WIREPOINTS

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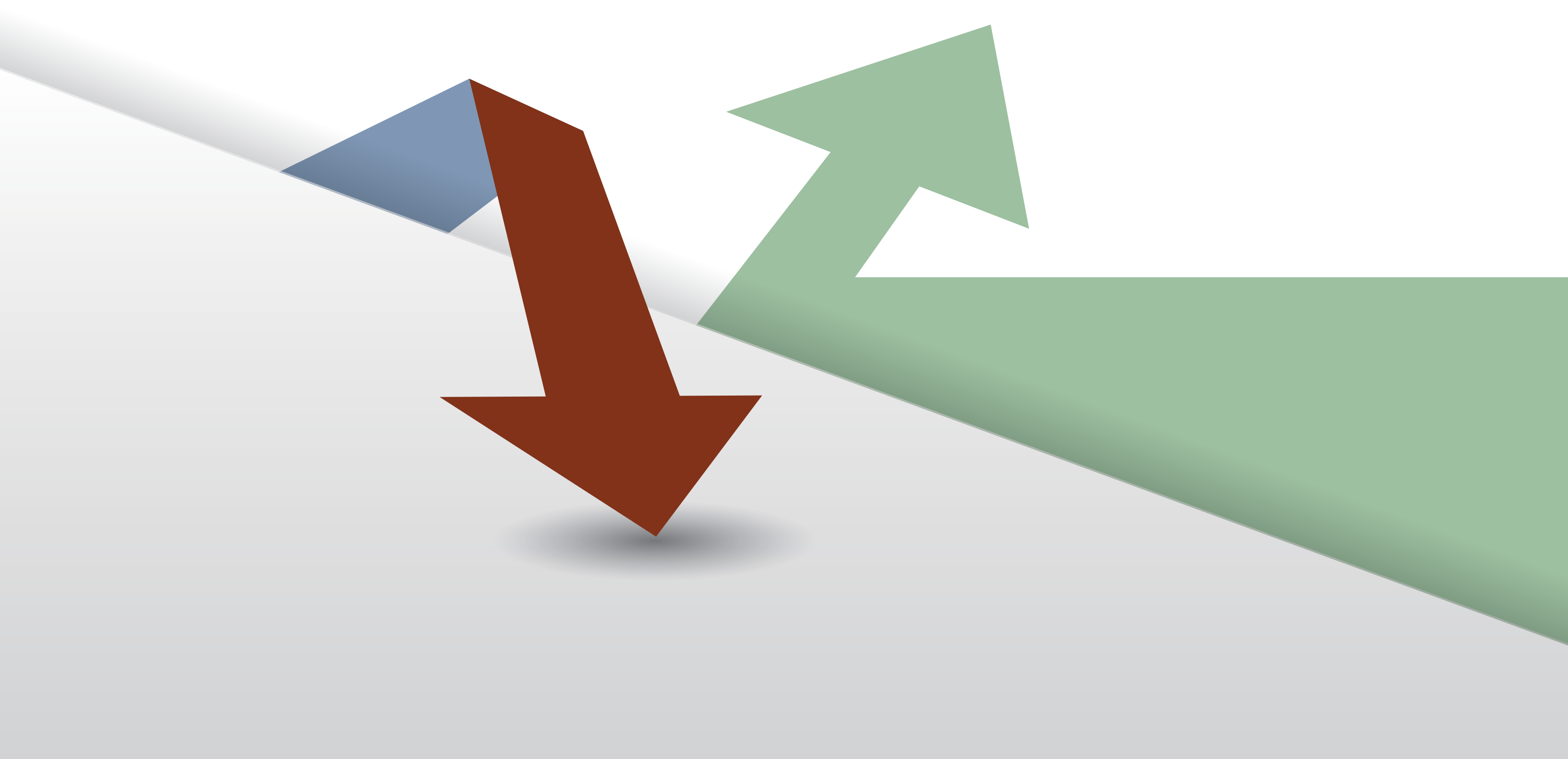
Solving Illinois' Pension Problem:

Why It's Legal, Why It's Necessary, and What It Looks Like

Part 4: A Solution for Illinois' State Retirement Crisis

By: Ted Dabrowski, Mark Glennon and John Klingner



Part 4
A Solution for Illinois' State Retirement Crisis

A Solution for Illinois' State Retirement Crisis

No material reform of any public pension in the State of Illinois is currently possible due to a strict interpretation of the pension protection clause in the state's constitution. Yet those pensions are widely regarded as unsustainable in their current form and are the primary reason Illinois was approaching what the Wall Street Journal properly called an "inevitable financial collapse" – even before the current economic downturn.

In Part 3, Wirepoints discussed why the only readily apparent options to legally overcome the state constitutional obstacle to pension reform are federal bankruptcy or an amendment to the state's constitutional pension protection clause.

Reformers and opponents alike regard bankruptcy as a last resort. But reform opponents, including the current administration, also categorically refuse to consider an amendment. They routinely claim that a state amendment followed by reforms would be voided under the Contract Clause of the United States Constitution, which prohibits contract impairment.

Part 3 showed why opposition to a state constitutional amendment is groundless. Reform opponents are wrong. Court decisions and expert legal opinions say they are wrong. The United States Supreme Court long ago laid out the standards for when contracts can be impaired. Those federal standards – the only ones that would apply after a state amendment – have been routinely applied to revise a variety of contracts. The vast majority of other states have either reduced benefits, raised employee contributions, or both, each of which Illinois refuses to consider. Recent experiences in Rhode Island and Arizona illustrate why the federal Contract Clause is not an obstacle.

To allow for reform, amendment wording must conclusively override the pension protection clause and all other state law issues. Suggested language was included.

Parts 1 and 2 showed why Illinois must reform its pensions if it is to restore fiscal stability and return the state to competitive levels of services and taxation. They included details on the underlying causes of Illinois' pension crisis, comparisons to other states that show the state's extreme circumstances, and why pensions today are overpromised: benefit growth has far exceeded Illinois' capacity to pay.

In this final part, Wirepoints presents various reform options that might be pursued after an amendment. We include a baseline pension restructuring plan modeled on Illinois' existing defined contribution plan run by the State University Retirement System. Our proposal has been scored by the state's actuaries. The results are included herein.

Wirepoints' baseline restructuring plan immediately freezes the state's defined benefit plans. Stopping the growth in accrued pension promises and paying them off completely is the only way Illinois can guarantee an end to its public retirement crisis and assure retirees of what they will get.

Wirepoints' proposal also includes changes to the state's retiree health insurance benefits, an often ignored aspect of Illinois' public retirement system. Going forward, state retirees would be required to pay for half of their health insurance costs – the national average for public workers – on a means-tested basis.

In addition, various other reform measures separate from Wirepoint's baseline proposal were also scored by the state's actuary. Those results are also included.

It should be noted that this series covers proposals only for the state's pension and retiree health systems. However, most of the state's 665 locally sponsored pensions also require changes. Local funds' circumstances vary substantially, and may require different reform options than those presented here.

Illinoisans should not wait until Illinois becomes a failed state before finally demanding change. It is vital to reform the state now, while it still has assets and dynamism left, rather than delay until Illinois is a shadow of its former self.

The key goals of restructuring Illinois retirements

Wirepoints has made the case that pension reform is possible and necessary to restore Illinois' finances. The questions that remain are: what should reform look like, and what should it achieve?

In the following sections, Wirepoints lays out a baseline restructuring for Illinois' five state-run pension plans and the retiree health insurance plan for state workers, and provides a summary of the savings those plans provide. Savings of other potential reforms are also included. Illinois' other retirement plans will each require separate proposals to match their unique circumstances.

Wirepoints' core objectives in creating reforms are to:

- Reduce the state's structural liabilities to help Illinois escape its downward spiral of growing debts and a shrinking population.
- Restore retirement security for state workers and retirees while protecting already-earned benefits to the extent possible.
- Help reestablish a competitive level of services, tax rates and economic growth for Illinois.
- Help ensure that Illinois' most vulnerable citizens no longer suffer from a lack of core services and punitive tax increases.
- End the unfair Tier 2 system, where workers hired after 2010 are forced to subsidize the benefits of Tier 1 workers and retirees.
- Improve budget certainty for governments and taxpayers by turning future retirement contributions into known, predictable, fixed costs.
- Ensure that retirements are controlled by workers themselves, not Illinois lawmakers. Workers must receive flexible, portable retirement plans they own and control.
- Ensure that reforms are "reasonable and necessary" to comply with the U.S. Constitution's contracts clause.

Other key considerations:

1. Wirepoints' baseline reform plan and other potential reforms were based on research that Segal prepared for its client the Commission on Government Forecasting and Accountability. The high costs of running actuarial scenarios limited the number and scope of potential reforms Wirepoints could fully explore. For that reason, the scoring included in this paper was limited as follows:
    - Actuarial runs were performed only for the Teachers' Retirement System. Wirepoints then extrapolated the TRS results to arrive at the savings for all five state-run pension funds.
    - Wirepoints did not change the state's current actuarial assumptions and statutory payment formulas. That allows for an apples-to-apples comparison of savings and debt reduction vs. current Illinois pension law.
2. Wirepoints' baseline plan was scored before the COVID-19 crisis began. If the damage sustained by the pension funds is significant – if discount rates stay low and the stock market fails to recover – then additional and deeper reforms over and above the baseline plan may be needed.[1]
3. Reforms that pair defined contribution plans with social security were not considered in this paper, except for those workers already enrolled in Social Security. Over 96 percent of all state employees today are in Social Security, while teachers, university workers, legislators and judges are not. The rationale for not pursuing Social Security for all workers is that contributions to the funds are costly, while the returns for beneficiaries are suboptimal.[2]

A solution for pensions: Replicate SURS' Self-Managed Plan (SMP) for all state funds

Wirepoints' baseline restructuring plan for the five state-run pension systems does the following:

1. **Freezes the pension systems going forward, but protects benefits already earned.**

   The five state-run defined-benefit plans are frozen immediately and defined benefits no longer accrue going forward. Pension benefits already earned by workers are still payable upon retirement. Retired members are not impacted by this part of the proposal.

2. **Transitions all current workers to a plan identical to Illinois' existing defined contribution plan for university workers**.

   All current workers in the five state-run systems are transferred to new plans that replicate the State University Retirement System's (SURS) optional, defined contribution plan.

   Under the new plan, those workers not enrolled in Social Security contribute a mandatory 8 percent of every paycheck into a retirement account and the state contributes a matching 7 percent. In total, workers would have 15 percent of their salary set aside each pay period.

   Workers already enrolled in Social Security contribute a mandatory 3 percent of every paycheck into a retirement account. The state contributes a matching 3 percent. In total, state workers participating in Social Security have 6 percent of their salary set aside each pay period into the defined contribution plan. Retired members would not be impacted by this part of the proposal.

3. **Means-tests COLAs until pensions are fully funded.**

   To ensure all workers, including those far into the future, receive their already-earned pension benefits, COLAs are means-tested and limited to members with annual benefits under $50,000 (adjusted for inflation going forward). Those members will receive a 1 percent simple COLA benefit. COLA benefits will be frozen for all other current and future retirees until the pension systems are fully-funded.

   (Wirepoints recognizes that there are many potential ways to restructure COLAs, i.e., on an "ad hoc" basis, only on the first $20,000 of benefits, etc. However, actuarial costs limited the number of potential scenarios Wirepoints could run.)

Highlights of Wirepoints' baseline pension restructuring plan

Plan provisions

1. Freeze defined benefit plans going forward – no future pension accruals.
2. Move all existing workers to defined contribution plan based on existing SURS SMP plan

8%	+	7%	=	15%
Employee contribution		Employer contribution		Total contribution

3. Means-test COLAs:
   1% simple benefit for all pensioners receiving less than $50,000. Frozen for all others until pensions are fully funded.

Plan results

Immediate drop in 2019 unfunded liabilities	↓ $54 Billion
Average drop in annual contributions through 2045	↓ $4.2 Billion
Total drop in present value of state contributions through 2045	↓ $43.7 Billion
Reduction in accrued liabilities owed in 2045	↓ $196 Billion

How the SURS Self-Managed Plan works

In 1998, the Illinois state legislature created a new retirement plan that offers state university workers an alternative to the traditional pension plan. Called the Self-Managed Plan, or SMP, these 401(k)-style accounts offer workers more flexibility, portability and individual control than pension plans do. More than 20,000 Illinois state university workers have opted into the SMP plan since its inception.[3]

Under the SMP, an employee contributes 8 percent of each paycheck toward a 401(k)-style account, and the state matches that contribution with another 7 percent. Like the traditional pension plan, university workers with SMPs don't contribute to or participate in Social Security.

