above options. (Per Act 270 of 2009, effective July 1, 2009)

Initial Lump Sum Benefit Option

Members who did not participate in DROP may elect an actuarially reduced pension and receive a lump-sum equal to not more than 36 months of the maximum monthly pension.

REFUND OF CONTRIBUTIONS:

Death prior to retirement - accumulated contributions credited to individual account in annuity savings fund are returnable to designated beneficiary, if any; otherwise, to his estate.

TERMINATION WITH VESTED SERVICE:

Any member with credit for 5 years of service who withdraws from service may elect to leave accumulated contributions in system until age 60, when he may apply for retirement and begin receiving a retirement benefit based on the credits he had at date of withdrawal.

DEFERRED RETIREMENT OPTION PLAN:

Instead of terminating employees and accepting a service retirement allowance, any member who has met the eligibility requirements may elect to participate in the Deferred Retirement Option Plan (DROP) and defer receipt of benefits.

Normal Eligibility:

DROP Eligibility by Plan		
Plan	Benefit Factor	Eligibility Criteria
<u>Membership prior to January 1, 2011</u>		
Regular Plan	2.50%	Any age with 30 years of eligibility credit; or
	2.00%	At least age 55 with 25 years of eligibility credit At least age 60 with 10 years of eligibility credit
Plan A	3.00%	Any age with 30 years of eligibility credit; or At least age 55 with 25 years of eligibility credit; or At least age 60 with 10 years of eligibility credit
Plan B	2.00%	At least age 55 with 30 years of eligibility credit; or At least age 60 with 10 years of eligibility credit
<u>Membership between January 1, 2011, and June 30, 2015</u>		
Regular Plan	2.50%	At least age 60 with 5 years of eligibility credit
Plan B	2.00%	At least age 55 with 30 years of eligibility credit; or At least age 60 with 10 years of eligibility credit
<u>Membership on or after July 1, 2015</u>		
Regular Plan	2.50%	At least age 62 with 5 years of eligibility credit
Plan B	2.00%	At least age 62 with 5 years of eligibility credit

Benefit:

Upon termination of employment, a participant will receive, at his option:

- (1) Lump sum payment (equal to the payments to the account);
- (2) A true annuity based upon his account; or
- (3) Other methods of payment approved by the board of trustees.

If a participant dies during the period of participation in the program, his account balance shall be paid to the beneficiary, or if none, to his estate in any form approved by the Board of Trustees.

If employment is not terminated at the end of DROP participation, payments into the account ceases and account earns interest. The participant resumes active contributing membership and earns an additional retirement benefit based on additional service rendered. The method of computation of the additional benefit is subject to the following:

- (1) If additional service was less than the period used to determine Final Average Compensation, average compensation figure to calculate the additional benefit will be the same as used to calculate initial benefit.
- (2) If additional service was earned for a period greater the number of months used to determine Final Average Compensation, the average compensation figure used to calculate the additional benefit will be based on compensation during the period of additional service.

DROP Accounts established prior to January 1, 2004, earn interest following termination of DROP at a rate 0.5% below the actuarial rate of the System's investment portfolio.

DROP accounts established on or after January 1, 2004 are credited with Money Market rates.

B. DESCRIPTION OF BENEFITS FOR MERGED LSU EMPLOYEES

GENERAL:

Eligibility for benefits based on the eligibility requirements of the Teachers' plan, except for deaths and disabilities before 1984. All service, funded and non-funded, is used in determining eligibility.

Final Average Salary was the average of the three highest years, except for academic year employees who retired within three years after January 1, 1979. For this group, any salary used in the Final Average Salary calculation, which was earned before January 1, 1979, was increased by 2/9ths.

The Social Security breakpoint average, for service under the funded LSU plan, was frozen at the December 31, 1978, level. That is, the breakpoint average for funded service was calculated as of December 31, 1978, and kept constant. This produced the following breakpoint averages:

**Social Security Breakpoint Average
(for LSU funded service)**

<u>Calendar Year of Entry</u>	<u>Breakpoint Average</u>
1971 or before	13,400
1972	13,800
1973	14,600
1974	15,360
1975	15,900
1976	16,500
1977	17, 100
1978	17,700

RETIREMENT BENEFITS:

Retirement benefits calculated using LSU funded service with the LSU formula and service after December 31, 1978, with the Teacher's formula. Thus, the "funded" benefit is (1) 1.33% of final average salary under the Social Security breakpoint average plus 2.5% of final average salary over the Social Security breakpoint average, times years of "funded" service with LSU before December 31, 1978, plus (2) 2.5% (or 2% if total service less is than 20 years) times final average salary times years since January 1, 1979, plus \$300.

SURVIVOR'S BEBEFITS:

For deaths after 1983, the provisions of the Teachers' plan apply. However, the benefit is calculated using all service, funded and non-funded, then prorated by service between the funded and non-funded portions. Children's benefits are also prorated into the funded and non-funded portions.

DISABILITY BENEFITS:

For disabilities after 1983, the provisions of the Teachers' plan apply. However, the benefit is calculated using all service, then prorating by service between the funded and non-funded portions. Children's benefits are also prorated.

VESTING BENEFITS:

Benefits for terminated vested members are determined as outlined under "Retirement Benefits."

REFUND OF CONTRIBUTIONS:

Terminated members are allowed a refund of accumulated contributions as described by the Teachers' plan.

COOPERATIVE EXTENSION PERSONNEL:

The LSU employees are eligible for the supplemental benefit described in Section 700.2 of Act 643 of 1978. The benefit is equal to 1% for the first five years of service, 3/4% for the next five years, and 1/2% thereafter. The funded benefit is the benefit based on service after September 12, 1975.

OPTIONAL FORMS OF BENEFITS:

Retiring members may elect options as described by the Teachers' plan.

DEFERRED RETIREMENT OPTION PLAN:

Eligible members may participate under same requirements as described by the Teachers' plan.

C. DESCRIPTION OF BENEFITS FOR MERGED SCHOOL LUNCH EMPLOYEES

EFFECTIVE DATE:

The School Lunch Employees' Retirement System was originally established on January 1, 1953.

On July 1, 1980, the School Lunch Employees' Retirement System was restructured. All individuals who become employed after July 1, 1980, shall become members of Plan A or Plan B as determined by the agreement in effect for each employer.

Plan A: Parishes which had withdrawn from Social Security coverage became known as Plan A parishes. Those participating in both the regular and the supplemental plan or only in the supplemental plan shall become members of Plan A.

Plan B: Parishes which had not withdrawn from Social Security coverage became known as Plan B parishes. Those participating only in the regular plan shall become members of Plan B.

Effective July 1, 1983, Plan A and Plan B were merged into TRSL.

CREDITABLE SERVICE:

Service as an employee while member of the system.

MILITARY SERVICE:

Maximum of 4 years of credit may be purchased.

ADDITIONAL CREDITABLE SERVICE:

Credit for service canceled by withdrawal of accumulated contributions may be restored by paying into system the amount withdrawn plus regular interest.

EMPLOYEE CONTRIBUTIONS:

Plan A: 9.10% of monthly earnings

Plan B: 5% of monthly earnings

EMPLOYER CONTRIBUTIONS:

Plan A and Plan B: Actuarial Required Amount (Effective July 1, 1989)

D. SCHOOL LUNCH PLAN A**RETIREMENT BENEFIT:**

Members hired after June 30, 1983, earn Regular Teachers Benefits. Benefits description below applies to members hired prior to July 1, 1983.

NORMAL RETIREMENT:Eligibility:

1. Age 60 and 5 years of creditable service.
2. Age 55 and 25 years of creditable service.
3. 30 years of creditable service, regardless of age.

Benefit:

3% of average final compensation times years of creditable service.

Members of only the supplemental plan prior to July 1, 1980, who were age 60 or older at the time the member's employer terminated its agreement with the Department of Health, Education and Welfare, and who became a member of the retirement system because of this termination earned 1% of average final compensation plus \$2 per month for each year of service credited prior to July 1, 1980, plus 3% of average final compensation for each year of service credited after July 1, 1980.

*These members are eligible to retire upon reaching age 70, with less than 10 years of creditable service.

Members hired before June 30, 1986, receive an additional \$300 annual supplemental benefit.

Benefits are limited to 100% of average final compensation.

DISABILITY RETIREMENT:Eligibility:

Five years of creditable service; certification of disability by the State Medical Disability Board.

Benefit:

Normal retirement allowance if eligible; otherwise, an amount equal to the normal retirement allowance to which the member would have been entitled had he met eligibility requirements; provided the amount is subject to a minimum of 60% and a maximum of 100% of average final compensation, in the event no optional selection is chosen.

SURVIVOR'S BENEFITS:Eligibility:

1. Surviving spouse with minor children of a member with 5 years of service credit with at least 2 years earned immediately prior to death, or 20 years of service credit regardless of when earned or whether the deceased member was in active service at the time of death.
2. Surviving spouse with no minor children of member with 10 or more years of service credit with at least 2 years earned immediately prior to death, or 20 years of service credit regardless of when earned or whether the deceased member was in active service at the time of death.
3. Beneficiary not eligible for 1 or 2.

Benefit:

1. Greater of:
 - A. \$600 per month, or
 - B. 50% of benefit that would have been payable upon retirement at age 60 had member continued in service to age 60 without change in compensation. 50% of spouse's benefit payable for each minor child (maximum two children), with total benefit to family at least equal to the Option 2 benefit. Accrued Benefit based on actual service credit. Benefits to spouse cease upon remarriage, but will resume upon subsequent death or divorce. When minor children are no longer present, spouse's benefit reverts to benefit in (2), if spouse is eligible for such benefit.
2. Greater of:
 - A. \$600 per month, or
 - B. Option 2 equivalent of accrued benefit based on actual service. Surviving spouse must have been married to the deceased member at least one year prior to death. If the member had not been eligible for retirement upon date of death, benefits to spouse cease upon remarriage, but resume upon subsequent death or divorce of new spouse.

3. Return of member's accumulated contributions.

E. SCHOOL LUNCH PLAN B

NORMAL RETIREMENT:

Eligibility:

1. Age 60 and 5 years of creditable service.
2. Age 55 and 30 years of creditable service.

Benefit:

Annual pension which provides total allowance equal to 2% of average final compensation times years of creditable service. Members hired before June 30, 1986, receive an additional \$300 annual supplemental benefit.

