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February 5, 2018

Via E-Mail

Mr. Richard Ingram
Executive Director
Teachers' Retirement System of the State of Illinois
2815 W. Washington St.
Springfield, IL 62702

Re: **Actuarial Impact Study – Tier 1 Annual Increase Buyout Proposal**

Dear Dick:

As requested, we have performed an analysis regarding the impact of changes on projected costs of the Teachers' Retirement System of the State of Illinois ("TRS") based on the proposed benefit change described below. The exhibits accompanying this document were prepared using actuarial assumptions consistent with those employed in the most recent actuarial valuation of the System as of June 30, 2017.

Proposed Benefit Change

This proposal provides retiring Tier 1 members an option to have their automatic annual increases calculated under the Tier 2 provision in exchange for an accelerated pension benefit payment. The accelerated pension benefit payment is equal to 70% of the difference between the actuarial present value of the automatic annual increase under the Tier 1 provision and the actuarial present value of the automatic annual increase under the Tier 2 provision.

Actuarial Analysis

The attached exhibits show the projected contributions, actuarial liabilities, actuarial assets, and funded position through 2045 reflecting the change outlined above.

For this analysis, we were asked to run three different projections assuming that 25%, 50%, and 75% of Tier 1 members would elect the accelerated pension benefit payment upon retirement.

The actuarial present value calculations used to determine the accelerated pension benefit payment must be based on a unisex mortality assumption. Therefore, adverse selection may occur; however, our analysis does not account for any adverse selection.

The analysis was based upon the census and actuarial assumptions used in the June 30, 2017 valuation report. Any actual demographic experience occurring subsequent to June 30, 2016, or financial experience occurring subsequent to June 30, 2017, are not reflected in this analysis. For purposes of this analysis, the proposed benefit change is assumed to be effective July 1, 2018.

This analysis has been prepared at the request of the Fund and is not to be considered a recommendation by Segal.

Summary of Results

The table below shows a summary of projected June 30, 2018 funded status and State contributions through 2045 for the various utilization assumptions.

Scenario	Projected June 30, 2018 Funded Ratio	Projected Decrease in June 30, 2018 Unfunded Actuarial Liability (UAL)	Total State Contribution Through 2045	Reduction in State Contribution Through 2045
Baseline	40.7%	--	\$202.56 B	--
25% Utilization	41.3%	\$1.94 B	\$200.42 B	\$2.14 B
50% Utilization	42.0%	\$3.88 B	\$198.27 B	\$4.29 B
75% Utilization	42.7%	\$5.83 B	\$196.13 B	\$6.44 B

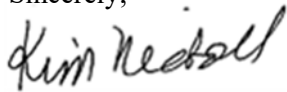
The \$1.94 billion UAL decrease in the 25% utilization scenario represents the value of 25% of Tier 1 members receiving a Tier 2 automatic annual increase and does not reflect the accelerated pension benefit payment that members will receive upon retirement. However, the accelerated pension benefit payments are included in the determination of projected State contributions. In the 25% utilization scenario, the accelerated pension benefit payments are projected to be approximately \$100 million in fiscal year 2019 and are projected to increase to \$240 million by fiscal year 2040 and decrease thereafter.

Comments about Projections

Projections, by their nature, are not a guarantee of future results. The modeled projections are intended to serve as estimates of future financial outcomes that are based on the information available to us at the time the modeling is undertaken and completed, and the agreed upon assumptions and methodologies described herein. Emerging results may differ significantly if the actual experience proves to be different from these assumptions or if alternative methodologies are used. Actual experience may differ due to such variables as demographic experience, the economy, stock market performance and the regulatory environment. The longer the projection period, the less predictable the projections become.

Please let us know if you have any questions.