Since 2012, 15 to nearly 20 percent of new university workers have chosen to enroll in the plan annually. That's a high level of participation considering the pension plan, and not the 401(k)-style plan, is the automatic default plan offered by Illinois' public universities and colleges.[4]

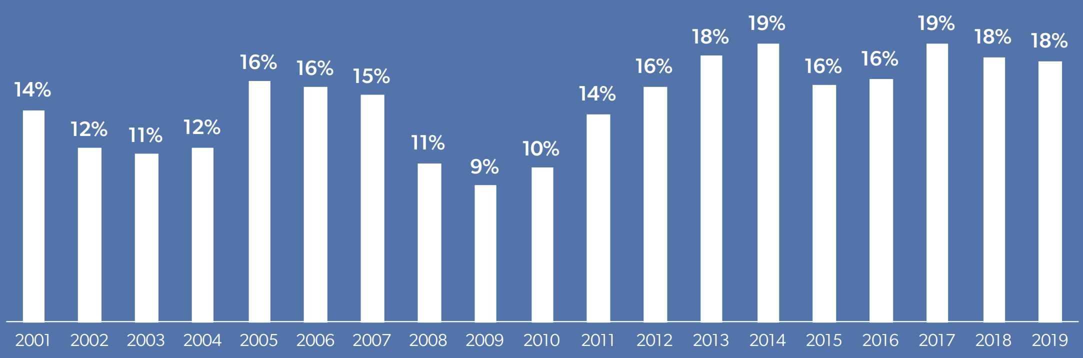
University workers who opt in to the SMP are required by law to contribute to their 401(k)-style accounts. They can't skip contributions or borrow funds from their accounts like many in the private sector can. SURS offers two investment providers to choose from, TIAA and Fidelity Investments, both of which sponsor funds with different levels of investment risk and potential returns. The state is also legally required to contribute funds into the worker's account every pay period. It can't offer IOUs like it does for pension funds.[5]

Also important is that the SURS plan lets retirees convert their savings into Social Security-like benefits. The plan offers different payout options at retirement, including a lifetime annuity payout which retirees cannot outlive.

The 401(k)-style plans, as structured in the SURS plan, can provide for comparable retirement funds to what a pension can provide. For example, if a newly hired teacher had been offered her own SMP account in 1978, historical returns show she could retire today with $1.8 million in retirement funds. (See Appendix A for more information.)

About a fifth of newly-hired Illinois university employees join the Self-Managed Plan each year

Percent of new State Universities Retirement System members who join the Self-Managed Plan



Source: 2020 FOIA request to the State Universities Retirement System

Baseline pension restructuring savings

The restructuring plan would impact pension fund finances in the following ways:

- **$54 billion immediate drop in unfunded liabilities.** The state's $137 billion unfunded liability falls to $83 billion, a 40 percent reduction.
- **$4.2 billion reduction in average annual contributions through 2045.** First year savings under the plan would total $3 billion.
- **$43.7 billion present value reduction in contributions through 2045.** In all, the state would contribute $109 billion less to pensions through 2045.
- **$196 billion reduction in accrued liabilities by 2045.** The state would be burdened with $135 billion in liabilities in 2045 instead of the $331 billion projected today.

Importantly, the state plans would no longer accrue new defined benefit liabilities going forward. That's key to allowing the state to focus on repaying its post-reform pension debts without the constant addition of new defined-benefit liabilities.

Wirepoints extrapolated the savings from the TRS run to estimate savings for a restructuring plan that includes the other four state-run pension systems. Wirepoints' extrapolation was based on TRS' share of the state's total accrued liabilities, an approach confirmed by Segal as reasonable for the purposes of this report. (See Appendix C for more information.)

Actuarial runs performed by Segal Consulting

(See Appendix B for full actuarial runs)

Funding Projections for the Teachers' Retirement System
Based on Laws in Effect on June 30, 2018
Actuarially Assumed Rate of Return: 7.00%
($ in millions)

Fiscal Year Ending 6/30	Annual State Payroll	Total State Contribution	State Contribution as Percent of Payroll	Total Employee Contribution	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Liability	Funded Ratio
2018					$127,019.3	$51,730.9	$75,288.4	40.7%
2019	$10,436.7	$4,353.3	41.7%	$958.5	130,426.1	53,434.6	76,991.5	41.0%
2020	10,735.5	4,813.1	44.8%	985.9	134,278.7	55,856.3	78,422.4	41.6%
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
2045	21,466.7	10,572.7	49.3%	1,971.4	207,921.3	187,129.2	20,792.1	90.0%

TRS – Scenario 4 – Freeze + 1% Simple COLA for Less Than $50,000 (Indexed)

Funding Projections for the Teachers' Retirement System
Hard Freeze of TRS Accruals as of June 30, 2019; TRS Members Participate in SMP Effective July 1, 2019
Immediate Suspention of All COLAs (Current and Future Retirees) Except Grant 1% Simple COLA
to Pensioners Receiving Less Than $50,000 Annually, Indexed, Until TRS is Fully Funded
Actuarially Assumed Rate of Return: 7.00%
($ in millions)

Fiscal Year Ending 6/30	Annual State Payroll	TRS State Contribution	SMP State Contribution	Total State Contribution	State Contribution as Percent of Payroll	TRS Employee Contribution	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Liability	Funded Ratio
2018							$127,019.3	$51,730.9	$75,288.4	40.7%
2019	$10,436.7	$4,353.3	$0.0	$4,353.3	41.7%	$958.5	99,735.2	53,434.6	46,300.6	53.6%
2020	10,735.5	2,436.8	832.5	3,269.3	30.5%	0.0	99,828.3	52,824.5	47,003.9	52.9%
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
2045	21,466.7	5,774.3	1,664.8	7,439.1	34.7%	0.0	85,017.4	76,515.7	8,501.7	90.0%

Restructuring plan's impact on TRS	Immediate reduction in 2020 state contributions	$1.5 B	Reduction in 2045 accrued liabilities	$123 B	Reduction in 2019 unfunded liabilities	$31 B
TRS share	TRS contributions: 51% of 2020 state total		TRS accrued liabilities: 63% of 2045 state total		TRS unfunded liabilities: 57% of 2019 state total	
Extrapolation: include the state's five pension funds	Immediate reduction in 2020 state contributions	$3.0 B	Reduction in 2045 accrued liabilities	$196 B	Reduction in 2019 unfunded liabilities	$54 B

$4.8B - $3.3B =
$1.5B reduction
in 2020 state contributions

$1.5 ÷ 51%
of total contributions =
$3.0B reduction
when extrapolated to all funds

$207.9B - $85.0B =
$123B reduction
in 2045 accrued liablities

$123B ÷ 63%
of accrued total =
$196B reduction
when extrapolated to all funds

$76.9B - $46.3B =
$31B reduction
in 2019 unfunded liabilities

$31B ÷ 57%
of unfunded total =
$54B reduction
when extrapolated to all funds

Baseline pension restructuring plan savings

Total state contributions to the five state-run pension funds and defined contribution plans
Current law vs. Wirepoints restructuring plan,* (in billions)

Year	Current law	Restructuring plan	Annual reduction in contributions
2020	$9.2	$6.3	$3.0
2021	$9.6	$6.6	$3.0
2022	$10.1	$6.9	$3.1
2023	$10.3	$7.1	$3.2
2024	$10.5	$7.2	$3.3
2025	$10.8	$7.3	$3.4
2026	$11.0	$7.5	$3.5
2027	$11.3	$7.7	$3.6
2028	$11.6	$7.9	$3.7
2029	$11.9	$8.1	$3.8
2030	$12.2	$8.3	$3.9
2031	$12.5	$8.5	$4.0
2032	$12.8	$8.7	$4.1
2033	$13.2	$9.0	$4.2
2034	$14.5	$10.2	$4.3
2035	$14.8	$10.5	$4.4
2036	$15.2	$10.7	$4.5
2037	$15.6	$11.0	$4.6
2038	$16.0	$11.3	$4.7
2039	$16.5	$11.6	$4.9
2040	$16.9	$11.9	$5.0
2041	$17.3	$12.2	$5.1
2042	$17.8	$12.5	$5.3
2043	$18.2	$12.8	$5.4
2044	$18.7	$13.1	$5.5
2045	$19.1	$13.5	$5.7
Total	**$357.8**	**$248.4**	**$109.3**
Average	**$13.8**	**$9.6**	**$4.2**

Source: Segal Consulting; Wirepoints calculations. Actuarial data as of FY 2018.
*Extrapolated based on TRS' share of total state contributions.

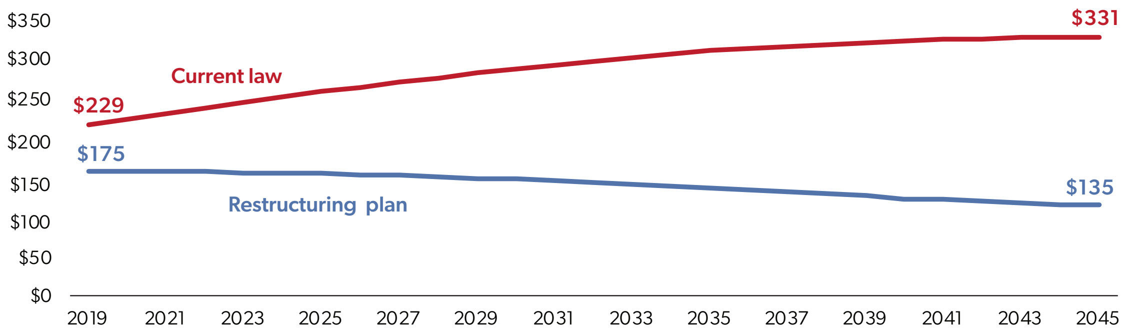
Pension restructuring plan vs. current law

State accrued liabilities immediately drop by $54 billion

Under the restructuring plan, accrued liabilities fall to $175 billion from $229 billion in 2019. That's an immediate drop of $54 billion. Thereafter, accrued liabilities decline as more new state employees enroll in the defined contribution plan and the number of pensioners shrink. Under the plan, the state will have dramatically less accrued liabilities by 2045. Current law projects liabilities will grow to $331 billion by 2045 vs. plan liabilities of $135 billion.

Pension restructuring plan: Accrued liabilities immediately drop by $54 billion

Current law vs. Wirepoints restructuring plan: Accrued liabilities of the five state-run pension funds* (in billions)



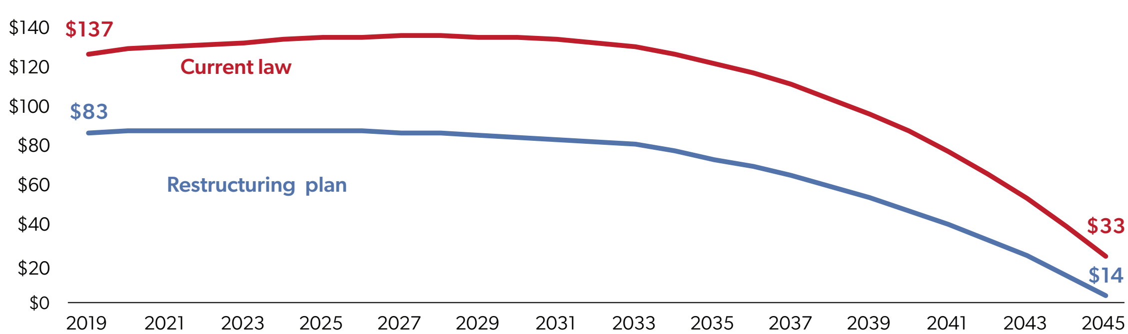
Source: Segal Consulting; Wirepoints calculations. Actuarial data as of FY 2018.
*Extrapolated based on TRS' share of total state accrued liabilties.