NOTE:

Benefit reduced by 3% for each year under age 62, unless member has 25 years of creditable service.

DISABILITY RETIREMENT:

Eligibility:

Five years of creditable service; certification of disability by the State Medical Disability Board.

Benefit:

Normal retirement allowance if eligible therefore; otherwise 2% of average final compensation times years of creditable service; provided amount not less than 30%, nor more than 75% of average final compensation, in the event no optional selection is made.

SURVIVOR'S BENEFITS:

Eligibility: Twenty or more years of creditable service.

Benefit: Option 2 benefit.

F. SCHOOL LUNCH PLAN A and PLAN B

OPTIONAL FORMS OF BENEFIT:

Retiring members may elect options as described by the Teachers' plan.

RETURN OF CONTRIBUTIONS:

Should a member not eligible to retire cease to be an employee, he shall be paid the amount of his accumulated contributions upon demand. Should a members death occur prior to retirement with no survivors eligible for benefits, his accumulated contributions are returnable to a designated beneficiary, if any; otherwise, to his estate.

TERMINATION WITH VESTED SERVICE:

Any member with credit for 5 years of service who withdraws from service may elect to leave accumulated contributions in system until his earliest normal retirement date, when he may apply for retirement and begin receiving a retirement benefit based on average final compensation and creditable service at date of withdrawal.

DEFERRED RETIREMENT OPTION PLAN:

Retiring members may elect options as described by the Teachers' plan.

4. Funding Policies

TRSLs' funding policy is generally described in Sections 102 and 102.2 of Title 11 of Louisiana Revised Statutes. TRSL is funded from employee and employer contributions using the Entry Age Normal funding method. The total contribution requirement consists of the normal cost (the value of benefits earned by current active employees allocated to the current year) and the amortization cost (amortization payments necessary to liquidate the unfunded accrued liability). The total contribution percentage is determined as the total contribution requirement divided by the payroll applicable to active members. Employee contribution requirements are set forth in R.S. 11:62. The employer contribution rate is equal to the total contribution rate minus the employee rate.

Employer contribution requirements are determined one year in advance of the fiscal year for which the requirement is used. Differences between projected contributions and actual contributions are defined as a contribution variance. The contribution process is defined below:

1. **Projected Employer Dollar Contribution for FYE 2015** – The June 30, 2013 valuation established the projected employer contribution rate for FYE 2015. The projected dollar contribution for FYE 2015 is equal to the projected employer contribution rate plus the projected employee contribution rate, multiplied by the projected active member payroll for FYE 2015.
2. **Actual Employer Dollar Contribution for FYE 2015** – Actual dollar contributions for FYE 2015 is obtained from system financial statements.
3. **Contribution Variance** – The difference between the Actual Dollar Contribution for FYE 2016 and the Projected Dollar Contribution for FYE 2015, adjusted for investment earnings, is equal to the Contribution Variance. A positive variance means that a contribution surplus occurred for FYE 2015. A negative variance indicates a contribution shortfall or deficit.
4. **Actuarially Determined Employer Contribution Rate for FYE 2016** – The actuarially determined contribution rate for FYE 2016 is determined by the June 30, 2015 valuation. The normal cost rate for FYE 2016 is equal to the dollar normal cost for FYE 2016 divided by the projected payroll for FYE 2016. The amortization cost rate for FYE 2016 is equal to the sum of all amortization payments for FYE 2016 divided by the projected payroll for FYE 2016. The total contribution rate is the sum of the normal cost rate and the amortization cost rate.

5. **Actuarially Determined Employer Dollar Contribution for FYE 2016** – The actuarially determined employer dollar contribution for FYE 2016 is determined by the June 30, 2015 actuarial valuation and is equal to the actuarially determined employer contribution rate for FYE 2016 divided by the projected payroll for FYE 2016.
6. **Projected Employer Dollar Contribution for FYE 2017** – The June 30, 2015 valuation establishes the projected employer contribution rate for FYE 2017. It is equal to the sum of the employer normal cost rate plus amortization payments.
7. **Projected Employer Contribution Rate for FYE 2017** – The June 30, 2015 valuation establishes the projected employer contribution rate for FYE 2017. The rate is equal to the projected employer dollar contributions for FYE 2017 divided by the projected active member payroll for FYE 2017.

From time to time, additional funding is provided directly by the state out of non-recurring revenue in accordance with Article VII, Section 10(D)(2)(b)(ii). This provision of the Constitution requires such funds to be used to reduce the Original Amortization Base (OAB) which includes the Initial Unfunded Accrued Liability (IUAL). These amounts have been about 1% of the total contribution paid to the retirement system annually since the inception of this constitutional provision in 2014.

According to Article X(29)(E)(2)(a) of the Louisiana Constitution, the minimum employer contribution that may be made to TRSL is equal to 11.0% and 11.7% depending on whether the employee was hired on or before June 30, 2011, or on or after July 1, 2011, respectively. The legislature established a larger minimum employer contribution rate in the 2004 session. This legislative minimum is 15.5% of pay. Any amount made in excess of the legislative minimum will be deposited and accumulated in the Employer Credit Account. Amounts in the Employer Credit Account may be used only to reduce any UAL established before July 1, 2004.

5. Actuarial Methods

Cost Method:

The Entry Age Normal (EAN) funding method is the method required under R.S. 11:22 of Louisiana law to produce annual employer contribution requirements. This EAN method generally produces normal costs that are level as a percentage of salary through an individual's working career. The EAN method produces an unfunded accrued liability that changes annually. Various methods were used prior to June 30, 2015, to amortize new credits or debits to the unfunded accrued liability. Unfunded accrued liability charges or credits established on June 30, 2015, or later years, will be amortized in the following manner:

1. Increases or decreases resulting from changes in benefit provisions are amortized with level payments over 10 years.
2. Increase or decreases resulting from decrement gains and losses are amortized with level payments over 30 years.
3. Increases or decreases resulting from changes in actuarial assumptions and methods are amortized with level payments over a 30-year period.
4. Contribution actually made for a given fiscal year will be more or less than the amount actually required. Contribution deficits will be amortized with level payments over a 5-year period. Contribution surpluses will be used to reduce the EAAB through FYE 2040 (i.e., immediate amortization). Thereafter, surpluses will be amortized with level payments over 5 years.
5. Increases resulting from actual contributions being less than the actual dollar required contribution are amortized with level payments over 5 years. Decreases resulting from actual contributions being greater than the dollar contribution requirement are used to reduce the EAAB through FYE 2040 (i.e., immediate amortization). Decreases thereafter will be amortized with level payments over a 5-year period.
6. Amortization rules pertaining to investment gains and losses are summarized below:
 - a. Investment losses are amortized with level payments over a 30-year period. Once the system becomes 85% funded, investment gains will be amortized over a 20-year period.

- b. Investment gains up to the first investment hurdle (\$100 million) are used to reduce the outstanding balance of the OAB. However, the OAB payment schedule will remain the same and the OAB will be paid off sooner than it would otherwise.
 - c. Investment gains between the first hurdle (\$100 million) and the second hurdle (\$200 million) are used to reduce the outstanding balance of the Experience Account Amortization Base (EAAB). However, the EAAB payment schedule will remain the same and the EAAB will be paid off sooner than it would otherwise.
 - d. Investment gains exceeding the second hurdle, net of transfer to the Experience Account, will be amortized over 30 years. Once the system becomes 85% funded, investment gains exceeding the second hurdle will be amortized over a 20-year period.
7. Increases in the unfunded accrued liability resulting from investment gains being transferred from the regular pool of assets to the Experience Account are to be amortized over a 30-year period. Such increases are to be amortized over 10-year period beginning with the June 30, 2019 valuation.

This creates a need for remedial legislation because the gain sharing/COLA program is being accounted for twice. It is first accounted for by the 25 basis point adjustment to the assumed rate of return. It is also accounted for through this amortization requirement. One or the other method is needed, not both. We believe that the former method is superior. This issue did not affect the June 30, 2015 valuation because no funds were transferred to the Experience Account on June 30, 2015.

These rules comply with actuarial standards of practice. However, the rules are viewed as a not-recommended practice under the CCA PPC white paper because:

1. Some UAL bases have amortization periods that are longer than 25 years.
2. Increases and decreases in UAL produced by the same cause are not always symmetrical.

The Louisiana legislature has changed amortization periods several times since 1989. The LLA is currently monitoring this type of legislative action and will alert the appropriate legislators and retirement committees if changes are made that would cause the retirement system to fail in its constitutionally mandated requirement to be actuarially sound.

The funding policy described above is consistent with the plan accumulating adequate assets to make benefit payments when due and consistent with improving the funded status of the plan by fully amortizing the unfunded accrued liability. This retirement system is sustainable as long as actuarially determined contributions are paid when due and all actuarial assumptions are realized.

Asset Valuation Method

The actuarial value of assets is equal to the market value of assets for the current valuation date plus an adjustment to phase in investment gains and losses occurring over the past four year. For June 30, 2015, the preliminary actuarial value is equal to the market value of assets on June 30, 2011, plus 80% of investment gains/losses for FYE 2012, plus 60% of investment gains/losses for FYE 2013, plus 40% of investment gains/losses for FYE 2014, plus 20% of investment gains/losses for FYE 2015.

If the preliminary actuarial value of assets exceeds 120% of the market value on June 30, 2015, then the actuarial value is equal to the average of the preliminary value and 120% of the market value. If the preliminary value is less than 80% of the market value, then the actuarial value is equal to the average of the preliminary value and 80% of the market value. Otherwise, the actuarial value is equal to the preliminary value.

Asset valuation formulas are shown in Section I(5).

Methods for the Experience Account

A detailed analysis of the Experience Account is presented in Section II. The 2010 amendment to the Louisiana Constitution (Article (10)(29)(F)) and discussions with the LLA's General Counsel and with legislative staff have led us to reconsider the treatment of the Experience Account process. We have concluded the following.

1. Laws pertaining to transfers of gains to the Experience Account are still in force.
2. However, laws pertaining to COLAs require additional legislation to implement.
3. Therefore, TRSL still has an obligation under the law to fund the Experience Account as determined by Act 399 of 2014. However, disbursements from the Experience Account will occur only after a bill is introduced by the legislature, passed each house with a two-thirds vote, and signed by the governor.