Sincerely,



Kim Nicholl, FSA, MAAA, EA
Senior Vice President and Actuary



Matthew A. Strom, FSA, MAAA, EA
Vice President and Actuary

Funding Projections for the Teachers' Retirement System

Based on the June 30, 2017 Actuarial Valuation

Actuarially Assumed Rate of Return: 7.00%

(\$ in millions)

Fiscal Year Ending 6/30	Annual Payroll	Total State Contribution	(Reduction)/ Increase in State Contribution	State Contribution as Percent of Payroll	Total Employee Contribution	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Liability	Funded Ratio
2017						\$122,904.0	\$49,467.5	\$73,436.5	40.2%
2018	\$10,232.5	\$4,092.1	\$0.0	40.0%	\$939.7	126,777.5	51,615.9	75,161.6	40.7%
2019	10,436.7	4,465.6	0.0	42.8%	958.5	130,655.7	53,303.5	77,352.3	40.8%
2020	10,742.9	4,790.5	0.0	44.6%	986.6	134,532.2	55,555.5	78,976.7	41.3%
2021	11,057.6	5,061.6	0.0	45.8%	1,015.5	138,402.1	58,701.7	79,700.4	42.4%
2022	11,379.2	5,302.8	0.0	46.6%	1,045.0	142,254.3	61,540.3	80,714.0	43.3%
2023	11,694.8	5,409.8	0.0	46.3%	1,074.0	146,084.7	64,421.2	81,663.5	44.1%
2024	12,016.5	5,539.0	0.0	46.1%	1,103.6	149,887.9	67,369.0	82,518.9	44.9%
2025	12,348.0	5,675.7	0.0	46.0%	1,134.0	153,652.8	70,389.7	83,263.1	45.8%
2026	12,689.5	5,834.7	0.0	46.0%	1,165.4	157,365.0	73,503.5	83,861.5	46.7%
2027	13,039.3	5,999.4	0.0	46.0%	1,197.5	161,000.2	76,707.9	84,292.3	47.6%
2028	13,398.6	6,155.7	0.0	45.9%	1,230.5	164,547.1	79,997.6	84,549.5	48.6%
2029	13,769.2	6,320.0	0.0	45.9%	1,264.5	167,992.2	83,382.8	84,609.4	49.6%
2030	14,154.2	6,479.1	0.0	45.8%	1,299.9	171,319.9	86,859.4	84,460.5	50.7%
2031	14,553.1	6,648.4	0.0	45.7%	1,336.5	174,510.6	90,436.6	84,074.1	51.8%
2032	14,964.7	6,841.8	0.0	45.7%	1,374.3	177,549.6	94,144.1	83,405.5	53.0%
2033	15,387.2	7,057.9	0.0	45.9%	1,413.1	180,416.4	98,008.0	82,408.4	54.3%
2034	15,818.9	7,904.0	0.0	50.0%	1,452.8	183,100.9	102,695.1	80,405.8	56.1%
2035	16,264.7	8,128.2	0.0	50.0%	1,493.7	185,589.7	107,620.2	77,969.6	58.0%
2036	16,725.7	8,360.0	0.0	50.0%	1,536.0	187,881.7	112,820.5	75,061.2	60.0%
2037	17,205.4	8,601.1	0.0	50.0%	1,580.1	189,975.2	118,337.7	71,637.6	62.3%
2038	17,696.2	8,848.0	0.0	50.0%	1,625.2	191,871.5	124,219.3	67,652.2	64.7%
2039	18,193.1	9,097.9	0.0	50.0%	1,670.8	193,554.2	130,496.1	63,058.0	67.4%
2040	18,698.0	9,351.9	0.0	50.0%	1,717.2	195,024.5	137,219.1	57,805.4	70.4%
2041	19,202.2	9,605.6	0.0	50.0%	1,763.5	196,299.0	144,450.6	51,848.4	73.6%
2042	19,710.6	9,861.2	0.0	50.0%	1,810.2	197,402.8	152,263.3	45,139.4	77.1%
2043	20,228.0	10,120.1	0.0	50.0%	1,857.7	198,364.2	160,738.7	37,625.5	81.0%
2044	20,747.6	10,380.1	0.0	50.0%	1,905.4	199,231.8	169,972.9	29,258.9	85.3%
2045	21,248.5	10,630.7	0.0	50.0%	1,951.4	200,064.0	180,057.6	20,006.4	90.0%
Total		\$202,562.9	\$0.0						

Funding Projections for the Teachers' Retirement System

Tier 1 Annual Increase Buyout Proposal
 Assumed Utilization: 25%
 Actuarially Assumed Rate of Return: 7.00%
 (\$ in millions)

