

Illinois SURS				
Analysis of Martwick Buyout Proposal - SURS Contribution \$ (Combined State and Employer Contributions)				
Scenario Number	Updated Baseline (No OHP)	1	2	3
State Funding Policy/Contributions	90% by 2045 - Level Percent of Pensionable Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments
Cost Method	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit
New Entrants	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP
Scenario Component Added	Updated Baseline (No OHP)	25% Elect Buyout	50% Elect Buyout	75% Elect Buyout
Fiscal Year	Contribution Dollar Amount Excluding SMP (\$ in millions)			
2017				
2018	\$1,612.7	\$1,612.7	\$1,612.7	\$1,612.7
2019	1,682.8	1,636.0	1,589.2	1,542.4
2020	1,766.2	1,717.8	1,669.4	1,621.0
2021	1,848.5	1,798.7	1,748.9	1,699.2
2022	1,901.5	1,850.5	1,799.5	1,748.5
2023	1,934.2	1,882.0	1,829.7	1,777.4
2024	1,982.2	1,928.6	1,875.1	1,821.5
2025	2,031.6	1,976.6	1,921.6	1,866.7
2026	2,084.6	2,028.2	1,971.8	1,915.4
2027	2,139.3	2,081.4	2,023.5	1,965.7
2028	2,191.6	2,132.3	2,072.9	2,013.5
2029	2,248.1	2,187.1	2,126.1	2,065.1
2030	2,301.4	2,238.8	2,176.2	2,113.6
2031	2,357.2	2,293.0	2,228.7	2,164.4
2032	2,421.2	2,355.3	2,289.3	2,223.3
2033	2,494.8	2,427.0	2,359.2	2,291.4
2034	2,578.7	2,509.0	2,439.3	2,369.6
2035	2,650.2	2,578.6	2,506.9	2,435.3
2036	2,723.5	2,649.9	2,576.3	2,502.7
2037	2,799.5	2,723.8	2,648.2	2,572.5
2038	2,878.0	2,800.2	2,722.4	2,644.7
2039	2,959.1	2,879.2	2,799.2	2,719.2
2040	3,043.1	2,960.8	2,878.6	2,796.4
2041	3,130.9	3,046.3	2,961.7	2,877.0
2042	3,221.3	3,134.2	3,047.2	2,960.1
2043	3,314.2	3,224.7	3,135.1	3,045.5
2044	3,409.0	3,316.8	3,224.7	3,132.6
2045	3,506.2	3,411.5	3,316.7	3,222.0
Total Cont. Through 2045	\$69,211.6	\$67,381.0	\$65,550.1	\$63,719.4
Change in Total Cont. Through 2045 from Baseline	\$0.0	-\$1,830.6	-\$3,661.5	-\$5,492.2
Present Value of Total Cont.	\$26,878.3	\$26,191.7	\$25,505.0	\$24,818.5
Change in PV from Baseline	\$0.0	-\$686.6	-\$1,373.3	-\$2,059.8

\*Tier 1 members make a choice at retirement between 1) retaining the current 3% compound COLA and 2) electing the lower Tier 2 simple COLA with a delay in the first COLA increase and an accelerated pension benefit lump sum payment equal to 70% of the difference in the present value of the Tier 1 and Tier 2 AAIs (automatic annual increases) on the retirement annuity and the survivor annuity.

This analysis is for the SURS pension plan only. It does not include the value or impact on retiree healthcare benefits or any other benefits.

Sent March 6, 2018. Based on actuarial valuation as of June 30, 2017, with new hire election assumptions updated to 70% elect Tier 2 and 30% elect SMP.