We have prepared our employer contribution requirements for FYE 2017 in accordance with our understanding of the law as summarized above and as summarized in Section II.

Accelerated Reduction of the OAB and EAAB

Specified actuarial gains are used to reduce the outstanding balances of the OAB and the EAAB. These gains include the following special allocations:

1. Specified legislative appropriations reduce the outstanding balance of the OAB.
2. Positive Contribution Variances (or surpluses) reduce the outstanding balance of the EAAB.

3. Investment gains falling between \$0 and \$100 million reduce the outstanding balance of the OAB.
4. Investment gains falling between \$100 million and \$200 million reduce the outstanding balance of the EAAB.

However, the amortization payment schedule is unaffected by the reduction in the outstanding balance. Although not identified as such in the law, the end result is that the OAB and the EAAB will each consist of two separate accounts – an Amortization Account and an Offset Account. These accounts operate in the following manner:

1. Amortization payments and outstanding balances in the Amortization Account will be unaffected by the special allocation to the OAB and EAAB cited above. This account will operate as if the special allocations did not exist.
2. The special allocations will be accumulated in the Offset Account. The outstanding balance will grow annually with new special allocations and interest based on the discount rate.
3. The outstanding balance of the OAB on any June 30 will be equal to the outstanding balance of the Amortization Account minus the outstanding balance on the Offset Account.

Eventually, the Offset Account will equal or exceed the Amortization Account and the OAB or EAAB will be fully paid.

Valuation Approval Process

The approval process for annual actuarial valuations for TRSL, as specified in Louisiana law, is summarized below:

1. The TRSL's actuary prepares an actuarial valuation which is presented to the TRSL board of trustees for review and approval.
2. The actuary for the Louisiana Legislative Auditor (LLA) also prepares an actuarial valuation.
3. The actuaries present their valuations to the Public Retirement Systems' Actuarial Committee (PRSAC). PRSAC approves one of the two valuations presented.

4. The valuation approved by PRSAC is then submitted to the House and Senate Committees on Retirement and the Joint Legislative Committee on the Budget.
5. The PRSAC approved valuation receives automatic approval unless one of the legislative committees elects to overturn the PRSAC approval.

Benchmarking

Valuation results were tested by comparing normal costs and liability values produced by our valuation system with values produced by valuation software used by Foster & Foster. Comparisons of values were made for each sub plan, for each member status category, and for each type of decrement. In aggregate, our accrued liability values were generally within 0.005% of the values produced by Foster & Foster. Normal costs were similarly matched. Comparisons of values by sub plan, by status category, and by decrement showed larger deviations, but on the whole produced values acceptable for valuation purposes.

Because we so closely matched the results produced by Foster & Foster, normal cost values in our valuation for FYE 2017 are based on our own valuation results.

6. Actuarial Assumptions

Demographic and salary assumptions used in the valuation were adopted by the Board of Trustees following the most recent experience study, effective July 1, 2013. The study was based on an observation period of 2008-2012. The Retirement System is required to conduct an experience study every five years, but the scope of such a study is not necessarily limited to a five year period. The experience was reviewed separately for Regular Teachers, Higher Education, School Lunch Plan A, and School Lunch Plan B. The experience study report, dated March 27, 2013, provides further information regarding the rationale for these assumptions. The current rate tables are illustrated at the end of this exhibit.

Economic Assumption

Assumed Rate of Return on the Actuarial Value of Assets

The assumed rate of return on the actuarial value of assets used for the preparation of actuarially calculated employer contribution requirements for FYE 2016 is 8.10%. The assumed rate of return used to prepare projected employer contribution requirements for FYE 2017 is 7.75%. These rates are net of investment expenses. This 7.75% rate is based on the following:

1. Discount rate studies prepared for the LLA by Gabriel Roeder Smith over the last couple of years.
2. Calculations of rates of return on the actuarial value of assets since FYE 1989.
3. Comparisons of the assumed rate of return on the actuarial value of assets for TRSL with assumed rates of return used by the 126 largest public retirement systems in the country published in May 2015 by the National Association of State Retirement Administrators.
4. An analysis linking the expected long-term rate of return to the duration of system liabilities.
5. Other research and analysis.

The Cost of the Gain Sharing/COLA Program

The cost of the TRSL's gain sharing/COLA program is estimated to be equivalent to a 25 basis point reduction to the assumed rate of return on the actuarial value of assets. This estimate is based on discussions with Foster & Foster, the actuary for TRSL, reports prepared for the LLA by Gabriel Roeder Smith, calculations Experience Account transfer payments when treated as an investment loss and our own stochastic modeling and

research. This assumption is likely to change in future years as our stochastic model is improved to better reflect the provision of the gain sharing/COLA program.

Administrative Expenses

Administrative costs are estimated to be equivalent to a 10-basis point reduction to the assumed rate of return on the actuarial value of assets. This estimate is based on calculations by Foster & Foster and our own calculations.

Assumed Discount Rate

The discount rate used in the preparation of actuarially calculated employer contributions for FYE 2016 is 7.75%. This is equal to the assumed rate of return on the actuarial value of assets (8.10%) minus the cost of the gain sharing/COLA program (25 basis points) minus the cost of administrative expenses (10 basis points). The discount rate used in the preparation of projected employer contributions for FYE 2017 will be 7.40%. The 7.40% rate is at the top end of our range of reasonableness.

Assumed Rate of Inflation

The assumed rate of inflation is a component of salary growth and the assumed rate of return on the actuarial value of assets. It has been argued that inflation for salary growth should be based on consumer prices in the United States, but inflation for investment returns should be based on global inflation data. We have not seen any compelling evidence to support this argument. Therefore, the inflation assumption component for salary growth and for investments has been set at 2.50% in the preparation of employer contribution requirements for FYE 2016. The inflation component used to determine employer contribution requirements for FYE 2017 will be 2.50%.

The basis for the selection of the rate of inflation for FYE 2017 is summarized below:

1. Studies for the LLA prepared by Gabriel Roeder Smith.
2. Comparisons with other Louisiana retirement systems, with particular emphasis on the Louisiana State Employees' Retirement System.

Administrative Expense

Legal staff for TRSL has concluded that Louisiana law will not permit direct recognition of administrative expenses in the normal cost. Administrative expenses have been accounted for in this valuation by reducing the expected return on the actuarial value of assets by 10 basis points.

Mortality Assumption

Pre-retirement deaths and post-retirement life expectancies are based on attained age using the RP-2000 table with mortality improvement projected through 2025 using scale AA. No mortality improvement is assumed to occur after FYE 2025. This table appears to match recent experience for retirement system members. This table was recommended by the system actuary and was approved by the TRSL's board of trustees.

We are not comfortable with this assumption. It has been argued that rates of death in Louisiana are greater than elsewhere in the country because of obesity and the Louisiana lifestyle. It can be counter argued that mortality improvement in Louisiana should be more robust than elsewhere as better ways to treat obesity are developed. This assumption will be given significant attention in future years as the implications of the 2014 generational table becomes better known and as more research becomes available relative to Louisiana mortality.

Disability Assumption

Rates of total and permanent disability, based upon attained age, are projected in accordance with the most recent experience study. Mortality assumptions for disability benefits are based upon the RP-2000 disability mortality table with no projection for mortality improvement.

Retirement/DROP Assumption

Eligibility for normal retirement benefits and participation in DROP is based on age and service requirements that vary by sub plan. Retirement/DROP decrements differ from one sub plan to another. These decrements are generally based on the 2008-2012 experience study.

Termination Assumption

Voluntary termination or withdrawal rates are based on the 2008-2012 Experience Study. Rate for Lunch Plan A and Lunch Plan B are based on service. For members hired before July 1, 2015, and terminating with vested benefits, it is assumed that 20% will elect to withdraw their accumulated employee contribution, and 80% will receive a benefit beginning at age 60. For members hired on or after July 1, 2015, and terminating with vested benefits, it is assumed that 20% will elect to withdraw their accumulated employee contribution, and 80% will receive a benefit beginning at age 62.

Salary Growth

The rates of annual salary growth are based upon the member's years of service and are based on the most recent experience study. The rates include anticipated productivity growth, merit adjustments, and a 2.50% inflation component, which is consistent with the inflation assumptions used to develop the discount rate. For valuation purposes, current salaries and projected future salaries are limited to the Section 401(a)17 of the Internal Revenue Service Code 401(a)17 limit, with future indexed increases.

Family Statistics

The composition of the family is based upon Current Population Reports published by the United States Census Bureau. Seventy-five percent of the membership is assumed to be married. The wife is assumed to be three years younger than the husband. Sample rates for the assumed number of minor children are as follows:

Age of Member	Number of Minor Children	Years for Youngest Child to Attain Majority
25	1.2	17
30	1.4	15
35	1.7	13
40	1.7	10
45	1.4	8
50	1.1	4

Assumption for Incomplete Data

Records identified as containing suspicious data or errors in data were assumed to possess the same characteristics of "good data" in the same cohort of members.

Converted Leave

Leave credit is accrued throughout a member's career and converted to service credit or paid as a lump sum. Converted leave rates below represent the percentage increase in a retiree's accrued benefit upon conversion of the leave to benefits. The rates, shown below, are based on the most recent experience study.

	Regular Retirement	Disability
Regular Teachers	1.5%	1.5%
Higher Education	1.5%	1.5%
Lunch Plan A	1.0%	1.0%
Lunch Plan B	1.0%	1.0%

Capital Market Assumptions

The assumed investment return on the actuarial value of assets used in the preparation of June 30, 2015 liabilities and contribution requirements for FYE 2016 is 8.10%. This rate is

based in part on capital market assumptions developed by TRSL's internal professional investment staff relying substantially, but not completely, on information provided by Hewitt Ennis Knupp, TRSL's investment advisor. Capital market assumptions of investment consulting firms are considered confidential and therefore are not disclosed in this report.

The assumed investment return on the actuarial value of assets used in the preparation of projected contribution requirements for FYE 2017 is 7.40%. This rate is based on capital market assumptions for the following eight major investment consulting firms. Once again, the capital market assumptions are considered to be confidential and are not disclosed.

