

2015 ACTUARIAL VALUATION REPORT ON THE
LOUISIANA STATE EMPLOYEES' RETIREMENT SYSTEM



ACTUARIAL VALUATION AS OF
JUNE 30, 2015
ISSUED JANUARY 2016

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2015 ACTUARIAL VALUATION REPORT
LOUISIANA STATE EMPLOYEES' RETIREMENT SYSTEM

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LOUISIANA LEGISLATIVE AUDITOR
DARYL G. PURPERA, CPA, CFE

January 19, 2015

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 Louisiana State Employees' Retirement System 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

LASERS 2015 VALUATION

SUMMARY AND CONCLUSIONS

SUMMARY AND CONCLUSIONS

2015 Actuarial Report on the Louisiana State Employees' Retirement System

This valuation has been prepared as of June 30, 2015, based on plan provisions for the Louisiana State Employees' Retirement System (LASERS) as documented in Title 11 of Louisiana Revised Statutes (R.S.), Sections 401 through 621. 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 of the 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 the 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 LASERS 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 LASERS 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 LASERS' actuary: (1) the Investment Return assumption, (2) the Inflation assumption, and (3) the Discount Rate assumption. Therefore, the LLA's actuary is required by Actuarial Standards of Practice (ASOPs) 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 LASERS' actuary. The LLA rates will first apply July 1, 2016.

Assumption	LLA's Actuary	LASERS' Actuary
Real Rate of Return on Investments	5.30%	5.15%
Rate of Inflation	2.50%	3.00%
Total Rate of Return on Investments	7.80%	8.15%
Rate of Return Diverted to Pay for Administrative Expenses	0.15%	0.15%
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 the LASERS' actuary complying or not complying with ASOPs. 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 LASERS' 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 LASERS' 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 LASERS' 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 LASERS' 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 LASERS' 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 preparation of this valuation report are based on his 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 his 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. LASERS' average rate of return over the past 27 years is 8.02%. The average assumed rate of return over the same period of time is 8.77%. Although LASERS 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 actuary for LASERS and TRSL is assuming 3.00% inflation for LASERS and 2.50% inflation for TRSL. The LLA's actuary is recommending and is using 2.50% assumption for both systems. It is inconsistent to have a different inflation assumption for LASERS and TRSL. The asset allocations of both systems are similar. They invest similarly in the global market place.
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 LASERS is 11.5 years. The duration for a typical public sector retirement system is 15 years. This means that LASERS 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 LASERS earns only 5.50% over the next 10 years, it will have to earn 9.46% over the 20 years thereafter in order to achieve the 8.15% target.
7. LLA contracted independent consultants to determine a reasonable range of investment returns based on LASERS' asset allocation and investment policy. Results show that there is a 50/50 chance that the average rate will be 6.82%. Results also show that there is only a 38% chance that an average rate of 8.15% 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 LASERS assumption is 51 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 LASERS (8.15%) 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 for FYE 2017 is shown below.

	LASERS Actuary	LLA Actuary	Increase
Contributions, in Dollars	\$689 million	\$736 million	\$47 million
Employer Contribution Rate	35.8%	38.2%	2.4%

However, employer contributions in dollars, as recommended by LLA’s actuary for FYE 2017, is \$24 million less than it was for FYE 2015, and the contribution rate is only 0.87% more.

FYE	Contributions	Rate
2015	\$760 million	37.4%
2016	\$698 million	37.0%
2017	\$736 million	38.2%

Public Document

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. LASERS.
Other Users	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	47,643	46,940	45,425
(2) Actives	40,194	40,321	44,111
(3) DROP	1,682	1,838	2,092
(4) Terminated Vested	3,953	4,558	4,162
B. Annual Benefits	\$ 1,170,269,160	\$ 1,074,358,980	\$ 1,076,245,404
C. Total Payroll	1,856,735,292	1,813,759,357	1,951,987,750
D. Valuation Assets	11,318,433,015	10,606,474,675	9,740,877,677
E. Experience Account	123,579,684	117,093,356	195,623,963
F. Investment Returns			
(1) Market (Total Assets)	1.34%	17.55%	11.81%
(2) Market (excl OPR & self-directed)	1.30%	18.19%	12.19%
(3) Net Actuarial Value	10.64%	13.45%	14.05%
(4) Rate for DROP Accounts	10.14%	12.95%	13.55%
G. Normal Costs			
(1) Total in Dollars	\$ 222,225,784	\$ 208,898,813	\$ 282,121,445
(2) Total Normal Cost Rate	11.97%	11.52%	14.45%
(3) Employer Normal Cost Rate	4.00%	3.56%	6.54%
H. Accrued Liability	\$ 18,216,660,456	\$ 17,877,744,945	\$ 16,182,194,641
I. Unfunded Accrued Liability	\$ 6,898,227,441	\$ 7,271,270,270	\$ 6,441,316,964
J. Funded Percentage	62.1%	59.3%	60.2%
K. Funding Requirements for the Fiscal Year Following the Valuation Date			
(1) Employees			
a) Contributions	\$ 150,095,128	\$ 146,448,588	\$ 156,872,780
b) Rate	7.970%	7.953%	7.915%
(2) Employers			
a) Contributions	\$ 691,947,107	\$ 693,094,712	\$ 713,215,614
b) Rate	36.74%	37.64%	35.99%
L. Funding Requirements for the Subsequent Fiscal Year			
(1) Employees			
a) Contributions	\$ 153,340,984	\$ 149,866,717	\$ 156,872,780
b) Rate	7.970%	7.953%	7.915%
(2) Employers			
a) Contributions	\$ 735,610,376	\$ 697,562,314	\$ 760,458,132
b) Rate	38.23%	37.02%	37.45%

Contribution Rates for FYE 2017

Contribution requirements for LASERS 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	Plan Specific UAL	Total Employer Cost
Sub Plan	7/1/15	(A)	(B)	(C) = (A) - (B)	(D)	(E)	(F) = (C) + (D) + (E)
Rank & File	O	12.42%	7.69%	4.73%	33.39%	0.06%	38.18%
Appellate Law Clerks	O	14.28%	8.00%	6.28%	33.39%	0.00%	39.66%
Pre 2011 Judges & Court Offs	C	18.36%	11.50%	6.86%	33.39%	0.00%	40.25%
Post 2011 Judges	O	19.43%	13.00%	6.43%	33.39%	0.00%	39.82%
Legislators	C	20.87%	11.50%	9.37%	33.39%	0.00%	42.76%
Special Legislative Group	C	20.79%	9.50%	11.29%	33.39%	0.00%	44.67%
Corrections Officers Primary	C	9.30%	9.00%	0.30%	33.39%	0.00%	33.69%
Corrections Offs Secondary	C	13.59%	9.00%	4.59%	33.39%	0.00%	37.97%
Wildlife Officers	C	24.28%	9.50%	14.78%	33.39%	0.00%	48.17%
Peace Officers	C	12.55%	9.00%	3.55%	33.39%	0.00%	36.94%
ATC Officers	C	13.46%	9.00%	4.46%	33.39%	0.00%	37.85%
Bridge Police Officers	C	10.72%	8.40%	2.32%	33.39%	0.00%	35.70%
Harbor Police	C	13.00%	9.00%	4.00%	0.00%	0.00%	4.00%
Hazardous Duty Officers	O	14.25%	9.50%	4.75%	33.39%	0.18%	38.31%
Total		12.76%	7.97%	4.79%	33.39%	0.06%	38.23%

Status

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

LASERS receives a direct payment from three special funds. The amount of normal cost and amortization cost received from each fund is summarized below:

Payments From Special Funds for FYE 2017			
Special Fund	Normal Cost	Amortization Cost	Total Payment
Adult Probation and Parole Officers	60,582	712,866	773,448
Peace Officers	0	297,357	297,357
ATC Officers	0	80,728	80,728
Total	60,582	1,090,951	1,151,533

Funding Requirements Specific to Individual Sub Plans

Although most funding components are shared, some components apply only to an individual sub plan or to a group of employees within a sub plan. These situations are summarized below.

Rank & File – The disability accrual rate for members hired on or after July 1, 2006, was increased by Act 262 of the 2008 regular session of the legislature. Retirement eligibility for members hired on or after July 1, 2006, was changed by Act 992 of the 2010 session. The unfunded accrued liability associated with the Rank & File sub plan increased as a result of this legislation. The increase in UAL is being amortized with level payments over a 30-year period. UAL payments pertaining to these benefit changes are being charged only to employers of Rank & File employees.

Hazardous Duty Officers – The normal form of benefit for members of LASERS who elect to join the hazardous duty plan was changed by Act 992 of the 2010 session. The resultant UAL is being amortized with level payments over a period of 10 years. Employers of hazardous duty personnel are responsible for this amortization payment.

Alcohol Tobacco Control Officers – Eligibility requirements for enforcement officers of Alcohol Tobacco Control were modified by Act 740 of the 2008 session. The resultant UAL is being amortized with level payments over a 10-year period. This amount is being paid from the Department of Revenue Alcohol and Tobacco Control Officers Fund.

Peace Officers – The benefit accrual rate for certain Peace Officers was increased by Act 414 of the 2007 session. The UAL created by this change is funded with level annual payments over 30 years. The UAL contribution is paid from the Department of Public Safety Peace Officers Fund.

Adult Probation and Parole – The benefit accrual rate for certain members of the Corrections Primary sub plan was increased by Act 852 of the 2014 session. The increase in the UAL and the increase in the normal cost associated with the benefit increase are funded by appropriations from the Adult Probation and Parole Officer Retirement Fund (APPOR Fund). The first payment of \$1,000,000 was made from the APPOR Fund on March 30, 2015. First year accounting relative to LASERS and the APPOR Fund is shown below.

A.	Normal Cost	
	1. Mid-Year Normal Cost Associated with Act 852	\$ 55,421
	2. Interest Adjustment from January 1, 2015 to June 30, 2015	<u>2,107</u>
	3. Normal Cost on June 30, 2015	\$ 57,528
B.	UAL Amortization	
	1. UAL Associated with Act 852 on July 1, 2014	\$ 5,278,527
	2. Interest Adjustment from July 1, 2014 to June 30, 2015	<u>409,086</u>
	3. UAL Associated with Act 852 on June 30, 2015	\$ 5,687,613

C.	Payments by the APPOR Fund to LASERS	
	1. Payment on March 30, 2015	\$ 1,000,000
	2. Interest Adjustment from March 30, 2015 to June 30, 2015	<u>18,836</u>
	3. Accumulated Payments on June 30, 2015	\$ 1,018,836
D.	Adjustment to the Act 852 UAL on June 30, 2015	
	1. Normal Cost	\$ 57,528
	2. UAL Amortization Cost	<u>5,687,613</u>
	3. Total Cost	\$ 5,745,141
	4. Accumulated Payments	<u>1,018,836</u>
	5. UAL Balance on June 30, 2015 = D3 – D4	\$ 4,726,305
E.	UAL Amortization Payment (Level Payments over 9 Years)	\$ 721,309

The mid-year normal cost payment and mid-year amortization payment due from the APPOR Fund for FYE 2016 are \$57,980 and \$721,309 respectively. The mid-year normal cost payment and mid-year amortization payment due from the APPOR Fund for FYE 2017 are \$56,408 and \$721,309 respectively.

Harbor Police – Act 648 of the 2014 session provided for the development of a Cooperative Endeavor Agreement (CEA) between LASERS and the Harbor Police Retirement System (HPRS), which would identify the terms of a merger between the two systems. The CEA provides the following:

1. LASERS will create a new sub plan for members of HPRS on June 30, 2014.
2. Any person employed by the Port of New Orleans on or after July 1, 2014, who otherwise would have joined HPRS, will become a member of the LASERS Hazardous Duty sub plan.
3. A member of the Harbor Police sub plan may elect to transfer to the Hazardous Duty sub plan of LASERS and relinquish his benefit rights under the old HPRS plan.
4. The total contribution rate applicable to the Hazardous Duty sub plan will apply to police officers of the Port of New Orleans.
5. The employer contribution rate for the Harbor Police sub plan will be equal to the employer normal cost for the sub plan. The port of New Orleans will not pay either a shared amortization cost or a specific amortization cost on behalf of members of the Harbor Police sub plan through FYE 2022.
6. The Port of New Orleans agrees to pay on or before June 30, 2022, the unfunded accrued liability of the HPRS as measured on July 1, 2015. This is considered to be a LASERS asset.

Sources and Amounts of Gains and Losses for FYE 2015

Gains and losses 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		\$ 7,271,270,270
B.	Increases in the UAL Due to:		
1.	Interest on the UAL	\$ 563,523,446	
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>27,584,310</u>	
7.	Total Increases = B1 + B2 + B3 + B4 + B5 + B6		\$ 591,107,756
C.	Decreases in the UAL Due to:		
1.	Employer Amortization Payment	\$ 652,741,619	
2.	Legislative Allocation	4,540,773	
3.	Employer Contribution Surplus	25,700,989	
4.	Investment Gain	281,167,204	
5.	Experience Gain	<u>0</u>	
6.	Total Decreases = C1 + C2 + C3 + C4 + C5		\$ 964,150,696
D.	Unfunded Accrued Liability on June 30, 2015		
	= A + B7 – C6		\$ 6,898,227,441

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. 11:102C requires separate calculations of normal cost for each sub plan within LASERS, 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 Net of Act 852	\$ 75,243,326	3.995426%
B. Act 852 Normal Lost	57,980	n/a
C. Shared Amortization Payments	536,756,013	28.501783%
D. Amortization Payments for Sub Plans	2,253,217	0.119646%
E. Contribution Variance Payments	<u>78,801,968</u>	<u>4.184390%</u>
F. Total Contribution = A + B + C + D + E	\$ 693,112,504	36.804323%
G. Act 414 Appropriation (Peace Officers Fund)	305,122	0.016202%
H. Act 740 Appropriation (ATC Officers Fund)	80,986	0.004300%
I. Act 852 AP&P Amortization Appropriation	721,309	0.038302%
J. Act 852 AP&P Normal Cost Appropriation	<u>57,980</u>	<u>n/a</u>
K. Net Required Employer Contribution = F – G – H – I – J	\$ 691,947,107	36.742441%
L. Projected Payroll for FYE 2016	\$ 1,883,236,638	
M. Total Contribution Rate for FYE 2016 = K ÷ L	36.74%	
N. Minimum Contribution Rate	15.50%	
O. Minimum Required Contribution for FYE 2016 = L x N	\$ 291,901,679	15.500000%
P. Required Employer Contribution for FYE 2016 = The Greater of K and O	\$ 691,947,107	36.742441%

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. 11:102C requires separate calculations of normal cost for each sub plan within LASERS, 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 Net of Act 852	\$ 92,153,130	4.789758%
B. Act 852 Normal Cost	60,582	n/a
C. Shared Amortization Payments	587,302,291	30.525668%
D. Amortization Payments for Sub Plans	2,230,210	0.115918%
E. Contribution Variance Payments	<u>55,015,696</u>	<u>2.859500%</u>
F. Total Contribution = A + B + C + D + E	\$ 736,761,909	38.290844%
G. Act 414 Appropriation (Peace Officers Fund)	297,357	0.015455%
H. Act 740 Appropriation (ATC Officers Fund)	80,728	0.004196%
I. Act 852 AP&P Amortization Appropriation	712,866	0.037052%
J. Act 852 AP&P Normal Cost Appropriation	<u>60,582</u>	<u>n/a</u>
K. Net Required Employer Contribution = F – G – H – I – J	735,610,376	38.234140%
L. Projected Payroll for FYE 2017	1,923,962,135	
M. Total Contribution Rate for FYE 2017 = K ÷ L	38.23%	
N. Minimum Contribution Rate	15.50%	
O. Minimum Required Contribution for FYE 2017 = L x N	\$ 298,214,131	15.500000%
P. Required Employer Contribution for FYE 2017 = The Greater of K and O	\$ 735,610,376	38.234140%

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 projected payroll for FYE 2016 to determine dollar contribution amounts for FYE 2016.