Fiscal Year Ending 6/30	Annual Payroll	Total State Contribution	(Reduction)/ Increase in State Contribution	State Contribution as Percent of Payroll	Total Employee Contribution	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Liability	Funded Ratio
2017						\$122,904.0	\$49,467.5	\$73,436.5	40.2%
2018	\$10,232.5	\$4,094.6	\$0.0	40.0%	\$939.7	124,835.8	51,615.9	73,219.9	41.3%
2019	10,436.7	4,465.6	0.0	42.8%	958.5	128,477.1	53,207.9	75,269.2	41.4%
2020	10,742.9	4,734.4	-56.1	44.1%	986.6	132,102.6	55,294.0	76,808.5	41.9%
2021	11,057.6	5,003.8	-57.8	45.3%	1,015.5	135,708.3	58,257.5	77,450.8	42.9%
2022	11,379.2	5,243.2	-59.6	46.1%	1,045.0	139,283.6	60,899.2	78,384.4	43.7%
2023	11,694.8	5,348.5	-61.3	45.7%	1,074.0	142,825.0	63,563.7	79,261.3	44.5%
2024	12,016.5	5,475.9	-63.1	45.6%	1,103.6	146,328.0	66,285.2	80,042.8	45.3%
2025	12,348.0	5,610.8	-64.9	45.4%	1,134.0	149,782.1	69,064.1	80,718.1	46.1%
2026	12,689.5	5,767.9	-66.8	45.5%	1,165.4	153,173.7	71,920.4	81,253.3	47.0%
2027	13,039.3	5,930.7	-68.7	45.5%	1,197.5	156,479.4	74,848.9	81,630.5	47.8%
2028	13,398.6	6,085.0	-70.7	45.4%	1,230.5	159,688.9	77,841.3	81,847.6	48.7%
2029	13,769.2	6,247.3	-72.8	45.4%	1,264.5	162,789.9	80,913.9	81,875.9	49.7%
2030	14,154.2	6,404.2	-74.9	45.2%	1,299.9	165,768.4	84,062.4	81,706.0	50.7%
2031	14,553.1	6,571.2	-77.1	45.2%	1,336.5	168,606.7	87,292.5	81,314.1	51.8%
2032	14,964.7	6,762.4	-79.5	45.2%	1,374.3	171,292.0	90,634.9	80,657.1	52.9%
2033	15,387.2	6,976.1	-81.8	45.3%	1,413.1	173,806.5	94,118.3	79,688.2	54.2%
2034	15,818.9	7,819.7	-84.2	49.4%	1,452.8	176,142.7	98,409.9	77,732.8	55.9%
2035	16,264.7	8,041.5	-86.7	49.4%	1,493.7	178,289.7	102,929.7	75,360.0	57.7%
2036	16,725.7	8,270.7	-89.3	49.4%	1,536.0	180,249.1	107,714.7	72,534.3	59.8%
2037	17,205.4	8,509.1	-92.0	49.5%	1,580.1	182,022.6	112,813.7	69,208.9	62.0%
2038	17,696.2	8,753.2	-94.8	49.5%	1,625.2	183,614.9	118,273.2	65,341.7	64.4%
2039	18,193.1	9,000.4	-97.5	49.5%	1,670.8	185,013.7	124,122.1	60,891.6	67.1%
2040	18,698.0	9,251.6	-100.4	49.5%	1,717.2	186,224.3	130,421.2	55,803.1	70.0%
2041	19,202.2	9,502.4	-103.2	49.5%	1,763.5	187,267.5	137,232.8	50,034.7	73.3%
2042	19,710.6	9,754.8	-106.5	49.5%	1,810.2	188,172.6	144,643.3	43,529.3	76.9%
2043	20,228.0	10,010.8	-109.3	49.5%	1,857.7	188,971.9	152,742.2	36,229.6	80.8%
2044	20,747.6	10,268.0	-112.1	49.5%	1,905.4	189,717.4	161,633.2	28,084.3	85.2%
2045	21,248.5	10,515.9	-114.8	49.5%	1,951.4	190,470.7	171,423.6	19,047.1	90.0%
Total		\$200,419.4	-\$2,145.9						

Funding Projections for the Teachers' Retirement System

Tier 1 Annual Increase Buyout Proposal
 Assumed Utilization: 50%
 Actuarially Assumed Rate of Return: 7.00%
 (\$ in millions)