BNY Mellon
Hewitt Ennis Knupp
J. P. Morgan
Mercer

NEPC
Pension Consulting Alliance
R. V. Kuhns & Associates
Towers Watson

**RP-2000 MORTALITY TABLE WITH PROJECTION TO 2025
WITH SCALE AA - Effective July 1, 2014**

For Regular Teachers Sub Plan, Higher Education Sub Plan, Lunch A Sub Plan and Lunch B Sub Plan.

Age	Death Rate		Age	Death Rate		Age	DROP	
	Male	Female		Male	Female		Male	Female
18	0.000196	0.000132	53	0.001760	0.001632	88	0.132854	0.097072
19	0.000205	0.000130	54	0.001929	0.001885	89	0.146819	0.110532
20	0.000214	0.000128	55	0.002243	0.002223	90	0.165921	0.122153
21	0.000227	0.000125	56	0.002667	0.002658	91	0.180722	0.134140
22	0.000238	0.000126	57	0.003057	0.003068	92	0.200931	0.146213
23	0.000256	0.000132	58	0.003523	0.003461	93	0.216754	0.162113
24	0.000271	0.000138	59	0.003972	0.003918	94	0.232553	0.173875
25	0.000292	0.000146	60	0.004508	0.004460	95	0.254433	0.185013
26	0.000325	0.000158	61	0.005261	0.005129	96	0.270045	0.195353
27	0.000337	0.000165	62	0.006002	0.005873	97	0.285214	0.209923
28	0.000347	0.000174	63	0.007038	0.006747	98	0.307507	0.218415
29	0.000363	0.000183	64	0.007929	0.007604	99	0.322050	0.225671
30	0.000392	0.000205	65	0.008953	0.008563	100	0.336045	0.231601
31	0.000440	0.000251	66	0.010389	0.009664	101	0.358628	0.244834
32	0.000496	0.000286	67	0.011590	0.010730	102	0.371685	0.254498
33	0.000557	0.000314	68	0.012562	0.011861	103	0.383040	0.266044
34	0.000619	0.000338	69	0.013920	0.013110	104	0.392003	0.279055
35	0.000682	0.000360	70	0.015219	0.014770	105	0.397886	0.293116
36	0.000742	0.000380	71	0.016839	0.015984	106	0.400000	0.307811
37	0.000798	0.000399	72	0.018697	0.017778	107	0.400000	0.322725
38	0.000829	0.000420	73	0.020825	0.019270	108	0.400000	0.337441
39	0.000857	0.000444	74	0.023233	0.021358	109	0.400000	0.351544
40	0.000883	0.000484	75	0.026595	0.022993	110	0.400000	0.364617
41	0.000911	0.000530	76	0.029643	0.025332	111	0.400000	0.376246
42	0.000945	0.000584	77	0.033819	0.028612	112	0.400000	0.386015
43	0.000985	0.000642	78	0.038544	0.031540	113	0.400000	0.393507
44	0.001033	0.000705	79	0.043933	0.034821	114	0.400000	0.398308
45	0.001087	0.000751	80	0.050067	0.038490	115	0.400000	0.400000
46	0.001136	0.000797	81	0.057467	0.042601	116	0.400000	0.400000
47	0.001188	0.000842	82	0.065843	0.047227	117	0.400000	0.400000
48	0.001243	0.000911	83	0.073396	0.052439	118	0.400000	0.400000
49	0.001300	0.000984	84	0.083709	0.058321	119	0.400000	0.400000
50	0.001358	0.001092	85	0.092919	0.066628	120	1.000000	1.000000
51	0.001516	0.001237	86	0.103019	0.076203			
52	0.001609	0.001419	87	0.117040	0.087152			

REGULAR TEACHERS
ACTUARIAL TABLES AND RATES - Effective July 1, 2014

*Salary Scale is (1+ Inflation) x (1+ Merit)

Age	Disability	Termination Rates					Duration	Salary Scale*
	Rates	< 1 Year	1 Year	2 Years	3 Years	>=4 Years		
18-22	0.0000	0.200	0.200	0.200	0.095	0.180	0	0.057500
23	0.0001	0.200	0.200	0.200	0.095	0.180	1	0.057500
24	0.0001	0.200	0.200	0.200	0.095	0.180	2	0.057500
25	0.0001	0.180	0.180	0.126	0.095	0.090	3	0.057500
26	0.0001	0.180	0.180	0.126	0.095	0.060	4	0.057500
27	0.0001	0.190	0.190	0.126	0.095	0.060	5	0.050000
28	0.0001	0.190	0.190	0.126	0.095	0.055	6	0.050000
29	0.0001	0.190	0.190	0.126	0.095	0.053	7	0.050000
30	0.0001	0.190	0.190	0.120	0.109	0.053	8	0.050000
31	0.0003	0.190	0.190	0.120	0.109	0.050	9	0.050000
32	0.0003	0.190	0.190	0.120	0.109	0.045	10	0.047500
33	0.0003	0.190	0.190	0.120	0.109	0.045	11	0.047500
34	0.0003	0.190	0.190	0.120	0.109	0.045	12	0.047500
35	0.0006	0.180	0.180	0.117	0.095	0.040	13	0.047500
36	0.0010	0.180	0.180	0.117	0.095	0.040	14	0.047500
37	0.0007	0.180	0.180	0.117	0.095	0.040	15	0.045000
38	0.0007	0.180	0.180	0.117	0.095	0.040	16	0.045000
39	0.0011	0.180	0.180	0.117	0.095	0.040	17	0.045000
40	0.0011	0.165	0.165	0.123	0.090	0.037	18	0.045000
41	0.0013	0.165	0.165	0.123	0.090	0.037	19	0.045000
42	0.0016	0.165	0.165	0.123	0.090	0.037	20	0.040000
43	0.0016	0.165	0.165	0.123	0.090	0.037	21	0.040000
44	0.0016	0.165	0.165	0.123	0.090	0.040	22	0.040000
45-49	0.0022	0.163	0.163	0.099	0.090	0.040	23	0.040000
50	0.0025	0.175	0.175	0.112	0.090	0.040	24	0.040000
51	0.0025	0.175	0.175	0.112	0.090	0.040	25	0.037500
52	0.0025	0.175	0.175	0.112	0.090	0.040	26	0.037500
53	0.0030	0.175	0.175	0.112	0.090	0.040	27	0.037500
54	0.0030	0.175	0.175	0.112	0.090	0.040	28	0.037500
55	0.0040	0.175	0.175	0.106	0.090	0.040	29	0.037500
56	0.0050	0.175	0.175	0.106	0.090	0.040	30	0.042500
57	0.0055	0.155	0.155	0.106	0.090	0.040	31	0.042500
58	0.0055	0.200	0.200	0.106	0.090	0.040	32	0.042500
59	0.0055	0.200	0.200	0.106	0.090	0.040	33	0.042500
60	0.0055	0.200	0.200	0.106	0.090	0.040	>=34	0.042500
61	0.0050	0.200	0.200	0.106	0.090	0.040		
62	0.0050	0.200	0.200	0.106	0.090	0.040		
63	0.0050	0.200	0.200	0.106	0.090	0.040		
64	0.0035	0.200	0.200	0.106	0.090	0.040		
65	0.0035	0.200	0.200	0.106	0.090	0.040		
>=66	0.0020	0.200	0.200	0.106	0.090	0.040		

REGULAR TEACHERS
ACTUARIAL TABLES AND RATES - Effective July 1, 2014

Age	Retirement/DROP Rates*											
	K-12 Pre 07/1999				K-12 07/1999-12/2010				K-12 Post 01/2011			
	0-19 Years	20-24 Years	25-29 Years	>=30 Years	0-4 Years	5-24 Years	25-29 Years	>=30 Years	0-4 Years	5-24 Years	25-29 Years	>=30 Years
<=37	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
38	0.000	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
39	0.000	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40	0.000	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
41	0.000	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
42	0.000	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
43	0.000	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
44	0.000	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
45	0.000	0.025	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
46	0.000	0.025	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
47	0.000	0.025	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
48	0.000	0.030	0.020	0.700	0.000	0.000	0.000	0.700	0.000	0.000	0.000	0.000
49	0.000	0.030	0.020	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
50	0.000	0.030	0.050	0.300	0.000	0.000	0.000	0.300	0.000	0.000	0.000	0.000
51	0.000	0.030	0.170	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
52	0.000	0.030	0.280	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
53	0.000	0.100	0.208	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000
54	0.000	0.150	0.450	0.400	0.000	0.000	0.000	0.400	0.000	0.000	0.000	0.000
55	0.000	0.150	0.750	0.300	0.000	0.000	0.750	0.300	0.000	0.000	0.000	0.000
56	0.000	0.150	0.330	0.200	0.000	0.000	0.330	0.200	0.000	0.000	0.000	0.000
57	0.000	0.150	0.250	0.200	0.000	0.000	0.250	0.200	0.000	0.000	0.000	0.000
58	0.000	0.250	0.250	0.200	0.000	0.000	0.250	0.200	0.000	0.000	0.000	0.000
59	0.000	0.250	0.300	0.200	0.000	0.000	0.300	0.200	0.000	0.000	0.000	0.000
60	0.250	0.250	0.300	0.200	0.000	0.250	0.300	0.200	0.000	0.250	0.300	0.200
61	0.150	0.150	0.300	0.200	0.000	0.150	0.300	0.200	0.000	0.150	0.300	0.200
62	0.150	0.150	0.220	0.250	0.000	0.150	0.220	0.250	0.000	0.150	0.220	0.250
63	0.150	0.150	0.170	0.150	0.000	0.150	0.170	0.150	0.000	0.150	0.170	0.150
64	0.200	0.200	0.200	0.300	0.000	0.200	0.200	0.300	0.000	0.200	0.200	0.300
65	0.200	0.200	0.200	0.300	0.000	0.200	0.200	0.300	0.000	0.200	0.200	0.300
66	0.200	0.200	0.200	0.300	0.000	0.200	0.200	0.300	0.000	0.200	0.200	0.300
67	0.200	0.200	0.200	0.300	0.000	0.200	0.200	0.200	0.000	0.200	0.200	0.200
68	0.200	0.200	0.200	0.300	0.000	0.200	0.300	0.300	0.000	0.200	0.300	0.300
69	0.200	0.200	0.200	0.300	0.000	0.200	0.300	0.300	0.000	0.200	0.300	0.300
70	0.200	0.200	0.200	0.400	0.000	0.200	0.300	0.400	0.000	0.200	0.300	0.400
71	0.200	0.200	0.200	0.200	0.000	0.200	0.300	0.200	0.000	0.200	0.300	0.200
72	0.200	0.200	0.200	0.250	0.000	0.200	0.300	0.250	0.000	0.200	0.300	0.250
73	0.200	0.200	0.200	0.250	0.000	0.200	0.300	0.250	0.000	0.200	0.300	0.250
74	0.200	0.200	0.200	0.250	0.000	0.200	0.300	0.250	0.000	0.200	0.300	0.250
>=75	1	1	1	1	0.000	1	1	1	0.000	1	1	1