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 (15 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	\$ 148,042,083	\$ 160,662,223	\$ 142,045,642	\$ 142,045,642
2. Disability Benefits	4,892,162	5,033,785	4,587,265	4,587,265
3. Survivor Benefits	4,980,945	5,356,341	4,935,670	4,935,670
4. Voluntary Benefits	<u>64,310,594</u>	<u>65,925,935</u>	<u>57,330,236</u>	<u>57,330,236</u>
5. Total Normal Cost	\$ 222,225,784	\$ 236,978,284	\$ 208,898,813	\$ 208,898,813
6. Act 852 Normal Cost	<u>58,331</u>	<u>62,203</u>	<u>55,487</u>	<u>55,487</u>
7. Total Normal Cost Net of Act 852 = A5 – A6	\$ 222,167,453	\$ 236,916,081	\$ 208,843,326	\$ 208,843,326
B. Payroll				
1. On Valuation Date	\$ 1,856,735,292	\$ 1,856,735,292	\$ 1,813,759,357	\$ 1,813,759,357
2. Projected for FY after Valuation Date	1,883,236,638	n/a	1,841,425,720	n/a
3. Projected for 2nd FY after Valuation Date	n/a	1,923,962,135	n/a	1,884,404,842
C. Normal Cost Rates				
1. Total Normal Cost Rate Net of Act 852 = A7 / B1	11.965488%	12.759820%	11.514390%	11.514390%
2. Employee Normal Cost Rate	7.970062%	7.970062%	7.953190%	7.953190%
3. Total Employer Normal Cost Rate Net of Act 852 = C1 – C2	3.995426%	4.789758%	3.561200%	3.561200%

	<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 in Dollars Net of Act 852				
1. For 1st FY after Valuation Date = B2 x C3	\$ 75,243,326	n/a	\$ 65,576,853	
2. For 2nd FY after Valuation Date = B3 x C3	n/a	\$ 92,153,130	n/a	\$ 67,107,425
E. Employee Normal Cost				
1. For 1st FY after Valuation Date = B2 x C2	\$ 150,095,128	n/a	\$ 146,452,086	n/a
2. For 2nd FY after Valuation Date = B3 x C2	n/a	\$ 153,340,975	n/a	\$ 149,870,297
F. Total Normal Cost				
1. For FYE 2016 = D1 + E1	\$ 225,338,454	n/a	\$ 212,028,939	n/a
2. For FYE 2017 = D2 + E2	n/a	\$ 245,494,105	n/a	\$ 216,977,722

Increases in Normal Cost Attributable to Assumption Change

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 Costs			
1. Retirement Benefits	\$ 148,042,083	\$ 160,662,223	\$ 12,620,140
2. Disability Benefits	4,892,162	5,033,785	141,623
3. Survivor Benefits	4,980,945	5,356,341	375,396
4. Voluntary Terminations	<u>64,310,594</u>	<u>65,925,935</u>	<u>1,615,341</u>
5. Total Normal Cost	\$ 222,225,784	\$ 236,978,284	\$ 14,752,500
6. Act 852 Normal Cost	<u>(58,331)</u>	<u>(62,203)</u>	<u>(3,872)</u>
7. Total Normal Cost Net of Act 852	\$ 222,167,453	\$ 236,916,081	\$ 14,748,628
B. Payrolls			
1. Projected Payroll on June 30, 2015	\$ 1,856,735,292	\$ 1,856,735,292	\$ 0
2. Projected Payroll for FYE 2016	1,883,236,638	1,883,236,638	0
3. Projected Payroll for FYE 2017	1,923,962,135	1,923,962,135	0
C. Normal Cost Rates			
1. Total Normal Cost Rate Net of Act 852 = A7 / B1	11.965488%	12.759820%	0.794332%
2. Employee Normal Cost Rate	<u>7.970062%</u>	<u>7.970062%</u>	<u>0.000000%</u>
3. Total Employer Normal Cost Rate Net of Act 852 = C1 - C2	3.995426%	4.789758%	0.794332%

D. Employer Normal Costs Net of Act 852						
1. Actuarial Cost for FYE 2016 = B2 x C3	\$	75,243,326	\$	90,202,478	\$	14,959,152
2. Actuarial Cost for FYE 2017 = B3 x C3		76,870,483		92,153,130		15,282,647
E. Employee Normal Costs						
1. Projected Cost for FYE 2016 = B2 x C2	\$	150,095,128	\$	150,095,128	\$	0
2. Projected Cost for FYE 2017 = B3 x C2		153,340,975		153,340,975		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	\$ 4,757,741,824	\$ 4,672,546,824
b. Disability Benefits	67,414,732	66,074,407
c. Survivor Benefits	64,156,256	66,565,953
d. Voluntary Terminations	<u>0</u>	<u>0</u>
e. Total	\$ 4,889,312,812	\$ 4,805,187,184
f. Ratio of Active Liability to Total Accrued Liability	26.84%	26.88%
2. Accrued Liability for Retired and Inactive Members		
a. Regular Retirees	\$ 9,650,771,799	\$ 9,308,194,758
b. Disability Retirees	282,699,394	287,953,540
c. Survivors	722,670,033	701,858,171
d. Members with a Deferred Benefit	337,838,121	416,326,481
e. Contributions to Be Refunded	85,194,318	88,783,592
f. Deferred Benefits for DROP Members	1,219,407,826	1,281,242,533
g. Account Balances for DROP Members	1,023,194,560	981,748,480
h. Account Balances for ORP Members	<u>5,571,593</u>	<u>6,450,206</u>
i. Total	\$ 13,327,347,644	\$ 13,072,557,761
j. Ratio of Inactive Liability to total Accrued Liability	73.16%	73.12%
3. Total Accrued Liability	\$ 18,216,660,456	\$ 17,877,744,945
B. Valuation Assets	\$ 11,318,433,015	\$ 10,606,474,675
C. Unfunded Accrued Liability	\$ 6,898,227,441	\$ 7,271,270,270
D. Funded Ratio = B / A3	62.13%	59.33%

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		\$ 7,271,270,270
B.	Increases in the UAL Due to:		
1.	Interest on the UAL	\$ 563,523,446	
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>27,584,309</u>	
7.	Total Increases = B1 + B2 + B3 + B4 + B5 + B6		\$ 591,107,756
C.	Decreases in the UAL Due to:		
1.	Employer Amortization Payment	\$ 652,741,619	
2.	Legislative Allocation	4,540,773	
3.	Employer Contribution Surplus	25,700,988	
4.	Investment Gain	281,167,204	
5.	Experience Gain	<u>0</u>	
6.	Total Decreases = C1 + C2 + C3 + C4 + C5		\$ 964,150,585
D.	Unfunded Accrued Liability on June 30, 2015 = A + B7 - C6		\$ 6,898,227,441

Projected Increase in Accrued Liability Attributable to Assumption Change Effective June 30, 2016

The discount rate assumption used to calculate accrued liabilities will change from 7.75% to 7.40% effective June 30, 2016. Liabilities, before and after the changes, were calculated as of June 30, 2015. Accrued liabilities projected to 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	\$ 4,889,312,812	\$ 5,131,520,938	\$ 242,208,126
B.	Accrued Liability for Retired and Inactive	<u>13,327,347,644</u>	<u>13,675,452,209</u>	<u>348,104,565</u>
C.	Accrued Liability on June 30, 2015 = A + B	\$ 18,216,660,456	\$ 18,806,973,147	\$ 590,312,691
D.	Interest Adjustment	1,411,791,185	1,391,716,013	(20,075,172)
E.	Normal Cost	225,338,454	240,297,606	14,959,152
F.	Interest Adjustment for One Half Year	8,568,940	8,732,346	163,406
G.	Estimated Benefit Payments	1,237,388,009	1,237,388,009	0
H.	Interest Adjustment for One Half Year	<u>47,054,122</u>	<u>44,966,325</u>	<u>(2,087,797)</u>
I.	Projected Accrued Liability on June 30, 2016 = C + D + E + F - G - H	\$ 18,577,916,904	\$ 19,165,364,778	\$ 587,447,874

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		\$ 6,898,227,439
B. Increases in the UAL Due to:		
1. Interest on the UAL	\$ 534,612,627	
2. Expected Employer Contribution Shortfall	0	
3. Recognition of Gain Sharing	0	
4. Change in Assumptions	<u>587,443,874</u>	
5. Total Increases = B1 + B2 + B3 + B4		\$ 1,122,060,501
C. Decreases in the UAL Due to:		
1. Employer Amortization Payment	\$ 641,304,689	
2. Expected Employer Contribution Surplus	<u>5,864,551</u>	
3. Total Decreases = C1 + C2		\$ 647,169,240
D. Unfunded Accrued Liability on June 30, 2016 = A + B5 – C3		\$ 7,373,118,700

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	\$ 11,624,853,426	\$ 10,327,598,351	\$ 9,515,774,342	\$ 9,703,496,641
2. Contributions	888,347,447	786,502,145	856,194,404	862,522,235
3. Legislative Appropriations	4,540,773	2,465,608		
4. Benefit Payments	1,237,388,009	1,244,595,931	1,131,933,021	1,022,193,004
5. Administrative Expenses	18,011,841	17,638,128	18,932,247	18,441,062
6. EOY Market Value	\$ 11,415,150,926	\$ 11,624,853,426	\$ 10,327,598,351	\$ 9,515,774,342
7. Actual Investment Income = A6 – A1 – A2 – A3 + A4 + A5	152,809,130	1,770,521,381	1,106,494,873	(9,610,468)
8. Expected Investment Income Based on the Discount Rate	886,702,860	807,178,592	749,475,113	793,191,360
9. Gain/(Loss) = A7 – A8	(733,893,730)	963,342,789	\$ 357,019,760	\$ (802,801,828)
		Gain/(Loss)	Factor	Market Value Adjustment
B. Market Value Adjustment		<u>(a)</u>	<u>(b)</u>	<u>(c) = (a) x (b)</u>
1. Adjustment for 2015		\$ (733,893,730)	80%	\$ (587,114,984)
2. Adjustment for 2014		963,342,789	60%	578,005,673
3. Adjustment for 2013		357,019,760	40%	142,807,904
4. Adjustment for 2012		(802,801,828)	20%	<u>(160,560,366)</u>
5. Total Market Value Adjustment				\$ (26,861,773)
C. Preliminary Actuarial Value				
1. Market Value on June 30, 2013 = A6			\$ 11,415,150,926	
2. Market Value Adjustment = B5			<u>(26,861,773)</u>	
3. Preliminary Actuarial Value = C1 – C2			\$ 11,442,012,699	
D. Corridor Values				
1. 80% x Market Value			9,132,120,741	
2. 120% x Market Value			13,698,181,111	
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			\$11,442,012,699	

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	\$ 10,257,199,373
2. Contributions for FYE 2015	792,972,785
3. Legislative Appropriations	4,540,773
4. Benefits Paid for FYE 2015	1,167,736,739
5. Administrative Expenses Paid for FYE 2015	18,011,841
6. Net Actuarial Value of Assets on June 30, 2015	\$ 10,939,277,086
7. Expected Rate of Return on Assets	7.75%
B. Actual Investment Earnings = A6 – A1 – A2 - A3 + A4 + A5	\$ 1,070,312,735
C. Expected Investment Earnings	779,996,876
D. Investment Gain/(Loss) = B – C	\$ 290,315,859

C. Allocation of Investment Gains to the Experience Account

According to R.S. 11:542, 50% of the total investment gain, not associated with DROP accounts, in excess of \$100 million will be transferred from the regular asset pool to the Experience Account. Beginning June 30, 2016, the \$100 million hurdle will be indexed by the increase in the actuarial value of assets, if any. Moreover, the transfer to the Experience Account will be 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. 11:542 from the regular pool of assets to the Experience Account is calculated below.

A.	Excess Investment Earnings = Investment Gain	\$ 290,315,859
B.	Excess Investment Earnings Paid to DROP Accounts	
1.	DROP Accounts Eligible for System Investment Earnings	
a.	Total of all DROP and IBO accounts	\$ 981,997,334
b.	DROP accounts for Actives not entitled to system earnings	78,486,260
c.	Self-directed DROP accounts not entitled to system earnings	<u>497,164,020</u>
d.	DROP accounts entitled to system earnings = B1a – B1b – B1c	\$ 406,347,054
2.	Rate of Return Attributable to Excess Earnings on DROP Accounts	
a.	Actual rate of return on investments for DROP accounts	10.138433%
b.	Expected rate of return for DROP accounts	7.250000%
c.	Rate of return attributable to excess earnings = B2a – B2b	2.888433%
3.	Excess Investment Earnings Paid to DROP Accounts = B1d x B2c	\$ 11,737,062
C.	Actuarial Return Gain/(Loss) Paid to the Experience Account (EA)	
1.	Experience Account Assets Entitled to System Earnings	117,093,356
2.	Expected Rate of Return on the Actuarial Value of Assets	7.75%
3.	Preliminary Expected Investment Earnings Payable to the EA = C1 x C2	9,074,735
4.	Maximum Fund in the Experience Account = Present Value of a 1.5% PBI	123,579,684
5.	Expected Investment Earnings Payable to the Experience Account	6,486,328
6.	Investment Earnings Payable to the EA = lesser of C5 and C3	6,486,328
7.	Expected Investment Earnings to be Treated as an Investment Gain	2,588,407
8.	Experience Account End of Period = lesser C1 + C3 and C4	\$ 123,579,684
9.	Maximum Excess Investment Earnings that Can be Applied to EA = C4 – C8	\$ 0
D.	Net Excess Investment Earnings = A – B3 + C7	\$ 281,167,204
E.	Allocation of Excess Investment Earnings to the Experience Account	
1.	Net Excess Investment Earnings = D	\$ 281,167,204
2.	Administrative Expense	0
3.	Threshold Gain	<u>100,000,000</u>
4.	Gain Available for Gain Sharing = E1 – E2 – E3	\$ 181,167,204
5.	Gain Sharing Percentage	50%
6.	Preliminary Allocation of Excess Gains to the Experience Account	\$ 90,583,602
7.	Maximum Excess Investment Earnings that Can be Applied to EA = C9	0
8.	Allocation of Excess Gains to the Experience Account = lesser E6 and E7	\$ 0

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 Original Amortization Base (OAB), 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	\$	721,640,155
2. ORP Contributions		497,206
3. Net Employer Contributions = A1 + A2	\$	722,137,361
 B. Expected Employer Contributions		
1. Member Contributions	\$	153,281,097
2. Employee Contribution rate		7.97006200%
3. Salaries on which Contributions Were Received = B1 ÷ B2	\$	1,923,210,848
4. Employer Normal Cost Rate for FYE 2015		3.56125910%
5. Members Affected by Act 852 of the 2014 Session		0.00313000%
6. Total Employer Normal Cost Rate = B4 + B5		3.56438910%
7. Expected Employer Normal Costs = B3 x B6	\$	68,550,718
8. Contributions to the Employer Credit Account for FYE 2015		0
9. Amortization Payments for FYE 2015		532,001,313
10. Payments toward Contribution Variances for FYE 2015		<u>96,827,836</u>
11. Expected Employer Contributions	\$	697,379,867
 C. Mid-Year Employer Shortfall/(Surplus) for FYE 2015 = B11 – A3	\$	(24,757,494)
 D. Interest at 7.75% for ½ Year and Adjustment for Rounding		<u>(943,495)</u>
 E. Employer Shortfall/(Surplus) on June 30, 2015 = C + D	\$	(25,700,989)

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, 36.7% of pay for FYE 2016, is less than the projected 37.0% rate of pay established by PRSAC a year ago. The expected surplus of employer contributions is calculated below.

A. Actual Employer Contributions Required in Mid-Year for FYE 2016	\$ 691,147,846
B. Projected Employer Contributions Expected in Mid-Year for FYE 2016	<u>696,797,556</u>
C. Shortfall/(Surplus) of Employer Contributions Expected for Mid-Year for FYE 2016 = A - B	\$ (5,649,710)
D. Interest on Shortfall at 7.75% per Year from Mid-Year to End of Year	<u>(214,841)</u>
E. Total Employer Contribution Shortfall/(Surplus) on June 30, 2016 = C + D	\$ (5,864,551)

E. Asset Allocation (Market Values)

	<u>June 30, 2015</u>	<u>June 30, 2014</u>
A. Short-Term Assets		
1. Cash/Cash Equivalents	\$ 72,437,860	\$ 77,729,832
2. Short-term Investments	356,747,341	335,913,441
B. Bonds		
1. Domestic Issues	\$ 1,304,197,676	\$ 1,255,247,855
2. International Issues	295,597,356	323,150,997
C. Equities		
1. Domestic Stock	\$ 2,863,226,182	\$ 2,958,498,467
2. International Stock	3,288,387,047	3,361,787,006
D. Other Assets		
1. Fixed Assets	\$ 4,304,276	\$ 5,127,676
2. Real Estate and Alternative Investments	3,182,379,848	3,271,799,216
E. Receivables Minus Payables	49,066,960	38,325,176
F. Securities Lending (Assets minus Liabilities)	(1,193,620)	(2,726,240)
G. Total Assets	\$ 11,415,150,926	\$ 11,624,853,426

F. Income Statement (Market Value)

	<u>FYE</u> <u>June 30, 2015</u>	<u>FYE</u> <u>June 30, 2014</u>
A. Income		
1. Contribution Income		
a. Member Contributions	\$ 153,281,097	\$ 152,993,052
b. Employer Contributions	721,640,155	612,224,076
c. ORP Contributions	<u>497,206</u>	<u>474,338</u>
d. Total = A1a + A1b + A1c	875,418,458	765,691,466
2. Other Income		
a. Legislative Appropriations	4,540,773	2,465,608
b. Transfers/Purchases	9,341,467	16,656,246
c. Miscellaneous	<u>3,587,522</u>	<u>4,154,433</u>
d. Total = A2a + A2b + A2c	17,469,762	23,276,287
3. Net Investment Income		
a. Investments Income	226,006,463	1,844,550,284
b. Investment Expense	<u>73,197,333</u>	<u>74,028,903</u>
c. Net Investment Income = A3a – A3b	152,809,130	1,770,521,381
4. Total Income = A1d + A2d + A3c	\$ 1,045,697,350	\$ 2,559,489,134
B. Expense		
1. Operating Expense		
a. General Administration	\$ 15,877,682	\$ 14,810,539
b. Post-Employment Benefits	940,845	1,103,488
c. Depreciation	<u>1,193,314</u>	<u>1,724,101</u>
d. Total = B1a + B1b + B1c	18,011,841	17,638,128
2. Benefit Payments		
a. Pension Benefits	1,199,079,252	1,167,477,166
b. Return of Employee Contributions	<u>38,308,757</u>	<u>77,118,765</u>
c. Total = B2a + B2b	1,237,388,009	1,244,595,931
3. Total Expense = B1d + B2c	\$ 1,255,399,850	\$ 1,262,234,059
C. Net Income = A4 – B3	\$ (209,702,500)	\$ 1,297,255,075

G. Allocation of Assets to Sub Accounts

	FYE <u>June 30, 2015</u>	FYE <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	\$ 117,093,356	\$ 195,623,963
2. Allocation for Current Year	0	4,590,124
3. Disbursements for Current Year	0	(109,427,066)
4. Accumulated Interest	<u>6,486,328</u>	<u>26,306,335</u>
5. Ending Balance for Current Year = C1 + C2 + C3 + C4	\$ 123,579,684	\$ 117,093,356
 D. Valuation Assets		
1. Actuarial Value of Assets	\$ 11,442,012,699	\$ 10,723,568,031
2. Employer Credit Account = A5	0	0
3. Initial UAL Amortization Fund = B5	0	0
4. Experience Account Fund = C5	<u>123,579,684</u>	<u>117,093,356</u>
5. Valuation Assets = D1 – D2 – D3 – D4	\$ 11,318,433,015	\$ 10,606,474,675

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 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.