State unfunded liabilities immediately drop by 40 percent

Under the restructuring plan, unfunded liabilities drop immediately by 40 percent, to $83 billion from $137 billion. That's a vast improvement over current law, and not just because the liability is smaller. The reform plan ends the accrual of any new defined benefits, meaning the plan is less susceptible to changes in assumptions and poor investment returns as compared to current law. Under current law, unfunded liabilities are projected to fall to $33 billion by 2045. Under the restructuring, the state's shortfall will total just $14 billion.

Pension restructuring plan: Unfunded liabilities immediately drop 40%

Current law vs. Wirepoints restructuring plan: Unfunded liabilities of the five state-run pension funds* (in billions)



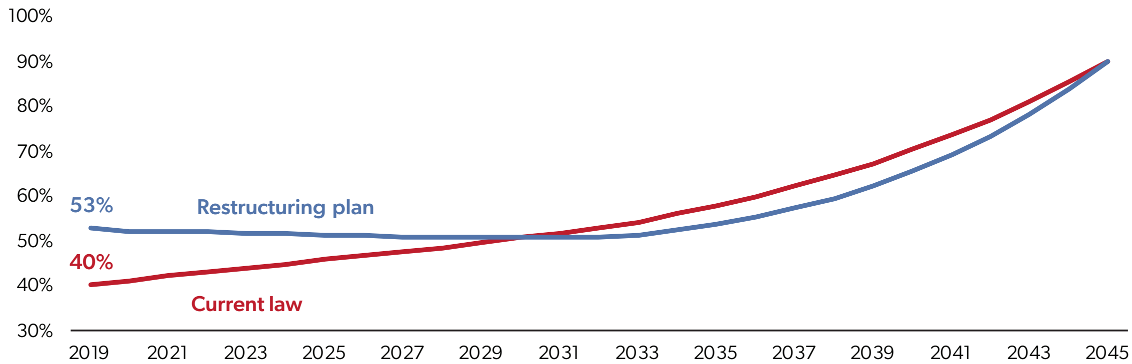
Source: Segal Consulting; Wirepoints calculations. Actuarial data as of FY 2018.
*Extrapolated based on TRS' share of total state accrued liabilties.

Combined funded ratio immediately improves to 53 percent

Under the restructuring plan, the funded ratio of the five state plans would immediately improve to 53 percent from 40 percent. The projected funded ratio is hardly changed from current law because the reform plan uses the same statutory payment schedule (90 percent funded by 2045).

Pension restructuring plan: Funded ratio immediately improves to 53%

Current law vs. Wirepoints restructuring plan: Funded ratio of the five state-run pension funds*



Source: Segal Consulting; Wirepoints calculations. Actuarial data as of FY 2018.
*Extrapolated based on TRS' share of total state accrued liabilities.

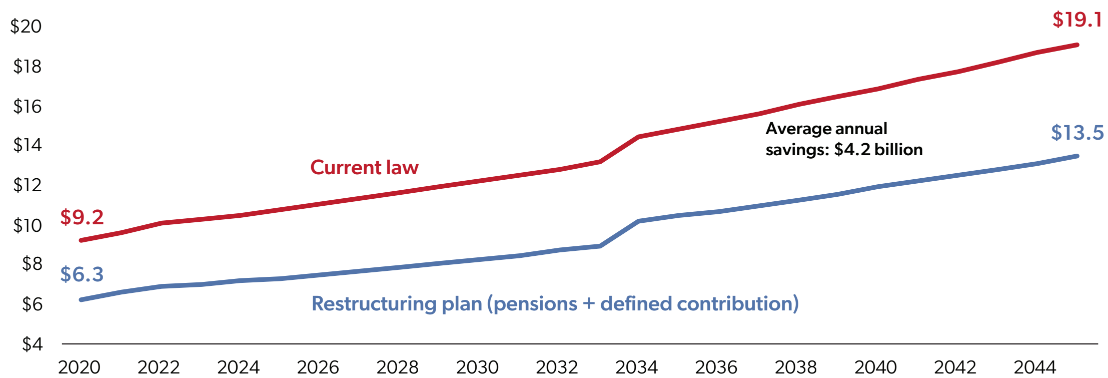
Required annual state contributions through 2045 fall by an average $4.2 billion

Under the pension restructuring plan, the state will be required to make $109 billion less in retirement contributions through 2045, an average savings of about $4 billion a year. In present value terms, that's a saving of nearly $44 billion.

Under current law, state contributions are set to ramp up every year until the pension funds achieve 90 percent funding in 2045. Contributions are projected to grow from $9 billion in 2020 to $19 billion by 2045. In contrast, the annual contributions under the restructuring plan are far smaller. By 2045, the state would have to contribute $13.5 billion to worker retirements, about $6 billion less than projected under current law.

Pension restructuring plan: Average annual contributions drop by $4.2 billion

Current law vs. Wirepoints restructuring plan: Total contributions to state retirement plans* (in billions)



Source: Segal Consulting; Wirepoints calculations. Actuarial data as of FY 2018.
*Extrapolated based on TRS' share of total state contributions.

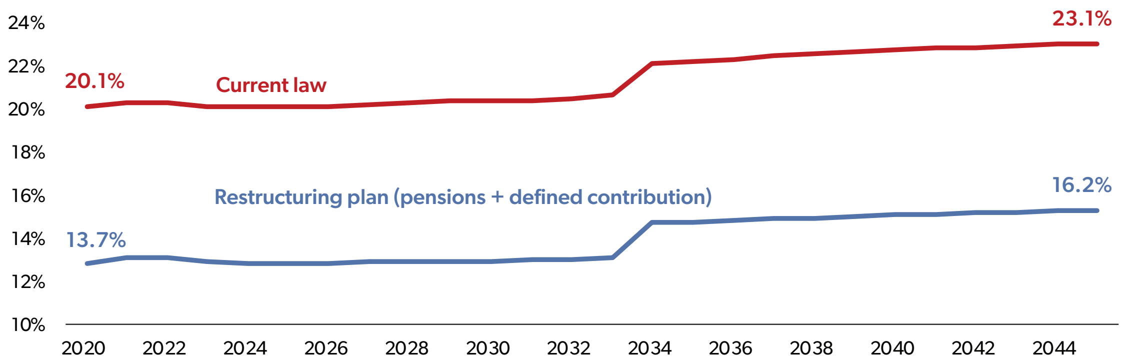
Those smaller contributions would put less pressure on Illinois' budget as compared to current law. Currently, state contributions to pensions will consume an average of 21 percent of Illinois' budget through 2045. Under the plan, the state's retirement contributions would fall to 15 percent on average [6]

State contributions to worker retirements under the reform plan would be divided into two parts: contributions to the pension fund and payments into workers' individual retirement accounts as part of the new defined contribution plan.

In 2020, $4.7 billion in state contributions will go toward pensions and $1.6 billion toward the defined contribution plan. By 2045, contributions will grow to $10.5 billion for pensions and $3 billion for the DC plan.

Pension restructuring plan: Average contributions drop to 15% of budget

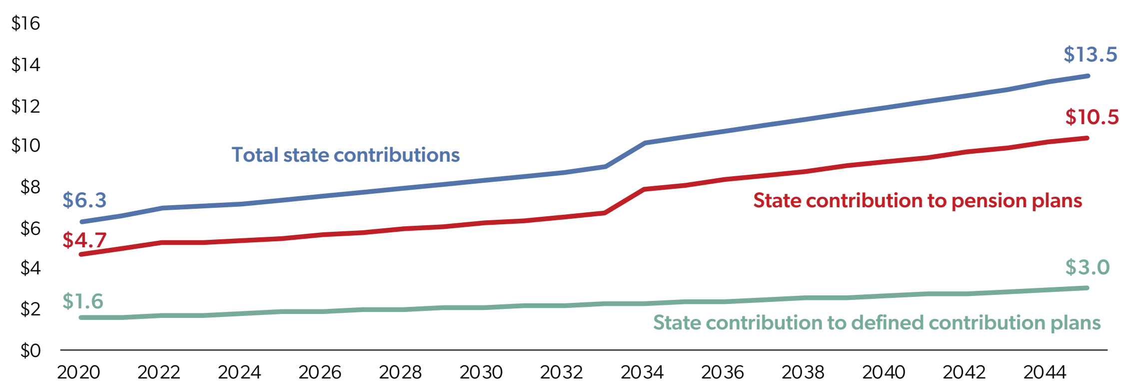
Current law vs. restructuring plan: Employer contributions to state retirement plans* as a percentage of state General Fund budget**



Source: Segal Consulting; Commission on Government Forecasting and Accountability; Wirepoints calculations. Actuarial data as of FY 2018.
*Extrapolated based on TRS' share of total state contributions. Excludes contributions from non-General Fund sources.
**Illinois General Fund budget based on GOMB's 5-year forecast, grown by 2.2% annually after 2026 based on COGFA projections.

Breakdown of state contributions under pension restructuring plan

Wirepoints restructuring plan: Annual state contributions* (in billions)



Source: Segal Consulting; Wirepoints calculations. Actuarial data as of FY 2018.
*Extrapolated based on TRS' share of total state contributions.

Retiree health insurance restructuring plan: Means-test benefits going forward

Wirepoints' restructuring of the state's retiree health insurance plan (SEGIP) does the following:

- Requires retirees to pay, on average, 54 percent of insurance premium costs – the average of employee premium contributions across the country. In contrast, Illinois' retired state workers currently pay, on average, just 10 percent of the total cost of annual health insurance premiums.[7]
- Achieves that 54 percent average by means-testing retirees' individual payments based on age, years of service and annual income. The plan would reward employees for long-time service, protect low-income retirees and discourage early retirements. In practice, that means older public sector retirees with many years of service and modest incomes would, on average, see little change in their premium payments, while those retiring in their 50s with six-figure pensions would be required to cover their own costs.

Wirepoints' plan is based on a series of reform scenarios produced by Mercer Consulting in a 2011 retiree health insurance report for Illinois' Commission on Government Forecasting and Accountability.[8]

Their goal was to redesign retiree health subsidies so retirees would, on a means-tested basis, pay for half the total annual cost of their insurance. That would have saved the state $300 million in FY 2012.

Several of Mercer's means-test scenarios used a "points" formula to determine individuals' contributions, one of which is laid out on the next page. A retiree's required contribution would be determined by adding up "points" based on his retirement age and years of service, then further modified based on his annual income. The greater the "points" and the lower the income, the lower the required contribution becomes.

For example, a retiree with 75 "points" (retirement age plus years of service) and an income of $110,000 would be required to pay for 80 percent of his health insurance premium.

In contrast, a retiree with 93 "points" and an income of $50,000 would be required to pay for just 15 percent of his premium.

Illinois retiree health insurance reform scenario structured by Mercer Consulting

Example Scenario 5 – Benefit points and ability-to-pay (estimated household income)

			Average per enrollee per year spend (FY 2012)			
Points (Based on age, service)	**Estimated household income**	**Projected enrollees**	**Gross plan cost**	**Enrollee contribution**	**Enrollee % paid**	**Net state cost**
0 - 78	$0-$30,000	14,884	$5,774	-$2,887	50%	$2,887
	$30,000-$60,000	5,060	$7,233	-$4,340	60%	$2,893
	$60,000-$100,000	4,304	$8,283	-$5,798	70%	$2,485
	$100,000-$200,000	3,146	$8,238	-$6,590	80%	$1,648
	$200,000-$250,000	440	$7,965	-$7,169	90%	$797
	$250,000+	258	$7,949	-$7,949	100%	$0
79 - 85	$0-$30,000	6,405	$5,204	-$1,821	35%	$3,383
	$30,000-$60,000	9,541	$6,675	-$3,004	45%	$3,671
	$60,000-$100,000	9,563	$8,058	-$4,432	55%	$3,626
	$100,000-$200,000	8,126	$7,970	-$5,181	65%	$2,790
	$200,000-$250,000	817	$7,609	-$5,706	75%	$1,902
	$250,000+	1,168	$7,581	-$7,581	100%	$0
86 - 92	$0-$30,000	2,867	$4,840	-$968	20%	$3,872
	$30,000-$60,000	7,061	$5,782	-$1,734	30%	$4,047
	$60,000-$100,000	8,859	$7,120	-$2,848	40%	$4,272
	$100,000-$200,000	7,946	$6,979	-$3,489	50%	$3,489
	$200,000-$250,000	1,001	$7,121	-$4,272	60%	$2,848
	$250,000+	1,292	$6,815	-$6,815	100%	$0
93+	$0-$30,000	2,509	$4,642	-$232	5%	$4,410
	$30,000-$60,000	3,600	$5,175	-$776	15%	$4,399
	$60,000-$100,000	5,165	$5,899	-$1,475	25%	$4,424
	$100,000-$200,000	6,730	$5,997	-$2,099	35%	$3,898
	$200,000-$250,000	1,270	$5,917	-$1,775	30%	$4,142
	$250,000+	1,657	$5,777	-$4,911	85%	$867

	Projected enrollees	Gross plan cost	Enrollee contribution	Enrollee % paid	Net state cost
Scenario cost breakdown	**113,669**	**$750,900,000**	**$370,700,000**	**49%**	**$380,200,000**
Current cost breakdown	**113,669**	**$750,900,000**	**$70,300,000**	**9%**	**$680,600,000**
Difference	**0**	**$0**	**$300,400,000**	**40%**	**-$300,400,000**

Source: Commission on Government Forecasting and Accountability, Mercer Report "Retiree Healthcare Contributions, May 2011"

Wirepoints' restructuring of SEGIP benefits would impact state finances in the following ways:

- **$20 billion immediate drop in accrued liabilities.** The state's $40 billion in SEGIP liabilities falls to $20 billion, a 50 percent reduction.