HIGHER EDUCATION
ACTUARIAL TABLES AND RATES - Effective July 1, 2014

*Salary Scale is (1+ Inflation) x (1+ Merit)

Age	Disability	Termination Rates					Duration	Salary
	Rates	< 1 Year	1 Year	2 Years	3 Years	>=4 Years		Scale*
18-22	0.0000	0.250	0.250	0.250	0.170	0.120	0	0.100000
23	0.0001	0.250	0.250	0.250	0.170	0.120	1	0.100000
24	0.0001	0.250	0.250	0.250	0.170	0.120	2	0.090000
25	0.0001	0.250	0.250	0.250	0.170	0.120	3	0.080000
26	0.0001	0.210	0.210	0.250	0.170	0.120	4	0.040000
27	0.0001	0.210	0.210	0.220	0.170	0.120	5	0.070000
28	0.0001	0.220	0.220	0.220	0.170	0.120	6	0.050000
29	0.0001	0.240	0.240	0.220	0.170	0.120	7	0.070000
30	0.0001	0.250	0.250	0.160	0.170	0.180	8	0.070000
31	0.0001	0.220	0.220	0.178	0.170	0.100	9	0.045000
32	0.0001	0.220	0.220	0.190	0.160	0.100	10	0.045000
33	0.0001	0.190	0.190	0.170	0.150	0.120	11	0.045000
34	0.0001	0.230	0.230	0.155	0.100	0.120	12	0.045000
35	0.0001	0.220	0.220	0.175	0.130	0.120	13	0.045000
36	0.0001	0.220	0.220	0.160	0.150	0.120	14	0.040000
37	0.0001	0.220	0.220	0.108	0.150	0.120	15	0.040000
38	0.0001	0.190	0.190	0.180	0.150	0.100	16	0.040000
39	0.0001	0.190	0.190	0.140	0.150	0.100	17	0.040000
40	0.0001	0.230	0.230	0.185	0.150	0.100	18	0.040000
41	0.0001	0.165	0.165	0.108	0.150	0.100	19	0.040000
42	0.0001	0.230	0.230	0.115	0.150	0.100	20	0.040000
43	0.0001	0.155	0.155	0.168	0.150	0.100	21	0.040000
44	0.0001	0.195	0.195	0.135	0.150	0.100	22	0.040000
45	0.0001	0.190	0.190	0.116	0.150	0.100	23	0.040000
46	0.0008	0.162	0.162	0.170	0.150	0.080	24	0.040000
47	0.0008	0.210	0.210	0.140	0.150	0.090	25	0.040000
48	0.0008	0.135	0.135	0.180	0.150	0.090	26	0.040000
49	0.0008	0.135	0.135	0.125	0.150	0.090	27	0.035000
50	0.0008	0.185	0.185	0.108	0.060	0.090	28	0.035000
51	0.0008	0.145	0.145	0.070	0.050	0.090	29	0.035000
52	0.0008	0.155	0.155	0.110	0.095	0.090	30	0.035000
53	0.0008	0.220	0.220	0.130	0.125	0.090	31	0.035000
54	0.0008	0.220	0.220	0.075	0.017	0.090	32	0.035000
55	0.0008	0.200	0.200	0.104	0.140	0.090	33	0.035000
56	0.0020	0.135	0.135	0.122	0.100	0.080	>=34	0.035000
57	0.0020	0.250	0.250	0.055	0.140	0.080		
58	0.0020	0.100	0.100	0.115	0.200	0.100		
59	0.0005	0.100	0.100	0.210	0.125	0.080		
>=60	0.0005	0.150	0.150	0.160	0.090	0.060		

HIGHER EDUCATION
ACTUARIAL TABLES AND RATES - Effective July 1, 2014

Age	Retirement/DROP Rates*												
	Higher Ed. Pre 07/1999					K-12 07/1999-12/2010				K-12 Post 01/2011			
	0-4 Years	5-19 Years	20-24 Years	25-29 Years	>=30 Years	0-4 Years	5-24 Years	25-29 Years	>=30 Years	0-4 Years	5-24 Years	25-29 Years	>=30 Years
<=37	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
38	0.000	0.000	0.100	0.080	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
39	0.000	0.000	0.100	0.080	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
40	0.000	0.000	0.100	0.080	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
41	0.000	0.000	0.100	0.080	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
42	0.000	0.000	0.100	0.080	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
43	0.000	0.000	0.070	0.080	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
44	0.000	0.000	0.070	0.080	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
45	0.000	0.000	0.070	0.080	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
46	0.000	0.000	0.070	0.080	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
47	0.000	0.000	0.070	0.080	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
48	0.000	0.000	0.070	0.080	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
49	0.000	0.000	0.070	0.080	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
50	0.000	0.000	0.070	0.080	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
51	0.000	0.000	0.070	0.160	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
52	0.000	0.000	0.070	0.160	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
53	0.000	0.000	0.070	0.160	0.600	0.000	0.000	0.000	0.600	0.000	0.000	0.000	0.000
54	0.000	0.000	0.150	0.280	0.400	0.000	0.000	0.000	0.400	0.000	0.000	0.000	0.000
55	0.000	0.000	0.150	0.350	0.200	0.000	0.000	0.350	0.200	0.000	0.000	0.000	0.000
56	0.000	0.000	0.150	0.200	0.050	0.000	0.000	0.200	0.050	0.000	0.000	0.000	0.000
57	0.000	0.000	0.150	0.130	0.050	0.000	0.000	0.130	0.050	0.000	0.000	0.000	0.000
58	0.000	0.000	0.150	0.130	0.050	0.000	0.000	0.130	0.050	0.000	0.000	0.000	0.000
59	0.000	0.000	0.150	0.130	0.050	0.000	0.000	0.130	0.050	0.000	0.000	0.000	0.000
60	0.000	0.150	0.150	0.130	0.050	0.000	0.150	0.130	0.050	0.000	0.150	0.130	0.050
61	0.000	0.120	0.120	0.120	0.120	0.000	0.120	0.120	0.120	0.000	0.120	0.120	0.120
62	0.000	0.120	0.120	0.120	0.120	0.000	0.120	0.120	0.120	0.000	0.120	0.120	0.120
63	0.000	0.120	0.120	0.120	0.120	0.000	0.120	0.120	0.120	0.000	0.120	0.120	0.120
64	0.000	0.120	0.120	0.120	0.120	0.000	0.120	0.120	0.120	0.000	0.120	0.120	0.120
65	0.000	0.120	0.120	0.160	0.200	0.000	0.120	0.160	0.200	0.000	0.120	0.160	0.200
66	0.000	0.120	0.120	0.160	0.180	0.000	0.120	0.160	0.180	0.000	0.120	0.160	0.180
67	0.000	0.120	0.120	0.160	0.180	0.000	0.120	0.160	0.180	0.000	0.120	0.160	0.180
68	0.000	0.120	0.120	0.160	0.180	0.000	0.120	0.160	0.180	0.000	0.120	0.160	0.180
69	0.000	0.120	0.120	0.160	0.280	0.000	0.120	0.160	0.280	0.000	0.120	0.160	0.280
70	0.000	0.120	0.120	0.160	0.280	0.000	0.120	0.160	0.280	0.000	0.120	0.160	0.280
71	0.000	0.120	0.120	0.160	0.200	0.000	0.120	0.160	0.200	0.000	0.120	0.160	0.200
72	0.000	0.120	0.120	0.160	0.200	0.000	0.120	0.160	0.200	0.000	0.120	0.160	0.200
73	0.000	0.120	0.120	0.160	0.200	0.000	0.120	0.160	0.200	0.000	0.120	0.160	0.200
74	0.000	0.120	0.120	0.160	0.200	0.000	0.120	0.160	0.200	0.000	0.120	0.160	0.200
>=75	0.000	1.000	1.000	1.000	1.000	0.000	1.000	1.000	1.000	0.000	1.000	1.000	1.000

LUNCH PLAN A
ACTUARIAL TABLES AND RATES - Effective July 1, 2014

*Salary Scale is (1+ Inflation) x (1+ Merit)

Age	Disability Rates	Retirement Rates				Duration	Termination Rates	Salary Scale*
		0-4 Years	5-24 Years	25-29 Years	>=30 Years			
<=30	0.0000	0.00	0.00	0.00	0.00	0	0.140	0.060000
31-37	0.0001	0.00	0.00	0.00	0.00	1	0.140	0.060000
38	0.0001	0.00	0.00	0.00	0.30	2	0.140	0.060000
39	0.0001	0.00	0.00	0.00	0.30	3	0.140	0.060000
40	0.0001	0.00	0.00	0.00	0.30	4	0.140	0.060000
41	0.0001	0.00	0.00	0.00	0.30	5	0.140	0.060000
42	0.0001	0.00	0.00	0.00	0.30	6	0.140	0.060000
43	0.0001	0.00	0.00	0.00	0.30	7	0.140	0.060000
44	0.0001	0.00	0.00	0.00	0.30	8	0.140	0.060000
45	0.0001	0.00	0.00	0.00	0.30	9	0.140	0.060000
46	0.0001	0.00	0.00	0.00	0.30	10	0.140	0.060000
47	0.0001	0.00	0.00	0.00	0.30	11	0.140	0.060000
48	0.0001	0.00	0.00	0.00	0.30	12	0.140	0.047500
49	0.0100	0.00	0.00	0.00	0.30	13	0.140	0.047500
50	0.0100	0.00	0.00	0.00	0.30	14	0.140	0.047500
51	0.0100	0.00	0.00	0.00	0.30	15	0.140	0.060000
52	0.0150	0.00	0.00	0.00	0.70	16	0.140	0.060000
53	0.0175	0.00	0.00	0.00	0.70	17	0.140	0.070000
54	0.0175	0.00	0.00	0.00	0.70	18	0.140	0.070000
55	0.0175	0.00	0.00	0.80	0.70	19	0.140	0.036000
56	0.0002	0.00	0.00	0.35	0.70	20	0.140	0.036000
57	0.0002	0.00	0.00	0.35	0.70	21	0.140	0.036000
58	0.0002	0.00	0.00	0.35	0.70	22	0.140	0.036000
59	0.0002	0.00	0.00	0.60	0.70	23	0.140	0.060000
60	0.0002	0.00	0.45	0.45	0.70	24	0.140	0.060000
61	0.0002	0.00	0.20	0.20	0.50	25	0.140	0.040000
62	0.0002	0.00	0.20	0.20	0.50	26	0.140	0.040000
63	0.0002	0.00	0.35	0.35	0.50	27	0.140	0.040000
64	0.0002	0.00	0.10	0.10	0.50	28	0.140	0.040000
65	0.0002	0.00	0.10	0.10	0.50	29	0.140	0.040000
66	0.0002	0.00	0.10	0.10	0.25	30+	0.140	0.040000
67	0.0002	0.00	0.20	0.20	0.25			
68	0.0002	0.00	0.20	0.20	0.25			
69	0.0002	0.00	0.20	0.20	0.25			
70	0.0002	0.00	0.20	0.20	0.25			
71	0.0002	0.00	0.20	0.20	0.25			
72	0.0002	0.00	0.20	0.20	0.25			
73	0.0002	0.00	0.20	0.20	0.25			
74	0.0002	0.00	0.20	0.20	0.25			
>=75	0.0002	0.00	1.00	1.00	1.00			