	Market Value (a)	Self-Directed & ORP Values (b)	Net Market Value (c) = (a) – (b)
A. Asset Value on June 30, 2014	\$ 11,624,853,426	\$ 466,368,658	\$ 11,158,484,768
B. Contributions	892,888,220	95,374,662	797,513,558
C. Benefit Payments	1,237,388,009	69,651,270	1,167,736,739
D. Administrative Expenses	18,011,841	0	18,011,841
E. Asset Value on June 30, 2015	\$ 11,415,150,926	502,735,613	\$ 10,912,415,313
F. Investment Income = E – A – B + C + D	\$ 152,809,130	\$ 10,643,563	\$ 142,165,567
G. Unrounded Rates of Return	1.335589%	2.22097%	1.296883%
H. Rounded Rate of Return on Investments	1.34%	2.22%	1.30%

B. Rates of Return on Investments Based on Actuarial Values

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	\$ 10,723,568,031	\$ 466,368,658	\$ 10,257,199,373
B. Contributions	892,888,220	95,374,662	797,513,558
C. Benefit Payments	1,237,388,009	69,651,270	1,167,736,739
D. Administrative Expenses	18,011,841	0	18,011,841
E. Asset Value on June 30, 2015	\$ 11,442,012,699	502,735,613	\$ 10,939,277,086
F. Investment Income = E – A – B + C + D	\$ 1,080,956,298	\$ 10,643,563	\$ 1,070,312,735
G. Unrounded Rates of Return	10.255712%	2.22097%	10.638433%
H. Rounded Rate of Return on Investments	10.26%	2.22%	10.64%

C. Rate of Return to Be Granted on Drop Accounts

A. Rounded Rate of Return on the Net Actuarial Value of Assets	10.64%
B. Reduction for Administrative Expenses	<u>0.50%</u>
C. Rate of Return to Be Granted on DROP Accounts	10.14%

D. Summary of Rates of Return on Investments

	<u>2015</u>	<u>Rates Measured on June 30</u>			<u>2011</u>
		<u>2014</u>	<u>2013</u>	<u>2012</u>	
A. Total Market Value	1.34%	17.55%	11.81%	-0.10%	23.17%
B. Market Value Net of Self-Directed and ORP Accounts	1.30%	18.19%	12.19%	-0.20%	23.86%
C. Actuarial Value Net of Self-Directed and ORP Accounts	10.64%	13.45%	14.05%	5.28%	5.45%
D. Five Year Geometric Average of the Actuarial Value Net of Self-Directed and ORP Accounts	9.69%	7.97%	3.62%	2.59%	4.29%
E. Interest Credited to Self-Directed and ORP Accounts	10.14%	12.95%	13.55%	4.78%	4.95%

7. Amortization Payments for June 30, 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	\$ 1,936,750,759	14	\$ 1,722,739,093	\$ 180,233,297	\$ 1,669,164,349
2010	EAAB	I	30	2,493,227,298	25	2,443,311,198	204,296,033	2,420,603,023
2009	Assumption Change	L	30	(221,451,744)	24	(207,264,630)	(18,570,638)	(204,050,816)
2009	Change in Liability	L	30	1,381,087,874	24	1,292,609,677	115,816,125	1,272,566,665
2010	Change in Liability	L	30	630,583,407	25	598,121,275	52,830,615	589,636,070
2011	Change in Liability	L	30	86,983,753	26	83,517,581	7,281,045	82,432,272
2012	Assumption Change	L	30	357,645,630	27	347,238,603	29,911,445	343,100,708
2012	Change in Liability	L	30	272,743,878	27	264,807,382	22,810,746	261,651,784
2013	Asset Method Change	L	30	(85,105,147)	28	(83,506,155)	(7,114,611)	(82,592,724)
2013	Change in Liability	L	30	(539,829,321)	28	(529,686,773)	(45,128,596)	(523,892,798)
2014	Liability Gain	L	30	(61,187,556)	29	(60,622,141)	(5,113,018)	(60,012,906)
2014	Assumption Change	L	30	725,253,130	29	718,551,289	60,604,358	711,330,056
2014	Funding Method Change	L	30	622,016,608	29	616,268,744	51,977,600	610,075,421
2014	Reduction in EA Deposit	L	5	(181,814,713)	4	(150,668,331)	(43,579,817)	(117,108,101)
2014	Gain from \$50 to \$100 M	L	5	(50,000,000)	4	(41,434,581)	(11,984,678)	(32,205,342)
2014	Remaining Invest. Gain	L	30	(186,404,837)	4	(154,472,126)	(44,680,039)	(120,064,630)
2015	Remaining Gains	L	30	(181,167,204)	30	(181,167,204)	(15,138,883)	(179,493,093)
2015	Experience Loss	L	30	<u>27,584,310</u>	30	<u>27,584,310</u>	<u>2,305,029</u>	<u>27,329,412</u>
Total				\$ 7,026,916,125		\$ 6,705,927,211	\$ 536,756,013	\$ 6,668,469,350
Plan Specific Bases								
2007	Act 414 Liab Change	L	30	\$ 3,631,308	22	\$ 3,295,725	\$ 305,122	\$ 3,234,419
2008	Act 262 Liab Change	L	10	1,999,338	3	769,885	286,500	532,156
2008	Act 740 Liab Change	L	10	565,160	3	217,627	80,986	150,427
2010	Act 992 2010 Change	L	10	5,036,841	5	2,999,419	718,941	2,485,594
2011	Act 992 2011 Change	L	10	452,190	6	311,505	64,423	268,774
2012	Act 992 2012 Change	L	10	533,971	7	413,920	75,936	367,175
2014	Act 852 2014 Change	L	10	<u>5,278,524</u>	9	<u>4,726,302</u>	<u>721,309</u>	<u>4,343,852</u>
Total				\$ 17,497,332		\$ 12,734,383	\$ 2,253,217	\$ 11,382,397
Total Outstanding Balances						\$ 6,718,661,594	\$ 539,009,230	\$ 6,679,851,747
Employers Credit Balance								
2011	Contribution Variance	L	5	98,016,200	1	\$ 22,728,232	\$ 23,592,518	\$ 0
2012	Contribution Variance	L	5	50,918,231	2	22,716,941	12,230,233	11,782,192
2013	Contribution Variance	L	5	78,318,188	3	50,497,140	18,791,664	34,904,414
2014	Contribution Variance	L	5	100,910,314	4	83,623,532	24,187,553	64,997,023
2015	Contribution Variance	L	5	<u>0</u>	5	<u>0</u>	<u>0</u>	<u>0</u>
Total				\$ 328,162,933		\$ 179,565,845	\$ 78,801,968	\$ 111,683,629
Grand Total						\$ 6,898,227,439	\$ 617,811,198	\$ 6,791,535,376

8. Amortization Payments for June 30, 2017

Year	Description	Amortization		Initial Liability	Years Remaining	Balance on June 30, 2016	Mid-Year Payment	Balance on June 30, 2017
		Method	Period					
Shared Bases								
2010	OAB	I	19	\$ 1,936,750,759	13	\$ 1,663,299,797	\$ 185,721,445	\$ 1,593,913,473
2010	EAAB	I	30	2,493,227,298	24	2,420,603,023	208,522,819	2,383,627,169
2009	Assumption Change	L	30	(221,451,744)	23	(204,050,816)	(18,068,266)	(200,425,715)
2009	Change in Liability	L	30	1,381,087,874	23	1,272,566,666	112,683,074	1,249,958,655
2010	Change in Liability	L	30	630,583,407	24	589,636,070	51,361,421	580,041,259
2011	Change in Liability	L	30	86,983,753	25	82,432,273	7,073,258	81,201,963
2012	Change in Assumptions	L	30	357,645,630	26	343,100,707	29,036,892	338,398,075
2012	Change in Liability	L	30	272,743,878	26	261,651,785	22,143,803	258,065,515
2013	Asset Method Change	L	28	(85,105,147)	27	(82,592,723)	(6,901,809)	(81,551,966)
2013	Change in Liability	L	30	(539,829,321)	27	(523,892,798)	(43,778,773)	(517,291,184)
2014	Liability Gain	L	30	(61,187,556)	28	(60,012,905)	(4,956,784)	(59,316,948)
2014	Assumption Change	L	30	725,253,130	28	711,330,055	58,752,516	703,080,914
2014	Funding Method Change	L	30	622,016,608	28	610,075,420	50,389,358	603,000,508
2014	Reduction of EA Deposit	L	5	(181,814,713)	3	(117,108,101)	(43,374,515)	(80,823,368)
2014	Gain from \$50 to \$100 M	L	5	(50,000,000)	3	(32,205,342)	(11,928,219)	(22,226,850)
2014	Remaining Invest. Gain	L	30	(186,404,837)	3	(120,064,630)	(44,469,553)	(82,863,849)
2015	Remaining Invest. Gain	L	30	(181,167,204)	29	(179,493,093)	(14,666,915)	(177,575,675)
2015	Experience Loss	L	30	27,584,310	29	27,329,413	2,233,168	27,037,469
2016	Assumption. Change	L	30	<u>587,447,874</u>	30	<u>587,447,874</u>	<u>47,529,371</u>	<u>581,662,442</u>
Total				\$ 7,614,363,999		\$ 7,250,052,675	\$ 587,302,291	\$ 7,177,911,887
Plan Specific Bases								
2007	Act 414 Liab Change	L	30	\$ 3,631,308	21	\$ 3,234,419	\$ 297,357	\$ 3,165,603
2008	Act 262 Liab Change	L	10	1,999,338	2	532,157	285,586	275,573
2008	Act 740 Liab Change	L	10	565,160	2	150,427	80,728	77,897
2010	Act 992 2010 Change	L	10	5,036,841	4	2,485,594	714,490	1,929,074
2011	Act 992 2011 Change	L	10	452,190	5	268,774	63,932	222,408
2012	Act 992 2012 Change	L	10	533,971	6	367,175	75,251	316,360
2014	Act 852 2014 Change	L	10	<u>5,278,524</u>	8	<u>4,343,852</u>	<u>712,866</u>	<u>3,926,526</u>
Total				\$ 17,497,332		\$ 11,382,398	\$ 2,230,210	\$ 9,913,441
Total Outstanding Balances						\$ 7,261,435,073	\$ 589,532,501	\$ 7,187,825,328
Employers Credit Balance								
2012	Contribution Variance	L	5	\$ 98,016,200	1	\$ 11,782,192	\$ 12,210,354	\$ 0
2013	Contribution Variance	L	5	50,918,231	2	34,904,414	18,731,736	18,074,899
2014	Contribution Variance	L	5	78,318,188	3	64,997,023	24,073,606	44,858,369
2015	Contribution Variance	L	5	0	4	0	0	0
2016	Contribution Variance	L	5	0	5	<u>0</u>	<u>0</u>	<u>0</u>
Total				\$ 227,252,619		\$ 111,683,629	\$ 55,015,696	\$ 62,933,268
Grand Total						\$ 7,373,118,702	\$ 644,548,197	\$ 7,250,758,596

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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 LASERS 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 LASERS 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 LASERS 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 \$100 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 LASERS gain sharing/COLA program are contained in R.S. 11:102.1 and 11:542. According to R.S. 542, 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 LASERS' interpretation of the law. On each valuation date, LASERS 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 LASERS, increases the investment gain that otherwise would be calculated. Under LASERS' 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 LASERS that exceeds a specified threshold (currently set at \$100 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 \$100 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 two 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 a 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 LASERS 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 LASERS 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 LASERS' 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 LASERS' actuary.
4. The LASERS' board of trustees must approve the COLA.
5. The LASERS' 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, 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-third 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 LASERS' 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 LASERS. The accuracy of the data was audited by Financial Audit Services within the Louisiana Legislative Auditor. A comparison of these census numbers with census summaries prepared by the LASERS actuary confirms the reasonability of the census data used in preparing this report.

Membership Status	June 30 Valuation Date		
	2015	2014	2013
Rank and File Including Appellate Law Clerks	33,271	33,397	37,114
Legislators	9	11	11
Special Legislators	1	1	1
Judges Prior 2011	229	273	298
Judges Post 2011	81	30	22
Wildlife	169	180	190
Corrections Primary	266	306	375
Corrections Secondary	2,060	2,314	2,574
Peace Officers	62	67	79
Alcohol Tobacco Control	12	16	19
Bridge Police	5	7	7
Hazardous Duty Plan	2,272	1,969	1,596
Post DROP	1,757	1,750	1,825
Total Active Members	40,194	40,321	44,111
DROP Participants	1,682	1,838	2,092
Regular Retirees	39,352	38,675	37,145
Disability Retirees	2,457	2,506	2,554
Survivors	5,834	5,759	5,726
Terminated Vested & Reciprocal	3,953	4,558	4,162
Total Inactive Members	53,278	53,336	51,679
Total Active and Inactive Members	93,472	93,657	95,790
Terminated Due Refund	52,193	52,042	52,385
Total Members	145,665	145,699	148,175

Membership Reconciliation

	Active (Pre DROP)	Active After DROP	Terminated Vested	In DROP	Retired, Disabled, Survivor	Total
Members on June 30, 2014	38,571	1,750	4,558	1,838	46,940	93,657
Additions to Census						
Initial Membership	3,994	0	0	0	0	3,994
Rehired Members	514	0	5	0	0	519
Data Revisions	0	0	73	3	48	124
Total Additions	4,508	0	78	3	48	4,637
Change in Status						
Active to Term Vested	(550)	0	550	0	0	0
Active to In DROP	(633)	0	0	633	0	0
Active to Retired	(972)	0	0	0	972	0
Disabled to Active	0	0	0	0	0	0
Terminated Vested to Active	607	0	(607)	0	0	0
Terminated Vested to Retiree	0	0	(205)	0	205	0
In DROP to Active After DROP	0	355	0	(355)	0	0
In DROP to Retiree	0	0	0	(434)	434	0
Active After DROP to Retiree	0	(353)	0	0	353	0
Data Revisions	(1)	9	(14)	15	(9)	0
Total Changes	(1,549)	11	(276)	(141)	1,955	0
Eliminated from Census						
Refunded	(1,618)	0	(275)	0	0	(1,893)
Terminated, Due Refund	(1,419)	0	0	0	0	(1,419)
Deceased	(24)	(3)	(11)	(2)	(1,219)	(1,259)
Data Revisions	(32)	(1)	(121)	(16)	(81)	(251)
Total Eliminated	(3,093)	(4)	(407)	(18)	(1,300)	(4,822)
Members on June 30, 2015	38,437	1,757	3,953	1,682	47,643	93,472

LASERS MEMBERSHIP PROFILE
Regular Members Before July 2006

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)	-	1	-	-	-	-	-	-	-	1
	\$ -	15,767	-	-	-	-	-	-	-	\$ 15,767
[25-29)	-	3	20	10	-	-	-	-	-	33
	-	64,208	665,616	407,137	-	-	-	-	-	1,136,961
[30-34)	-	19	208	430	26	-	-	-	-	683
	-	452,553	8,920,260	18,897,520	1,241,066	-	-	-	-	29,511,399
[35-39)	3	28	257	1,073	420	34	1	-	-	1,816
	42,325	887,091	11,490,147	52,294,716	20,044,992	1,845,001	51,299	-	-	86,655,571
[40-44)	4	20	191	882	929	353	32	-	-	2,411
	77,789	734,845	8,371,876	43,686,878	49,330,264	19,592,865	1,958,528	-	-	123,753,045
[45-49)	1	20	162	785	957	942	420	19	-	3,306
	202	736,495	6,936,311	37,881,573	49,962,579	54,734,992	25,796,367	1,543,161	-	177,591,680
[50-54)	3	14	150	778	862	968	846	175	14	3,810
	75,273	580,933	6,246,204	34,848,912	41,719,450	52,859,584	52,526,198	11,984,468	1,027,087	201,868,109
[55-59)	2	11	151	845	807	871	225	115	69	3,096
	48,569	397,872	6,084,308	37,648,431	37,961,500	47,564,840	14,504,274	7,719,202	4,520,754	156,449,750
[60-64)	1	4	93	369	331	199	130	77	60	1,264
	8,057	141,141	3,909,432	17,873,158	16,777,043	11,830,627	8,517,218	6,173,859	5,123,098	70,353,633
[65-69)	-	2	36	121	155	112	66	34	26	552
	-	129,993	1,834,685	5,524,035	7,727,399	6,383,419	3,968,555	2,273,613	1,924,309	29,766,008
[70+	-	1	9	35	45	35	30	9	10	174
	-	39,530	473,648	1,670,819	2,381,757	1,884,196	1,700,803	448,917	525,890	9,125,560
TOTAL	14	123	1,277	5,328	4,532	3,514	1,750	429	179	17,146
	\$ 252,215	4,180,428	54,932,487	250,733,179	227,146,050	196,695,524	109,023,242	30,143,220	13,121,138	\$ 886,227,483

AVERAGES Attained Age 50.09
 Service Years 17.67
 Annual Salary \$ 51,687

LASERS MEMBERSHIP PROFILE
Regular Members After July 2006

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)	621	436	5	-	-	-	-	-	-	1,062
	\$ 13,227,959	11,219,587	141,457	-	-	-	-	-	-	\$ 24,589,003
[25-29)	730	1,535	358	-	-	-	-	-	-	2,623
	18,722,053	51,930,208	12,877,814	-	-	-	-	-	-	83,530,075
[30-34)	585	1,375	1,125	8	-	-	-	-	-	3,093
	16,826,904	51,872,331	49,234,719	520,284	-	-	-	-	-	118,454,238
[35-39)	378	926	922	15	2	-	-	-	-	2,243
	11,232,103	36,829,458	41,232,002	799,859	68,573	-	-	-	-	90,161,995
[40-44)	283	755	743	23	5	1	-	-	-	1,810
	8,381,049	30,391,142	33,845,825	1,730,610	319,635	49,967	-	-	-	74,718,228
[45-49)	269	693	645	16	3	2	1	-	-	1,629
	8,212,910	28,143,265	28,412,596	1,119,524	128,364	100,366	53,198	-	-	66,170,223
[50-54)	219	611	692	14	7	3	-	-	-	1,546
	6,843,963	23,647,472	30,100,821	851,782	393,198	210,581	-	-	-	62,047,817
[55-59)	118	454	612	17	5	5	2	-	-	1,213
	4,108,036	18,344,609	25,393,050	1,443,799	257,915	280,960	145,444	-	-	49,973,813
[60-64)	40	187	332	9	2	2	-	-	-	572
	1,256,687	8,375,913	14,420,561	561,875	184,933	146,663	-	-	-	24,946,632
[65-69)	12	49	83	4	1	1	-	-	-	150
	470,096	2,312,005	4,535,903	234,009	130,215	196,164	-	-	-	7,878,392
[70+)	2	12	16	4	-	-	-	-	-	34
	80,526	612,958	973,971	260,568	-	-	-	-	-	1,928,023
TOTAL	3,257	7,033	5,533	110	25	14	3	-	-	15,975
	\$ 89,362,287	263,678,948	241,168,719	7,522,310	1,482,833	984,701	198,642	-	-	\$ 604,398,440

