

April 22, 2019

**CONFIDENTIAL**  
Via E-mail

Mr. Timothy Blair  
Executive Secretary  
State Employees' Retirement System of Illinois  
2101 S. Veterans Parkway  
Springfield, Illinois 62704

Mr. Jeff Houch  
Senior Public Service Administrator  
State Retirement Systems of Illinois  
2101 S. Veterans Parkway  
Springfield, Illinois 62704

**Subject: SERS FY 2017 Contribution Recertification under Public Act 100-0587**

Dear Tim and Jeff:

We are providing the recertification of the fiscal year 2019 employer contribution rate based on the provisions of Public Act 100-0587 (PA 100-0587) as applicable to the State Employees' Retirement System of Illinois ("SERS" or "System"). This analysis was prepared at the request of, and is intended for use by SERS and those designated by the System only in its entirety and only with the permission of the System. The recertification is based on the actuarial valuation as of June 30, 2017.

The key features of the PA 100-0587 Buyout Program include:

- Eligible Tier 1 members who retire from December 1, 2018, through June 1, 2021, may elect to receive a lump sum equal to 70 percent of the difference between: (i) the present value of benefits assuming 3 percent compound COLAs and (ii) the present value of benefits assuming 1.5 percent simple COLAs starting at the later of the age 67 or the first anniversary of retirement. In return for the lump sum payment, at retirement the member waives the 3 percent compound COLAs and instead receives 1.5 percent simple COLAs.
- Eligible Tier 1 and Tier 2 members, who have already terminated or who terminate from April 1, 2019, through May 31, 2021, may elect to receive a lump sum equal to 60 percent of the present value of earned benefits. In return for the lump sum payment, the member waives eligibility for retirement benefits. However, the member is still eligible for the State's Retiree Healthcare Program as if the member had not waived retirement benefits.
- The lump sum amounts are paid from a special bond fund, the State Pension Obligation Acceleration Bond Fund, and not from SERS trust assets.
- On or after June 15, 2019, but no later than June 30, 2019, SERS is required to submit a recertification of the fiscal year 2019 employer contribution rate reflecting the provisions of PA 100-0587. For this purpose, the fiscal year 2019 contribution rates, before and after the provisions of PA 100-0587, shall be based on the same set of actuarial valuation assumptions.

The fiscal year 2019 recertified contribution rate was based on the June 30, 2017, actuarial valuation and the following adjustments:

- With respect to Tier 1 members eligible for the COLA Buyout, 21 percent of regular formula members and 28 percent of alternative formula members are expected to elect the COLA buyout. The election percentages are based on experience through March 2019, as provided by SERS.
- With respect to Tier 1 and Tier 2 members eligible for the Total Buyout, 10 percent are expected to elect the Total Buyout.
- The election percentages apply until the end of each Buyout Program; i.e., June 1, 2021, for the COLA Buyout and May 31, 2021, for the Total Buyout.

Please refer to the full actuarial valuation report as of June 30, 2017, for additional details on plan provisions, actuarial assumption and methods, and census data used to develop the recertified rates.

The following table shows the fiscal year 2019 contribution rates before and after reflecting the provisions of PA 100-0587.

**Before Reflecting the Provisions of PA 100-0587**

	Employer's Normal Cost <sup>a</sup>	Amortization Payment <sup>b</sup>	Preliminary	Debt Service	Total
Required Rate	15.288%	34.305%	49.593%	2.021%	51.614%
Required Contribution	667,671,000	1,498,170,000	2,165,841,000	88,262,000	2,254,103,000

**After Reflecting the Provisions of PA 100-0587**

	Employer's Normal Cost <sup>a</sup>	Amortization Payment <sup>b</sup>	Preliminary	Debt Service	Total
Required Rate	15.092%	34.039%	49.131%	2.021%	51.152%
Required Contribution	659,120,000	1,486,545,000	2,145,665,000	88,262,000	2,233,927,000

<sup>a</sup> Includes Administrative Expenses.