- **$1 billion reduction in average annual contributions through 2045.** Savings in 2021 under the plan would total nearly $500 million.

- **$27 billion total reduction in contributions through 2045.** That's a reduction of $16 billion in present value terms.

Moving forward, the state could reduce this liability further and help remove the current incentive for workers to retire early by capping subsidies for new retirees and ending subsidies for new hires altogether.

Retiree health restructuring: Requiring retirees to pay half their costs creates 1st-year state savings of $500 million

Current law vs. restructuring plan: Total state and enrollee contributions to SEGIP retiree heath insurance, FY 2021 ($ in millions)

	Gross plan cost	Enrollee contribution	Enrollee contribution %	Net state cost	Net state cost %
Current law	$1,025.0	$80.7	8%	$944.3	92%
Restructuring plan	$1,025.0	$553.5	54%	$471.5	46%
Difference		**$472.8**	**46%**	**-$472.8**	**-46%**

Source: Illinois Department of Central Management Services; Wirepoints calculations

Note: Assumes all savings accrue to the state's General Fund.

Retiree health restructuring plan savings

Current law vs. Wirepoints restructuring plan: Annual state contributions to SEGIP,* (in billions)

Year	Current law	Restructuring plan	Savings
2020	$1.0	$0.5	$0.5
2021	$1.1	$0.6	$0.5
2022	$1.2	$0.6	$0.6
2023	$1.3	$0.7	$0.7
2024	$1.5	$0.7	$0.7
2025	$1.6	$0.8	$0.8
2026	$1.7	$0.9	$0.8
2027	$1.8	$0.9	$0.9
2028	$1.9	$1.0	$0.9
2029	$2.0	$1.0	$1.0
2030	$2.1	$1.1	$1.0
2031	$2.1	$1.1	$1.0
2032	$2.2	$1.1	$1.1
2033	$2.3	$1.2	$1.1
2034	$2.3	$1.2	$1.1
2035	$2.4	$1.2	$1.2
2036	$2.5	$1.3	$1.2
2037	$2.5	$1.3	$1.2
2038	$2.6	$1.3	$1.3
2039	$2.6	$1.3	$1.3
2040	$2.7	$1.4	$1.3
2041	$2.8	$1.4	$1.3
2042	$2.8	$1.4	$1.4
2043	$2.9	$1.5	$1.4
2044	$2.9	$1.5	$1.4
2045	$2.9	$1.5	$1.4
Total	**$55.7**	**$28.5**	**$27.2**
Average	**$2.1**	**$1.1**	**$1.0**

Source: Commission on Government Forecasting and Accountability; Wirepoints calculations. Actuarial data as of FY 2018.
*Based on SEGIP-projected "Expected Employer Claims"

Combined impact of retirement restructuring plans

Wirepoints' baseline restructuring plan accomplishes the following:

- Reduces the state's structural liabilities to help Illinois escape its downward spiral of growing debts and a shrinking population.
- Restores retirement security for state workers and retirees while protecting already-earned benefits to the extent possible.
- Helps reestablish a competitive level of services, tax rates and economic growth for Illinois.
- Helps ensure that Illinois' most vulnerable citizens no longer suffer from a lack of core services and punitive tax increases.
- Ends the unfair Tier 2 system, where workers hired after 2010 are forced to subsidize the benefits of Tier 1 workers and retirees.
- Improves budget certainty for governments and taxpayers by turning future retirement contributions into known, predictable, fixed costs.
- Ensures that retirements are controlled by workers themselves, not Illinois lawmakers. Workers must receive flexible, portable retirement plans they own and control.
- Ensures that reforms are "reasonable and necessary" to comply with the U.S. Constitution's contracts clause.

The most obvious benefit of the restructuring plan is the immediate reduction in the state's official debt burden. Illinois' $192 billion in pension and retiree health insurance shortfalls – the nation's 3rd-highest – immediately falls to under $120 billion. On a per household basis, that's a drop to $24,000 from nearly $40,000.[9]

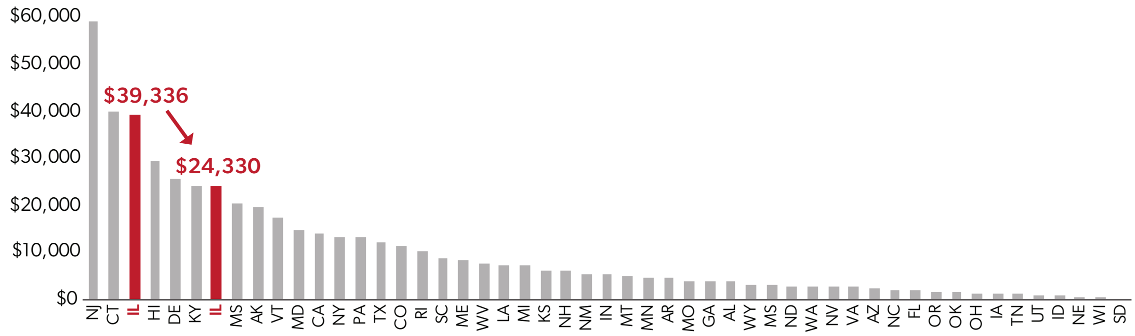
That's still high in relative terms, but moving to a defined contribution for all workers means not having to cut as much retirement debt as would otherwise be necessary. The elimination of new defined benefits and additional member contributions to retiree health means that Illinois' per capita debt burden over time will continue to shrink compared to other states.

The immediate reduction of $4 billion in contributions means retirement costs as a percentage of Illinois' General Fund budget will fall to 17 percent from a current nationwide high of 26 percent. Over time, that will free up resources for core services that have been crowded out by retirement costs.[10]

The state will also have far more budget certainty. Future retirement payments will become a more known, predictable, fixed value as unfunded pension debts decline and defined contributions become a larger share of the state's retirement costs. That also applies to Illinois taxpayers, who will have more certainty in their contributions (taxes) to worker retirements.

Official state retirement shortfall per household falls to $24,000 under Wirepoints restructuring plan

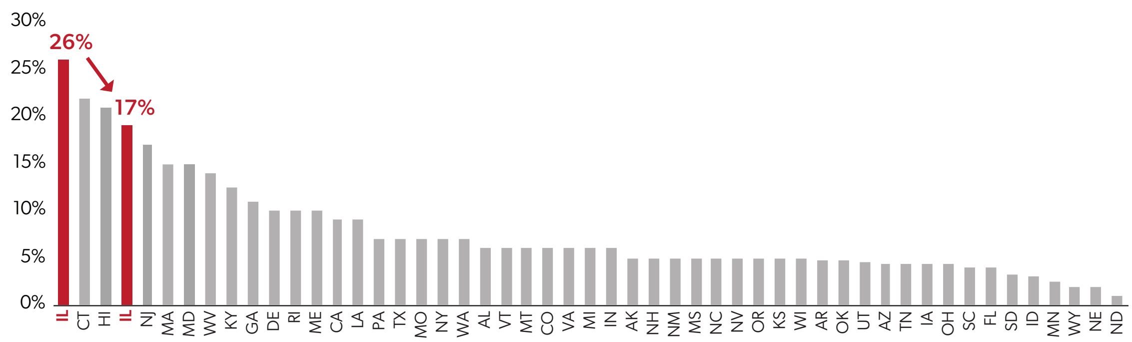
Illinois state pension and retiree health unfunded liabilities per household vs. other states, FY 2018
Current law vs. restructuring plan



Source: Moody's; Segal Consulting; Commission on Government Forecasting and Accountability; Wirepoints calculations. Actuarial data as of FY 2018.

Official state retirement contributions fall to 17 percent of budget under Wirepoints restructuring plan

Illinois state pension, defined contribution, retiree health and direct debt interest costs as a percentage of budget vs. other states, FY 2017; Current law vs. restructuring plan



Source: JP Morgan's Michael Cembalest: "The ARC and the Covenants 4.0"; Segal Consulting; Wirepoints calculations. Actuarial data as of FY 2017.

Beyond the benefits of helping bring an end to the state's retirement crisis, the restructuring plan has several other advantages. The plan ends the unfair Tier 2 system, where workers hired after 1/1/2011 are forced to subsidize the benefits of Tier 1 workers and retirees. Going forward, all new and current Tier 2 workers will contribute 15 percent of their salaries (7 percent employer, 8 percent employee) toward their own retirements, not subsidize someone else's.[11]

The restructuring plan also ensures retirement security for workers. Defined contribution plans are controlled by workers themselves, not Illinois politicians. Politicians can't skip payments to individual accounts like they have done to the pension systems.

The combined impact of the restructuring plan will restore a level of confidence in Illinois that has been missing for several decades. Of course, the restructuring plan alone is not enough to fully set Illinois on the right path. Debt reduction must be combined with other key reforms: local government consolidation, collective bargaining reforms, fair maps, and more so Illinois can finally escape its downward financial spiral and reestablish a competitive level of services, tax rates and economic growth for Illinois.

Retirement restructuring plan: total savings

Under the combined restructuring plan, the state will be required to make $137 billion less in retirement contributions through 2045. Those smaller contributions would put less pressure on Illinois' General Fund budget as compared to current law. Currently, state contributions to retirements will consume an average of 25 percent of Illinois' budget through 2045. Under the plan, the state's retirement contributions would fall to an average of 17 percent of budget.

Total projected savings of retirement restructuring plan

Current law vs. restructuring plan: State contributions to pensions, retiree health insurance (in billions)

Pensions + defined contribution plans State contributions*				Retiree health insurance (SEGIP) State contributions**			Restructuring plan total annual savings
Year	Current law	Restructuring plan	Savings	Current law	Restructuring plan	Savings	
2020	$9.2	$6.3	$3.0	$1.0	$0.5	$0.5	**$3.5**
2021	$9.6	$6.6	$3.0	$1.1	$0.6	$0.5	**$3.6**
2022	$10.1	$6.9	$3.1	$1.2	$0.6	$0.6	**$3.7**
2023	$10.3	$7.1	$3.2	$1.3	$0.7	$0.7	**$3.9**
2024	$10.5	$7.2	$3.3	$1.5	$0.7	$0.7	**$4.1**
2025	$10.8	$7.3	$3.4	$1.6	$0.8	$0.8	**$4.2**
2026	$11.0	$7.5	$3.5	$1.7	$0.9	$0.8	**$4.3**
2027	$11.3	$7.7	$3.6	$1.8	$0.9	$0.9	**$4.5**
2028	$11.6	$7.9	$3.7	$1.9	$1.0	$0.9	**$4.6**
2029	$11.9	$8.1	$3.8	$2.0	$1.0	$1.0	**$4.8**
2030	$12.2	$8.3	$3.9	$2.1	$1.1	$1.0	**$4.9**
2031	$12.5	$8.5	$4.0	$2.1	$1.1	$1.0	**$5.0**
2032	$12.8	$8.7	$4.1	$2.2	$1.1	$1.1	**$5.2**
2033	$13.2	$9.0	$4.2	$2.3	$1.2	$1.1	**$5.3**
2034	$14.5	$10.2	$4.3	$2.3	$1.2	$1.1	**$5.4**
2035	$14.8	$10.5	$4.4	$2.4	$1.2	$1.2	**$5.6**
2036	$15.2	$10.7	$4.5	$2.5	$1.3	$1.2	**$5.7**
2037	$15.6	$11.0	$4.6	$2.5	$1.3	$1.2	**$5.9**
2038	$16.0	$11.3	$4.7	$2.6	$1.3	$1.3	**$6.0**
2039	$16.5	$11.6	$4.9	$2.6	$1.3	$1.3	**$6.2**
2040	$16.9	$11.9	$5.0	$2.7	$1.4	$1.3	**$6.3**
2041	$17.3	$12.2	$5.1	$2.8	$1.4	$1.3	**$6.5**
2042	$17.8	$12.5	$5.3	$2.8	$1.4	$1.4	**$6.6**
2043	$18.2	$12.8	$5.4	$2.9	$1.5	$1.4	**$6.8**
2044	$18.7	$13.1	$5.5	$2.9	$1.5	$1.4	**$6.9**
2045	$19.1	$13.5	$5.7	$2.9	$1.5	$1.4	**$7.1**
Total savings			$109.3			$27.2	$136.6
Average savings			$4.2			$1.0	$5.3

Source: Segal Consulting; Commission on Government Forecasting and Accountability; Wirepoints calculations. Actuarial data as of FY 2018.
*Extrapolated based on TRS' share of total state contributions.
**Based on SEGIP-projected "Expected Employer Claims."