LUNCH PLAN B
ACTUARIAL TABLES AND RATES - Effective July 1, 2014

*Salary Scale is (1+ Inflation) x (1+ Merit)

Age	Disability Rates	Retirement Rates	Duration	Termination Rates	Salary Scale*
<=35	0.0000	0.00	0	0.100	0.055000
36-39	0.0010	0.00	1	0.090	0.055000
40	0.0050	0.00	2	0.080	0.055000
41	0.0050	0.00	3	0.070	0.055000
42	0.0050	0.00	4	0.060	0.055000
43	0.0050	0.00	5	0.050	0.055000
44	0.0050	0.00	6	0.050	0.055000
45	0.0050	0.00	7	0.045	0.055000
46	0.0050	0.00	8	0.045	0.055000
47	0.0050	0.00	9	0.045	0.055000
48	0.0050	0.00	10	0.045	0.055000
49	0.0050	0.00	11	0.045	0.045000
50	0.0130	0.00	12	0.040	0.045000
51	0.0130	0.00	13	0.030	0.045000
52	0.0130	0.00	14	0.030	0.045000
53	0.0130	0.00	15	0.030	0.045000
54	0.0130	0.00	16	0.050	0.050000
55	0.0175	0.80	17	0.050	0.050000
56	0.0175	0.80	18	0.050	0.050000
57	0.0225	0.80	19	0.030	0.040000
58	0.0225	0.80	20	0.040	0.040000
59	0.0150	0.60	21	0.040	0.040000
60	0.0050	0.50	22	0.040	0.040000
61	0.0050	0.25	23	0.040	0.040000
62	0.0050	0.25	24	0.040	0.040000
63	0.0050	0.25	25	0.040	0.040000
64	0.0010	0.25	26	0.040	0.040000
65	0.0010	0.15	27	0.040	0.040000
66	0.0010	0.15	28	0.040	0.040000
67	0.0010	0.30	29	0.040	0.040000
68	0.0010	0.45	30+	0.040	0.040000
69	0.0010	0.20			
70	0.0010	0.20			
71	0.0010	0.20			
72	0.0010	0.20			
73	0.0010	0.20			
74	0.0010	0.20			
>=75	0.0010	1.00			

APPENDIX A
CONTRIBUTION RATES FOR SUB PLANS

Appendix A: Employer Contribution Requirements for FYE 2017 - Sub Plans

The calculations of employer contribution rates for FYE 2017 for employers participating in each sub plan of TRSL are shown below. These contribution requirements are based on revised assumptions and methods.

A. Regular Teachers Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Employer Normal Cost	\$ 179,210,110	\$ 3,407,399,676	5.259440%
Shared Amortization Costs	759,082,835		22.277482%
Total	\$ 938,292,945		27.5369%

B. Higher Education Sub Plan for Non ORP Members

	Dollar Contribution	Projected Payroll	Contribution Rate
Employer Normal Cost	\$ 22,931,616	\$ 584,191,724	3.925358%
Shared Amortization Costs	130,143,206		22.277482%
Total	\$ 153,074,822		26.2028%

C. Higher Education Sub Plan for ORP Members

	Dollar Contribution	Projected Payroll	Contribution Rate
Employer Normal Cost	\$ 0	0	0.000000%
Shared Amortization Costs	130,230,444	\$ 584,583,319	22.277482%
Total	\$ 130,230,444		22.2775%

D. Lunch Plan A Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Employer Normal Cost	\$ 132,490	\$ 1,302,878	10.169041%
Shared Amortization Costs	290,248		22.277482%
Total	\$ 422,738		32.4465%

E. Lunch Plan B Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Employer Normal Cost	\$ 1,854,622	\$ 24,032,261	7.717218%
Shared Amortization Costs	5,353,783		22.277482%
Total	\$ 7,208,405		29.9947%

F. Total For All Sub Plans

	Dollar Contribution	Projected Payroll	Contribution Rate
Employer Normal Cost	\$ 204,128,838	\$ 4,016,926,538	5.081717%
Shared Amortization Costs	1,025,100,530	4,601,509,857	22.277482%
Net Employer Cost	\$ 1,229,229,368		27.3592%

APPENDIX B
BASIS FOR ECONOMIC ASSUMPTIONS

Appendix B: Basis for Economic Assumptions

Actuarial Standard of Practice No. 27 is devoted to the “Selection of Economic Assumptions for Measuring Pension Obligations.” Over one half of the document pertains to the extensive amount of data an actuary must examine before selecting an assumed rate of return. Key requirements are summarized below:

1. The actuary should review appropriate recent and long-term historical economic data without giving undue weight to recent experience.
2. The actuary should consider the views of experts – representative of the plan sponsor and administrator, investment advisors, economists, and other professionals.
3. The investment return assumption reflects the anticipated returns on the plan’s current and if appropriate for the measurement, future assets.
4. The actuary should recognize the uncertain nature of the assumption selected and may consider a range of rates to be reasonable.
5. Although the actuary may incorporate the views of experts, the selection of the investment return assumption should reflect the actuary’s professional judgment.

Based on our analysis, the rate of return assumption should range from 6.50% to 7.80%. The rate we have assumed effective June 30, 2016 (7.75%) is at the top end of our range of reasonableness. Our analysis is organized in accordance with the following topic headings.

1. A Look at the Past
2. A Look to the Future
3. Opinions of Other Public Sector Actuaries

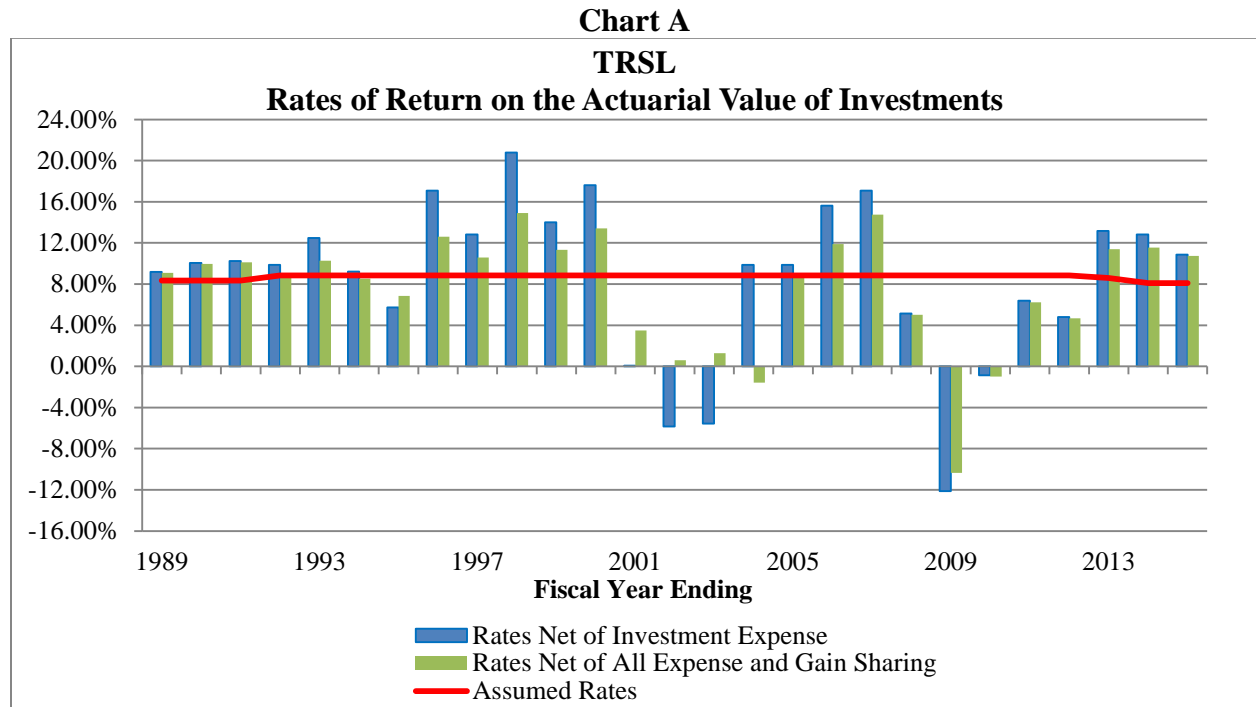
A LOOK AT THE PAST

Historical Rates of Return on Investments

Actual rates of return on the actuarial value of assets have averaged 8.25% since 1989, the beginning of actuarial funding for TRSL. Assumed rates have averaged 8.73% over the same period. Therefore, based solely on historical experience, it appears that the current assumed rate of return assumption is too high and should be reduced. Our analysis is summarized below.

Actuarial rates of return on investments since 1989 are compared with assumed rates of return over the same period (see Chart A below). The following information is important to an understanding of these graphs.