<sup>b</sup> Under the Statutory funding policy an amortization payment is not directly calculated. The amortization payment is the difference between the preliminary statutory contribution and the employer normal cost contribution.

After reflecting the provisions of PA 100-0587, the actuarial liability as of June 30, 2017, decreased by approximately \$276 million, from \$46,701 million to \$46,425 million.

Please see Table 4b, for additional details on the development of the FY 2019 recertified statutory contribution rate with the provisions of PA 100-0587. Please see Table 4d, for a projection of the statutory contribution, with the provisions of PA 100-0587, assuming the investment deferred gains and losses as of June 30, 2018, are reflected in the future.



### **Disclosures**

The Buyout Program election percentages are based on limited experience and could change significantly as experience emerges.

This analysis is based upon the same information furnished by the SERS staff concerning System benefits, financial transactions, and active members, terminated members, retirees and beneficiaries that was used in the June 30, 2017, actuarial valuation report dated October 30, 2017. Please refer to that document for addition information pertaining to data, assumptions, methods, plan provisions, etc.

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

To the best of our knowledge, the information contained with this letter is accurate and fairly represents the actuarial position of the SERS as of June 30, 2017. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

Future actuarial measurements may differ significantly from the current measurements presented in this letter due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

This letter should not be relied on for any purpose other than the purpose stated.

The signing actuaries are independent of the plan sponsor.

Alex Rivera, Heidi Barry, and Jeff Tebeau are Members of the American Academy of Actuaries (MAAA) as indicated, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.



Mr. Timothy Blair and Mr. Jeff Houch  
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Please let us know if you have any questions, would like to discuss the results of this analysis or would like to see any additional analysis.

Respectfully submitted,

**Gabriel, Roeder, Smith & Company**



Alex Rivera, FSA, EA, MAAA, FCA  
Senior Consultant



Heidi G. Barry, ASA, MAAA, FCA  
Senior Consultant



Jeff Tebeau, FSA, EA, MAAA  
Consultant



**Table 4a**  
**Impact Projections — State Contributions Determined under Public Act 88-0593,**  
**Public Act 90-0065, Public Act 94-0004, Public Act 96-0043, Public Act 100-0023**  
**and Public Act 100-0587**  
**Maximum Contribution Calculation: Without GOB Proceeds**  
**Investment Return of 7.00% Each Year (\$ in Millions)**

Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Annual Normal Cost			State Contribution		Total Expenses	
							Total	Employee Cont.	Normal Cost	Percent of Pay	Amount		Percent of Pay
2018	60,612	\$ 48,050	\$ 15,939	\$ 32,111	33.17%	\$ 4,274	\$ 887	\$ 228	\$ 659	15.42%	\$ 2,058	48.15%	\$ 2,458
2019	60,612	49,659	16,962	32,697	34.16%	4,367	891	232	659	15.09%	2,266	51.89%	2,587
2020	60,612	51,250	18,087	33,163	35.29%	4,462	896	236	660	14.79%	2,423	54.30%	2,719
2021	60,612	52,815	19,277	33,538	36.50%	4,560	899	240	659	14.45%	2,540	55.70%	2,854
2022	60,612	54,340	20,530	33,810	37.78%	4,658	898	244	654	14.04%	2,661	57.13%	2,998
2023	60,612	55,811	21,778	34,033	39.02%	4,757	893	248	645	13.56%	2,718	57.13%	3,149
2024	60,612	57,216	23,017	34,199	40.23%	4,860	886	252	634	13.05%	2,776	57.13%	3,304
2025	60,612	58,546	24,244	34,302	41.41%	4,965	877	255	622	12.53%	2,837	57.13%	3,463
2026	60,612	59,798	25,465	34,333	42.59%	5,077	869	259	610	12.01%	2,901	57.13%	3,621
2027	60,612	60,967	26,682	34,285	43.76%	5,195	861	264	597	11.49%	2,968	57.13%	3,778
2028	60,612	62,061	27,911	34,150	44.97%	5,318	856	268	588	11.06%	3,038	57.13%	3,924
2029	60,612	63,078	29,159	33,919	46.23%	5,452	854	274	580	10.64%	3,115	57.13%	4,071
2030	60,612	64,019	30,436	33,583	47.54%	5,592	854	279	575	10.28%	3,195	57.13%	4,213
2031	60,612	64,884	31,753	33,131	48.94%	5,740	856	286	570	9.93%	3,279	57.13%	4,352
2032	60,612	65,671	33,120	32,551	50.43%	5,894	857	292	565	9.59%	3,367	57.13%	4,487