Illinois SURS				
Analysis of Martwick Buyout Proposal - SURS Contribution % of Pay				
Scenario Number	Updated Baseline (No OHP)	1	2	3
Funding Policy	90% by 2045 - Level Percent of Pensionable Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments
Cost Method	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit
New Entrants	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP
Scenario Component Added	Updated Baseline (No OHP)	25% Elect Buyout	50% Elect Buyout	75% Elect Buyout
Fiscal Year	Contribution Percent of Applicable Pay (excluding SMP)			
2017				
2018	36.20%	36.20%	36.20%	36.20%
2019	36.64%	35.62%	34.60%	33.58%
2020	37.18%	36.16%	35.14%	34.12%
2021	37.83%	36.81%	35.79%	34.78%
2022	37.97%	36.95%	35.93%	34.92%
2023	37.70%	36.68%	35.66%	34.64%
2024	37.70%	36.68%	35.66%	34.64%
2025	37.65%	36.63%	35.61%	34.59%
2026	37.65%	36.63%	35.61%	34.59%
2027	37.66%	36.64%	35.62%	34.60%
2028	37.60%	36.58%	35.56%	34.54%
2029	37.56%	36.54%	35.52%	34.50%
2030	37.45%	36.43%	35.41%	34.39%
2031	37.37%	36.35%	35.33%	34.31%
2032	37.38%	36.36%	35.34%	34.33%
2033	37.49%	36.47%	35.45%	34.43%
2034	37.70%	36.68%	35.66%	34.64%
2035	37.70%	36.68%	35.66%	34.64%
2036	37.70%	36.68%	35.66%	34.64%
2037	37.70%	36.68%	35.66%	34.64%
2038	37.70%	36.68%	35.66%	34.64%
2039	37.70%	36.68%	35.66%	34.64%
2040	37.70%	36.68%	35.66%	34.64%
2041	37.70%	36.68%	35.66%	34.64%
2042	37.70%	36.68%	35.66%	34.64%
2043	37.70%	36.68%	35.66%	34.64%
2044	37.70%	36.68%	35.66%	34.64%
2045	37.70%	36.68%	35.66%	34.64%

Illinois SURS				
Analysis of Martwick Buyout Proposal - Funded Ratio				
Scenario Number	Updated Baseline (No OHP)	1	2	3
Funding Policy	90% by 2045 - Level Percent of Pensionable Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments
Cost Method	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit
New Entrants	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP
Scenario Component Added	Updated Baseline (No OHP)	25% Elect Buyout	50% Elect Buyout	75% Elect Buyout
Fiscal Year	Funded Ratio			
2017	44.43%	44.43%	44.43%	44.43%
2018	44.93%	45.55%	46.19%	46.84%
2019	44.80%	45.37%	45.95%	46.54%
2020	45.11%	45.61%	46.14%	46.68%
2021	46.03%	46.50%	46.97%	47.47%
2022	46.62%	47.03%	47.45%	47.89%
2023	47.18%	47.53%	47.90%	48.28%
2024	47.75%	48.04%	48.35%	48.67%
2025	48.33%	48.57%	48.82%	49.08%
2026	48.94%	49.12%	49.31%	49.50%
2027	49.58%	49.70%	49.83%	49.96%
2028	50.26%	50.32%	50.39%	50.46%
2029	51.00%	51.00%	51.01%	51.02%
2030	51.80%	51.75%	51.69%	51.63%
2031	52.67%	52.56%	52.45%	52.33%
2032	53.64%	53.48%	53.31%	53.13%
2033	54.81%	54.60%	54.38%	54.14%
2034	56.16%	55.91%	55.65%	55.36%
2035	57.69%	57.41%	57.10%	56.77%
2036	59.42%	59.11%	58.78%	58.42%
2037	61.39%	61.06%	60.71%	60.32%
2038	63.63%	63.29%	62.92%	62.53%
2039	66.16%	65.83%	65.47%	65.07%
2040	69.04%	68.73%	68.38%	68.00%
2041	72.31%	72.02%	71.71%	71.36%
2042	75.99%	75.76%	75.49%	75.21%
2043	80.15%	79.97%	79.78%	79.57%
2044	84.80%	84.71%	84.60%	84.49%
2045	90.00%	90.00%	90.00%	90.00%

\*Tier 1 members make a choice at retirement between 1) retaining the current 3% compound COLA and 2) electing the lower Tier 2 simple COLA with a delay in the first COLA increase and an accelerated pension benefit lump sum payment equal to 70% of the difference in the present value of the Tier 1 and Tier 2 AAIs (automatic annual increases) on the retirement annuity and the survivor annuity. This analysis is for the SURS pension plan only. It does not include the value or impact on retiree healthcare benefits or any other benefits.