Impact of retirement restructuring plan on Illinois' General Fund budget

Current law vs. restructuring plan: State contributions to pensions, retiree health insurance as a percentage of General Fund budget, (in billions)

Year	Illinois General Fund budget	Retirement and retiree health contributions to General Fund*		% of budget	
		Current law	Restructuring plan	Current law	Restructuring plan
2020	$40.6	$9.2	$6.1	23%	**15%**
2021	$42.2	$9.7	$6.4	23%	**15%**
2022	$43.8	$10.1	$6.8	23%	**15%**
2023	$45.0	$10.4	$6.9	23%	**15%**
2024	$46.1	$10.7	$7.1	23%	**15%**
2025	$47.3	$11.1	$7.3	23%	**15%**
2026	$48.3	$11.4	$7.5	24%	**16%**
2027	$49.4	$11.8	$7.7	24%	**16%**
2028	$50.4	$12.1	$8.0	24%	**16%**
2029	$51.6	$12.5	$8.2	24%	**16%**
2030	$52.7	$12.8	$8.4	24%	**16%**
2031	$53.8	$13.1	$8.6	24%	**16%**
2032	$55.0	$13.5	$8.8	25%	**16%**
2033	$56.2	$13.9	$9.1	25%	**16%**
2034	$57.5	$15.1	$10.2	26%	**18%**
2035	$58.7	$15.5	$10.4	26%	**18%**
2036	$60.0	$15.9	$10.7	26%	**18%**
2037	$61.4	$16.3	$11.0	27%	**18%**
2038	$62.7	$16.7	$11.3	27%	**18%**
2039	$64.1	$17.2	$11.6	27%	**18%**
2040	$65.5	$17.6	$11.9	27%	**18%**
2041	$66.9	$18.0	$12.2	27%	**18%**
2042	$68.4	$18.5	$12.5	27%	**18%**
2043	$69.9	$18.9	$12.8	27%	**18%**
2044	$71.4	$19.3	$13.1	27%	**18%**
2045	$73.0	$19.8	$13.4	27%	**18%**
Average		**$14.3**	**$9.5**	**25%**	**17%**

Source: Segal Consulting; Commission on Government Forecasting and Accountability; Wirepoints calculations. Actuarial data as of FY 2018.

*Pension contributions extrapolated based on TRS' share of total state contributions. Excludes contributions from non-General Fund sources. Retiree health contributions based on SEGIP- projected "Expected Employer Claims." Assumes all retiree health savings accrue to the General Fund.

Note: Illinois General Fund budget based on GOMB's 5-year forecast, grown by 2.2% annually after 2026 based on COGFA projections.

Other potential reforms

It's impossible to know how severe the economic damage of the COVID-19 crisis will be. That's precisely why the state's constitutional language must be flexible enough to allow Illinois' different units of government to pursue various kinds of reforms.

In addition, changes to the state's own pensions may have to go beyond the baseline reforms Wirepoints has outlined in this paper.

Some funds may be required to change benefits – in the form of caps, tiered reductions, salary freezes, and other changes – to reduce their debts to a manageable level.

Segal Consulting scored three additional reform scenarios for state-level pensions that could provide supplemental savings or amend elements of Wirepoints' baseline plan. Of course, the scoring of countless other variations are possible, but the high cost of actuarial consultants limited the number of scenarios.

For that reason, Segal only analyzed reforms for TRS as of FY 2019 and maintained the state's current actuarial assumptions and statutory payment schedule (90 percent funded by 2045).

It's also important to note that Segal scored each of the reform scenarios independently from Wirepoints' restructuring plan. The savings below are based solely on the changes listed and do not include a freeze of defined benefit plans, a move to defined contribution plans, or means-tested COLA benefits.

As such, Segal's results should only serve as a general guide of how Illinois pensions would be impacted if the state enacted any combination of the below in addition to Wirepoints' baseline plan.

1. Impose a pension benefit cap

Segal scored the following proposal for TRS:

Maintain current pension laws, except: Impose a maximum benefit cap on the annual pension benefits of all current and future retirees (cap to be indexed to inflation going forward). Cap levels to run: $75,000, $100,000, and $125,000.

Current retirees with annual pension benefits above the cap would have their annual benefit immediately reduced to the cap amount.

Wirepoints has extrapolated the savings to include all five state funds, based on TRS' share of the state's total accrued liabilities. However, this method of extrapolation may overstate savings to a certain extent, as TRS' mix of pension benefits differs from that of the other four state funds.

Enacting a benefit cap would reduce the present value of the state's total contributions through 2045 by approximately $2 billion to $25 billion, depending on the size of the cap.[12]

Reduction in state contributions by capping pension benefits

Segal results for TRS based on laws in effect as of FY 2019; extrapolated by Wirepoints to cover the five state pension funds, (in billions)

Scenarios	Reduction in state contributions through 2045 (present value) *TRS only*		Reduction in state contributions through 2045 (present value) *Five state funds*
Benefit cap of $75,000	($13.7)	Extrapolated* →	($25.3)
Benefit cap of $100,000	($4.1)		($7.7)
Benefit cap of $125,000	($1.2)		($2.2)

Source: Segal Consulting; Wirepoints calculations. Actuarial data as of FY 2019.

*Extrapolated based on TRS' share of total state accrued liabilities (57%).

2. Tiered reduction in pension benefits

Segal scored the following proposal for TRS:

Maintain current pension laws, except: Immediately reduce all benefits of current retirees based on the following current annual pension amounts:

- **Annual benefits of $50,000 to $69,999 reduced by 10 percent with a floor of $50,000.**
- **Annual benefits of $70,000 to $99,999 reduced by 15 percent.**
- **Annual benefits of $100,000 and above reduced by 20 percent.**

Going forward, future members would have their initial annual benefits at retirement reduced based on the above brackets (Brackets to be indexed to inflation going forward).

Wirepoints has extrapolated the savings to include all five state funds, based on TRS' share of the state's total accrued liabilities. However, this method of extrapolation may overstate savings to a certain extent, as TRS' mix of pension benefits differs from that of the other four state funds.

Enacting a tiered reduction of benefits would reduce the present value of the state's total contributions through 2045 by approximately $24 billion.[13]

Reduction in state contributions by enacting tiered benefit cuts

Segal results for TRS based on laws in effect as of FY 2019; extrapolated by Wirepoints to cover the five state pension funds, (in billions)

Scenario	Reduction in state contributions through 2045 (present value) *TRS only*		Reduction in state contributions through 2045 (present value) *Five state funds*
Tiered benefit reductions: $50K to $70K reduced 10% (floor of $50K) $70K to $100K reduced 15% $100K and above reduced 20%	($13.2)	Extrapolated* →	($24.4)

Source: Segal Consulting; Wirepoints calculations. Actuarial data as of FY 2019.

*Extrapolated based on TRS' share of total state accrued liabilities (57%).

3. Pensionable salary freeze

Segal scored the following proposal for TRS:

Maintain current pension laws, except: Assume a freeze on pensionable salaries as of June 30, 2020, for all current and future active workers. Freezes to run: a 5-year freeze, a 10-year freeze.

Wirepoints has extrapolated the savings to include all five state funds, based on TRS' share of the state's total accrued liabilities. However, this method of extrapolation may overstate savings to a certain extent, as TRS' mix of member salaries differs from that of the other four state funds.

Enacting a salary freeze would reduce the present value of state's total contributions through 2045 by approximately $6 billion to $8.5 billion, depending on the length of the freeze.[14]

Reduction in state contributions by enacting a salary freeze

Segal results for TRS based on laws in effect as of FY 2019; extrapolated by Wirepoints to cover the five state pension funds, (in billions)

Scenarios	Reduction in state contributions through 2045 (present value) *TRS only*		Reduction in state contributions through 2045 (present value) *Five state funds*
5-year salary freeze	($3.3)	Extrapolated* →	($6.1)
10-year salary freeze	($4.6)		($8.5)

Source: Segal Consulting; Wirepoints calculations. Actuarial data as of FY 2019.

*Extrapolated based on TRS' share of total state accrued liabilities (57%).

Conclusion

Only 60 years ago, Illinois was a destination state for Americans and people across the globe. Illinoisans flourished alongside the state's economic and manufacturing might, world-class universities, vast farmland, a massive transportation hub and much more.

Today, Illinois is no longer the beacon it once was. Bipartisan failure has made Illinois a national outlier – and in many cases, the extreme outlier – on the fiscal, economic and demographic measures that matter most. As a result, this state now has the nation's worst credit rating, one of the country's highest tax burdens and record out-migration. In this decade, Illinois has suffered the biggest population loss of any state in the country.

Too many families, entrepreneurs and small businesses don't feel they can make it here anymore. They've lost confidence in Illinois' leadership.

The state's key influencers and the general public shouldn't wait until Illinois becomes a failed state before finally demanding change. It's vital to reform the state now, while it still has assets and dynamism, rather than wait until Illinois is a shadow of its former self.

Many fiscal, governance and economic reforms are needed to restore Illinois. This paper has focused on just one: the state's overwhelming and suffocating pension debts. No state can properly serve its residents or take care of its most vulnerable if it's constantly on the brink of a financial crisis.

No amount of higher taxes, policy Band-Aids and wishful thinking will help Illinois escape its downward spiral or become competitive again. Only a reduction in its monumental debts will.

Fortunately, more than a few voices have begun to call for an amendment to the Illinois Constitution's pension protection clause. They include media outlets such as the Chicago Tribune and Crain's Chicago Business; civic groups and policy organizations such as the Civic Federation, the Better Government Association and the Civic Committee; as well as political leaders including former Chicago Mayor Rahm Emanuel.[1, 2, 3]

Wirepoints has made the case that an amendment to the Illinois Constitution is legal. We've shown why reforms are necessary and urgent. And we've laid out a baseline case for reform.

What Illinois needs now are leaders from all parts of the state to take the first step and push for a pension amendment.