Normal cost rate includes administrative expenses.

State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 94-0004, Public Act 96-0043, Public Act 100-0023, and Public Act 100-0587.

Total expenses shown include benefit payments, refunds and administrative expenses.

Actuarial accrued liability and assets are measured at Plan Year End.

Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.

**Table 4a (Continued)**  
**Impact Projections — State Contributions Determined under Public Act 88-0593,**  
**Public Act 90-0065, Public Act 94-0004, Public Act 96-0043, Public Act 100-0023**  
**and Public Act 100-0587**  
**Maximum Contribution Calculation: Without GOB Proceeds**  
**Investment Return of 7.00% Each Year (\$ in Millions)**

Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Annual Normal Cost			State Contribution		Total Expenses	
							Employee Total	Normal Cont.	Percent of Pay	Amount	Percent of Pay		
2033	60,612	\$ 66,381	\$ 34,549	\$ 31,832	52.05%	\$ 6,053	\$ 859	\$ 299	\$ 560	9.25%	\$ 3,458	57.13%	\$ 4,617
2034	60,612	67,020	36,058	30,962	53.80%	6,219	864	306	558	8.97%	3,553	57.13%	4,739
2035	60,612	67,587	37,661	29,926	55.72%	6,393	869	314	555	8.68%	3,652	57.13%	4,857
2036	60,612	68,082	39,372	28,710	57.83%	6,570	874	322	552	8.40%	3,754	57.13%	4,970
2037	60,612	68,513	41,213	27,300	60.15%	6,754	883	330	553	8.19%	3,859	57.13%	5,074
2038	60,612	68,888	43,208	25,680	62.72%	6,948	894	339	555	7.99%	3,969	57.13%	5,168
2039	60,612	69,215	45,381	23,834	65.57%	7,147	909	348	561	7.85%	4,083	57.13%	5,255
2040	60,612	69,503	47,759	21,744	68.72%	7,352	926	358	568	7.73%	4,200	57.13%	5,331
2041	60,612	69,763	50,366	19,397	72.20%	7,560	946	368	578	7.65%	4,319	57.13%	5,399
2042	60,612	70,005	53,230	16,775	76.04%	7,769	969	379	590	7.59%	4,438	57.13%	5,457
2043	60,612	70,239	56,380	13,859	80.27%	7,980	994	389	605	7.58%	4,559	57.13%	5,505
2044	60,612	70,474	59,843	10,631	84.92%	8,192	1,021	400	621	7.58%	4,680	57.13%	5,546
2045	60,612	70,720	63,650	7,070	90.00%	8,405	1,050	410	640	7.61%	4,802	57.13%	5,581

Normal cost rate includes administrative expenses.

State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 94-0004, Public Act 96-0043, Public Act 100-0023, and Public Act 100-0587.

Total expenses shown include benefit payments, refunds and administrative expenses.

Actuarial accrued liability and assets are measured at Plan Year End.

Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.