Sent March 6, 2018. Based on actuarial valuation as of June 30, 2017, with new hire election assumptions updated to 70% elect Tier 2 and 30% elect SMP.

Illinois SURS				
Analysis of Martwick Buyout Proposal - SMP Contribution \$				
Scenario Number	Updated Baseline (No OHP)	1	2	3
Funding Policy	90% by 2045 - Level Percent of Pensionable Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments
Cost Method	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit
New Entrants	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP
Scenario Component Added	Updated Baseline (No OHP)	25% Elect Buyout	50% Elect Buyout	75% Elect Buyout
Fiscal Year	SMP Contribution Dollar Amount (\$ in millions)			
2017				
2018	\$67.4	\$67.4	\$67.4	\$67.4
2019	70.3	70.3	70.3	70.3
2020	78.2	78.2	78.2	78.2
2021	83.1	83.1	83.1	83.1
2022	87.6	87.6	87.6	87.6
2023	92.1	92.1	92.1	92.1
2024	96.6	96.6	96.6	96.6
2025	101.3	101.3	101.3	101.3
2026	106.0	106.0	106.0	106.0
2027	110.8	110.8	110.8	110.8
2028	115.6	115.6	115.6	115.6
2029	120.7	120.7	120.7	120.7
2030	125.8	125.8	125.8	125.8
2031	131.2	131.2	131.2	131.2
2032	136.8	136.8	136.8	136.8
2033	142.7	142.7	142.7	142.7
2034	148.8	148.8	148.8	148.8
2035	155.2	155.2	155.2	155.2
2036	161.7	161.7	161.7	161.7
2037	168.5	168.5	168.5	168.5
2038	175.5	175.5	175.5	175.5
2039	182.8	182.8	182.8	182.8
2040	190.3	190.3	190.3	190.3
2041	198.0	198.0	198.0	198.0
2042	205.9	205.9	205.9	205.9
2043	214.0	214.0	214.0	214.0
2044	222.3	222.3	222.3	222.3
2045	230.9	230.9	230.9	230.9
<b>Total Cont. Through 2045</b>	<b>\$3,920.1</b>	<b>\$3,920.1</b>	<b>\$3,920.1</b>	<b>\$3,920.1</b>
Cumulative Change in Total Cont. Through 2045 from Baseline	\$0.0	\$0.0	\$0.0	\$0.0
Present Value of Total Cont.	\$1,414.3	\$1,414.3	\$1,414.3	\$1,414.3
Change in PV from Baseline	\$0.0	\$0.0	\$0.0	\$0.0

Illinois SURS				
Analysis of Martwick Buyout Proposal - Unfunded Actuarial Accrued Liability \$				
Scenario Number	Updated Baseline (No OHP)	1	2	3
Funding Policy	90% by 2045 - Level Percent of Pensionable Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments
Cost Method	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit
New Entrants	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP
Scenario Component Added	Updated Baseline (No OHP)	25% Elect Buyout	50% Elect Buyout	75% Elect Buyout
Fiscal Year	Unfunded Actuarial Accrued Liability Dollar Amount (\$ in millions)			
2017	\$23,259.0	\$23,259.0	\$23,259.0	\$23,259.0
2018	23,655.4	23,070.8	22,486.3	21,901.7
2019	24,302.9	23,698.5	23,094.2	22,489.8
2020	24,733.3	24,110.7	23,488.1	22,865.4
2021	24,847.6	24,208.0	23,568.4	22,928.8
2022	25,071.8	24,416.5	23,761.1	23,105.8
2023	25,268.1	24,598.3	23,928.5	23,258.6
2024	25,419.5	24,736.7	24,053.8	23,370.9
2025	25,522.4	24,828.1	24,133.7	23,439.3
2026	25,569.6	24,865.5	24,161.3	23,457.2
2027	25,556.3	24,844.2	24,132.1	23,420.1
2028	25,481.2	24,763.2	24,045.1	23,327.1
2029	25,336.2	24,614.4	23,892.7	23,170.9
2030	25,119.1	24,396.0	23,672.9	22,949.8
2031	24,821.8	24,100.1	23,378.3	22,656.6
2032	24,430.1	23,712.7	22,995.3	22,277.9
2033	23,927.6	23,217.8	22,508.0	21,798.2
2034	23,296.5	22,597.8	21,899.2	21,200.5
2035	22,540.5	21,856.8	21,173.1	20,489.4
2036	21,648.8	20,984.3	20,319.8	19,655.3
2037	20,609.1	19,968.4	19,327.6	18,686.9
2038	19,408.3	18,796.3	18,184.4	17,572.4
2039	18,032.9	17,455.1	16,877.3	16,299.5
2040	16,468.9	15,931.0	15,393.1	14,855.2
2041	14,700.8	14,209.0	13,717.1	13,225.3
2042	12,713.7	12,274.4	11,835.1	11,395.7
2043	10,491.1	10,111.2	9,731.2	9,351.2
2044	8,015.6	7,702.3	7,389.0	7,075.7
2045	5,267.2	5,028.3	4,789.5	4,550.7