Fiscal Year Ending 6/30	Annual Payroll	Total State Contribution	(Reduction)/ Increase in State Contribution	State Contribution as Percent of Payroll	Total Employee Contribution	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Liability	Funded Ratio
2017						\$122,904.0	\$49,467.5	\$73,436.5	40.2%
2018	\$10,232.5	\$4,094.6	\$0.0	40.0%	\$939.7	122,894.1	51,615.9	71,278.2	42.0%
2019	10,436.7	4,465.6	0.0	42.8%	958.5	126,298.5	53,112.4	73,186.1	42.1%
2020	10,742.9	4,678.3	-112.2	43.5%	986.6	129,673.0	55,032.6	74,640.4	42.4%
2021	11,057.6	4,946.0	-115.6	44.7%	1,015.5	133,014.5	57,813.3	75,201.2	43.5%
2022	11,379.2	5,183.6	-119.2	45.6%	1,045.0	136,312.9	60,258.1	76,054.7	44.2%
2023	11,694.8	5,287.1	-122.6	45.2%	1,074.0	139,565.3	62,706.1	76,859.2	44.9%
2024	12,016.5	5,412.8	-126.2	45.0%	1,103.6	142,768.1	65,201.4	77,566.7	45.7%
2025	12,348.0	5,545.9	-129.8	44.9%	1,134.0	145,911.5	67,738.5	78,173.0	46.4%
2026	12,689.5	5,701.1	-133.6	44.9%	1,165.4	148,982.4	70,337.3	78,645.1	47.2%
2027	13,039.3	5,861.9	-137.5	45.0%	1,197.5	151,958.6	72,989.8	78,968.8	48.0%
2028	13,398.6	6,014.3	-141.5	44.9%	1,230.5	154,830.6	75,685.0	79,145.7	48.9%
2029	13,769.2	6,174.5	-145.6	44.8%	1,264.5	157,587.6	78,445.1	79,142.5	49.8%
2030	14,154.2	6,329.3	-149.9	44.7%	1,299.9	160,217.0	81,265.5	78,951.5	50.7%
2031	14,553.1	6,494.1	-154.3	44.6%	1,336.5	162,702.7	84,148.5	78,554.2	51.7%
2032	14,964.7	6,682.9	-158.9	44.7%	1,374.3	165,034.3	87,125.7	77,908.7	52.8%
2033	15,387.2	6,894.3	-163.7	44.8%	1,413.1	167,196.6	90,228.7	76,968.0	54.0%
2034	15,818.9	7,735.5	-168.5	48.9%	1,452.8	169,184.5	94,124.6	75,059.8	55.6%
2035	16,264.7	7,954.7	-173.5	48.9%	1,493.7	170,989.6	98,239.1	72,750.4	57.5%
2036	16,725.7	8,181.4	-178.6	48.9%	1,536.0	172,616.5	102,609.0	70,007.5	59.4%
2037	17,205.4	8,417.1	-184.0	48.9%	1,580.1	174,070.0	107,289.7	66,780.2	61.6%
2038	17,696.2	8,658.5	-189.5	48.9%	1,625.2	175,358.3	112,327.0	63,031.3	64.1%
2039	18,193.1	8,902.8	-195.1	48.9%	1,670.8	176,473.2	117,748.0	58,725.2	66.7%
2040	18,698.0	9,151.2	-200.8	48.9%	1,717.2	177,424.2	123,623.3	53,800.9	69.7%
2041	19,202.2	9,399.2	-206.4	48.9%	1,763.5	178,236.0	130,015.0	48,221.1	72.9%
2042	19,710.6	9,648.3	-213.0	48.9%	1,810.2	178,942.4	137,023.3	41,919.2	76.6%
2043	20,228.0	9,901.5	-218.6	48.9%	1,857.7	179,579.5	144,745.8	34,833.7	80.6%
2044	20,747.6	10,155.9	-224.2	48.9%	1,905.4	180,203.1	153,293.4	26,909.6	85.1%
2045	21,248.5	10,401.1	-229.6	48.9%	1,951.4	180,877.4	162,789.7	18,087.7	90.0%
Total		\$198,273.3	-\$4,292.4						

Funding Projections for the Teachers' Retirement System

Tier 1 Annual Increase Buyout Proposal
 Assumed Utilization: 75%
 Actuarially Assumed Rate of Return: 7.00%
 (\$ in millions)