**Table 4b**  
**Impact Projections — State Contributions Determined under Public Act 88-0593,**  
**Public Act 90-0065, Public Act 93-0002, Public Act 94-0004,**  
**Public Act 96-0043, Public Act 100-0023, and Public Act 100-0587**  
**Investment Return of 7.00% Each Year (\$ in Millions)**

Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Annual Normal Cost				Required State Contribution											
			Assets	Unfunded Liability	Funded Ratio	Total Payroll	Employer			Without		(b) Debt Service	(c)=(a)-(b) Maximum Cont.	(d) Formula		Minimum of (c) and (d)		Total Expenses
							Employee Cont.	Normal Cost	Percent of Pay	GOB Cont.	Rate With GOB			Required Cont.	Percent of Pay			
2018	60,612	\$ 48,050	\$ 17,420	\$ 30,630	36.25%	\$ 4,274	\$ 887	\$ 228	\$ 659	15.42%	\$ 2,058	\$ 116	\$ 1,942	\$ 2,073	\$ 1,942	45.42%	\$ 2,458	
2019	60,612	49,659	18,422	31,237	37.10%	4,367	891	232	659	15.09%	2,266	120	2,146	2,277	2,146	49.13%	2,587	
2020	60,612	51,250	19,517	31,733	38.08%	4,462	896	236	660	14.79%	2,423	128	2,295	2,435	2,295	51.44%	2,719	
2021	60,612	52,815	20,668	32,147	39.13%	4,560	899	240	659	14.45%	2,540	135	2,405	2,553	2,405	52.75%	2,854	
2022	60,612	54,340	21,871	32,469	40.25%	4,658	898	244	654	14.04%	2,661	142	2,519	2,673	2,519	54.08%	2,998	
2023	60,612	55,811	23,060	32,751	41.32%	4,757	893	248	645	13.56%	2,718	149	2,569	2,731	2,569	54.01%	3,149	
2024	60,612	57,216	24,223	32,993	42.34%	4,860	886	252	634	13.05%	2,776	159	2,617	2,790	2,617	53.85%	3,304	
2025	60,612	58,546	25,360	33,186	43.32%	4,965	877	255	622	12.53%	2,837	169	2,668	2,850	2,668	53.72%	3,463	
2026	60,612	59,798	26,480	33,318	44.28%	5,077	869	259	610	12.01%	2,901	174	2,727	2,914	2,727	53.71%	3,621	
2027	60,612	60,967	27,585	33,382	45.25%	5,195	861	264	597	11.49%	2,968	178	2,790	2,982	2,790	53.71%	3,778	
2028	60,612	62,061	28,685	33,376	46.22%	5,318	856	268	588	11.06%	3,038	185	2,853	3,053	2,853	53.64%	3,924	
2029	60,612	63,078	29,787	33,291	47.22%	5,452	854	274	580	10.64%	3,115	193	2,922	3,129	2,922	53.59%	4,071	
2030	60,612	64,019	30,897	33,122	48.26%	5,592	854	279	575	10.28%	3,195	205	2,990	3,210	2,990	53.47%	4,213	
2031	60,612	64,884	32,024	32,860	49.36%	5,740	856	286	570	9.93%	3,279	214	3,065	3,295	3,065	53.39%	4,352	
2032	60,612	65,671	33,182	32,489	50.53%	5,894	857	292	565	9.59%	3,367	219	3,148	3,383	3,148	53.40%	4,487	

Normal cost rate includes administrative expenses.

State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 93-0002, Public Act 94-0004, Public Act 96-0043, Public Act 100-0023, and Public Act 100-0587.

Total expenses shown include benefit payments, refunds and administrative expenses.

Actuarial accrued liability and assets are measured at Plan Year End.

Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.