\*Tier 1 members make a choice at retirement between 1) retaining the current 3% compound COLA and 2) electing the lower Tier 2 simple COLA with a delay in the first COLA increase and an accelerated pension benefit lump sum payment equal to 70% of the difference in the present value of the Tier 1 and Tier 2 AAls (automatic annual increases) on the retirement annuity and the survivor annuity. This analysis is for the SURS pension plan only. It does not include the value or impact on retiree healthcare benefits or any other benefits.

Sent March 6, 2018. Based on actuarial valuation as of June 30, 2017, with new hire election assumptions updated to 70% elect Tier 2 and 30% elect SMP.

Illinois SURS				
Analysis of Martwick Buyout Proposal - Net Normal Cost \$*				
Scenario Number	Updated Baseline (No OHP)	1	2	3
Funding Policy	90% by 2045 - Level Percent of Pensionable Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments
Cost Method	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit
New Entrants	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP
Scenario Component Added	Updated Baseline (No OHP)	25% Elect Buyout	50% Elect Buyout	75% Elect Buyout
Fiscal Year	Net Normal Cost* (\$ in millions)			
2017				
2018	\$421.2	\$421.2	\$421.2	\$421.2
2019	409.1	384.1	359.2	334.2
2020	397.8	374.0	350.3	326.5
2021	388.8	366.3	343.7	321.1
2022	378.5	357.1	335.6	314.2
2023	368.6	348.2	327.9	307.5
2024	359.5	340.2	320.9	301.6
2025	351.4	333.1	314.9	296.7
2026	343.4	326.2	309.0	291.8
2027	336.4	320.1	303.9	287.7
2028	330.0	314.8	299.5	284.2
2029	324.2	309.9	295.6	281.3
2030	318.1	304.7	291.4	278.0
2031	311.7	299.4	287.0	274.7
2032	305.3	294.0	282.8	271.5
2033	299.4	289.2	279.0	268.7
2034	294.2	284.9	275.7	266.5
2035	289.3	281.0	272.8	264.6
2036	284.5	277.3	270.1	262.9
2037	280.0	273.8	267.6	261.5
2038	275.7	270.6	265.5	260.3
2039	272.4	268.2	264.1	260.0
2040	270.4	267.2	264.0	260.8
2041	270.6	268.2	265.7	263.2
2042	273.4	271.5	269.6	267.7
2043	278.0	276.6	275.1	273.6
2044	284.1	282.9	281.8	280.7
2045	291.2	290.3	289.4	288.6
<b>Total Cont. Through 2045</b>	<b>\$9,007.2</b>	<b>\$8,695.0</b>	<b>\$8,383.3</b>	<b>\$8,071.3</b>
Cumulative Change in Total Cont. Through 2045 from Baseline	\$0.0	-\$312.2	-\$623.9	-\$935.9
Present Value of Total Cont.	\$4,251.9	\$4,076.7	\$3,901.7	\$3,726.5
Change in PV from Baseline	\$0.0	-\$175.2	-\$350.2	-\$525.4

\*Normal cost after subtracting out employee contributions.