AVERAGES Attained Age 39.70
 Service Years 3.90
 Annual Salary \$ 37,834

LASERS MEMBERSHIP PROFILE
Appellate Law Clerks

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)	-	2	-	-	-	-	-	-	-	2
	-	117,404	-	-	-	-	-	-	-	117,404
[30-34)	-	3	5	-	-	-	-	-	-	8
	-	166,819	315,081	-	-	-	-	-	-	481,900
[35-39)	-	1	6	7	-	-	-	-	-	14
	-	61,050	393,673	493,835	-	-	-	-	-	948,558
[40-44)	-	1	6	11	5	1	-	-	-	24
	-	61,050	387,976	737,089	340,335	65,263	-	-	-	1,591,713
[45-49)	-	1	4	7	14	8	1	-	-	35
	-	74,980	254,300	494,508	1,134,583	650,194	78,232	-	-	2,686,797
[50-54)	-	-	3	7	6	6	9	1	-	32
	-	-	201,336	590,044	456,670	525,252	826,718	112,088	-	2,712,108
[55-59)	-	-	3	7	5	-	4	5	-	24
	-	-	194,413	516,747	402,940	-	365,034	482,447	-	1,961,581
[60-64)	-	-	-	2	1	-	1	3	-	7
	-	-	-	167,021	80,061	-	88,876	314,834	-	650,792
[65-69)	-	-	1	1	-	-	1	-	-	3
	-	-	64,360	78,317	-	-	94,450	-	-	237,127
[70+)	-	-	-	1	-	-	-	-	-	1
	-	-	-	66,406	-	-	-	-	-	66,406
TOTAL	-	8	28	43	31	15	16	9	-	150
	\$ -	481,303	1,811,139	3,143,967	2,414,589	1,240,709	1,453,310	909,369	-	\$ 11,454,386

AVERAGES Attained Age 48.84
 Service Years 15.77
 Annual Salary \$ 76,363

LASERS MEMBERSHIP PROFILE
Participating Legislators

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)	-	-	1	-	-	-	-	-	-	1
	-	-	130,000	-	-	-	-	-	-	130,000
[45-49)	-	-	-	-	-	-	-	-	-	-
[50-54)	-	-	-	-	-	1	-	-	-	1
	-	-	-	-	-	41,328	-	-	-	41,328
[55-59)	-	-	-	-	-	1	-	-	-	1
	-	-	-	-	-	45,080	-	-	-	45,080
[60-64)	-	-	-	-	-	1	1	2	-	4
	-	-	-	-	-	76,175	124,303	67,671	-	268,149
[65-69)	-	-	-	2	-	-	-	-	-	2
	-	-	-	117,408	-	-	-	-	-	117,408
[70+	-	-	-	-	-	-	-	1	-	1
	-	-	-	-	-	-	-	35,721	-	35,721
TOTAL	-	-	1	2	-	3	1	3	-	10
\$	-	-	130,000	117,408	-	162,583	124,303	103,392	-	\$ 637,686

AVERAGES Attained Age 61.78
 Service Years 22.31
 Annual Salary \$ 63,769

LASERS MEMBERSHIP PROFILE
Active Judges Pre 2011

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)	-	1	-	-	-	-	-	-	-	1
	-	116,022	-	-	-	-	-	-	-	116,022
[35-39)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
[40-44)	-	4	8	1	-	-	-	-	-	13
	-	315,023	927,987	145,462	-	-	-	-	-	1,388,472
[45-49)	-	2	11	6	6	-	-	-	-	25
	-	225,466	1,552,006	854,712	767,384	-	-	-	-	3,399,568
[50-54)	-	1	19	14	13	7	-	-	-	54
	-	72,531	2,704,500	1,952,313	1,835,890	1,042,881	-	-	-	7,608,115
[55-59)	1	1	11	10	16	12	6	-	-	57
	103,616	145,495	1,541,037	1,396,744	2,274,681	1,678,908	786,876	-	-	7,927,357
[60-64)	-	-	4	6	13	17	2	-	-	42
	-	-	587,677	794,022	1,925,831	2,434,962	260,748	-	-	6,003,240
[65-69)	-	-	1	8	5	14	3	1	1	33
	-	-	145,462	1,176,804	733,139	2,049,756	415,084	145,462	151,291	4,816,998
[70+	-	-	-	1	-	2	-	-	1	4
	-	-	-	115,039	-	310,186	-	-	133,755	558,980
TOTAL	1	9	54	46	53	52	11	1	2	229
	\$ 103,616	874,537	7,458,669	6,435,096	7,536,925	7,516,693	1,462,708	145,462	285,046	\$31,818,752

AVERAGES Attained Age 56.92
 Service Years 15.29
 Annual Salary \$ 138,947

LASERS MEMBERSHIP PROFILE
Active Judges Post 2011

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)	1	-	-	-	-	-	-	-	-	1
	138,958	-	-	-	-	-	-	-	-	138,958
[35-39)	9	-	1	-	-	-	-	-	-	10
	1,198,636	-	145,462	-	-	-	-	-	-	1,344,098
[40-44)	8	5	-	-	-	-	-	-	-	13
	1,144,956	727,310	-	-	-	-	-	-	-	1,872,266
[45-49)	16	8	-	-	-	-	-	-	-	24
	2,315,950	1,056,290	-	-	-	-	-	-	-	3,372,240
[50-54)	9	6	-	-	-	-	-	-	-	15
	1,307,994	878,485	-	-	-	-	-	-	-	2,186,479
[55-59)	3	2	1	-	-	-	-	-	-	6
	435,186	290,924	151,291	-	-	-	-	-	-	877,401
[60-64)	7	4	-	-	-	-	-	-	-	11
	972,836	581,848	-	-	-	-	-	-	-	1,554,684
[65-69)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
[70+	1	-	-	-	-	-	-	-	-	1
	72,220	-	-	-	-	-	-	-	-	72,220
TOTAL	54	25	2	-	-	-	-	-	-	81
	\$ 7,586,736	3,534,857	296,753	-	-	-	-	-	-	\$11,418,346

AVERAGES Attained Age 49.16
 Service Years 1.33
 Annual Salary \$ 140,967

LASERS MEMBERSHIP PROFILE
Hazardous Duty

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)	277	199	-	-	-	-	-	-	-	476
	\$ 6,905,748	5,841,300	-	-	-	-	-	-	-	\$12,747,048
[25-29)	155	251	11	-	-	-	-	-	-	417
	4,240,710	8,035,116	385,265	-	-	-	-	-	-	12,661,091
[30-34)	105	204	31	7	-	-	-	-	-	347
	2,830,080	6,783,493	1,319,617	330,298	-	-	-	-	-	11,263,488
[35-39)	89	118	17	25	14	2	-	-	-	265
	2,433,531	3,985,500	698,287	1,203,458	791,976	114,849	-	-	-	9,227,601
[40-44)	60	117	26	20	18	11	1	-	-	253
	1,661,811	4,338,089	1,133,204	1,016,130	936,267	635,259	50,760	-	-	9,771,520
[45-49)	44	106	17	17	18	14	3	-	-	219
	1,413,099	3,840,836	658,878	855,725	869,029	829,059	296,419	-	-	8,763,045
[50-54)	36	82	11	10	13	8	4	-	-	164
	1,018,156	2,993,358	461,256	473,505	670,354	412,490	236,926	-	-	6,266,045
[55-59)	21	40	10	5	7	4	2	-	-	89
	630,003	1,538,856	491,759	243,837	300,961	215,174	124,397	-	-	3,544,987
[60-64)	3	24	1	3	1	-	2	-	-	34
	144,537	926,634	48,962	143,131	76,594	-	104,612	-	-	1,444,470
[65-69)	3	1	1	1	2	-	-	-	-	8
	124,202	67,220	31,661	40,693	125,051	-	-	-	-	388,827
[70+)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
TOTAL	793	1,142	125	88	73	39	12	-	-	2,272
	\$ 21,401,877	38,350,402	5,228,889	4,306,777	3,770,232	2,206,831	813,114	-	-	\$76,078,122

AVERAGES Attained Age 35.54
 Service Years 3.31
 Annual Salary \$ 33,485

LASERS MEMBERSHIP PROFILE
Corrections Primary

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)	1	-	-	2	9	-	-	-	-	12
	21,955	-	-	94,795	422,045	-	-	-	-	538,795
[40-44)	-	-	-	6	22	4	-	-	-	32
	-	-	-	277,443	1,091,712	235,230	-	-	-	1,604,385
[45-49)	1	-	-	6	20	11	1	-	-	39
	18,933	-	-	305,125	935,904	659,363	68,994	-	-	1,988,319
[50-54)	1	-	-	4	44	16	9	1	-	75
	18,258	-	-	185,951	2,187,494	900,987	561,846	130,856	-	3,985,392
[55-59)	-	-	-	9	49	7	7	1	-	73
	-	-	-	406,203	2,468,034	382,115	425,877	46,481	-	3,728,710
[60-64)	-	-	-	4	20	3	2	1	-	30
	-	-	-	184,397	918,341	189,181	137,503	54,576	-	1,483,998
[65-69)	-	-	-	1	1	1	1	-	-	4
	-	-	-	46,750	50,586	38,952	54,576	-	-	190,864
[70+	-	-	-	-	-	1	-	-	-	1
	-	-	-	-	-	54,576	-	-	-	54,576
TOTAL	3	-	-	32	165	43	20	3	-	266
	\$ 59,147	-	-	1,500,664	8,074,116	2,460,404	1,248,796	231,913	-	\$ 13,575,040

AVERAGES Attained Age 52.63
 Service Years 18.39
 Annual Salary \$ 51,034

LASERS MEMBERSHIP PROFILE
Corrections Secondary

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)	-	3	3	-	-	-	-	-	-	6
	\$ -	98,599	104,012	-	-	-	-	-	-	\$ 202,611
[25-29)	-	16	77	5	-	-	-	-	-	98
	-	520,769	2,723,472	195,390	-	-	-	-	-	3,439,631
[30-34)	1	19	141	81	6	-	-	-	-	248
	66,440	663,188	5,547,910	3,451,006	259,430	-	-	-	-	9,987,974
[35-39)	1	11	106	118	85	6	-	-	-	327
	11,423	378,449	4,054,400	5,556,749	4,349,398	333,677	-	-	-	14,684,096
[40-44)	-	4	78	106	137	68	6	-	-	399
	-	139,351	3,020,849	5,016,664	7,487,688	4,303,055	426,475	-	-	20,394,082
[45-49)	-	6	73	87	94	130	27	1	-	418
	-	208,819	2,808,120	3,828,390	5,024,554	8,148,644	1,898,578	74,760	-	21,991,865
[50-54)	1	6	79	67	55	52	30	5	-	295
	21,796	214,313	3,116,896	2,855,531	2,806,537	3,200,457	2,044,479	409,991	-	14,670,000
[55-59)	-	5	44	51	39	14	8	-	-	161
	-	169,261	1,588,825	2,227,318	2,041,370	863,558	488,308	-	-	7,378,640
[60-64)	-	2	33	16	17	4	5	3	1	81
	-	87,204	1,336,253	642,297	916,221	248,365	296,564	215,946	50,586	3,793,436
[65-69)	-	-	6	7	7	2	1	-	-	23
	-	-	226,172	319,743	376,236	102,712	50,586	-	-	1,075,449
[70+	-	-	3	-	1	-	-	-	-	4
	-	-	108,985	-	91,881	-	-	-	-	200,866
TOTAL	3	72	643	538	441	276	77	9	1	2,060
	\$ 99,662	2,479,953	24,635,894	24,093,088	23,353,315	17,200,468	5,204,990	700,697	50,586	\$ 97,818,650

AVERAGES Attained Age 44.52
 Service Years 13.63
 Annual Salary \$ 47,485

LASERS MEMBERSHIP PROFILE
Wildlife

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)	-	4	3	-	-	-	-	-	-	7
	-	157,850	153,954	-	-	-	-	-	-	311,804
[30-34)	-	4	25	8	-	-	-	-	-	37
	-	157,835	1,189,338	460,096	-	-	-	-	-	1,807,269
[35-39)	-	-	14	15	11	-	-	-	-	40
	-	-	660,190	787,629	690,528	-	-	-	-	2,138,347
[40-44)	-	-	3	12	24	3	-	-	-	42
	-	-	143,325	713,205	1,647,900	229,698	-	-	-	2,734,128
[45-49)	-	-	1	7	14	8	-	-	-	30
	-	-	53,225	391,230	959,842	590,657	-	-	-	1,994,954
[50-54)	-	-	2	1	2	2	2	1	-	10
	-	-	108,330	63,677	144,229	176,199	155,212	126,762	-	774,409
[55-59)	-	-	-	-	-	2	-	-	-	2
	-	-	-	-	-	217,417	-	-	-	217,417
[60-64)	-	-	-	-	1	-	-	-	-	1
	-	-	-	-	70,395	-	-	-	-	70,395
[65-69)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
[70+	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
TOTAL	-	8	48	43	52	15	2	1	-	169
	\$ -	315,685	2,308,362	2,415,837	3,512,894	1,213,971	155,212	126,762	-	\$ 10,048,723

AVERAGES Attained Age 40.31
 Service Years 13.62
 Annual Salary \$ 59,460

LASERS MEMBERSHIP PROFILE
Peace Officers

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)	-	-	2	-	-	-	-	-	-	2
	-	-	77,092	-	-	-	-	-	-	77,092
[30-34)	-	-	1	3	-	-	-	-	-	4
	-	-	48,837	140,797	-	-	-	-	-	189,634
[35-39)	-	-	3	3	3	1	-	-	-	10
	-	-	135,475	126,324	152,769	56,559	-	-	-	471,127
[40-44)	-	-	3	4	2	4	-	-	-	13
	-	-	120,059	228,090	94,322	206,179	-	-	-	648,650
[45-49)	-	-	-	1	3	4	4	-	-	12
	-	-	-	36,426	158,174	252,021	266,040	-	-	712,661
[50-54)	-	-	-	1	2	4	3	-	-	10
	-	-	-	49,082	109,168	265,757	187,765	-	-	611,772
[55-59)	-	-	-	2	1	1	3	-	-	7
	-	-	-	111,633	38,414	69,821	178,753	-	-	398,621
[60-64)	-	-	1	-	1	-	-	-	-	2
	-	-	77,019	-	74,479	-	-	-	-	151,498
[65-69)	-	1	-	1	-	-	-	-	-	2
	-	65,046	-	39,300	-	-	-	-	-	104,346
[70+)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
TOTAL	-	1	10	15	12	14	10	-	-	62
	\$ -	65,046	458,482	731,652	627,326	850,337	632,558	-	-	\$ 3,365,401

AVERAGES Attained Age 46.12
 Service Years 16.69
 Annual Salary \$ 54,281

LASERS MEMBERSHIP PROFILE
Alcohol Tobacco Control

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)	-	-	1	1	-	-	-	-	-	2
	-	-	43,375	47,575	-	-	-	-	-	90,950
[35-39)	-	-	1	2	-	-	-	-	-	3
	-	-	48,505	93,288	-	-	-	-	-	141,793
[40-44)	-	-	1	1	-	1	-	-	-	3
	-	-	46,698	52,259	-	47,214	-	-	-	146,171
[45-49)	-	-	-	-	-	1	-	-	-	1
	-	-	-	-	-	54,564	-	-	-	54,564
[50-54)	-	-	-	-	-	1	-	-	-	1
	-	-	-	-	-	92,310	-	-	-	92,310
[55-59)	-	-	-	-	-	2	-	-	-	2
	-	-	-	-	-	129,324	-	-	-	129,324
[60-64)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
[65-69)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
[70+	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	3	4	-	5	-	-	-	12
	\$ -	-	138,578	193,122	-	323,412	-	-	-	\$ 655,112

AVERAGES Attained Age 42.78
 Service Years 15.81
 Annual Salary \$ 54,593

LASERS MEMBERSHIP PROFILE
Bridge Police

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)	-	-	2	-	-	-	-	-	-	2
	-	-	96,092	-	-	-	-	-	-	96,092
[35-39)	-	-	-	2	-	-	-	-	-	2
	-	-	-	104,140	-	-	-	-	-	104,140
[40-44)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
[45-49)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
[50-54)	-	-	-	-	-	-	1	-	-	1
	-	-	-	-	-	-	63,259	-	-	63,259
[55-59)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
[60-64)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
[65-69)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
[70+)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
TOTAL	-	-	2	2	-	-	1	-	-	5
	\$ -	-	96,092	104,140	-	-	63,259	-	-	\$ 263,491

AVERAGES Attained Age 38.72
 Service Years 13.86
 Annual Salary \$ 52,698

LASERS MEMBERSHIP PROFILE
DROP Participants

CELLS DEPICT Member Count
Total Benefit

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)	1	-	1	-	-	-	-	-	-	2
	38,040	-	99,480	-	-	-	-	-	-	137,520
[45-49)	31	6	1	-	-	-	-	-	-	38
	1,292,796	214,020	32,268	-	-	-	-	-	-	1,539,084
[50-54)	149	127	100	-	-	-	-	-	-	376
	6,386,784	5,317,020	4,283,736	-	-	-	-	-	-	15,987,540
[55-59)	216	190	189	1	-	-	-	-	-	596
	7,555,164	7,130,208	7,380,564	29,376	-	-	-	-	-	22,095,312
[60-64)	239	228	164	-	-	-	-	-	-	631
	4,956,756	5,532,156	4,006,632	-	-	-	-	-	-	14,495,544
[65-69)	5	13	15	-	-	-	-	-	-	33
	85,428	133,632	184,044	-	-	-	-	-	-	403,104
[70-74)	1	1	4	-	-	-	-	-	-	6
	11,700	8,496	39,384	-	-	-	-	-	-	59,580
[75-79)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
[80-84)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
[85-89)	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
90+	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-
TOTAL	642	565	474	1	-	-	-	-	-	1,682
	\$ 20,326,668	18,335,532	16,026,108	29,376	-	-	-	-	-	\$ 54,717,684