**Table 4b (Continued)**  
**Impact Projections — State Contributions Determined under Public Act 88-0593,**  
**Public Act 90-0065, Public Act 93-0002, Public Act 94-0004,**  
**Public Act 96-0043, Public Act 100-0023, and Public Act 100-0587**  
**Investment Return of 7.00% Each Year (\$ in Millions)**

Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Annual Normal Cost				Required State Contribution					Total Expenses	
							Total	Employee Cont.	Employer Normal Cost	Percent of Pay	(a)	(b)	(c)=(a)-(b)	(d)	Minimum of (c) and (d)		
											Without GOB Cont.	Debt Service	Maximum Cont.	Formula Rate With GOB			Required Cont.
2033	60,612	\$ 66,381	\$ 34,389	\$ 31,992	51.81%	\$ 6,053	\$ 859	\$ 299	\$ 560	9.25%	\$ 3,458	\$ 219	\$ 3,239	\$ 3,474	\$ 3,239	53.51%	\$ 4,617
2034	60,612	67,020	35,904	31,116	53.57%	6,219	864	306	558	8.97%	3,553	-	N/A	3,570	3,570	57.40%	4,739
2035	60,612	67,587	37,515	30,072	55.51%	6,393	869	314	555	8.68%	3,652	-	N/A	3,669	3,669	57.40%	4,857
2036	60,612	68,082	39,234	28,848	57.63%	6,570	874	322	552	8.40%	3,754	-	N/A	3,771	3,771	57.40%	4,970
2037	60,612	68,513	41,084	27,429	59.97%	6,754	883	330	553	8.19%	3,859	-	N/A	3,877	3,877	57.40%	5,074
2038	60,612	68,888	43,090	25,798	62.55%	6,948	894	339	555	7.99%	3,969	-	N/A	3,988	3,988	57.40%	5,168
2039	60,612	69,215	45,275	23,940	65.41%	7,147	909	348	561	7.85%	4,083	-	N/A	4,102	4,102	57.40%	5,255
2040	60,612	69,503	47,665	21,838	68.58%	7,352	926	358	568	7.73%	4,200	-	N/A	4,220	4,220	57.40%	5,331
2041	60,612	69,763	50,287	19,476	72.08%	7,560	946	368	578	7.65%	4,319	-	N/A	4,339	4,339	57.40%	5,399
2042	60,612	70,005	53,167	16,838	75.95%	7,769	969	379	590	7.59%	4,438	-	N/A	4,459	4,459	57.40%	5,457
2043	60,612	70,239	56,335	13,904	80.20%	7,980	994	389	605	7.58%	4,559	-	N/A	4,580	4,580	57.40%	5,505
2044	60,612	70,474	59,818	10,656	84.88%	8,192	1,021	400	621	7.58%	4,680	-	N/A	4,702	4,702	57.40%	5,546
2045	60,612	70,720	63,647	7,073	90.01%	8,405	1,050	410	640	7.61%	4,802	-	N/A	4,824	4,824	57.40%	5,581

Normal cost rate includes administrative expenses.

State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 93-0002, Public Act 94-0004, Public Act 96-0043, Public Act 100-0023, and Public Act 100-0587

Total expenses shown include benefit payments, refunds and administrative expenses.

Actuarial accrued liability and assets are measured at Plan Year End.

Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.



**Table 4c**  
**Impact Projections — State Contributions Determined under Public Act 88-0593,**  
**Public Act 90-0065, Public Act 94-0004, Public Act 96-0043, Public Act 100-0023**  
**and Public Act 100-0587**  
**Maximum Contribution Calculation: Without GOB Proceeds**  
**Investment Return of 7.00% Each Year (\$ in Millions)**

Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Annual Normal Cost				State Contribution		Total Expenses
							Total	Employee Cont.	Employer Normal Cost	Percent of Pay	Amount	Percent of Pay	
2018	60,612	\$ 48,050	\$ 16,003	\$ 32,047	33.30%	\$ 4,274	\$ 887	\$ 228	\$ 659	15.42%	\$ 2,058	48.15%	\$ 2,458
2019	60,612	49,659	16,876	32,783	33.98%	4,367	891	232	659	15.09%	2,266	51.89%	2,587
2020	60,612	51,250	17,913	33,337	34.95%	4,462	896	236	660	14.79%	2,418	54.19%	2,719
2021	60,612	52,815	19,247	33,568	36.44%	4,560	899	240	659	14.45%	2,547	55.86%	2,854
2022	60,612	54,340	20,511	33,829	37.75%	4,658	898	244	654	14.04%	2,673	57.39%	2,998
2023	60,612	55,811	21,759	34,052	38.99%	4,757	893	248	645	13.56%	2,719	57.16%	3,149
2024	60,612	57,216	22,998	34,218	40.20%	4,860	886	252	634	13.05%	2,778	57.16%	3,304
2025	60,612	58,546	24,225	34,321	41.38%	4,965	877	255	622	12.53%	2,838	57.16%	3,463
2026	60,612	59,798	25,446	34,352	42.55%	5,077	869	259	610	12.01%	2,902	57.16%	3,621
2027	60,612	60,967	26,664	34,303	43.74%	5,195	861	264	597	11.49%	2,969	57.16%	3,778
2028	60,612	62,061	27,893	34,168	44.94%	5,318	856	268	588	11.06%	3,040	57.16%	3,924
2029	60,612	63,078	29,141	33,937	46.20%	5,452	854	274	580	10.64%	3,116	57.16%	4,071
2030	60,612	64,019	30,418	33,601	47.51%	5,592	854	279	575	10.28%	3,196	57.16%	4,213
2031	60,612	64,884	31,736	33,148	48.91%	5,740	856	286	570	9.93%	3,281	57.16%	4,352
2032	60,612	65,671	33,103	32,568	50.41%	5,894	857	292	565	9.59%	3,369	57.16%	4,487

Normal cost rate includes administrative expenses.

State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 94-0004, Public Act 96-0043, Public Act 100-0023, and Public Act 100-0587.

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**Table 4c (Continued)**  
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**Public Act 90-0065, Public Act 94-0004, Public Act 96-0043, Public Act 100-0023**  
**and Public Act 100-0587**  
**Maximum Contribution Calculation: Without GOB Proceeds**  
**Investment Return of 7.00% Each Year (\$ in Millions)**

Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Unfunded Liability	Funded Ratio	Total Payroll	Annual Normal Cost				State Contribution		Total Expenses
							Total	Employee Cont.	Normal Cost	Percent of Pay	Amount	Percent of Pay	
2033	60,612	\$ 66,381	\$ 34,533	\$ 31,848	52.02%	\$ 6,053	\$ 859	\$ 299	\$ 560	9.25%	\$ 3,460	57.16%	\$ 4,617
2034	60,612	67,020	36,042	30,978	53.78%	6,219	864	306	558	8.97%	3,555	57.16%	4,739
2035	60,612	67,587	37,646	29,941	55.70%	6,393	869	314	555	8.68%	3,654	57.16%	4,857
2036	60,612	68,082	39,358	28,724	57.81%	6,570	874	322	552	8.40%	3,755	57.16%	4,970
2037	60,612	68,513	41,200	27,313	60.13%	6,754	883	330	553	8.19%	3,861	57.16%	5,074
2038	60,612	68,888	43,196	25,692	62.70%	6,948	894	339	555	7.99%	3,971	57.16%	5,168
2039	60,612	69,215	45,371	23,844	65.55%	7,147	909	348	561	7.85%	4,085	57.16%	5,255
2040	60,612	69,503	47,750	21,753	68.70%	7,352	926	358	568	7.73%	4,202	57.16%	5,331
2041	60,612	69,763	50,359	19,404	72.19%	7,560	946	368	578	7.65%	4,321	57.16%	5,399
2042	60,612	70,005	53,224	16,781	76.03%	7,769	969	379	590	7.59%	4,441	57.16%	5,457
2043	60,612	70,239	56,376	13,863	80.26%	7,980	994	389	605	7.58%	4,561	57.16%	5,505
2044	60,612	70,474	59,842	10,632	84.91%	8,192	1,021	400	621	7.58%	4,682	57.16%	5,546
2045	60,612	70,720	63,651	7,069	90.00%	8,405	1,050	410	640	7.61%	4,804	57.16%	5,581

Normal cost rate includes administrative expenses.