Illinois SURS				
Analysis of Martwick Buyout Proposal - Total Applicable Payroll \$				
Scenario Number	Updated Baseline (No OHP)	1	2	3
Funding Policy	90% by 2045 - Level Percent of Pensionable Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments	90% by 2045 - Level Percent of Total Payroll Payments
Cost Method	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit
New Entrants	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP	70% elect Tier 2 30% elect SMP
Scenario Component Added	Updated Baseline (No OHP)	25% Elect Buyout	50% Elect Buyout	75% Elect Buyout
Fiscal Year	Applicable Payroll* (\$ in millions)			
2017	\$4,184.5	\$4,184.5	\$4,184.5	\$4,184.5
2018	4,454.3	4,454.3	4,454.3	4,454.3
2019	4,593.2	4,593.2	4,593.2	4,593.2
2020	4,750.4	4,750.4	4,750.4	4,750.4
2021	4,886.0	4,886.0	4,886.0	4,886.0
2022	5,007.7	5,007.7	5,007.7	5,007.7
2023	5,130.5	5,130.5	5,130.5	5,130.5
2024	5,257.7	5,257.7	5,257.7	5,257.7
2025	5,396.0	5,396.0	5,396.0	5,396.0
2026	5,536.8	5,536.8	5,536.8	5,536.8
2027	5,680.4	5,680.4	5,680.4	5,680.4
2028	5,829.1	5,829.1	5,829.1	5,829.1
2029	5,986.0	5,986.0	5,986.0	5,986.0
2030	6,145.4	6,145.4	6,145.4	6,145.4
2031	6,308.4	6,308.4	6,308.4	6,308.4
2032	6,477.0	6,477.0	6,477.0	6,477.0
2033	6,655.4	6,655.4	6,655.4	6,655.4
2034	6,839.8	6,839.8	6,839.8	6,839.8
2035	7,029.6	7,029.6	7,029.6	7,029.6
2036	7,224.1	7,224.1	7,224.1	7,224.1
2037	7,425.5	7,425.5	7,425.5	7,425.5
2038	7,633.8	7,633.8	7,633.8	7,633.8
2039	7,849.1	7,849.1	7,849.1	7,849.1
2040	8,071.7	8,071.7	8,071.7	8,071.7
2041	8,304.6	8,304.6	8,304.6	8,304.6
2042	8,544.4	8,544.4	8,544.4	8,544.4
2043	8,790.9	8,790.9	8,790.9	8,790.9
2044	9,042.2	9,042.2	9,042.2	9,042.2
2045	9,300.2	9,300.2	9,300.2	9,300.2

\*Tier 1 members make a choice at retirement between 1) retaining the current 3% compound COLA and 2) electing the lower Tier 2 simple COLA with a delay in the first COLA increase and an accelerated pension benefit lump sum payment equal to 70% of the difference in the present value of the Tier 1 and Tier 2 AAIs (automatic annual increases) on the retirement annuity and the survivor annuity.  
This analysis is for the SURS pension plan only. It does not include the value or impact on retiree healthcare benefits or any other benefits.

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- ▶ Wherever possible we have disclosed the major items valued within each study, however, each study is comprised of many complex parts and these projections represent approximations of the change in liabilities and costs that would occur under the given conditions.
- ▶ All calculations are based on the June 30, 2017 actuarial valuation results including the provisions of SURS.
- ▶ CPI is assumed to increase at 2.75%.
- ▶ Changes in Plan Design may impact retirement and termination behavior. No changes in termination rates or retirement rates were assumed.
- ▶ All present value calculations are as of June 30, 2017.
- ▶ Previous asset gains and losses are phased-in to each projection.
- ▶ All employee contributions are determined as a percent of pensionable payroll. State contributions in the impact scenarios are determined as a percent of total payroll.
- ▶ 30% of new hires are assumed to participate in the Self Managed Plan (SMP).
- ▶ No additional administrative expenses were assumed in this analysis.
- ▶ Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law.
- ▶ Additional information regarding actuarial assumptions and methods, and important additional disclosures are provided in the full actuarial valuation report of SURS as of June 30, 2017.
- ▶ If you need additional information to make an informed decision about the contents of this presentation, or if anything appears to be missing or incomplete, please contact us before relying on this presentation.
- ▶ This presentation shall not be construed to provide tax advice, legal advice or investment advice.
- ▶ The actuaries submitting this presentation (Amy Williams and Lance Weiss) are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.
- ▶ 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 SURS and/or the requestors of the analysis. 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.