AVERAGES Attained Age 57.77
Years Retired 1.42
Yearly Benefit \$ 32,531

LASERS MEMBERSHIP PROFILE
Active After DROP

CELLS DEPICT Member Count
 Total Salary
 Total Benefit

Valuation Date 6/30/2015

Age/Service	(0-1)	[1-2)	[2-3)	[3-4)	[4-5)	[5-10)	[10-14)	[15+	TOTAL
[0-45)	-	-	-	-	-	-	-	-	-
	\$ -	-	-	-	-	-	-	-	\$ -
	\$ -	-	-	-	-	-	-	-	\$ -
[45-49)	1	1	1	-	-	2	-	-	5
	15,285	64,872	50,586	-	-	188,204	-	-	318,947
	41,976	36,516	31,812	-	-	48,504	-	-	158,808
[50-54)	59	45	33	8	1	14	1	-	161
	1,703,957	2,689,175	1,905,225	552,611	54,576	1,050,549	86,634	-	8,042,727
	2,328,552	1,709,544	1,169,184	295,308	28,104	311,268	17,736	-	5,859,696
[55-59)	152	151	63	56	47	49	10	1	529
	5,048,786	9,586,772	4,039,533	3,587,243	3,099,503	2,950,300	896,307	61,971	29,270,415
	6,240,684	6,007,272	2,496,780	2,060,700	1,678,848	1,316,880	192,648	12,888	20,006,700
[60-64)	122	88	79	52	50	135	20	1	547
	3,099,518	4,916,959	4,535,270	3,533,624	3,340,633	8,535,386	1,430,635	120,723	29,512,748
	3,039,144	2,152,356	2,557,656	1,887,864	1,740,192	4,120,548	488,004	28,668	16,014,432
[65-69)	19	12	49	45	43	135	44	3	350
	425,176	596,155	2,467,308	2,310,271	2,313,018	8,894,567	3,286,252	409,791	20,702,538
	273,960	269,340	883,812	817,752	772,116	3,459,468	1,256,100	117,600	7,850,148
[70+	2	1	2	4	4	75	63	14	165
	44,344	70,212	98,302	209,880	203,138	4,608,508	3,765,414	1,042,074	10,041,872
	13,764	11,352	24,168	48,960	36,012	1,291,596	1,066,440	328,908	2,821,200
TOTAL	355	298	227	165	145	410	138	19	1,757
	\$ 10,337,066	17,924,145	13,096,224	10,193,629	9,010,868	26,227,514	9,465,242	1,634,559	\$ 97,889,247
	\$11,938,080.00	10,186,380	7,163,412	5,110,584	4,255,272	10,548,264	3,020,928	488,064	\$ 52,710,984

AVERAGES Attained Age 62.25
 Service Years 4.17
 Annual Salary \$ 55,714
 Yearly Benefit \$ 30,001

LASERS MEMBERSHIP PROFILE
Post Retirement Service

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)	1	-	-	-	-	-	-	-	-	1
	35,000	-	-	-	-	-	-	-	-	35,000
[45-49)	3	2	-	-	-	-	-	-	-	5
	125,000	133,468	-	-	-	-	-	-	-	258,468
[50-54)	8	13	5	1	-	-	-	-	-	27
	363,000	649,813	268,372	59,349	-	-	-	-	-	1,340,534
[55-59)	6	22	9	4	-	-	-	-	-	41
	233,000	1,218,901	430,845	209,905	-	-	-	-	-	2,092,651
[60-64)	20	18	8	5	-	-	-	-	-	51
	860,000	1,282,326	439,339	339,943	-	-	-	-	-	2,921,608
[65-69)	10	17	8	-	1	-	-	-	-	36
	350,000	731,578	501,634	-	67,311	-	-	-	-	1,650,523
[70+)	21	23	17	6	-	-	-	-	-	67
	758,000	986,560	642,376	400,694	-	-	-	-	-	2,787,630
TOTAL	69	95	47	16	1	-	-	-	-	228
	\$ 2,724,000	5,002,646	2,282,566	1,009,891	67,311	-	-	-	-	\$ 11,086,414

AVERAGES Attained Age 64.94
 Service Years 3.65
 Annual Salary \$ 48,625

LASERS 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	-	-	-	-	-	-	-	4
	\$ 27,984	18,312	-	-	-	-	-	-	-	\$ 46,296
[40-44)	12	27	46	2	-	1	-	-	-	88
	349,260	371,724	669,204	61,524	-	33,720	-	-	-	1,485,432
[45-49)	59	131	157	39	18	21	5	-	-	430
	1,689,264	3,006,060	3,162,672	1,079,592	390,144	333,936	143,316	-	-	9,804,984
[50-54)	125	317	435	274	219	267	106	23	-	1,766
	4,391,640	9,211,236	13,037,436	9,559,416	6,988,860	7,107,720	1,783,692	470,808	-	52,550,808
[55-59)	193	351	582	634	666	1,651	395	175	1	4,648
	6,758,952	11,432,928	20,312,964	25,959,468	24,885,108	52,615,332	7,987,620	2,675,184	12,648	152,640,204
[60-64)	470	603	734	659	695	3,044	1,605	406	42	8,258
	10,424,004	13,626,636	19,084,212	18,348,288	20,921,952	100,211,100	47,941,704	7,487,688	861,264	238,906,848
[65-69)	159	180	351	334	408	2,970	2,885	1,193	92	8,572
	4,156,140	3,654,972	8,385,528	7,572,888	10,162,416	64,793,376	85,109,016	32,763,828	2,122,200	218,720,364
[70-74)	43	43	94	84	128	700	2,223	1,918	496	5,729
	2,042,880	1,203,432	2,613,336	2,203,404	3,054,624	12,736,320	41,784,492	51,835,596	13,370,628	130,844,712
[75-79)	12	9	20	16	37	197	546	1,994	1,420	4,251
	356,304	197,688	518,196	334,764	862,308	4,384,044	8,746,836	36,354,648	35,913,888	87,668,676
[80-84)	1	3	6	5	10	46	121	754	1,970	2,916
	64,896	75,276	220,596	189,336	362,076	1,079,508	2,388,168	12,876,588	37,412,208	54,668,652
[85-89)	-	-	1	1	3	9	22	141	1,636	1,813
	-	-	18,516	10,068	33,420	253,956	379,728	2,717,292	27,763,500	31,176,480
90+	-	-	-	-	-	-	4	22	851	877
	-	-	-	-	-	-	111,372	282,396	12,346,896	12,740,664
TOTAL	1,076	1,666	2,426	2,048	2,184	8,906	7,912	6,626	6,508	39,352
	\$ 30,261,324	42,798,264	68,022,660	65,318,748	67,660,908	243,549,012	196,375,944	147,464,028	129,803,232	\$ 991,254,120

AVERAGES Attained Age 68.77
 Years Retired 12.15
 Yearly Benefit \$ 25,189

LASERS MEMBERSHIP PROFILE
Disability 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)	4	3	1	3	-	-	-	-	-	11
	\$ 56,724	38,064	20,340	44,088	-	-	-	-	-	\$ 159,216
[40-44)	3	5	3	4	3	10	1	-	-	29
	70,176	67,608	27,948	81,300	43,032	145,320	6,912	-	-	442,296
[45-49)	6	10	10	13	12	32	8	1	-	92
	150,588	186,000	149,556	245,388	283,812	430,236	92,376	15,516	-	1,553,472
[50-54)	18	14	34	21	30	58	51	10	2	238
	331,152	203,040	688,716	418,452	560,304	995,100	631,908	112,968	11,976	3,953,616
[55-59)	16	21	31	31	31	116	110	33	26	415
	207,996	359,244	605,148	529,020	618,552	2,010,336	1,765,836	398,112	187,836	6,682,080
[60-64)	-	7	14	23	21	145	146	97	61	514
	-	160,056	417,300	429,960	292,872	2,264,604	2,401,092	1,269,588	584,208	7,819,680
[65-69)	-	-	-	-	-	45	139	131	115	430
	-	-	-	-	-	733,812	1,976,196	1,861,344	1,272,384	5,843,736
[70-74)	-	-	-	-	-	2	48	90	170	310
	-	-	-	-	-	17,484	560,604	1,083,564	1,710,960	3,372,612
[75-79)	-	-	-	-	-	1	-	47	185	233
	-	-	-	-	-	57,228	-	481,932	1,850,304	2,389,464
[80-84)	-	-	-	-	-	-	1	-	111	112
	-	-	-	-	-	-	51,828	-	1,100,556	1,152,384
[85-89)	-	-	-	-	-	-	-	-	53	53
	-	-	-	-	-	-	-	-	469,668	469,668
90+	-	-	-	-	-	-	-	-	20	20
	-	-	-	-	-	-	-	-	194,448	194,448
TOTAL	47	60	93	95	97	409	504	409	743	2,457
	\$ 816,636	1,014,012	1,909,008	1,748,208	1,798,572	6,654,120	7,486,752	5,223,024	7,382,340	\$ 34,032,672

AVERAGES Attained Age 65.04
 Years Retired 15.31
 Yearly Benefit \$ 13,851

LASERS 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)	7	9	15	21	26	98	124	99	113	512
	\$ 269,496	194,112	445,872	573,564	725,388	2,343,948	2,316,528	1,743,996	1,461,828	\$ 10,074,732
[40-44)	2	1	1	2	-	22	16	10	35	89
	51,024	9,084	17,184	54,768	-	431,088	250,776	139,692	506,220	1,459,836
[45-49)	-	5	2	2	5	14	11	17	29	85
	-	113,532	25,548	33,324	150,444	167,460	160,896	337,728	363,912	1,352,844
[50-54)	2	6	4	3	2	41	29	32	21	140
	74,220	148,860	82,032	55,068	55,884	724,200	438,936	439,320	311,172	2,329,692
[55-59)	2	5	8	6	10	55	51	42	48	227
	35,592	129,696	174,288	121,188	235,140	1,170,432	778,224	659,136	564,528	3,868,224
[60-64)	2	8	9	13	10	106	107	91	77	423
	40,728	173,904	265,044	209,952	214,512	2,317,044	2,316,924	1,733,304	909,564	8,180,976
[65-69)	4	5	3	6	8	115	151	151	175	618
	153,300	69,876	54,108	127,140	125,964	2,201,688	3,161,208	3,121,752	2,268,468	11,283,504
[70-74)	1	1	-	3	2	50	123	217	381	778
	23,268	22,824	-	97,140	127,920	1,163,808	2,060,112	4,051,596	5,673,744	13,220,412
[75-79)	-	-	-	2	1	19	57	168	649	896
	-	-	-	41,364	17,964	333,264	843,168	2,467,824	9,112,308	12,815,892
[80-84)	-	2	-	-	-	5	16	98	754	875
	-	36,660	-	-	-	91,356	226,356	1,381,596	9,618,444	11,354,412
[85-89)	-	-	-	-	-	3	6	29	667	705
	-	-	-	-	-	83,736	96,216	467,052	8,022,480	8,669,484
90+	-	-	-	-	-	-	-	4	482	486
	-	-	-	-	-	-	-	77,364	5,577,312	5,654,676
TOTAL	20	42	42	58	64	528	691	958	3,431	5,834
	\$ 647,628	898,548	1,064,076	1,313,508	1,653,216	11,028,024	12,649,344	16,620,360	44,389,980	\$ 90,264,684

AVERAGES Attained Age 71.21
 Years Retired 22.42
 Yearly Benefit \$ 15,472

LASERS MEMBERSHIP PROFILE
Terminated Vested

CELLS DEPICT Member Count
 Total Benefits

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)	3	-	36	1	-	-	-	-	-	40
	12,372	-	196,852	13,716	-	-	-	-	-	222,940
[30-34)	14	6	208	44	-	-	-	-	-	272
	65,496	12,732	1,316,803	521,934	-	-	-	-	-	1,916,964
[35-39)	9	1	115	219	15	1	-	-	-	360
	35,058	9,240	772,549	3,169,368	274,056	18,036	-	-	-	4,278,307
[40-44)	7	2	108	311	109	8	1	-	-	546
	43,368	10,140	969,239	5,003,908	2,379,660	243,756	63,744	-	-	8,713,815
[45-49)	10	6	102	342	167	43	9	-	-	679
	58,620	78,396	714,286	5,145,366	3,837,263	1,193,256	318,564	-	-	11,345,751
[50-54)	17	1	82	404	237	57	26	3	-	827
	93,828	6,468	605,940	6,207,744	4,957,145	1,610,580	1,087,488	93,060	-	14,662,253
[55-59)	7	3	106	465	273	69	4	1	-	928
	44,460	24,492	800,062	6,310,418	5,290,391	1,956,072	133,764	79,740	-	14,639,400
[60-64)	6	-	21	105	49	10	4	-	1	196
	58,224	-	166,378	1,257,614	808,128	197,052	99,492	-	85,356	2,672,244
[65-69)	4	3	2	37	10	2	1	1	-	60
	12,636	18,162	32,244	318,180	147,876	55,872	45,480	40,764	-	671,214
[70+	-	1	2	25	8	3	3	3	-	45
	-	875	2,748	90,420	30,372	31,104	10,404	82,464	-	248,387
TOTAL	77	23	782	1,953	868	193	48	8	1	3,953
	\$ 424,062	160,505	5,577,101	28,038,668	17,724,892	5,305,728	1,758,936	296,028	85,356	\$ 59,371,275

AVERAGES Attained Age 49.57
 Service Years 12.49
 Yearly Benefit \$ 15,019

3. Plan Provisions

EFFECTIVE DATE:

July 1, 1947

EMPLOYEE:

Any person who legally occupies a position in state service.

EMPLOYER:

The State of Louisiana or any of its boards, commissions, departments, agencies and courts which are contributing members and those approved for membership by the legislature from which any employee receives his compensation.

ELIGIBILITY FOR PARTICIPATION:

Condition of employment in state service except the following: elected or appointed officials or employees who are contributing members of any other state system; public officials and state employees who receive a per diem in lieu of compensation; persons employed prior to January 1, 1973, who work on a part-time basis and elect not to participate; patient or inmate help in state charitable, penal or correctional institutions; part-time students, interns and resident physicians; independent contractors; employees who are age 60 or older at time of employment; retirees of the retirement system who return to work under certain conditions; judges who failed to elect membership prior to October 2, 1976; civilian employees who on November 1, 1981, were within five years of retirement eligibility in the Federal Civil Service Retirement and Disability Fund; teachers employed after September 10, 1982; nurses employed from employment pools at state charity hospitals; temporary, seasonal, part-time employees of DOTC, or as defined in federal law.

SERVICE:

Service as an "Employee," defined above.

CREDITABLE SERVICE:

For service prior to January 1, 1973: 1/4 year granted for each 89 day interval of service, not to exceed one credit per fiscal year. Minimum 15 days required for 1st Quarter credit.

For service on or after January 1, 1973, a member shall receive credit based on the ratio of actual pay to the annual base per calendar year. Fractional service shall be rounded to the next highest 1/10th, not to exceed 100 percent per year.

ADDITIONAL CREDITABLE SERVICE:

1. Credit for service canceled by withdrawal of accumulated contributions may be restored by member by paying into system the amount withdrawn plus interest at the Actuarial Valuation rate.
2. Maximum of four years of credit for military service may be obtained for each member with at least two years of service, contingent on payment of Actuarial Cost.
3. Credit for service which was classified as a job appointment or emergency appointment where the intended duration of employment exceeds two years of service.
4. At retirement, all accumulated unused sick and annual leave shall be credited based on the following schedule:

1 - 26 Days	10% of a Year
27 - 52 Days	20% of a Year
53 - 78 Days	30% of a Year
79 - 104 Days	40% of a Year
105 - 130 Days	50% of a Year
131 - 156 Days	60% of a Year
157 - 182 Days	70% of a Year
183 - 208 Days	80% of a Year
209 - 234 Days	90% of a Year
235 - 260 Days	100% of a Year

Service credit for unused leave can be used for computation purpose only, not for eligibility. An actuarial equivalent lump sum is available after August 15, 1993.

EARNABLE COMPENSATION:

The base pay earned by an employee for a given pay period as reported by the employing agency. This includes the full amount earned by an employee, overtime, and per diem earned by an employee of the House of Representatives, the Senate, or an agency of the legislature, and expense allowances and per diem paid to members of the legislature, the clerk, or sergeant at arms of the House of Representatives and president and secretary or sergeant at arms of the Senate.

AVERAGE FINAL COMPENSATION FOR BENEFIT PURPOSES:

The average annual earned compensation for the 36 highest months of successive employment, or the highest 36 successive joined months where interruption of service occurred; part-time employees use the base pay the part-time employee would have received had employment been full-time. Per Act 75 of 2005, average final

compensation for Regular members, Bridge Police, and Appellate Law Clerks hired on or after July, 1, 2006, is determined as the 60 highest months of successive employment. Per Act 992 of 2010, average final compensation for Judges hired on or after January 1, 2011, and all members of the Hazardous Duty Plan is based on the highest 60 months. Compensation is limited by the 401(a)(17) compensation limit of the Internal Revenue Code for certain members.

ACCUMULATED CONTRIBUTIONS:

The sum of all amounts deducted from the earned compensation of a member and credited to the individual account in the employee's savings account, together with regular interest credited prior to July 1971.

EMPLOYEE CONTRIBUTIONS:

<u>Sub Plan</u>	<u>Contribution Rate</u>
Rank & File Employees and Appellate Law Clerks	
Pre Act 75 (Hired before 7/1/2006)	7.5%
Post Act 75 (Hired after 6/30/2006)	8.0%
Pre 2011 Judges and Court Officers	11.5%
Post 2011 Judges	13.0%
Legislators	11.5%
Special Legislative	9.5%
<u>Sub Plan</u>	<u>Contribution Rate</u>
Correction - Primary	9.0%
Corrections – Secondary	9.0%
Wildlife Officers	9.5%
Peace Officers	9.0%
ATC Officers	9.0%
Bridge Police	8.5%
Hazardous Duty	9.5%

EMPLOYER CONTRIBUTIONS:

Act 81 of 1988 requires the employer's rate to be actuarially determined and set annually, based on the Public Retirement Systems' Actuarial Committee's recommendation to the Legislature. Act 1026 of the 2010 Legislative Session further requires that the employer contribution rate be determined separately by sub plan. The normal cost portion of each plan's employer contribution rate varies based upon that plan's benefits, member demographics, and the rate contributed by employees. The shared UAL contribution rate is determined in aggregate for all plans. The UAL established due to a specific plan or group of plans due to legislation will be allocated entirely to the applicable plan(s).

RETIREMENT BENEFIT:NORMAL RETIREMENT:Eligibility and Benefit:

Members whose first employment which makes them eligible for membership in a Louisiana state retirement system occurs on or after July 1, 2015:

1. Regular Plan: Eligible with 5 years at age 62. Benefit accrual rate is 2.5%.
2. Judges: Eligible with 5 years at age 62. Benefit accrual is 3.5%, plus regular plan benefits for prior service.
3. Hazardous Duty Plan: Eligible with 12 years at age 55 or 25 years at any age. Benefit accrual rate is 3.33% for service earned in the Hazardous Duty Plan if the last 10 years of service was earned in a hazardous duty position; otherwise, the accrual rate is 2.5%.