1. The red line shows assumed rates of return (not the discount rate). The assumed rate of return is the discount rate plus a margin for administrative expenses (0.10%) and a margin for gain sharing. No margin for gain sharing was necessary prior to its enactment during the 1992 legislative session. A 50 basis point margin was assumed from 1992 through 2013. The margin was reduced to 0.25% in 2014 to reflect a major reduction in gain sharing provisions.
2. The blue bars show the actual rate of return on investments year by year. This rate is net of investment expenses and is based on the actuarial value of assets.
3. The green bars show the actual rate of return on investments adjusted for investment gains and losses flowing to and from the Experience Account.



Observations:

1. Actual rates of return generally matched or exceeded assumed rates of return during the 1990s.
2. TRSL had very impressive rates of return from 1995 through 1999.
3. Actual rates have generally been significantly below assumed rates over the past 15 years.

4. Volatility during the 1990s was modest. Volatility over the past 15 years has been significant.
5. Actual and assumed rates of return over past periods are shown in Table 1.

TABLE 1

Average Compound Rate over the Past:	Actual	Assumed	Deficit*
5 Years	9.56%	8.50%	- 1.06%
10 Years	6.95%	8.67%	1.72%
15 Years	5.08%	8.73%	3.65%
20 Years	7.81%	8.76%	0.95%
25 Years	8.14%	8.76%	0.62%
27 Years	8.25%	8.73%	0.48%

*A negative deficit indicates actual rates exceeded assumed rates.

6. Of particular concern to us is the last 15-year period. Assumed rates have averaged 8.73% while actual rates have averaged only 4.97%. The average shortfall in earnings has led to significant losses and higher contribution requirements. It is not likely that this large a deficit will continue. In fact, the deficit when measured over the past 10 years is only 2.44%. A surplus has occurred over the past 5 years.
7. The consensus of the investment community is that the market corrections at the beginning of the century and in 2008-09 are likely to be permanent corrections. Investment losses that were incurred during this period are not likely to be recovered. Future returns will be regular normal returns and will not include an adjustment to recover these investment losses.
8. Earnings volatility will continue to be significant given TRSL's move into alternatives.

Conclusions:

1. TRSL has failed to achieve its assumed rate of return on the actuarial value of assets over the past 25 years. The average shortfall is about 150 basis points.
2. TRSL's investment return assumption is currently 8.10%. If historical patterns hold into the future, TRSL should lower its assumed rate of return to 7.15%. The discount rate would be 35 basis points less, or 6.80%.
3. We are using an investment return assumption of 7.75% and a discount rate of 7.40% to determine contribution requirements for FYE 2017.

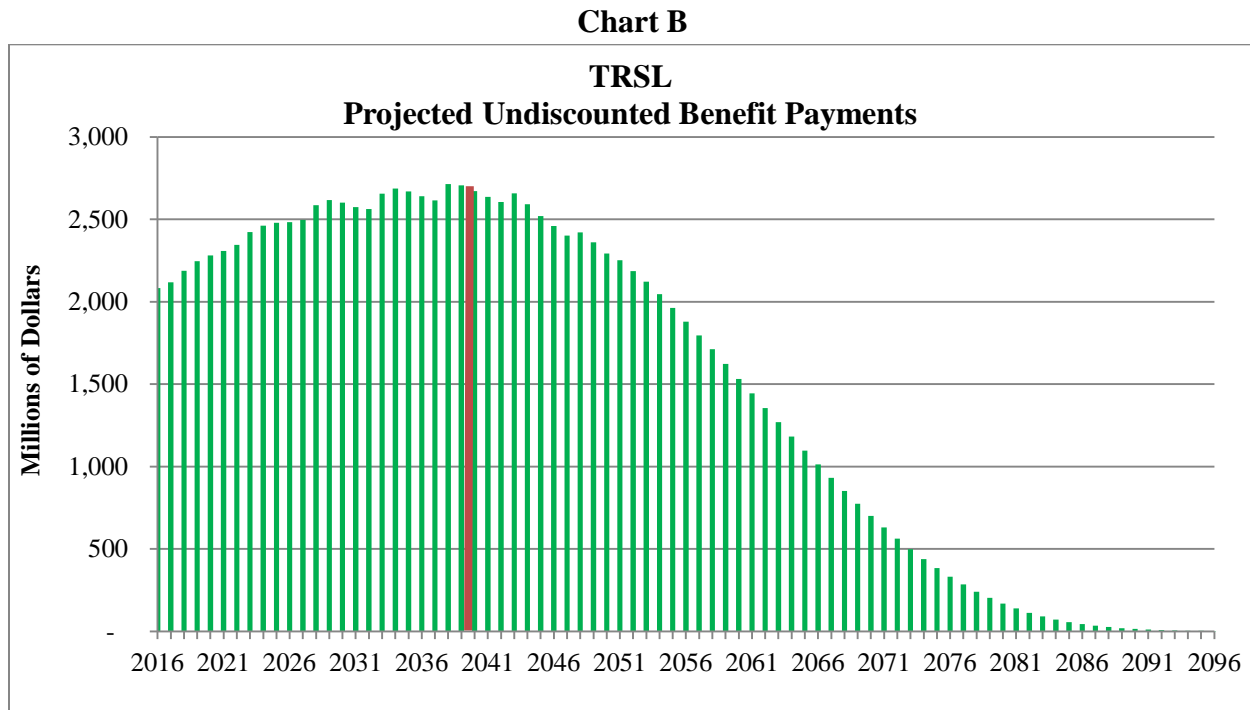
A LOOK TO THE FUTURE

An analysis of historical rates of return must be complimented by an analysis of what the future may hold. Complete reliance on past experience is to assume that the future will look just like the past. Actuarial Standards of Practice No. 27 states: the actuary should consider the possibility that some historical economic data may not be appropriate in developing assumptions to future periods due to changes in the underlying environment. The term “should consider” indicates what is normally the appropriate practice for the actuary to follow when rendering actuarial services. The market place is the entire world rather than just the United States, and investment securities and opportunities are vastly different today than they were 30 years ago. We conclude that TRSL’s assumed rate of return on investments is too high and should be reduced.

Time Horizon

It is expected that TRSL will be paying benefits to current members for the next 80 years (see Chart B). This would suggest that the assumed rate of return should be based on a long-term time horizon, 30 years or more. However, long-term predictions of rates of return become less and less credible the farther out you go because:

1. The existing inventory of securities in the market place will expire on average within 5 to 15 years.
2. Just as the market place looked vastly different 15 years ago than it does today, the inventory of investment opportunities 15 years from now will be significantly different from what is available now.



One half of the all future benefit payments will be made in the next 24 years, or before June 30, 2039.

Another useful measurement is the duration of system liabilities. Investment professionals try to match pension assets with pension liabilities to reduce the financial risk associated with future changes in interest rates. A useful measurement, used to help mitigate interest rate volatility, is the duration of system liabilities. It is beyond the scope of this report to explain duration concept. However, it is sufficient to state that the liability of a plan with a shorter duration is more sensitive to changes in interest rates than a plan with a longer duration. To protect the asset values of a retirement system against significant changes in market returns, plan assets should be invested with a time horizon that is equivalent to the plan's duration.

The duration of a typical large public sector pension plan is about 15 years. The duration of TRSL's liability, when measured using a 7.4% rate, is about 13.0 years. Therefore, TRSL is more sensitive to changes in rates of return than the typical plan. The analysis of duration suggests that selection of the assumed rate of return on investments should be based on an 11- to 15-year time horizon.

The investment community is currently suggesting that the average rates of return over the next decade are likely to be in the 5.0% to 6.0% range. However, in years beyond the 10-year period, returns will exceed current expectations so that over a long period of time the average rate will

converge to the mean expectation. For example, if the mean expectation over a 30-year period is 8.10% but returns over the next 5 years are expected to average only 5.00%, then returns over the remaining 20 years must average 9.72%. Table 2 shows rates that must be earned over the final 20 years for various 30-year expectations and average earnings for the immediate 10-year period.

Table 2
Average Rate of Return that Must Be Realized
Over the Last 20 Years to Achieve 30-Year Expectations

Average Rate of Return over the First 10 Years	30-Year Expectation		
	6.75%	7.75%	8.10%
4.00%	8.15%	9.67%	10.25%
4.50%	7.89%	9.41%	9.98%
5.00%	7.63%	9.15%	9.72%
5.50%	7.38%	8.89%	9.46%
6.00%	7.12%	8.63%	9.20%
6.50%	6.87%	8.38%	8.94%
7.00%	6.62%	8.12%	8.69%
7.50%	6.37%	7.87%	8.44%
8.00%	6.13%	7.62%	8.19%

Because the average rate of return over a 30-year period should be about 7.15% and the investment community is expecting rates over the next decade to average 5.00% to 6.00%, rates of return over the last 20 years must average 7.38% to 8.89%. Our long-term rate assumption is at the top end of our range of reasonableness because our 30-year expectation is close to 7.75% and the expected average for the first 10 years is 5.50%. Therefore an 8.89% rate must be achieved over the last 20 years of the 30-year period. Attaining an average rate of 8.89% over a 20 year period places a heavy burden on the retirement system and its investment advisors and managers.

The point of this discussion is that it is more appropriate to use a 7 to 15 year time horizon than to use a 30-year horizon.

Studies by Gabriel Roeder Smith

The LLA has commissioned studies by Gabriel Roeder Smith, the largest provider of actuarial services to the public sector, to help us identify an appropriate rate of return assumption. A study was initially commissioned following the June 30, 2013, actuarial valuation. The study was updated early in 2015. These studies were based on TRSL's asset allocations, TRSL's

investment policy, and on capital market assumptions used by eight major investment consulting firms (see below).

BNY/Mellon	NEPC
Hewitt Ennis Knupp	Pension Consulting Alliance
J. P. Morgan	R.V. Kuhns & Associates
Mercer	Towers Watson

Using this information and applying stochastic modeling processes, GRS produced Table 3.