Fiscal Year Ending 6/30	Annual Payroll	Total State Contribution	(Reduction)/ Increase in State Contribution	State Contribution as Percent of Payroll	Total Employee Contribution	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Liability	Funded Ratio
2017						\$122,904.0	\$49,467.5	\$73,436.5	40.2%
2018	\$10,232.5	\$4,094.6	\$0.0	40.0%	\$939.7	120,952.4	51,615.9	69,336.4	42.7%
2019	10,436.7	4,465.6	0.0	42.8%	958.5	124,119.9	53,016.9	71,103.0	42.7%
2020	10,742.9	4,622.2	-168.3	43.0%	986.6	127,243.4	54,771.1	72,472.2	43.0%
2021	11,057.6	4,888.1	-173.5	44.2%	1,015.5	130,320.7	57,369.1	72,951.6	44.0%
2022	11,379.2	5,124.0	-178.7	45.0%	1,045.0	133,342.2	59,617.1	73,725.1	44.7%
2023	11,694.8	5,225.8	-183.9	44.7%	1,074.0	136,305.6	61,848.5	74,457.1	45.4%
2024	12,016.5	5,349.7	-189.2	44.5%	1,103.6	139,208.2	64,117.6	75,090.6	46.1%
2025	12,348.0	5,481.0	-194.7	44.4%	1,134.0	142,040.8	66,412.8	75,627.9	46.8%
2026	12,689.5	5,634.3	-200.4	44.4%	1,165.4	144,791.1	68,754.1	76,037.0	47.5%
2027	13,039.3	5,793.2	-206.2	44.4%	1,197.5	147,437.8	71,130.8	76,307.0	48.2%
2028	13,398.6	5,943.5	-212.2	44.4%	1,230.5	149,972.4	73,528.6	76,443.8	49.0%
2029	13,769.2	6,101.7	-218.4	44.3%	1,264.5	152,385.4	75,976.3	76,409.1	49.9%
2030	14,154.2	6,254.3	-224.8	44.2%	1,299.9	154,665.5	78,468.5	76,197.0	50.7%
2031	14,553.1	6,416.9	-231.5	44.1%	1,336.5	156,798.7	81,004.4	75,794.3	51.7%
2032	14,964.7	6,603.5	-238.4	44.1%	1,374.3	158,776.7	83,616.4	75,160.3	52.7%
2033	15,387.2	6,812.5	-245.5	44.3%	1,413.1	160,586.7	86,338.9	74,247.8	53.8%
2034	15,818.9	7,651.2	-252.7	48.4%	1,452.8	162,226.2	89,839.3	72,386.9	55.4%
2035	16,264.7	7,868.0	-260.2	48.4%	1,493.7	163,689.5	93,548.5	70,140.9	57.2%
2036	16,725.7	8,092.1	-267.9	48.4%	1,536.0	164,983.9	97,503.1	67,480.8	59.1%
2037	17,205.4	8,325.1	-276.0	48.4%	1,580.1	166,117.3	101,765.7	64,351.6	61.3%
2038	17,696.2	8,563.7	-284.3	48.4%	1,625.2	167,101.7	106,380.7	60,720.9	63.7%
2039	18,193.1	8,805.3	-292.6	48.4%	1,670.8	167,932.7	111,373.8	56,559.0	66.3%
2040	18,698.0	9,050.8	-301.1	48.4%	1,717.2	168,624.0	116,825.2	51,798.8	69.3%
2041	19,202.2	9,295.7	-309.9	48.4%	1,763.5	169,204.6	122,797.2	46,407.4	72.6%
2042	19,710.6	9,541.8	-319.5	48.4%	1,810.2	169,712.3	129,403.3	40,309.0	76.2%
2043	20,228.0	9,792.3	-327.8	48.4%	1,857.7	170,187.2	136,749.4	33,437.8	80.4%
2044	20,747.6	10,043.8	-336.3	48.4%	1,905.4	170,688.7	144,953.7	25,735.0	84.9%
2045	21,248.5	10,286.3	-344.4	48.4%	1,951.4	171,284.1	154,155.7	17,128.4	90.0%
Total		\$196,126.8	-\$6,438.4						