Members whose first employment which makes them eligible for membership in a Louisiana state retirement system occurs between January 1, 2011, and June 30, 2015:

1. Regular Plan: Eligible with 5 years at age 60. Benefit accrual rate is 2.5%.
2. Judges: Eligible with 5 years at age 60. Benefit accrual is 3.5%, plus regular plan benefits for prior service.
3. Hazardous Duty Plan: Eligible with 12 years at age 55 or 25 years at any age. Benefit accrual rate is 3.33% for service earned in the Hazardous Duty Plan if the last 10 years of service was earned in a hazardous duty position; otherwise, the accrual rate is 2.5%.

Members whose first employment which makes them eligible for membership in a Louisiana state retirement system occurs prior to January 1, 2011:

1. Regular members hired prior to July 1, 2006: Eligible with 10 years at age 60, or 25 years at age 55, or 30 years at any age. Regular members hired on or after July 1, 2006, are eligible with 5 years at age 60. Benefit accrual rate is 2.5% for all years of service.
2. Judges, Court Officers, and Appellate Law Clerks: Eligible with 18 years at any age, 10 years at age 65, 20 total years with at least 12 years as a judge or court officer at age 50, 12 years at age 55, or age 70 regardless of service. Judges and Court Officers earn 3.5% per year of service, plus regular plan benefits for prior service. Appellate Law Clerks earn 2.5% for all years of service.
3. Members of the legislature, governor, lieutenant governor and state treasurer: Eligible with 16 years of service at any age, 20 total years with at least 12 years as a

- member of this class at age 50, or 12 years at age 55. Members earn 3.5% per year of service, plus regular plan benefits for prior service.
4. Plans for certain employees of the Department of Public Safety and Corrections:
 - a. Corrections Primary hired before 8/15/1986: Eligible with 10 years at age 60 or 20 years at any age. Benefit accrual rate is 2.5%.
 - b. Corrections Primary hired between 8/15/1986 and 12/31/2001: Eligible with 10 years at age 60 or 20 years at age 50. Benefit accrual rate is 2.5%.
 - c. Corrections Primary hired prior to 12/31/2001 and employed as a probation and parole officers in the office of adult services of the Department of Corrections: Eligibility is as stated above. Benefit accrual rate is 3.0% for service earned prior to 7/1/2014 and 3.33% for service earned after 6/30/2014.
 - d. Corrections Secondary Plan hired after 1/1/2002 or transferred from Corrections Primary Plan: Eligible with 10 years at age 60 or 25 years at any age. Benefit accrual rate is 3.33%.
 5. Wildlife and Fisheries:
 - a. Members hired before July 1, 2003: 10 years at age 55 or 20 years at any age. Benefit accrual is 3.0% for service earned prior to July 1, 2003 and 3.33% for service earned after July 1, 2003.
 - b. Members hired on or after July 1, 2003: 10 years at age 60 or 25 years at any age. Benefit accrual is 3.33%.
 6. Peace Officers: Eligible with 10 years of service at age 60, 25 years at age 55, or 30 years at any age. Benefit accrual is 3.33%.
 7. Alcohol Tobacco Control: Eligible with 10 years of service at age 60 or 25 years of service at any age. Benefit accrual is 3.33%.
 8. Bridge Police: Eligible with 10 years at age 60 or 25 years at any age. Benefit accrual is 2.5%

NOTES:

- A. Benefit is limited to 100% of average compensation.
- B. Retirees who return to work will continue to receive unreduced benefits if compensation does not exceed 50% of the annual benefit during the fiscal year. Earnings above this limit will result in a corresponding reduction to benefits. Retirees who return to work may choose to suspend their retirement benefits and resume making contributions in the system. Upon subsequent retirement, benefits will resume. If post-retirement employment is at least 36 months, a supplemental benefit will be calculated based on current final average salary. Otherwise, a supplemental benefit will be calculated based on the frozen final average salary at the original retirement date.

- C. A \$300 annual supplemental benefit is provided to persons who become members of the retirement system prior to July 1, 1986 (Act 608 of 1986).
- D. For members employed after January 1, 1990, the annual pension paid from the trust cannot exceed the maximum benefit provided under Section 415(b) of the Internal Revenue Service Code, and related Section 415 regulations, as adjusted for inflation and form of benefit other than life annuity or qualified joint and survivor annuity for retirement ages as follows:

<u>Age</u>	<u>Maximum</u>	<u>Age</u>	<u>Maximum</u>	<u>Age</u>	<u>Maximum</u>
48	\$ 62,674	56	\$ 122,937	64	\$ 210,000
49	68,035	57	134,139	65	210,000
50	73,895	58	146,473	66	210,000
51	80,309	59	160,071	67	210,000
52	87,329	60	175,083	68	210,000
53	95,025	61	191,670	69	210,000
54	103,469	62	210,000	70	210,000
55	112,745	63	210,000		

ACTUARIALLY REDUCED RETIREMENT:

Members with 20 years of service credit at any age are eligible for an actuarially reduced benefit from the earliest date the member would have been eligible if employment had continued to the earliest normal retirement date, based on service earned to date. This does not apply to the correctional secondary plan members or wildlife agents hired on or after July 1, 2003.

POST RETIREMENT INCREASES:

Provisions pertaining to cost-of-living adjustments are summarized in Section II(2).

MINIMUM BENEFITS:

Effective September 1, 2001, retirees and beneficiaries receiving retirement benefits shall be entitled to a minimum benefit which is not less than \$30.00 per month for each year of creditable service. The minimum benefit is adjusted for the option elected at retirement.

DISABILITY RETIREMENT:

Eligibility:

Ten years of creditable service and certification of disability by medical board. (Medical examination may be required once per year for the first five years of disability retirement, and once every three years thereafter, until age 60.)

Benefit*:

- (1) The disability retirement annuity shall be equivalent to the regular retirement formula without reduction by reason of age for all classes of membership.
- (2) For judges and court officers, the benefit in (1) above, but not less than 50% of current salary.
- (3) Members of the Corrections Primary Plan with disabilities incurred in the line of duty may retire with 60% of their final average compensation, regardless of years of service. Disabilities not incurred in the line of duty shall receive benefits according to (1) above.
- (4) Members of the Corrections Secondary Plan with disabilities incurred in the line of duty may retire with 40% of their final average compensation regardless of service. If the member has 10 or more years of service, the benefit will be the greater of 40% of final average compensation or the benefit determined by (1) above. Disabilities not incurred in the line of duty shall receive benefits according to (1) above.
- (5) For certain Wildlife agents, partial disabilities not eligible for (1) above receive 75% of the benefit in (1); members totally disabled while in the line of duty receive 60% of average compensation.
- (6) Members of the Hazardous Duty Plan with disabilities incurred in the line of duty may retire with 75% of their final average compensation, regardless of years of service. Disabilities not incurred in the line of duty shall receive benefits according to (1) above.

* Because of a lack of enough data to differentiate disability for in-line of duty versus not-in-line of duty, disability benefits for certain sub-plans are valued as a retirement benefit in (1). This assumption has no material impact on liabilities.

SURVIVOR'S BENEFITS:

Members whose first employment, making them eligible for membership in a Louisiana state retirement system, occurs on or after January 1, 2011, or members of the Hazardous Duty Plan regardless of when hired:

Eligibility and Benefit:

1. Regular Members and Judges
 - a. Surviving spouse with minor children of a deceased member with five years of service credit, two of which were earned immediately prior to death, or 20 years of service will receive 50% of the retirement benefit that would have been due the member, or \$600 per month if greater. Each qualifying child will receive 50% of

- the spouses benefit, up to two children. The total paid to the spouse and children subject to a minimum based on the Option 2A equivalent for the surviving spouse.
- b. Surviving spouse, legally married one year prior to death, of a deceased member with 10 years of service credit, two of which were earned immediately prior to death, or 20 years of service regardless of date earned will receive the Option 2A equivalent of the retirement benefit that would have been due the member, or \$600 per month if greater.
 - c. Surviving minor children will each (up to two) receive 50% of the benefit paid to a surviving spouse with children. This amount will be divided equally among all eligible children.
 - d. Surviving handicapped or mentally retarded children continue to receive a minor child's benefit described above in (1) or (3) whichever is applicable.
2. Hazardous duty members:
- a. Surviving spouse and children of members who did not die in the line of duty receive benefits described for non-Hazardous Duty members.
 - b. Surviving spouse and children of members who died in the line of duty receive 80% of the member's final average compensation. The benefit is shared equally.
 - c. Surviving spouse of a retired member will receive 75% of members' monthly benefit. If no spouse, then surviving children receive 1.c. above.
3. If no one is eligible to receive a survivor benefit, then the named beneficiary will receive the member's accumulated contributions.

Members whose first employment which makes them eligible for membership in a Louisiana state retirement system occurs prior to January 1, 2011:

Eligibility and Benefit:

1. Regular members:
 - a. Surviving spouse, legally married one year prior to death, of a deceased member with 10 years of service credit, two of which were earned immediately prior to death, or 20 years of service regardless of date earned, receive the greater of 50% of member's average compensation or \$200 per month.
 - b. If member with no spouse has surviving minor children and 5 years of service credit, two of which were earned immediately prior to death, or 20 years of service regardless of date earned, minor children shall receive the greater of 75% of member's average compensation or \$300 per month.

- c. For surviving spouse with minor children, the spouse must be eligible per (a) above and the children per (b) above to receive these benefits. If either one is ineligible, then the criteria in (a) or (b) would apply accordingly.
 - d. Surviving handicapped or mentally retarded children continue to receive a minor child's benefit described above in (1a) or (1c) whichever is applicable.
 2. Surviving spouse of a judge or court officer receive survivor's benefit described in (1a) or (1b), but not less than the greater of $\frac{1}{3}$ the member's current compensation, 50% of the retirement pay which such member was entitled or receiving prior to death, or 50% of the member's final average compensation (if the provisions of R.S. 11:471 are met). Benefit limited to 75% of average compensation.
 3. Corrections
 - a. In the line of duty:
 - i. Surviving spouse with no minor children: 60% of average compensation if member had less than 25 years of service, or 75% of average compensation if member had 25 or more years of service.
 - ii. Minor children or disabled children and no spouse: 60% of average compensation if member had less than 5 years of service (25 years for Secondary Plan), or 75% of average compensation if member had 5 or more years of service (25 years for Secondary Plan).
 - iii. Surviving spouse with minor children: 60% of average compensation if member had less than 5 years of service (25 years for secondary plan) and benefit divided $\frac{1}{3}$ to spouse and $\frac{2}{3}$ to minor children equally. 75% of average compensation if member had 5 or more years of service (25 years for Secondary Plan) and benefit divided $\frac{1}{3}$ to spouse and $\frac{2}{3}$ to minor children equally.
 - b. Not in the line of duty surviving spouse receives benefits in accordance with the provisions for regular members.
 4. Wildlife agents
 - a. In line of duty:
 - i. Surviving spouse receives 75% of average compensation if member has 25 or more years of service, otherwise, spouse receives 60% of compensation. Benefits cease upon remarriage.
 - ii. Children under age 18: one child - 30% of average compensation, 2 children - 40%, 3 children - 50%, 4 or more children - 60%, divided equally among children.
 - b. Not in the line of duty benefit to surviving spouse and children: Surviving spouse receives a benefit as if the member retired on the date of death, until remarried. If

member dies prior to age 55 with at least 15 years of service, benefit computed based on years of service without regard to age.

- c. Survivors of retired wildlife agents will receive 75% of the retiree benefit in priority order: surviving spouse (until remarriage), children under age 18, parents who derive main support from retired agent.
5. If no one is eligible to receive a survivor benefit, then the named beneficiary will receive the 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 2 100% of reduced retirement allowance, if member dies, to be continued to designated beneficiary for his lifetime.
- Option 3 50% 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.
- A. 90% of the maximum retirement allowance to member; when member dies, 55% of the maximum retirement allowance continued to beneficiary.
 - B. Reduced retirement allowance to member; if member dies, 55% of the maximum retirement allowance continues to beneficiary, adjusted based on the age and relationship of the beneficiary to the member.
 - C. Special reversionary annuities to Options 2, 3, and 4. Member's reduced benefit reverts to the maximum if the beneficiary predeceases the annuitant.

If divorced after retirement, optional benefit can revert to maximum benefit with actuarial adjustment.

Automatic COLA Option – An increasing annuity option permits the member to make an irrevocable election at retirement to receive an actuarially reduced benefit which increases 2.5% annually. The increases begin 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.

Initial Benefit Option – Maximum benefit actuarially reduced for partial lump sum equal to not more than 36 months of maximum monthly pension.

REFUND OF CONTRIBUTIONS:

If a member ceases to be a member, except by death or retirement, he shall be paid such part of the amount of the accumulated contributions credited to his individual account in annuity savings fund as he shall demand, plus any accumulated interest thereon as of June 30, 1971; if member of legislature, no interest. No interest credited after June 30, 1971. 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.

DEFERRED RETIREMENT OPTION PLAN:

Instead of terminating employment and accepting a service retirement allowance, any member who has met the normal eligibility requirements may participate in the Deferred Retirement Option Plan (DROP).

Normal Eligibility:

Any member who is eligible for unreduced service retirement allowance may begin participation on the first retirement eligibility date for a period not to exceed the third anniversary of retirement eligibility.

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, then:

- (1) Payment into account shall cease;
- (2) Payment from account only upon termination of employment; and
- (3) The participant shall resume active contributing membership.

Then, upon termination of employment, the benefit payments indicated above shall be paid. The participant shall receive an additional retirement benefit based on additional service rendered since termination of participation in the fund, usually the normal method of computation of benefit subject to the following:

- (1) If additional service was less than the period used to determine the average compensation, then the average compensation figure used to calculate the additional benefit shall be based on compensation used to determine the initial benefit.
- (2) If additional service was greater than the period used to determine the average compensation, the average compensation figure used to calculate the additional benefit shall be based on compensation earned during the period of additional service.

DROP accounts for members who become eligible for retirement prior to January 1, 2004, and participate in DROP shall earn interest, following termination of DROP, at a rate of 0.5% below the actuarial rate of the System's investment portfolio.

Members eligible for retirement on or after January 1, 2004, must invest their DROP accounts in self-directed accounts approved by the Board of Trustees.

4. Funding Policies

LASERS' funding policy is generally described in Sections 102 and 102.1 of Title 11 of Louisiana Revised Statutes. LASERS 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 2015 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 LASERS is equal to 10.9% and 11.7% depending on whether the employee was hired on or before June 30, 2006, or on or after July 1, 2006, 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. The 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. Increases 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. Contributions 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 OAB through FYE 2017 (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 OAB through FYE 2017 (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 (\$50 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 (\$50 million) and the second hurdle (\$100 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 not be transferred to the Experience Account, but rather 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 a 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, LASERS 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 OAB.

3. Investment gains falling between \$0 and \$50 million reduce the outstanding balance of the OAB.
4. Investment gains falling between \$50 million and \$100 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 LASERS, as specified in Louisiana law, is summarized below:

1. The LASERS' actuary prepares an actuarial valuation which is presented to the LASERS 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 0.276% of values produced by Foster & Foster. Normal costs were within 0.322%. 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 could not precisely match results produced by Foster & Foster, normal cost values in our valuation for FYE 2017 were calculated according to the following formula.

Value = $A \times B / C$, where

- A = The value produced by Foster & Foster for FYE 2016 using the current set of assumptions.
- B = The value produced by the LLA for FYE 2016 using the revised set of assumptions, and
- C = The value produced by the LLA for FYE 2016 using the current set of assumptions.

6. Actuarial Assumptions

LASERS typically conducts an experience study every five years, but the scope of such a study is not necessarily limited to a 5-year period. However, the observation period for the most recent experience study in general was 2009-2013. Rates used in this valuation are provided separately for Regular Members, Corrections, Wildlife and Fisheries, and Judges. Actuarial assumptions used in the June 30, 2015 valuation are summarized in this section of the report.

Economic Assumptions

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 8.15%. 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 LASERS 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 LASERS' 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 LASERS, reports prepared for the LLA by Gabriel Roeder Smith, calculations of 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 15 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 (8.15%) minus the cost of the gain sharing/COLA program (25 basis points) minus the cost of administrative expenses (15 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 3.00% 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%.

Total rate of salary growth has not changed between FYE 2016 and FYE 2017. The inflation component has been reduced 50 basis points and the merit component increased by 50 basis points.

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 Teachers' Retirement System of Louisiana.

Administrative Expense

Legal staff for LASERS 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 rate of return on the actuarial value of assets by 15 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 2015 using scale AA. No mortality improvement is assumed to occur after FYE 2015. This table appears to match recent experience for retirement system members. This table was recommended by the system actuary and was approved by the LASERS 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 2013 experience study.