Appendices

Appendix A. Defined contribution plans can provide generous retirement benefits for state workers

A defined contribution plan like the one SURS provides can grant retirement benefits to state workers that are comparable to the current pension system. An investment return scenario based on actual annual returns of the stock and bond markets since 1978 is provided below. The portfolio is based on a split of the S&P 500 and Barclays U.S. Aggregate Bond Index.[4]

Investments matching actual combined market/bond returns would grant a career teacher $1.8 million at retirement

Defined contribution plan investment returns: Portfolio based on a split of S&P 500 and Barclays U.S. Aggregate Bond Index returns

Year	Years of service	Age	Salary[1]	Annual salary increase[2]	Contribution to retirement account (7% employee, 8% employer)	Actual annual S&P 500 returns, including dividends	Barclays U.S. aggregate bond returns[3]	Average return[4]	401(k)-style plan beginning balance	Investment income[5]	SMP plan annual ending balance
			A		B = (A*15%)				C	D	B+C+D
1978	1	23	$11,660	9.50%	$1,749	6.4%	3.8%	6.1%	$1,749	$53	$1,802
1979	2	24	$12,768	7.50%	$1,915	18.7%	3.8%	16.6%	$1,802	$458	$4,175
1980	3	25	$13,725	7.00%	$2,059	32.8%	2.7%	28.3%	$4,175	$1,471	$7,705
1981	4	26	$14,686	16.00%	$2,203	-5.3%	6.3%	-3.5%	$7,705	-$306	$9,602
1982	5	27	$17,036	6.50%	$2,555	21.2%	32.7%	23.2%	$9,602	$2,520	$14,677
1983	6	28	$18,143	6.50%	$2,721	23.1%	8.2%	20.4%	$14,677	$3,278	$20,677
1984	7	29	$19,322	6.50%	$2,898	6.0%	15.2%	7.7%	$20,677	$1,705	$25,280
1985	8	30	$20,578	6.50%	$3,087	32.2%	22.1%	30.2%	$25,280	$8,106	$36,472
1986	9	31	$21,916	6.50%	$3,287	19.1%	15.3%	18.3%	$36,472	$6,964	$46,724
1987	10	32	$23,341	6.50%	$3,501	5.7%	2.8%	5.0%	$46,724	$2,445	$52,670
1988	11	33	$24,858	6.50%	$3,729	16.6%	7.9%	14.6%	$52,670	$7,977	$64,375
1989	12	34	$26,473	16.00%	$3,971	32.0%	14.5%	27.8%	$64,375	$18,453	$86,799
1990	13	35	$30,709	5.50%	$4,606	-3.4%	9.0%	-0.3%	$86,799	-$290	$91,116
1991	14	36	$32,398	5.50%	$4,860	31.0%	16.0%	27.1%	$91,116	$25,316	$121,292
1992	15	37	$34,180	5.50%	$5,127	7.6%	7.4%	7.5%	$121,292	$9,346	$135,765
1993	16	38	$36,060	5.00%	$5,409	10.2%	9.8%	10.1%	$135,765	$13,920	$155,094
1994	17	39	$37,863	5.00%	$5,679	1.2%	-2.9%	0.0%	$155,094	-$3	$160,770
1995	18	40	$39,756	5.00%	$5,963	38.0%	18.5%	32.2%	$160,770	$52,649	$219,383
1996	19	41	$41,744	5.00%	$6,262	23.1%	3.6%	17.0%	$219,383	$37,916	$263,560
1997	20	42	$43,831	5.00%	$6,575	33.7%	9.6%	26.0%	$263,560	$69,328	$339,463
1998	21	43	$46,023	5.00%	$6,903	28.7%	8.7%	22.1%	$339,463	$75,853	$422,220
1999	22	44	$48,324	5.00%	$7,249	21.1%	-0.8%	13.7%	$422,220	$58,144	$487,612
2000	23	45	$50,740	5.00%	$7,611	-9.1%	11.6%	-1.9%	$487,612	-$9,096	$486,127
2001	24	46	$53,277	4.00%	$7,992	-12.0%	8.4%	-4.6%	$486,127	-$22,704	$471,414
2002	25	47	$55,408	4.00%	$8,311	-22.3%	10.3%	-10.2%	$471,414	-$48,669	$431,056
2003	26	48	$57,624	4.00%	$8,644	28.7%	4.1%	19.4%	$431,056	$84,308	$524,008
2004	27	49	$59,929	4.00%	$8,989	10.8%	4.3%	8.3%	$524,008	$43,828	$576,825
2005	28	50	$62,327	4.00%	$9,349	4.8%	2.4%	3.8%	$576,825	$22,364	$608,539
2006	29	51	$64,820	4.00%	$9,723	15.7%	4.3%	11.1%	$608,539	$67,854	$686,115
2007	30	52	$67,412	4.00%	$10,112	5.5%	7.0%	6.1%	$686,115	$42,121	$738,348
2008	31	53	$70,109	4.00%	$10,516	-37.2%	5.2%	-19.0%	$738,348	-$141,004	$607,861
2009	32	54	$72,913	4.00%	$10,937	27.1%	5.9%	17.8%	$607,861	$109,116	$727,914
2010	33	55	$75,830	4.00%	$11,374	14.9%	6.5%	11.1%	$727,914	$81,587	$820,876
2011	34	56	$78,863	4.00%	$11,829	2.1%	7.8%	4.7%	$820,876	$39,059	$871,764
2012	35	57	$82,018	4.00%	$12,303	15.9%	4.2%	10.4%	$871,764	$91,301	$975,368
2013	36	58	$85,298	4.00%	$12,795	32.4%	-2.0%	15.9%	$975,368	$156,042	$1,144,205
2014	37	59	$88,710	4.00%	$13,307	13.8%	6.0%	10.0%	$1,144,205	$114,722	$1,272,234
2015	38	60	$92,259	6.00%	$13,839	1.3%	0.6%	0.9%	$1,272,234	$11,896	$1,297,969
2016	39	61	$97,794	6.00%	$14,669	11.9%	2.7%	7.2%	$1,297,969	$93,881	$1,406,519
2017	40	62	$103,662	6.00%	$15,549	8.0%	3.5%	5.7%	$1,406,519	$80,343	$1,502,412
2018	41	63	$109,881	6.00%	$16,482	-4.4%	0.0%	-2.1%	$1,502,412	-$31,231	$1,487,663
2019	42	64	$116,474		$17,471	31.1%	8.7%	19.0%	$1,487,663	$284,537	$1,789,671
										Balance at retirement:	$1,789,671

Source: Teachers' Retirement System, 2019 & 1983 actuarial reports; ISBE EIS Teacher Salary Database, 2018; Morningstar (Barclays U.S. Aggregate Bond Index); MarketWatch (S&P 500 annual historical returns); Wirepoints calculations

[1] Beginning salary based on median salary of teachers with one year of service in 1978.

[2] Annual raises based on "Salary Increase Rates" from TRS' 2019 Actuarial Report. Two "step and lane" raises are included as well as end-of-career 6 percent salary spikes.

[3] Bond rates of return for 1978-1979 not available, most recent 10-year average rate of return used (3.8%)

[4] Average return based on a mix of equity and bond returns derived from: (110 - current age / 100 = % invested in equities)

[5] Investment income is based on an even distribution of employee and employer contributions over the course of a year

Appendix B. Results of Segal-scored pension restructuring plan

Segal Consulting

101 North Wacker Drive, Suite 500 Chicago, IL 60606-1724
T 312.984.8500 www.segalco.com

March 6, 2019

Via E-Mail

Clayton Klenke
Executive Director
Commission on Government Forecasting and Accountability
703 Stratton Office Bldg.
Springfield, IL 62706

Re: **Actuarial Impact Study – Morrison TRS Hard Freeze Request**

Dear Clayton:

As requested, we have performed an analysis regarding the impact of potential changes on projected costs of the Teachers' Retirement System (TRS). This analysis is based on a "hard freeze" of TRS pension accruals, future participation in a defined contribution arrangement similar to the State Universities Retirement System (SURS) Self-Managed Plan (SMP), and the requested scenarios regarding future Cost of Living Adjustments (COLAs), which are outlined below. The results of our analysis are shown on the attached exhibits.

Baseline Projection

The exhibits accompanying this document were prepared using actuarial assumptions consistent with those employed in the most recent actuarial valuation of TRS as of June 30, 2018. The Baseline Projection and the scenarios described in the following section show the projected contributions, actuarial liabilities, actuarial assets, and funded position through 2045. All exhibits show a subtotal of State contributions through 2045, as well as one additional year to demonstrate the change in TRS contribution once the 90% funding target is achieved.

Scenarios with Potential Benefit Changes

All scenarios include a "hard freeze" of pension accruals under TRS. For purposes of this analysis, a hard freeze means that new members will no longer participate in the TRS defined benefit structure and existing members will have their pension benefit based upon benefit service and final average salary as of the freeze date. The assumed freeze date for this analysis is June 30, 2019.

After June 30, 2019, existing and future TRS members will participate in a defined contribution arrangement, similar to the SURS SMP. Under the SMP, the State is required to contribute 7.6% of pay for active members. Members also contribute 8.0% of pay to their accounts; however, for purposes of this analysis, the member SMP contributions are not considered since the focus is on the projected costs for the State.

Mr. Clayton Klenke
Commission on Government Forecasting and Accountability
March 6, 2019
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With respect to funding the legacy unfunded TRS liability, the request stated that Segal should assume that the 90% funding target as of fiscal 2045 remains, per current law. The variations requested were:

Scenario 1 – Hard freeze of TRS pensions, plus future accruals for all TRS members are under an SMP.

Scenario 2 – Freeze and SMP as described in Scenario 1, plus an immediate suspension of all COLAs (current and future retirees) until TRS is fully funded.

Scenario 3 – Freeze and SMP as described in Scenario 1, plus an immediate change of COLAs to 1% simple (current and future retirees) until TRS is fully funded.

Scenario 4 – Freeze and SMP as described in Scenario 1, plus an immediate change of COLAs to 1% simple, but limited to pensioners who receive pensions less than or equal to $50,000 (indexed with inflation).

Changes to the COLA would be effective until TRS is fully funded. However, since the funding schedule is based on a target of 90%, and the projections rely on all actuarial assumptions being met, TRS is not projected to be fully funded and the changes are assumed to remain in effect throughout the entire projection.

Actuarial Analysis

For purposes of this analysis, all changes are assumed to be effective July 1, 2019 unless otherwise noted.

	Based on Total Payroll	
Scenario	Nominal Increase/ (Reduction) in State Contribution Through FY2045	Present Value of Increase/ (Reduction) in State Contribution Through FY2045
Scenario 1 – Freeze/SMP	$ 5.14B	$ 2.10B
Scenario 2 – Suspension of COLAs	($ 69.15B)	($ 27.38B)
Scenario 3 – 1% Simple COLAs	($ 49.44B)	($ 19.56B)
Scenario 4 – 1% COLAs Below $50k	($ 59.59B)	($ 23.59B)

Under Scenario 1, without any change to the COLA, a hard freeze to TRS accruals replaced with a 7.6% SMP contribution results in a net cost to the State through 2045 of $5.14B (or $2.10B on a present value basis). As illustrated on the Scenario 1 exhibit, the required State contribution to TRS in 2046 (and thereafter) drops from over $9B to under $1B. The result is an increase in State contribution for 2046 of $1.49B in that year alone.

Scenarios 2 through 3, which include adjustments to COLAs for existing and future retirees, include nominal contribution savings through 2045 ranging from $49B to $69B ($20B to $27B on a present value basis).

This analysis has been prepared at your request and is not to be considered a recommendation by Segal. Segal has not contemplated the legal considerations of enacting these provisions in our projections.

Mr. Clayton Klenke
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Discussion of Risk

As noted, the results of these projections are based on all assumptions materializing as expected, including the 7.00% investment return assumption (unless otherwise stated). To the extent there is adverse experience, the projection scenarios would generate larger required employer contributions and potentially more or less change in State contribution than indicated above. Since under the SMP arrangement, all investment risk is shifted to the employee, returns less than expected will generally increase the savings of Scenarios 1 through 4 relative to the baseline. However, in absolute dollars, in a situation with adverse investment experience, the required State contributions would increase under all scenarios.

Similarly, another risk of TRS is mortality risk: the risk to the Plan of members living longer than expected and thereby receiving more benefit payments from TRS than assumed. Under the SMP arrangement, mortality risk is also shifted to the member. Again, in a situation where retired members live longer than assumed, the required State contributions will be larger under all scenarios, even though the savings of Scenarios 1 through 4 relative to the baseline would generally increase.

Data, Plan Provisions, Methods and Assumptions

Except as provided elsewhere in this letter, the data, plan provisions, methods and assumptions are as described in the June 30, 2018 actuarial valuation report dated January 11, 2019. Any actual experience occurring subsequent to June 30, 2018 is not reflected in this analysis. The Present Values of the (Reduction)/Increase in State Contributions are based on a date of June 30, 2018 and 7% interest.