State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 94-0004, Public Act 96-0043, Public Act 100-0023, and Public Act 100-0587.

Total expenses shown include benefit payments, refunds and administrative expenses.

Actuarial accrued liability and assets are measured at Plan Year End.

Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.

**Table 4d**  
**Impact Projections — State Contributions Determined under Public Act 88-0593,**  
**Public Act 90-0065, Public Act 93-0002, Public Act 94-0004,**  
**Public Act 96-0043, Public Act 100-0023, and Public Act 100-0587**  
**Investment Return of 7.00% Each Year**  
**Phase-In of Deferred Investment Gains and Losses Recognized in the**  
**Projected Actuarial Value of Assets (\$ in Millions)**

Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Annual Normal Cost								Required State Contribution						
			Assets	Unfunded Liability	Funded Ratio	Total Payroll	Employer			(a) Without GOB Cont.	(b) Debt Service	(c)=(a)-(b) Maximum Cont.	(d) Formula Rate With GOB	Minimum of (c) and (d)		Total Expenses	
							Employee Cont.	Normal Cost	Percent of Pay					Required Cont.	Percent of Pay		
2018	60,612	\$ 48,050	\$ 17,493	\$ 30,557	36.41%	\$ 4,274	\$ 887	\$ 228	\$ 659	15.42%	\$ 2,058	\$ 116	\$ 1,942	\$ 2,073	\$ 1,942	45.42%	\$ 2,458
2019	60,612	49,659	18,326	31,333	36.90%	4,367	891	232	659	15.09%	2,266	120	2,146	2,277	2,146	49.13%	2,587
2020	60,612	51,250	19,323	31,927	37.70%	4,462	896	236	660	14.79%	2,418	127	2,291	2,429	2,291	51.34%	2,719
2021	60,612	52,815	20,632	32,183	39.06%	4,560	899	240	659	14.45%	2,547	135	2,412	2,561	2,412	52.89%	2,854
2022	60,612	54,340	21,845	32,495	40.20%	4,658	898	244	654	14.04%	2,673	142	2,531	2,689	2,531	54.34%	2,998
2023	60,612	55,811	23,033	32,778	41.27%	4,757	893	248	645	13.56%	2,719	148	2,571	2,733	2,571	54.04%	3,149
2024	60,612	57,216	24,197	33,019	42.29%	4,860	886	252	634	13.05%	2,778	159	2,619	2,792	2,619	53.88%	3,304
2025	60,612	58,546	25,333	33,213	43.27%	4,965	877	255	622	12.53%	2,838	169	2,669	2,853	2,669	53.75%	3,463
2026	60,612	59,798	26,452	33,346	44.24%	5,077	869	259	610	12.01%	2,902	173	2,729	2,917	2,729	53.74%	3,621
2027	60,612	60,967	27,557	33,410	45.20%	5,195	861	264	597	11.49%	2,969	177	2,792	2,984	2,792	53.74%	3,778
2028	60,612	62,061	28,656	33,405	46.17%	5,318	856	268	588	11.06%	3,040	186	2,854	3,055	2,854	53.67%	3,924
2029	60,612	63,078	29,758	33,320	47.18%	5,452	854	274	580	10.64%	3,116	193	2,923	3,132	2,923	53.62%	4,071
2030	60,612	64,019	30,868	33,151	48.22%	5,592	854	279	575	10.28%	3,196	204	2,992	3,213	2,992	53.50%	4,213
2031	60,612	64,884	31,994	32,890	49.31%	5,740	856	286	570	9.93%	3,281	215	3,066	3,298	3,066	53.41%	4,352
2032	60,612	65,671	33,152	32,519	50.48%	5,894	857	292	565	9.59%	3,369	220	3,149	3,386	3,149	53.43%	4,487

Normal cost rate includes administrative expenses.

State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 93-0002, Public Act 94-0004, Public Act 96-0043, Public Act 100-0023, and Public Act 100-0587.