Termination Assumption

Voluntary termination or withdrawal rates are based on the 2013 Experience Study. Rates for Regular members and Corrections/Hazardous Duty members are based on a combination of age and service. Rates for Judges and Wildlife 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 Members	3.5%	1.5%
Judicial Members	1.0%	1.0%
Corrections	5.0%	3.0%
Wildlife	6.0%	3.0%

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 8.15%. This rate is based in part on capital market assumptions developed by LASERS’ internal professional investment staff relying substantially, but not completely, on information provided by NEPC, LASERS 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 7.80%. 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 2015
WITH SCALE AA FOR ALL SUB-PLANS**

Mortality Rate			Mortality Rate			Mortality Rate		
Age	Male	Female	Age	Male	Female	Age	Male	Female
18	0.000237	0.000152	53	0.002154	0.001841	88	0.139683	0.101042
19	0.000248	0.000151	54	0.002360	0.002085	89	0.154366	0.113903
20	0.000259	0.000150	55	0.002718	0.002409	90	0.172706	0.125879
21	0.000272	0.000148	56	0.003198	0.002823	91	0.188113	0.138232
22	0.000283	0.000150	57	0.003629	0.003226	92	0.207060	0.150672
23	0.000297	0.000155	58	0.004140	0.003639	93	0.223365	0.165391
24	0.000309	0.000160	59	0.004667	0.004119	94	0.239646	0.177391
25	0.000323	0.000168	60	0.005297	0.004689	95	0.259578	0.188755
26	0.000345	0.000179	61	0.006119	0.005393	96	0.275506	0.199303
27	0.000354	0.000186	62	0.006981	0.006175	97	0.290981	0.212034
28	0.000365	0.000196	63	0.008104	0.007094	98	0.310600	0.220611
29	0.000382	0.000207	64	0.009130	0.007995	99	0.325288	0.227940
30	0.000412	0.000227	65	0.010309	0.009003	100	0.339424	0.233930
31	0.000463	0.000272	66	0.011841	0.010161	101	0.358628	0.244834
32	0.000521	0.000310	67	0.013210	0.011282	102	0.371685	0.254498
33	0.000585	0.000344	68	0.014464	0.012471	103	0.383040	0.266044
34	0.000651	0.000374	69	0.016027	0.013784	104	0.392003	0.279055
35	0.000717	0.000402	70	0.017702	0.015529	105	0.397886	0.293116
36	0.000780	0.000429	71	0.019586	0.016975	106	0.400000	0.307811
37	0.000839	0.000455	72	0.021747	0.018881	107	0.400000	0.322725
38	0.000881	0.000484	73	0.024223	0.020673	108	0.400000	0.337441
39	0.000919	0.000517	74	0.027024	0.022912	109	0.400000	0.351544
40	0.000957	0.000563	75	0.030622	0.024916	110	0.400000	0.364617
41	0.000997	0.000617	76	0.034131	0.027451	111	0.400000	0.376246
42	0.001045	0.000679	77	0.038547	0.030694	112	0.400000	0.386015
43	0.001100	0.000747	78	0.043489	0.033835	113	0.400000	0.393507
44	0.001166	0.000820	79	0.049071	0.037355	114	0.400000	0.398308
45	0.001239	0.000882	80	0.055360	0.041291	115	0.400000	0.400000
46	0.001308	0.000946	81	0.062905	0.045702	116	0.400000	0.400000
47	0.001382	0.001010	82	0.071350	0.050664	117	0.400000	0.400000
48	0.001460	0.001092	83	0.079534	0.056255	118	0.400000	0.400000
49	0.001543	0.001180	84	0.089800	0.062565	119	0.400000	0.400000
50	0.001628	0.001296	85	0.099680	0.070761	120	1.000000	1.000000
51	0.001837	0.001454	86	0.110516	0.080120			
52	0.001970	0.001633	87	0.124300	0.090716			

**RANK AND FILE SUB PLAN (INCLUDING APPELLATE LAW CLERKS)
ACTUARIAL TABLES AND RATES**

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

Age	Disability Rates	Termination Rates									Duration	Salary Scale*
		< 1 Year	1 Year	2-3 Years	4-5 Years	6 Years	7 Years	8 Years	9 Years	>=10 Years		
18	0.0000	0.450	0.300	0.220	0.140	0.100	0.080	0.070	0.060	0.050	0	0.1300
19	0.0000	0.450	0.300	0.220	0.140	0.100	0.080	0.070	0.060	0.050	1	0.0800
20	0.0000	0.450	0.300	0.220	0.140	0.100	0.080	0.070	0.060	0.050	2	0.0700
21	0.0000	0.400	0.300	0.220	0.140	0.100	0.080	0.070	0.060	0.050	3	0.0650
22	0.0000	0.350	0.250	0.220	0.140	0.100	0.080	0.070	0.060	0.050	4	0.0600
23	0.0000	0.290	0.250	0.220	0.130	0.100	0.080	0.070	0.060	0.050	5	0.0575
24	0.0000	0.290	0.210	0.210	0.120	0.100	0.080	0.070	0.060	0.050	6	0.0555
25	0.0000	0.290	0.207	0.200	0.118	0.100	0.080	0.070	0.060	0.050	7	0.0540
26	0.0000	0.290	0.204	0.200	0.116	0.100	0.080	0.070	0.060	0.050	8	0.0530
27	0.0000	0.290	0.201	0.190	0.114	0.100	0.080	0.070	0.060	0.050	9	0.0520
28	0.0000	0.290	0.198	0.180	0.112	0.100	0.080	0.070	0.060	0.050	10	0.0510
29	0.0001	0.290	0.195	0.170	0.110	0.100	0.080	0.070	0.060	0.050	11	0.0500
30	0.0001	0.290	0.192	0.170	0.108	0.100	0.080	0.070	0.060	0.050	12	0.0490
31	0.0001	0.290	0.189	0.160	0.106	0.100	0.080	0.070	0.060	0.050	13	0.0480
32	0.0001	0.290	0.186	0.150	0.104	0.100	0.080	0.070	0.060	0.050	14	0.0470
33	0.0001	0.290	0.183	0.130	0.102	0.100	0.080	0.070	0.060	0.050	15	0.0460
34	0.0001	0.290	0.180	0.130	0.100	0.100	0.080	0.070	0.060	0.050	16	0.0450
35	0.0004	0.290	0.177	0.130	0.098	0.100	0.080	0.070	0.060	0.050	17	0.0440
36	0.0004	0.285	0.174	0.130	0.096	0.100	0.080	0.070	0.060	0.050	18	0.0430
37	0.0004	0.280	0.171	0.120	0.094	0.100	0.080	0.070	0.060	0.050	19	0.0420
38	0.0004	0.275	0.168	0.120	0.092	0.100	0.080	0.070	0.060	0.050	20	0.0410
39	0.0004	0.270	0.165	0.120	0.090	0.100	0.080	0.070	0.060	0.050	21	0.0400
40	0.0004	0.265	0.162	0.110	0.088	0.100	0.080	0.070	0.060	0.050	22	0.0400
41	0.0014	0.260	0.159	0.110	0.086	0.100	0.080	0.070	0.060	0.050	23	0.0400
42	0.0014	0.255	0.156	0.110	0.084	0.100	0.080	0.070	0.060	0.050	24	0.0400
43	0.0014	0.250	0.153	0.080	0.082	0.080	0.070	0.060	0.050	0.040	25	0.0400
44	0.0014	0.245	0.150	0.080	0.080	0.080	0.070	0.060	0.050	0.040	26	0.0400
45	0.0022	0.240	0.147	0.080	0.078	0.080	0.070	0.060	0.050	0.040	27	0.0400
46	0.0022	0.235	0.144	0.080	0.076	0.080	0.070	0.060	0.050	0.040	28	0.0400
47	0.0022	0.230	0.141	0.080	0.074	0.080	0.070	0.060	0.050	0.040	29	0.0400
48	0.0028	0.225	0.138	0.080	0.072	0.080	0.070	0.060	0.050	0.040	30	0.0400
49	0.0028	0.220	0.135	0.080	0.070	0.080	0.070	0.060	0.050	0.040	31	0.0400
50	0.0028	0.215	0.132	0.080	0.068	0.080	0.070	0.060	0.050	0.040	32	0.0400
51	0.0028	0.210	0.129	0.080	0.066	0.080	0.070	0.060	0.050	0.040	33	0.0400
52	0.0036	0.205	0.126	0.080	0.064	0.080	0.070	0.060	0.050	0.040	34	0.0400
53	0.0036	0.200	0.123	0.080	0.062	0.080	0.070	0.060	0.050	0.040	35	0.0400
54	0.0036	0.195	0.120	0.080	0.060	0.080	0.070	0.060	0.050	0.040	36	0.0400
55	0.0036	0.190	0.117	0.080	0.058	0.080	0.070	0.060	0.050	0.040	37	0.0400
56	0.0036	0.185	0.114	0.080	0.056	0.080	0.070	0.060	0.050	0.040	38	0.0400
57	0.0048	0.180	0.111	0.080	0.054	0.080	0.070	0.060	0.050	0.040	39	0.0400
58	0.0048	0.175	0.108	0.080	0.052	0.080	0.070	0.060	0.050	0.040	>=40	0.0400
59	0.0040	0.170	0.105	0.080	0.050	0.080	0.070	0.060	0.050	0.040		
>=60	0.0000	0.165	0.102	0.080	0.048	0.080	0.070	0.060	0.050	0.040		

**RANK AND FILE SUB PLAN (EXCLUDING APPELLATE LAW CLERKS)
ACTUARIAL TABLES AND RATES**

*Retirement Rates for Appellate Law Clerks are the same as Judges on the next page

Age	Retirement/DROP Rates*				
	0-9 Years	10-19 Years	20-24 Years	25-29 Years	>=30 Years
<=34	0.000	0.000	0.000	0.000	0.000
35	0.000	0.000	0.020	0.030	0.000
36	0.000	0.000	0.020	0.030	0.000
37	0.000	0.000	0.020	0.030	0.000
38	0.000	0.000	0.020	0.030	0.000
39	0.000	0.000	0.020	0.030	0.000
40	0.000	0.000	0.020	0.030	0.000
41	0.000	0.000	0.020	0.030	0.000
42	0.000	0.000	0.020	0.030	0.000
43	0.000	0.000	0.020	0.030	0.000
44	0.000	0.000	0.020	0.030	0.000
45	0.000	0.000	0.020	0.030	0.030
46	0.000	0.000	0.020	0.030	0.030
47	0.000	0.000	0.020	0.030	0.500
48	0.000	0.000	0.020	0.060	0.500
49	0.000	0.000	0.020	0.070	0.500
50	0.000	0.000	0.030	0.070	0.430
51	0.000	0.000	0.030	0.070	0.400
52	0.000	0.000	0.030	0.080	0.470
53	0.000	0.000	0.030	0.120	0.440
54	0.000	0.000	0.060	0.280	0.470
55	0.000	0.000	0.080	0.550	0.300
56	0.000	0.000	0.080	0.320	0.250
57	0.000	0.000	0.080	0.300	0.220
58	0.000	0.000	0.080	0.280	0.200
59	0.000	0.000	0.250	0.350	0.180
60	0.100	0.330	0.550	0.300	0.240
61	0.250	0.180	0.210	0.180	0.220
62	0.250	0.160	0.200	0.180	0.250
63	0.250	0.160	0.150	0.250	0.250
64	0.250	0.170	0.150	0.180	0.250
65	0.250	0.240	0.250	0.250	0.250
66	0.250	0.160	0.250	0.200	0.300
67	0.250	0.230	0.300	0.180	0.350
68	0.250	0.230	0.100	0.180	0.200
69	0.250	0.230	0.250	0.400	0.200
70	0.750	0.230	0.250	0.350	0.250
71	0.750	0.230	0.250	0.350	0.250
72	0.750	0.230	0.250	0.350	0.250
73	0.750	0.230	0.250	0.350	0.250
74	0.750	0.230	0.250	0.350	0.250
>=75	1.000	1.000	1.000	1.000	1.000

**PRE 2011 JUDGES SUB PLAN AND POST 2011 JUDGES SUB PLAN
ACTUARIAL TABLES AND RATES**

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

Age	Disability Rates	Retirement Rates (Also Applies to Appellate Law Clerks)			Duration	Termination Rates	Salary Scale*
		0-14 Years	15-19 Years	>=20 Years			
<=45	0.0002	0.000	0.000	0.000	0	0.000	0.055
46	0.0002	0.000	0.200	0.000	1	0.030	0.030
47	0.0002	0.000	0.200	0.000	2	0.040	0.030
48	0.0002	0.000	0.200	0.000	3	0.030	0.030
49	0.0002	0.000	0.200	0.050	4	0.020	0.030
50	0.0002	0.000	0.200	0.050	5	0.010	0.030
51	0.0002	0.000	0.100	0.050	6	0.010	0.030
52	0.0002	0.000	0.100	0.050	7	0.010	0.030
53	0.0002	0.000	0.100	0.050	8	0.010	0.030
54	0.0002	0.000	0.200	0.050	9	0.010	0.030
55	0.0002	0.050	0.200	0.100	10	0.010	0.030
56	0.0002	0.050	0.100	0.060	11	0.010	0.030
57	0.0002	0.100	0.020	0.060	12+	0.010	0.030
58	0.0002	0.050	0.020	0.060			
59	0.0002	0.050	0.020	0.080			
60	0.0002	0.100	0.020	0.080			
61	0.0002	0.100	0.020	0.120			
62	0.0002	0.200	0.020	0.120			
63	0.0002	0.200	0.020	0.060			
64	0.0002	0.150	0.100	0.060			
65	0.0002	0.500	0.100	0.060			
66	0.0002	0.100	0.100	0.110			
67	0.0002	0.100	0.100	0.100			
68	0.0002	0.100	0.100	0.100			
69	0.0002	0.100	0.100	0.100			
70	0.0000	0.100	0.100	0.100			
71	0.0000	0.050	0.400	0.400			
72	0.0000	0.050	0.400	0.400			
73	0.0000	0.050	0.400	0.400			
74	0.0000	0.050	0.400	0.400			
>=75	0.0000	1	1	1			

**HAZARDOUS DUTY, CORRECTIONS AND WILDLIFE
ACTUARIAL TABLES AND RATES**

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

Age	Disability Rates	Retirement/DROP Rates		Termination Rates (Hazardous Duty and Corrections Only)		Duration	Termination Rates (Wildlife Only)	Salary Scale*
		0-24 Years	>=25 Years	0-9 Years	>=10 Years			
<=17	0.0000	0.000	0.000	0.000	0.000	0	0.080	0.1450
18	0.0000	0.200	0.250	0.500	0.000	1	0.080	0.0835
19	0.0000	0.200	0.250	0.500	0.000	2	0.080	0.0700
20	0.0000	0.200	0.250	0.460	0.000	3	0.080	0.0690
21	0.0000	0.200	0.250	0.420	0.000	4	0.050	0.0640
22	0.0000	0.200	0.250	0.380	0.000	5	0.050	0.0630
23	0.0000	0.200	0.250	0.350	0.100	6	0.030	0.0625
24	0.0000	0.200	0.250	0.320	0.100	7	0.030	0.0620
25	0.0000	0.200	0.250	0.290	0.100	8	0.030	0.0615
26	0.0000	0.200	0.250	0.270	0.100	9	0.030	0.0610
27	0.0000	0.200	0.250	0.250	0.100	10	0.030	0.0605
28	0.0000	0.200	0.250	0.230	0.100	11	0.030	0.0600
29	0.0000	0.200	0.250	0.210	0.100	12	0.030	0.0595
30	0.0000	0.200	0.250	0.200	0.100	13	0.030	0.0590
31	0.0000	0.200	0.250	0.200	0.100	14	0.030	0.0585
32	0.0000	0.200	0.250	0.200	0.100	15	0.030	0.0580
33	0.0000	0.200	0.250	0.200	0.080	16	0.030	0.0575
34	0.0000	0.200	0.250	0.200	0.080	17	0.030	0.0570
35	0.0020	0.200	0.250	0.200	0.080	18	0.030	0.0565
36	0.0020	0.200	0.250	0.180	0.060	19	0.030	0.0560
37	0.0020	0.200	0.250	0.180	0.060	20	0.030	0.0555
38	0.0020	0.200	0.250	0.180	0.060	21	0.030	0.0550
39	0.0020	0.200	0.250	0.180	0.060	22	0.030	0.0550
40	0.0025	0.200	0.250	0.180	0.050	23	0.030	0.0545
41	0.0025	0.200	0.250	0.180	0.050	24	0.030	0.0545
42	0.0025	0.200	0.250	0.180	0.050	25	0.030	0.0550
43	0.0025	0.200	0.250	0.180	0.050	26	0.030	0.0550
44	0.0025	0.200	0.250	0.180	0.060	27	0.030	0.0460
45	0.0025	0.200	0.250	0.170	0.060	28	0.030	0.0460
46	0.0025	0.200	0.250	0.170	0.060	29	0.030	0.0455
47	0.0025	0.200	0.250	0.170	0.060	30	0.030	0.0360
48	0.0025	0.200	0.250	0.170	0.060	31	0.030	0.0360
49	0.0030	0.200	0.250	0.170	0.070	32	0.030	0.0360
50	0.0030	0.350	0.200	0.130	0.070	33	0.030	0.0360

Age	Disability Rates	Retirement/DROP Rates		Termination Rates (Hazardous Duty and Corrections Only)		Duration	Termination Rates (Wildlife Only)	Salary Scale*
		0-24 Years	>=25 Years	0-9 Years	>=10 Years			
51	0.0030	0.100	0.250	0.130	0.070	34	0.030	0.0360
52	0.0050	0.250	0.350	0.130	0.070	35	0.030	0.0360
53	0.0050	0.250	0.350	0.130	0.070	36	0.030	0.0360
54	0.0050	0.300	0.350	0.130	0.100	37	0.030	0.0360
55	0.0075	0.300	0.350	0.130	0.100	38	0.030	0.0360
56	0.0075	0.300	0.350	0.130	0.100	39	0.030	0.0360
57	0.0075	0.300	0.350	0.130	0.100	>=40	0.030	0.0360
58	0.0075	0.300	0.350	0.130	0.100			
59	0.0075	0.300	0.350	0.130	0.100			
60	0.0000	0.450	0.500	0.130	0.100			
61	0.0000	0.400	0.500	0.130	0.100			
62	0.0000	0.400	0.500	0.130	0.100			
63	0.0000	0.400	0.500	0.130	0.100			
64	0.0000	0.400	0.500	0.130	0.100			
65	0.0000	0.350	0.500	0.130	0.100			
66	0.0000	0.350	0.500	0.130	0.100			
67	0.0000	0.350	0.500	0.130	0.100			
68	0.0000	0.350	0.500	0.130	0.100			
69	0.0000	0.350	0.500	0.130	0.100			
70	0.0000	0.500	0.500	0.130	0.100			
71	0.0000	0.500	0.500	0.130	0.100			
72	0.0000	0.500	0.500	0.130	0.100			
73	0.0000	0.500	0.500	0.130	0.100			
74	0.0000	0.500	0.500	0.130	0.100			
>=75	0.0000	1.00	1.00	0.130	0.100			

APPENDIX A
CONTRIBUTION RATES FOR SUB PLANS

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

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

A. Rank and File Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 77,772,467	\$ 1,643,740,351	4.731433%
Shared Amortization Costs	548,765,473		33.385168%
Plan Specific Costs	1,000,076		0.060842%
Total	\$ 627,538,016		38.177442%

B. Appellate Law Clerks Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 744,916	\$ 11,869,115	6.276086%
Shared Amortization Costs	3,962,524		33.385168%
Plan Specific Costs	0		0.000000%
Total	\$ 4,707,440		39.661255%

C. Pre-2011 Judges and Court Officers Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 2,502,766	\$ 36,461,922	6.864054%
Shared Amortization Costs	12,172,874		33.385168%
Plan Specific Costs	0		0.000000%
Total	\$ 14,675,640		40.249222%