Table 3

Investment Consultant	Distribution of 15-Year Average of Geometric Net Nominal Rates of Return			Probability of Exceed 8.10%
	40 th Percentile	50 th Percentile	60 th Percentile	
1	4.83%	5.69%	6.56%	25.2%
2	5.18%	6.14%	7.10%	31.3%
3	5.13%	6.11%	7.09%	31.4%
4	6.81%	6.78%	7.75%	37.6%
5	6.26%	7.13%	8.01%	40.1%
6	6.24%	7.12%	8.01%	40.1%
7	6.23%	7.14%	8.05%	40.6%
8	6.70%	8.68%	8.68%	46.8%
Average	5.80%	6.72%	7.66%	36.6%

Table 3 is based on 500 Monte Carlo simulations using the capital market assumption set of each identified investment consultant. For example, 40% of the Monte Carlo trials for Investment Consultant 3 produced an average rate over 15 years that was less than 5.13%. There was a 50/50 chance of producing 6.11%. And, there was a 60% chance that the rate of return would be less than 7.09%. The probability of achieving an 8.10% return was only 31.4%.

If the average of the eight consultants is used rather than a single consultant, there is a 50/50 chance of achieving a 6.72% rate of return. The probability of achieving 8.10% is only 36.6%.

We discussed our findings with TRSL's actuarial and investment management team, and found the differences were attributable to the use of capital market assumptions of eight leading consulting firms rather than one consulting firm, and the use of a 15-year time horizon rather than 30.

Conclusion:

To repeat, our ideal assumed rate of return on investments is 7.15%. The GRS analysis supports this conclusion. The 7.75% assumption we are using is at the top end of our reasonableness range.

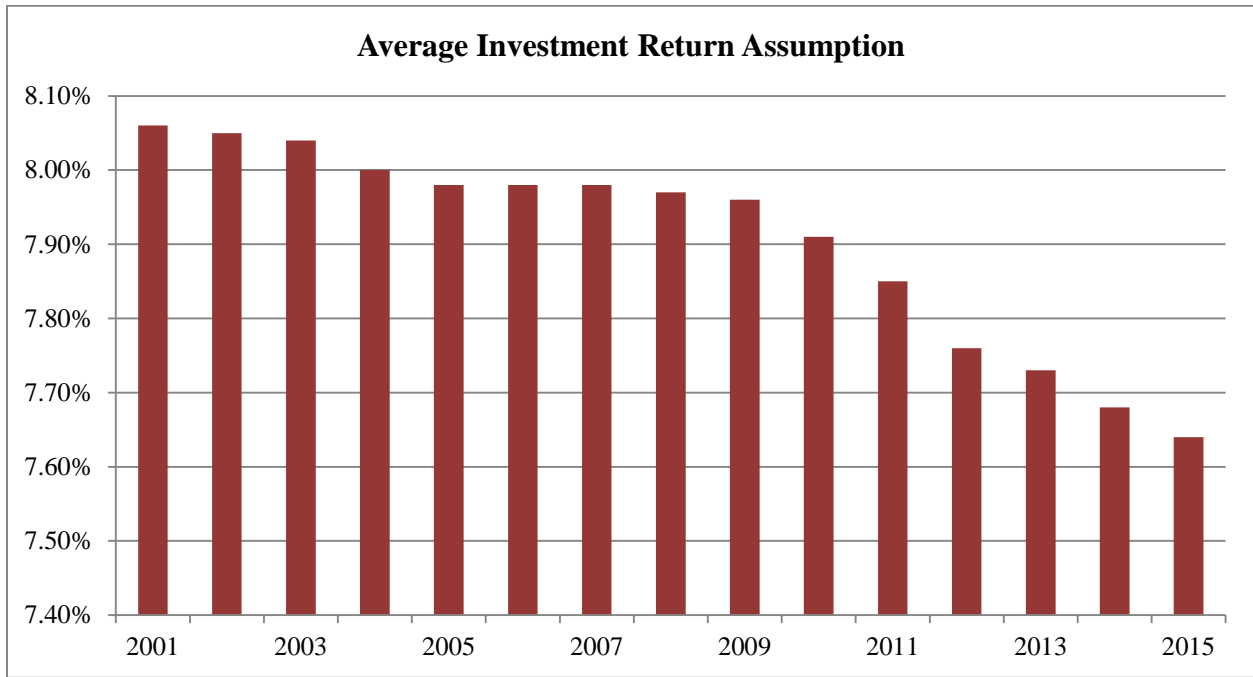
OPINIONS OF OTHER PUBLIC SECTOR PROFESSIONALS

The assumed rate of return assumption for a retirement system is generally a consensus of the opinions of various professionals who serve the system in one way or another. These include the opinions of the actuarial community, the accounting community, the investment community, the bond underwriting community, plan administrators, and plan sponsors. The actuary of a retirement system must not only select an investment return assumption that will be responsive to the opinions of the various professional groups, but also must select a rate that will comply with Actuarial Standards of Practice. This can be a challenging exercise.

The National Association of State Retirement System Administrators (NASRA) publishes an annual issue brief on the investment return assumption used by 126 public retirement systems. Its brief, published in May 2015, provides the following information.

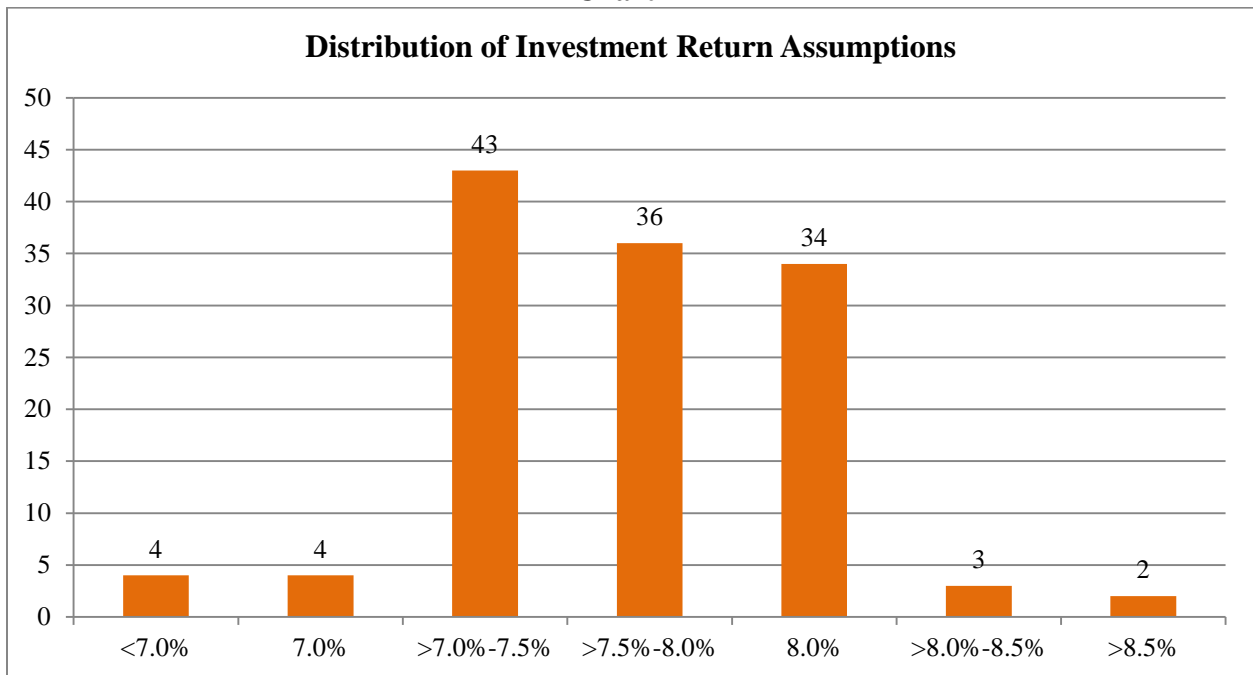
1. The average return assumption has fallen 42 basis points since 2001. The average rate in 2001 was 8.06%. The average rate in 2015 was 7.64%. However, 32 of the 42 basis point reduction has occurred in the last 6 years (see Chart C below).
2. The TRSL's 8.10% rate of return assumption is greater than the average rate in 2015. It is even higher than the average rate for 2001. (Note: TRSL was using an 8.85% assumption in 2001.)

Chart C



3. NASRA also produced Chart D. With an 8.10% investment return assumption, TRSL’s rate is higher than 121 of the 126 plans in the survey.

Chart D



4. The point is that the retirement community in general is now acknowledging that the assumed rate of return must be reduced. The returns of the 1980s and 1990s are a thing of the past.
5. Retirement systems in the south have been slower to reduce their investment return assumptions than systems in other regions of the country (see Table 4). The average rate for southern states is 7.82%.

Table 4

System	Investment Rate Assumption
Louisiana Employees	8.15%
Louisiana Teachers	8.10%
Alabama Employees	8.00%
Alabama Teachers	8.00%
Arkansas Teachers	8.00%
Mississippi Employees	8.00%
Missouri Employees	8.00%
Missouri Teachers	8.00%
Texas Employees	8.00%
Texas Teachers	8.00%
Arkansas Employees	7.75%
Florida	7.65%
Georgia Employees	7.50%
Georgia Teachers	7.50%
South Carolina	7.50%
Tennessee	7.50%
North Carolina	7.25%

6. Indicators of a trend toward lower investment return assumptions.
 - a. CalPERS reduced its rate from 7.75% to 7.50% in 2011. CalPERS is now proposing a selection process that could reduce the rate to as low as 6.50% depending on future investment returns.
 - b. Oregon Employees system reduced its assumed rate of return from 8.00% to 7.75% two years ago. The system again reduced its rate to 7.50% in 2015.
 - c. The New York State Common Fund, the third largest pension fund in the U.S. cut its rate from 8.00% to 7.50% in 2011. It just recently cut its rate to 7.00%.
 - d. Colorado PERA cut its investment return assumption by 25 basis points from 8.00% to 7.75% in 2013.

- e. Keith Brainard, research director of the National Association of State Retirement Administrators has recently stated,
- “We’re in the midst of what I would call a secular shift in the return assumptions. That has occurred particularly in the wake of reduced interest rates.”
 - “There is a continuous, ongoing review of, among other factors, the [return] rate by all or most public pension funds, so there’s a continuous, multiyear trend toward lower rates.”
 - “About two-thirds of the public pension funds that we follow have reduced their return assumptions since 2008, some more than once.”

Conclusion:

The entire retirement community is transitioning to lower investment return assumptions. The investment return assumption for TRSL is at the top end for its peer group and should be reduced for FYE 2017 to 7.75%.