Total expenses shown include benefit payments, refunds and administrative expenses.

Actuarial accrued liability and assets are measured at Plan Year End.

Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.

**Table 4d (Continued)**  
**Impact Projections — State Contributions Determined under Public Act 88-0593,**  
**Public Act 90-0065, Public Act 93-0002, Public Act 94-0004,**  
**Public Act 96-0043, Public Act 100-0023, and Public Act 100-0587**  
**Investment Return of 7.00% Each Year**  
**Phase-In of Deferred Investment Gains and Losses Recognized in the**  
**Projected Actuarial Value of Assets (\$ in Millions)**

Plan Year End 6/30	Number Active	Actuarial Accrued Liability	Assets	Annual Normal Cost							Required State Contribution						
				Unfunded Liability	Funded Ratio	Total Payroll	Employer			(a) Without GOB Cont.	(b) Debt Service	(c)=(a)-(b) Maximum Cont.	(d) Formula Rate With GOB	Minimum of (c) and (d)		Total Expenses	
							Employee Cont.	Normal Cost	Percent of Pay					Required Cont.	Percent of Pay		
2033	60,612	\$ 66,381	\$ 34,359	\$ 32,022	51.76%	\$ 6,053	\$ 859	\$ 299	\$ 560	9.25%	\$ 3,460	\$ 219	\$ 3,241	\$ 3,477	\$ 3,241	53.54%	\$ 4,617
2034	60,612	67,020	35,875	31,145	53.53%	6,219	864	306	558	8.97%	3,555	-	N/A	3,573	3,573	57.45%	4,739
2035	60,612	67,587	37,487	30,100	55.46%	6,393	869	314	555	8.68%	3,654	-	N/A	3,673	3,673	57.45%	4,857
2036	60,612	68,082	39,208	28,874	57.59%	6,570	874	322	552	8.40%	3,755	-	N/A	3,775	3,775	57.45%	4,970
2037	60,612	68,513	41,060	27,453	59.93%	6,754	883	330	553	8.19%	3,861	-	N/A	3,880	3,880	57.45%	5,074
2038	60,612	68,888	43,068	25,820	62.52%	6,948	894	339	555	7.99%	3,971	-	N/A	3,992	3,992	57.45%	5,168
2039	60,612	69,215	45,255	23,960	65.38%	7,147	909	348	561	7.85%	4,085	-	N/A	4,106	4,106	57.45%	5,255
2040	60,612	69,503	47,648	21,855	68.56%	7,352	926	358	568	7.73%	4,202	-	N/A	4,224	4,224	57.45%	5,331
2041	60,612	69,763	50,273	19,490	72.06%	7,560	946	368	578	7.65%	4,321	-	N/A	4,343	4,343	57.45%	5,399
2042	60,612	70,005	53,156	16,849	75.93%	7,769	969	379	590	7.59%	4,441	-	N/A	4,463	4,463	57.45%	5,457
2043	60,612	70,239	56,327	13,912	80.19%	7,980	994	389	605	7.58%	4,561	-	N/A	4,584	4,584	57.45%	5,505
2044	60,612	70,474	59,815	10,659	84.88%	8,192	1,021	400	621	7.58%	4,682	-	N/A	4,707	4,707	57.45%	5,546
2045	60,612	70,720	63,647	7,073	90.00%	8,405	1,050	410	640	7.61%	4,804	-	N/A	4,829	4,829	57.45%	5,581

Normal cost rate includes administrative expenses.

State contribution based on the requirements of Public Act 88-0593, as amended by Public Act 90-0065, Public Act 93-0002, Public Act 94-0004, Public Act 96-0043, Public Act 100-0023, and Public Act 100-0587.

Total expenses shown include benefit payments, refunds and administrative expenses.

Actuarial accrued liability and assets are measured at Plan Year End.

Total payroll is capped for members hired after December 31, 2010, as defined in Public Act 96-0889.