D. Post-2011 Judges Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 776,355	\$ 12,070,098	6.432055%
Shared Amortization Costs	4,029,622		33.385168%
Plan Specific Costs	0		0.000000%
Total	\$ 4,805,977		39.817223%

E. Legislators Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 63,119	\$ 673,482	9.372099%
Shared Amortization Costs	224,843		33.385168%
Plan Specific Costs	0		0.000000%
Total	\$ 287,962		42.757267%

F. Special Legislative Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 9,678	\$ 85,733	11.288764%
Shared Amortization Costs	28,622		33.385168%
Plan Specific Costs	0		0.000000%
Total	\$ 38,300		44.673932%

G. Corrections Officers Primary Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 65,990	\$ 21,646,905	0.304847%
Shared Amortization Costs	7,226,856		33.385168%
Plan Specific Costs	0		0.000000%
Total	\$ 7,292,846		33.690015%

H. Adult Probation and Parole Officers Fund

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 60,582	Not Applicable	Not Applicable
Amortization Cost	712,866		
Total	\$ 773,448		

I. Corrections Officers Secondary Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 4,749,088	\$ 103,496,170	4.588661%
Shared Amortization Costs	34,552,370		33.385168%
Plan Specific Costs	0		0.000000%
Total	\$ 39,301,458		37.973829%

J. Wildlife Officers Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 1,559,110	\$ 10,545,608	14.784452%
Shared Amortization Costs	3,520,669		33.385168%
Plan Specific Costs	0		0.000000%
Total	\$ 5,079,779		48.169620%

K. Peace Officers Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 123,943	\$ 3,487,252	3.554165%
Shared Amortization Costs	1,164,225		33.385168%
Plan Specific Costs	0		0.000000%
Total	\$ 1,288,168		36.939333%

L. Peace Officers Fund

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 0	Not Applicable	Not Applicable
Amortization Cost	297,357		
Total	\$ 297,357		

M. Alcohol Tobacco Control Officers Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 32,637	\$ 731,600	4.461051%
Shared Amortization Costs	244,246		33.385168%
Plan Specific Costs	0		0.000000%
Total	\$ 276,883		37.846219%

N. ATC Officers Fund

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 0	Not Applicable	Not Applicable
Amortization Cost	80,728		
Total	\$ 80,728		

O. Bridge Police Officers Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 6,325	\$ 273,031	2.316495%
Shared Amortization Costs	91,152		33.385168%
Plan Specific Costs	0		0.000000%
Total	\$ 97,477		35.701663%

P. Harbor Police Officer's Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	Not Available	Not Available	4.000000%
Amortization Cost	\$ 0		0.000000%
Total	Not Available		4.000000%

Q. Hazardous Duty Officers Sub Plan

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 3,746,736	\$ 78,880,869	4.749866%
Shared Amortization Costs	26,334,511		33.385168%
Plan Specific Costs	139,183		0.176447%
Total	\$ 30,220,430		38.311481%

R. Total For All Sub Plans

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 92,153,130	\$ 1,923,962,136	4.789758%
Shared Amortization Costs	642,317,987		33.385168%
Plan Specific Costs	1,139,259		0.059214%
Total	\$ 735,610,376		38.234140%

S. Total for All Funds

	Dollar Contribution	Projected Payroll	Contribution Rate
Normal Cost	\$ 60,582	Not Applicable	Not Applicable
Amortization Cost	1,090,951		
Total	\$ 1,151,533		

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 (7.80%) 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

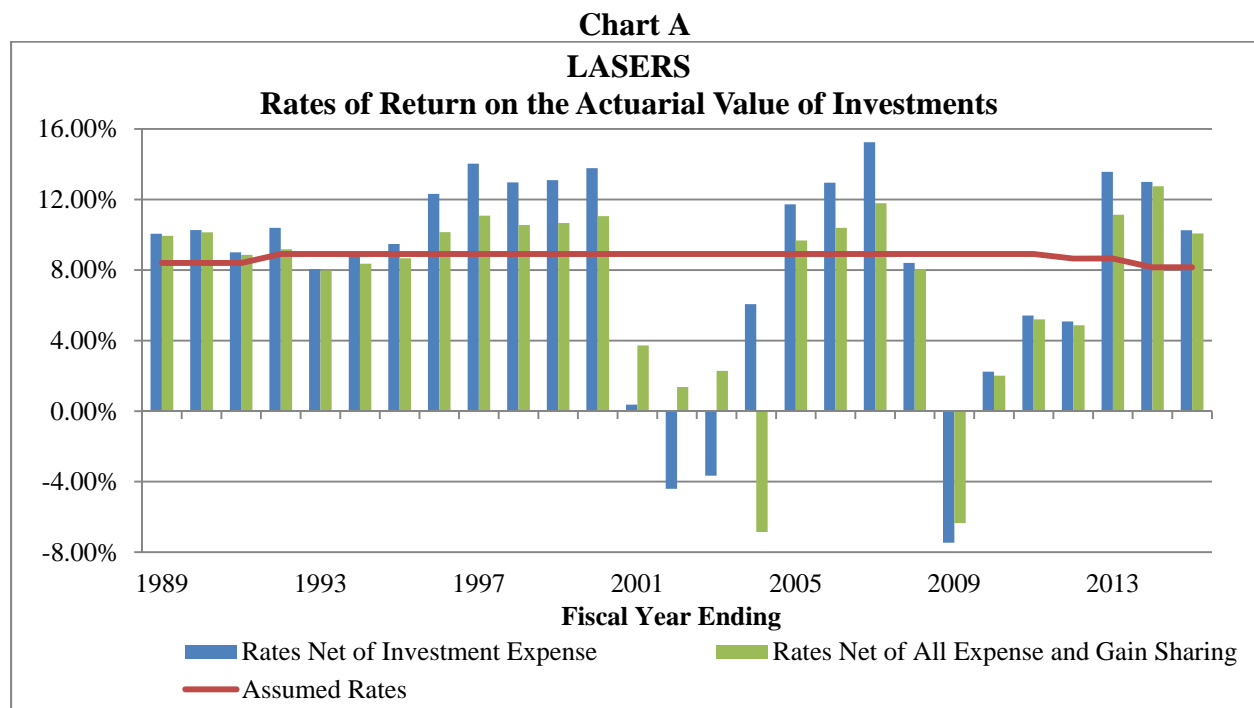
A LOOK AT THE PAST

Historical Rates of Return on Investments

Actual rates of return on the actuarial value of assets have averaged 8.02% since 1989, the beginning of actuarial funding for LASERS. Assumed rates have averaged 8.77% 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 (0.15%) 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. Actual rates have generally been significantly below assumed rates over the past 15 years.
2. Volatility during the 1990s was very modest. Volatility over the past 15 years has been significant.

3. 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	9.41%	8.50%	- 0.91%
10 Years	7.66%	8.70%	1.04%
15 Years	5.69%	8.77%	3.08%
20 Years	7.52%	8.80%	1.28%
25 Years	7.85%	8.80%	0.95%
27 Years	8.02%	8.77%	0.75%

*A negative deficit indicates actual rates exceeded assumed rates.

4. Of particular concern to us is the last 15-year period. Assumed rates have averaged 8.77% while actual rates have averaged only 5.69%. 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 1.04%. A surplus has occurred over the past 5 years.
5. 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.
6. Earnings volatility will continue to be significant given LASERS' move into alternatives.

Conclusions:

1. LASERS 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 100 basis points.
2. LASERS' investment return assumption is currently 8.15%. If historical patterns hold into the future, LASERS should lower its assumed rate of return to 7.15%. The discount rate would be 40 basis points less, or 6.75%.
3. We are using an investment return assumption of 7.80% and a discount rate of 7.40% to determine contribution requirements for FYE 2017.

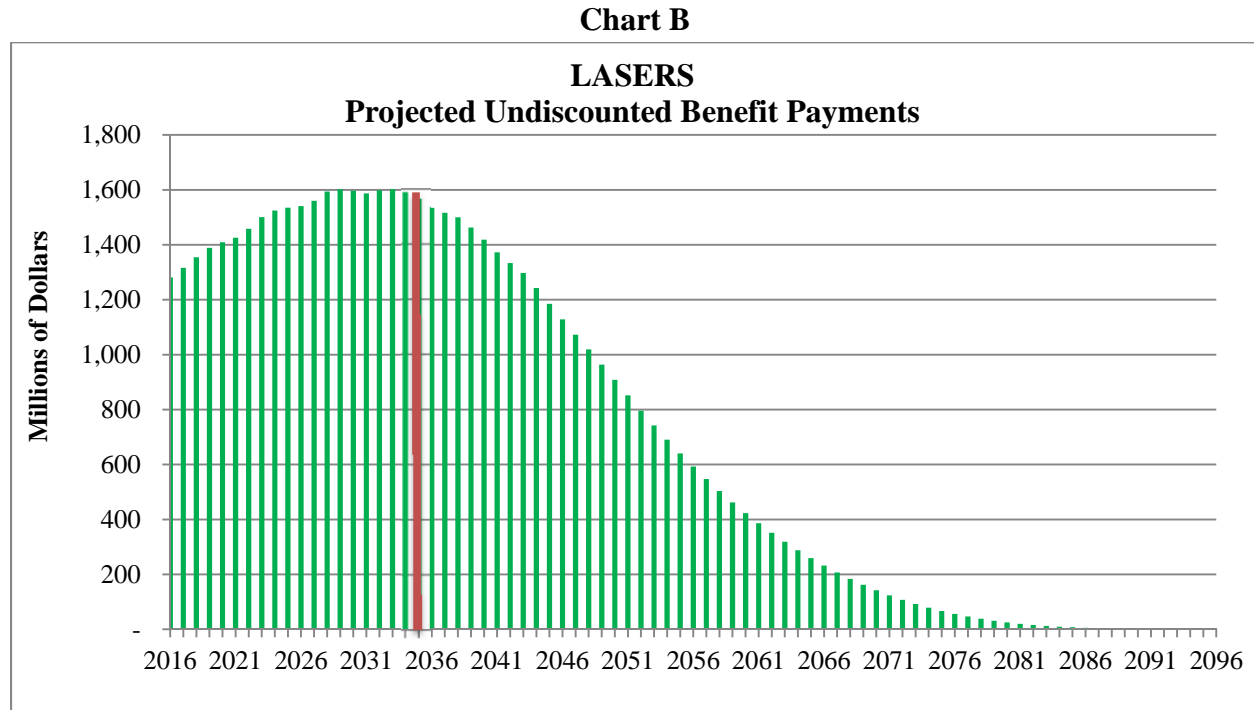
A LOOK TO THE FUTURE

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 LASERS’ assumed rate of return on investments is too high and should be reduced.

Time Horizon

It is expected that LASERS 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 20 years, or before June 30, 2035.

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 the 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 LASERS' liability, when measured using a 7.4% rate, is about 11.5 years. Therefore, LASERS 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 a 10- to 13-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 8.15% 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%	8.15%
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 LASERS' asset allocations, LASERS' investment policy, and on capital market assumptions used by eight major investment consulting firms (see below).

BNY/Mellon
Hewitt Ennis Knupp
J. P. Morgan
Mercer

NEPC
Pension Consulting Alliance
R.V. Kuhns & Associates
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 8.15%
	40 th Percentile	50 th Percentile	60 th Percentile	
1	4.86%	5.76%	6.67%	26.7%
2	5.02%	5.96%	6.91%	29.4%
3	5.27%	6.28%	7.30%	33.5%
4	6.04%	6.97%	7.91%	39.0%
5	6.30%	7.22%	8.16%	41.7%
6	6.31%	7.28%	8.26%	42.6%
7	5.99%	7.08%	8.19%	41.7%
8	7.06%	8.02%	8.98%	50.2%
Average	5.85%	6.82%	7.80%	38.1%

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 5.27%. There was a 50/50 chance of producing 5.96%. And, there was a 60% chance that the rate of return would be less than 7.30%. The probability of achieving an 8.15% return was only 33.5%.

If the average of the eight consultants is used rather than a single consultant, there is a 50/50 chance of achieving a 6.82% rate of return. The probability of achieving 8.15% is only 38.1%.

We discussed our funding with LASERS' actuarial and investment management team, and found the differences were attributable to the use of capital market assumption 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 7.80% assumption we are using is at the top end of our reasonableness range.

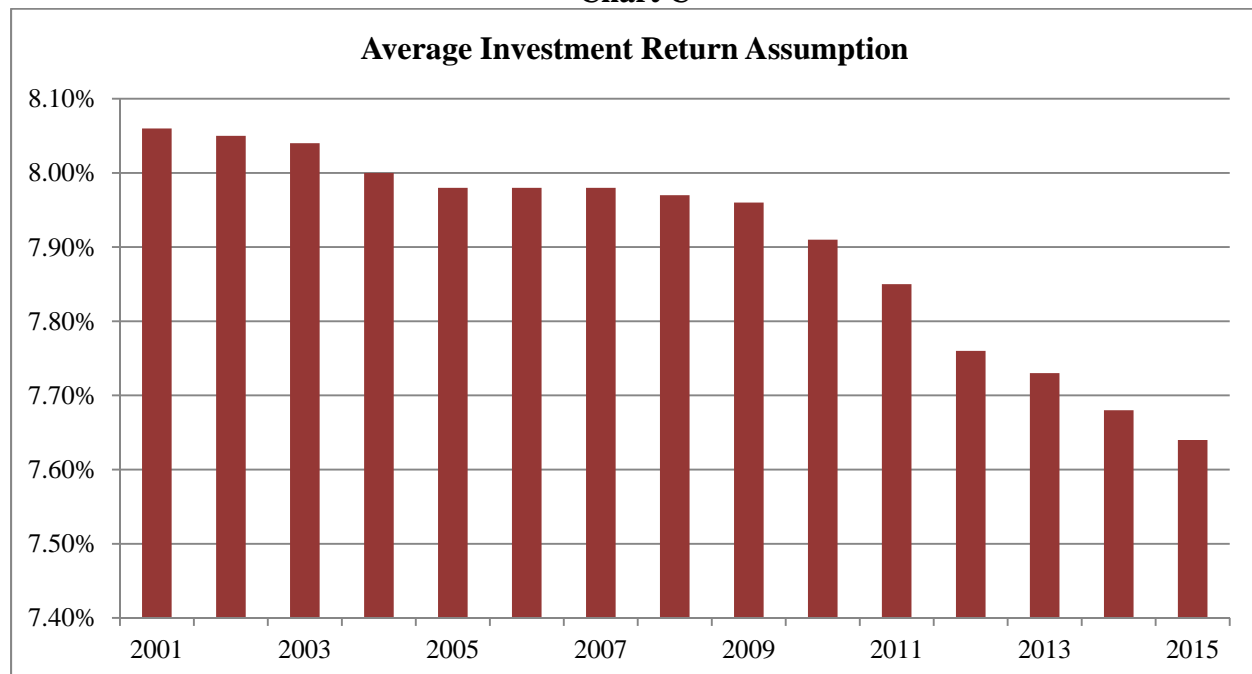
OPINIONS OF OTHER PUBLIC SECTOR PROFESSIONALS

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.

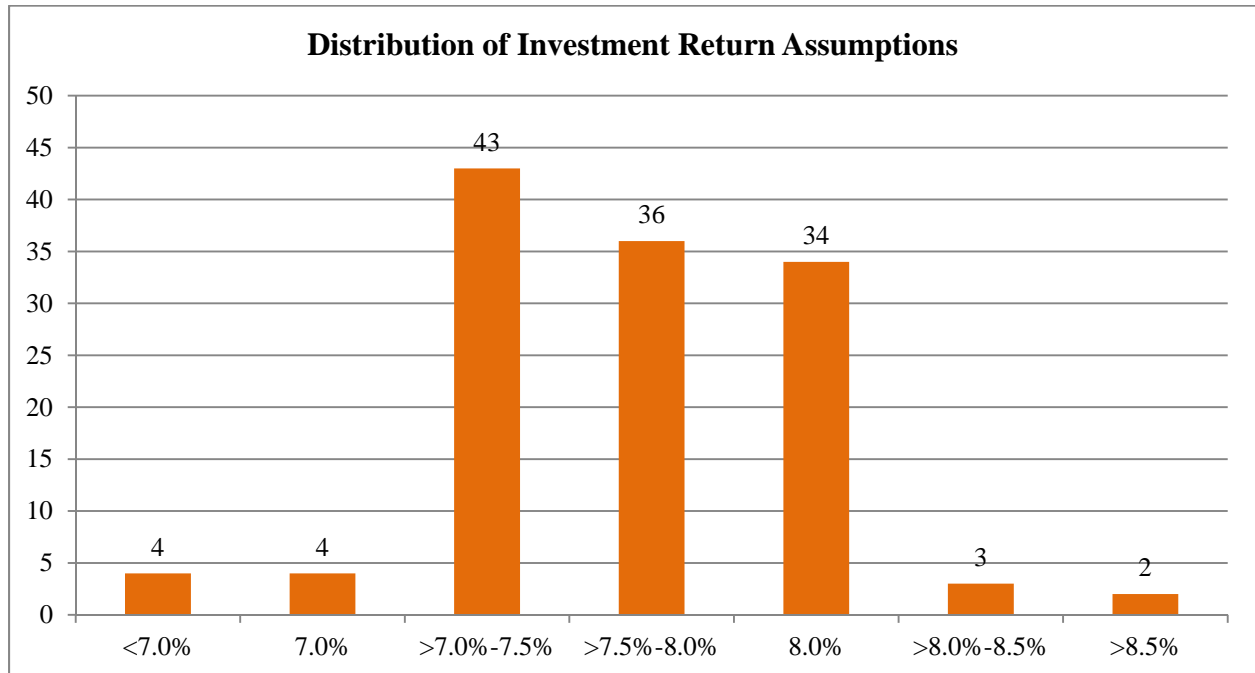
1. The average return assumption has fallen 42 basis points since 2001. The average rate in 2001 was 8.06%. The average rate in 2015 was 7.64%. However, 32 of the 42 basis point reduction has occurred in the last 6 years.
2. The LASERS' 8.15% rate of return assumption is greater than the average rate in 2015. It is even higher than the average rate in for 2001. (Note: LASERS was using an 8.90% assumption in 2001.)

Chart C



- NASRA also produced Chart D. With an 8.15% investment return assumption, LASERS' rate is higher than 121 of the 126 plans in the survey.

Chart D



- 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.
- 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 LASERS is at the top end for its peer group and should be reduced for FYE 2017 to 7.80%.