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

5835131V2/13826.002

TRS – Baseline Projection

Funding Projections for the Teachers' Retirement System
Based on Laws in Effect on June 30, 2018
Actuarially Assumed Rate of Return: 7.00%
($ in millions)

Fiscal Year Ending 6/30	Annual State Payroll	Total State Contribution	State Contribution as Percent of Payroll	Total Employee Contribution	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Liability	Funded Ratio
2018					$127,019.3	$51,730.9	$75,288.4	40.7%
2019	$10,436.7	$4,353.3	41.7%	$958.5	130,426.1	53,434.6	76,991.5	41.0%
2020	10,735.5	4,813.1	44.8%	985.9	134,278.7	55,856.3	78,422.4	41.6%
2021	11,093.1	5,075.9	45.8%	1,018.8	138,146.5	59,192.7	78,953.7	42.8%
2022	11,460.4	5,311.6	46.3%	1,052.5	142,146.1	62,254.9	79,891.1	43.8%
2023	11,836.7	5,422.1	45.8%	1,087.0	146,160.1	65,263.6	80,896.5	44.7%
2024	12,204.7	5,548.1	45.5%	1,120.8	150,185.7	68,361.6	81,824.0	45.5%
2025	12,579.2	5,703.7	45.3%	1,155.2	154,213.3	71,574.1	82,639.3	46.4%
2026	12,960.5	5,879.8	45.4%	1,190.2	158,230.0	74,922.6	83,307.5	47.4%
2027	13,347.7	6,060.6	45.4%	1,225.8	162,211.6	78,407.1	83,804.4	48.3%
2028	13,734.4	6,227.9	45.3%	1,261.3	166,137.9	82,009.3	84,128.6	49.4%
2029	14,137.3	6,405.6	45.3%	1,298.3	169,996.2	85,743.2	84,253.0	50.4%
2030	14,547.6	6,574.7	45.2%	1,336.0	173,767.9	89,602.8	84,165.2	51.6%
2031	14,966.5	6,751.0	45.1%	1,374.5	177,430.7	93,593.1	83,837.6	52.7%
2032	15,394.0	6,949.7	45.1%	1,413.7	180,962.4	97,738.5	83,223.9	54.0%
2033	15,826.4	7,167.9	45.3%	1,453.4	184,339.5	102,061.3	82,278.2	55.4%
2034	16,263.1	7,994.3	49.2%	1,493.6	187,542.9	107,197.7	80,345.2	57.2%
2035	16,708.5	8,215.0	49.2%	1,534.5	190,552.4	112,576.2	77,976.2	59.1%
2036	17,163.6	8,440.6	49.2%	1,576.3	193,359.2	118,222.6	75,136.5	61.1%
2037	17,634.2	8,673.8	49.2%	1,619.5	195,947.3	124,169.9	71,777.4	63.4%
2038	18,112.6	8,911.1	49.2%	1,663.4	198,291.6	130,440.0	67,851.6	65.8%
2039	18,591.8	9,148.8	49.2%	1,707.4	200,396.3	137,082.4	63,313.9	68.4%
2040	19,067.2	9,384.8	49.2%	1,751.1	202,228.0	144,109.8	58,118.3	71.3%
2041	19,540.8	9,620.0	49.2%	1,794.6	203,791.2	151,565.8	52,225.5	74.4%
2042	20,020.3	9,857.8	49.2%	1,838.6	205,103.0	159,514.4	45,588.6	77.8%
2043	20,501.2	10,096.3	49.2%	1,882.8	206,196.1	168,030.1	38,166.0	81.5%
2044	20,982.9	10,334.4	49.3%	1,927.0	207,117.5	177,204.0	29,913.5	85.6%
2045	21,466.7	10,572.7	49.3%	1,971.4	207,921.3	187,129.2	20,792.1	90.0%
Subtotal		$199,494.9						
2046	21,960.3	1,050.2	4.8%	2,016.8	208,677.3	187,809.6	20,867.7	90.0%
Total		$200,545.0						

This exhibit is an attachment to a letter to Mr. Clayton Klenke dated March 6, 2019.

TRS – Scenario 4 – Freeze + 1% Simple COLA for Less Than $50,000 (Indexed)

Funding Projections for the Teachers' Retirement System

Hard Freeze of TRS Accruals as of June 30, 2019; TRS Members Participate in SMP Effective July 1, 2019
Immediate Suspention of All COLAs (Current and Future Retirees) Except Grant 1% Simple COLA
to Pensioners Receiving Less Than $50,000 Annually, Indexed, Until TRS is Fully Funded
Actuarially Assumed Rate of Return: 7.00%
($ in millions)

Fiscal Year Ending 6/30	Annual State Payroll	TRS State Contribution	SMP State Contribution	Total State Contribution	State Contribution as Percent of Payroll	TRS Employee Contribution	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Liability	Funded Ratio	(Reduction)/ Increase in State Contribution	PV (Reduction)/ Increase in State Contribution
2018							$127,019.3	$51,730.9	$75,288.4	40.7%		
2019	$10,436.7	$4,353.3	$0.0	$4,353.3	41.7%	$958.5	99,735.2	53,434.6	46,300.6	53.6%	$0.0	$0.0
2020	10,735.5	2,436.8	832.5	3,269.3	30.5%	0.0	99,828.3	52,824.5	47,003.9	52.9%	-1,543.8	-1,394.8
2021	11,093.1	2,619.6	860.3	3,479.9	31.4%	0.0	99,871.7	53,025.6	46,846.1	53.1%	-1,596.0	-1,347.7
2022	11,460.4	2,773.2	888.8	3,661.9	32.0%	0.0	99,869.7	52,846.9	47,022.8	52.9%	-1,649.7	-1,301.9
2023	11,836.7	2,799.4	917.9	3,717.4	31.4%	0.0	99,819.9	52,510.1	47,309.8	52.6%	-1,704.8	-1,257.3
2024	12,204.7	2,842.9	946.5	3,789.4	31.0%	0.0	99,719.9	52,156.2	47,563.7	52.3%	-1,758.7	-1,212.2
2025	12,579.2	2,914.6	975.5	3,890.1	30.9%	0.0	99,567.0	51,808.7	47,758.2	52.0%	-1,813.6	-1,168.3
2026	12,960.5	3,005.2	1,005.1	4,010.3	30.9%	0.0	99,356.0	51,487.2	47,868.7	51.8%	-1,869.5	-1,125.5
2027	13,347.7	3,098.9	1,035.1	4,134.1	31.0%	0.0	99,077.8	51,193.6	47,884.2	51.7%	-1,926.5	-1,084.0
2028	13,734.4	3,179.2	1,065.1	4,244.3	30.9%	0.0	98,730.6	50,917.1	47,813.6	51.6%	-1,983.6	-1,043.0
2029	14,137.3	3,266.2	1,096.4	4,362.6	30.9%	0.0	98,313.3	50,667.9	47,645.4	51.5%	-2,043.0	-1,004.0
2030	14,547.6	3,342.7	1,128.2	4,470.9	30.7%	0.0	97,823.0	50,441.7	47,381.4	51.6%	-2,103.7	-966.2
2031	14,966.5	3,424.6	1,160.7	4,585.3	30.6%	0.0	97,256.1	50,246.0	47,010.1	51.7%	-2,165.8	-929.6
2032	15,394.0	3,526.6	1,193.8	4,720.5	30.7%	0.0	96,611.7	50,108.4	46,503.3	51.9%	-2,229.2	-894.3
2033	15,826.4	3,647.1	1,227.4	4,874.4	30.8%	0.0	95,888.0	50,056.0	45,832.0	52.2%	-2,293.5	-859.9
2034	16,263.1	4,374.6	1,261.2	5,635.8	34.7%	0.0	95,090.1	50,730.2	44,359.9	53.3%	-2,358.5	-826.4
2035	16,708.5	4,494.4	1,295.8	5,790.2	34.7%	0.0	94,219.3	51,561.1	42,658.3	54.7%	-2,424.8	-794.1
2036	17,163.6	4,616.9	1,331.1	5,947.9	34.7%	0.0	93,285.5	52,574.6	40,710.9	56.4%	-2,492.7	-762.9
2037	17,634.2	4,743.4	1,367.5	6,111.0	34.7%	0.0	92,297.8	53,804.4	38,493.4	58.3%	-2,562.9	-733.0
2038	18,112.6	4,872.1	1,404.7	6,276.8	34.7%	0.0	91,265.9	55,281.6	35,984.3	60.6%	-2,634.3	-704.2
2039	18,591.8	5,001.0	1,441.8	6,442.8	34.7%	0.0	90,216.6	57,052.0	33,164.5	63.2%	-2,706.0	-676.0
2040	19,067.2	5,128.9	1,478.7	6,607.6	34.7%	0.0	89,172.1	59,158.8	30,013.3	66.3%	-2,777.3	-648.4
2041	19,540.8	5,256.3	1,515.4	6,771.7	34.7%	0.0	88,161.0	61,647.9	26,513.1	69.9%	-2,848.3	-621.5
2042	20,020.3	5,385.3	1,552.6	6,937.9	34.7%	0.0	87,209.8	64,571.8	22,638.0	74.0%	-2,920.0	-595.5
2043	20,501.2	5,514.6	1,589.9	7,104.5	34.7%	0.0	86,348.8	67,985.6	18,363.1	78.7%	-2,991.8	-570.2
2044	20,982.9	5,644.2	1,627.2	7,271.4	34.7%	0.0	85,611.1	71,950.9	13,660.3	84.0%	-3,063.0	-545.6
2045	21,466.7	5,774.3	1,664.8	7,439.1	34.7%	0.0	85,017.4	76,515.7	8,501.7	90.0%	-3,133.6	-521.6
Subtotal		$108,036.5	$31,863.9	$139,900.5							-$59,594.4	-$23,588.0
2046	21,960.3	495.3	1,703.0	2,198.3	10.0%	0.0	84,590.9	76,131.8	8,459.1	90.0%	1,148.2	178.6
Total		$108,531.8	$33,567.0	$142,098.8							-$58,446.3	-$23,409.4

This exhibit is an attachment to a letter to Mr. Clayton Klenke dated March 6, 2019.

Appendix C. Extrapolation of Segal-scored pension restructuring plan

Wirtepoints' restructuring plan was scored by Segal Consulting, the state's actuary. The firm only ran reforms for the Teacher's Retirement System (TRS) as of FY 2018 to limit actuarial costs. It also kept the state's current actuarial assumptions and statutory payment formula to allow for an apples-to-apples comparison to current law.

The TRS run shows the following:

- An immediate reduction of TRS accrued liabilities to $99.7 billion from $130.4 billion in 2019.
- An immediate reduction of TRS unfunded liabilities to $46.3 billion from $76.9 billion in 2019.
- An immediate improvement of TRS' funded ratio to 53.6 percent from 41 percent in 2019.
- Required state contributions to TRS through 2045 falling to $140 billion from $200 billion.
- TRS accrued liabilities in 2045 falling to $85 billion from $208 billion.

Wirepoints extrapolated the savings from the TRS run to estimate savings for a restructuring plan that includes SERS and SURS. Wirepoints' extrapolation was based on TRS' share of the state's total accrued liabilities and employer contributions, an approach confirmed by Segal as reasonable for the purposes of this report.

Extrapolation of Wirepoints' pension restructuring plan

Segal scoring of reform plan's effect on TRS, extrapolated by Wirepoints to include Illinois' five state-run pension funds

	Impact of Wirepoints reform plan on TRS only	TRS share of state accrued liabilities	Extrapolated to include five state pension funds
Immediate reduction in 2019 unfunded liabilities	$31 billion	57%	**$54 billion**
Total reduction in state contributions through 2045	$60 billion	57%	**$109 billion**
Present value of reduction in state contributions through 2045	$24 billion	57%	**$44 billion**

Source: Segal Consulting; Commission on Government Forecasting and Accountability; Wirepoints calculations.

Note: Segal's analysis used pension fund data as of fiscal year 2019

Extrapolation of restructuring plan savings

Segal scoring of reform plan's effect on TRS, extrapolated by Wirepoints to include five state pension funds (in billions)

Segal-scored TRS run State contributions				Extrapolated to the five state-run pension funds* State contributions			
Year	Current law	Restructuring plan	Savings	Year	Current law	Restructuring plan	Savings
2020	$4.8	$3.3	$1.5	2020	$9.2	$6.3	$3.0
2021	$5.1	$3.5	$1.6	2021	$9.6	$6.6	$3.0
2022	$5.3	$3.7	$1.6	2022	$10.1	$6.9	$3.1
2023	$5.4	$3.7	$1.7	2023	$10.3	$7.1	$3.2
2024	$5.5	$3.8	$1.8	2024	$10.5	$7.2	$3.3
2025	$5.7	$3.9	$1.8	2025	$10.8	$7.3	$3.4
2026	$5.9	$4.0	$1.9	2026	$11.0	$7.5	$3.5
2027	$6.1	$4.1	$1.9	2027	$11.3	$7.7	$3.6
2028	$6.2	$4.2	$2.0	2028	$11.6	$7.9	$3.7
2029	$6.4	$4.4	$2.0	2029	$11.9	$8.1	$3.8
2030	$6.6	$4.5	$2.1	2030	$12.2	$8.3	$3.9
2031	$6.8	$4.6	$2.2	2031	$12.5	$8.5	$4.0
2032	$6.9	$4.7	$2.2	2032	$12.8	$8.7	$4.1
2033	$7.2	$4.9	$2.3	2033	$13.2	$9.0	$4.2
2034	$8.0	$5.6	$2.4	2034	$14.5	$10.2	$4.3
2035	$8.2	$5.8	$2.4	2035	$14.8	$10.5	$4.4
2036	$8.4	$5.9	$2.5	2036	$15.2	$10.7	$4.5
2037	$8.7	$6.1	$2.6	2037	$15.6	$11.0	$4.6
2038	$8.9	$6.3	$2.6	2038	$16.0	$11.3	$4.7
2039	$9.1	$6.4	$2.7	2039	$16.5	$11.6	$4.9
2040	$9.4	$6.6	$2.8	2040	$16.9	$11.9	$5.0
2041	$9.6	$6.8	$2.8	2041	$17.3	$12.2	$5.1
2042	$9.9	$6.9	$2.9	2042	$17.8	$12.5	$5.3
2043	$10.1	$7.1	$3.0	2043	$18.2	$12.8	$5.4
2044	$10.3	$7.3	$3.1	2044	$18.7	$13.1	$5.5
2045	$10.6	$7.4	$3.1	2045	$19.1	$13.5	$5.7
Total savings			$59.6	Total savings			$109.3
Average annual savings			$2.3	Average annual savings			$4.2

Source: Segal Consulting; Commission on Government Forecasting and Accountability; Wirepoints calculations.

Note: Segal's analysis used pension fund data as of fiscal year 2019

*Extrapolated based on TRS' share of total state pension contributions.

Appendix D. Results of other Segal-scored potential reforms

Segal

101 North Wacker Drive,
Suite 500
Chicago, IL 60606-1724
segalco.com

February 28, 2020

Via Email

Clayton Klenke
Executive Director
Commission on Government Forecasting and Accountability
703 Stratton Office Bldg.
Springfield, IL 62706

Re: Actuarial Impact Study – Morrison Request

Dear Clayton:

As requested, we have performed an analysis regarding the impact of benefit changes on projected costs of the Teachers' Retirement System (TRS). This analysis is based on the proposed benefit changes described below. The exhibits accompanying this document were prepared using actuarial assumptions consistent with those employed in the actuarial valuation of TRS as of June 30, 2019, excluding the buyout provisions per Public Act (PA) 100-0587 and 101-0010.

Proposed Benefit Changes

We have analyzed the proposed benefit changes under the scenarios described below.

- Scenario 1A: Apply a maximum annual benefit cap of $75,000 at retirement for all plan participants. Current retirees with annual pension benefits over $75,000 will have their annual benefit reduced immediately to the cap amount. The maximum annual benefit cap amount will be indexed to inflation (assumed to be 2.50% per annum) for future retirements.
- Scenario 1B: Same as Scenario 1A, except an initial maximum annual benefit cap of $100,000.
- Scenario 1C: Same as Scenario 1A, except an initial maximum annual benefit cap of $125,000.
- Scenario 2: Apply a tiered benefit reduction at retirement for all plan participants, based on the following brackets:
  - No reduction for accrued annual benefits at retirement less than $50,000

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- 10% reduction for accrued annual benefits at retirement greater than $50,000 but less than $100,000 (reduced amount cannot be less than $50,000)

- 20% reduction for accrued annual benefits at retirement greater than $100,000

  Current retirees will have their annual benefit reduced immediately as outlined above, where applicable. The $50,000 and $100,000 thresholds will be indexed to inflation (assumed to be 2.50% per annum) for future retirements.

- Scenario 3A: Assume a 5-year freeze on pensionable salaries for current and future active participants. For purposes of this analysis, annual pensionable salaries (as well as annual salary limitation for Tier 2 actives) will remain level for a 5-year period starting June 30, 2020. The assumed salary increases will be applied following the 5-year period.

- Scenario 3B: Same as Scenario 3A, except assume a 10-year freeze on pensionable salaries.

  Note that, for purposes of this analysis, the assumed payroll used for determining projected State contributions does not reflect the freeze under scenarios 3A and 3B (i.e., the freeze on pensionable earnings applies to benefit accruals and member contributions only).

Actuarial Analysis

The analysis was based upon the census data and actuarial assumptions used in the June 30, 2019 valuation for TRS. Any actual experience occurring subsequent to June 30, 2018 is not reflected in this analysis.

In order to isolate the impact of the proposed benefit changes on projected costs as well as simplify the calculations, this analysis (including the baseline scenario) does not reflect the buyout provisions per Public Act 100-0587 and 101-0010.

The following tables summarize the impact of the proposed benefit changes on the projected State contribution amounts through FY2045. The attached exhibits show in greater detail the projected contributions, actuarial liabilities, actuarial assets, funded position, and benefit payments through 2045 reflecting the changes outlined above.

This analysis has been prepared at your request and is not to be considered a recommendation by Segal. Numbers shown have been rounded to the nearest million.

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($ in Millions)

Scenario	Total State Contribution Through FY2045	Change Compared to Baseline	Present Value of State Contribution Through FY2045	Change Compared to Baseline
Baseline	$203,672		$84,812	
Scenario 1A – $75k benefit cap	170,246	($33,426)	71,129	($13,683)
Scenario 1B – $100k benefit cap	193,557	(10,115)	80,672	(4,140)
Scenario 1C – $125k benefit cap	200,724	(2,948)	83,606	(1,206)
Scenario 2 – Tiered reductions	171,547	(32,125)	71,662	(13,150)
Scenario 3A – 5 yr salary freeze	195,670	(8,002)	81,536	(3,276)
Scenario 3B – 10 yr salary freeze	192,474	(11,198)	80,228	(4,584)

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

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

Matthew A. Strom

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

Tanya Dybal

Tanya Dybal, FSA, MAAA, EA
Consulting Actuary

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Exhibit 1 – Baseline Projection

Funding Projections for the Teachers' Retirement System

Based on Laws in Effect on June 30, 2019*
Actuarially Assumed Rate of Return: 7.00%
($ in millions)

Fiscal Year Ending 6/30	Annual State Payroll**	Total State Contribution	State Contribution as Percent of Payroll	Total Employee Contribution	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Liability	Funded Ratio	Expected Benefit Payments
2019					$131,897.5	$53,391.2	$78,506.3	40.5%	
2020	$10,735.5	$4,882.9	45.5%	$985.9	135,915.0	55,598.7	80,316.2	40.9%	$7,154.2
2021	10,990.3	5,213.2	47.4%	1,009.3	139,965.7	58,738.8	81,226.8	42.0%	7,425.7
2022	11,369.7	5,474.4	48.1%	1,044.2	144,047.1	61,611.8	82,435.3	42.8%	7,701.7
2023	11,756.3	5,611.7	47.7%	1,079.7	148,153.0	64,449.7	83,703.4	43.5%	7,984.6
2024	12,147.9	5,770.8	47.5%	1,115.6	152,271.6	67,596.3	84,675.3	44.4%	8,276.5
2025	12,530.0	5,951.5	47.5%	1,150.7	156,392.5	70,878.0	85,514.5	45.3%	8,576.1
2026	12,916.6	6,137.7	47.5%	1,186.2	160,502.0	74,300.7	86,201.3	46.3%	8,885.2
2027	13,309.3	6,328.5	47.5%	1,222.3	164,577.1	77,864.2	86,712.9	47.3%	9,209.1
2028	13,701.6	6,505.9	47.5%	1,258.3	168,599.9	81,554.3	87,045.7	48.4%	9,542.3
2029	14,105.5	6,691.5	47.4%	1,295.4	172,552.7	85,379.4	87,173.2	49.5%	9,885.4
2030	14,525.7	6,873.0	47.3%	1,334.0	176,418.8	89,339.3	87,079.5	50.6%	10,235.1
2031	14,951.2	7,060.3	47.2%	1,373.1	180,174.7	93,438.0	86,736.7	51.9%	10,596.0
2032	15,383.5	7,268.8	47.3%	1,412.8	183,798.6	97,699.6	86,099.0	53.2%	10,964.9
2033	15,821.8	7,497.6	47.4%	1,453.0	187,264.0	102,145.6	85,118.4	54.5%	11,344.4
2034	16,264.0	8,360.0	51.4%	1,493.6	190,553.2	107,442.6	83,110.6	56.4%	11,725.6
2035	16,716.9	8,592.8	51.4%	1,535.2	193,643.6	112,994.6	80,649.0	58.4%	12,111.7
2036	17,178.2	8,829.9	51.4%	1,577.6	196,526.1	118,830.1	77,696.0	60.5%	12,492.2
2037	17,653.8	9,074.4	51.4%	1,621.3	199,185.5	124,980.4	74,205.1	62.7%	12,870.3
2038	18,136.6	9,322.5	51.4%	1,665.6	201,592.0	131,465.3	70,126.7	65.2%	13,254.7
2039	18,618.9	9,570.4	51.4%	1,709.9	203,734.3	138,319.5	65,414.9	67.9%	13,627.4
2040	19,104.0	9,819.8	51.4%	1,754.5	205,615.9	145,597.0	60,018.9	70.8%	13,974.3
2041	19,587.6	10,068.3	51.4%	1,798.9	207,221.3	153,329.5	53,891.7	74.0%	14,317.7
2042	20,073.8	10,318.3	51.4%	1,843.5	208,567.6	161,581.5	46,986.1	77.5%	14,631.3
2043	20,558.6	10,567.5	51.4%	1,888.0	209,684.5	170,428.2	39,256.3	81.3%	14,906.4
2044	21,040.7	10,815.3	51.4%	1,932.3	210,623.7	179,965.6	30,658.1	85.4%	15,128.3
2045	21,527.1	11,065.3	51.4%	1,977.0	211,436.3	190,292.6	21,143.6	90.0%	15,306.0
Total		$203,672.3		$37,717.9					$292,127.1

* Not reflecting buyout provisions per Public Act 100-0587 and 101-0010
** Does not include Federal Payroll

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Exhibit 2 – Scenario 1A ($75k Benefit Cap)

Funding Projections for the Teachers' Retirement System

Based on Laws in Effect on June 30, 2019* and $75,000 Maximum Annual Benefit Cap
Actuarially Assumed Rate of Return: 7.00%
($ in millions)

			Compared to Exhibit 1								
Fiscal Year Ending 6/30	Annual State Payroll**	Total State Contribution	(Reduction)/ Increase in State Contribution	Present Value of (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	Expected Benefit Payments
2019							$120,758.9	$53,391.2	$67,367.7	44.2%	
2020	$10,735.5	$4,882.9	$0.0	$0.0	45.5%	$985.9	124,629.4	56,415.5	68,213.9	45.3%	$6,365.1
2021	10,990.3	4,294.7	(918.5)	(829.9)	39.1%	1,009.3	128,531.4	59,497.7	69,033.7	46.3%	6,613.7
2022	11,369.7	4,524.2	(950.2)	(802.3)	39.8%	1,044.2	132,463.9	62,299.8	70,164.2	47.0%	6,866.3
2023	11,756.3	4,629.2	(982.5)	(775.3)	39.4%	1,079.7	136,419.4	65,051.9	71,367.5	47.7%	7,125.9
2024	12,147.9	4,755.6	(1,015.2)	(748.8)	39.1%	1,115.6	140,383.9	68,096.2	72,287.7	48.5%	7,394.8
2025	12,530.0	4,904.3	(1,047.2)	(721.8)	39.1%	1,150.7	144,346.9	71,258.5	73,088.4	49.4%	7,671.5
2026	12,916.6	5,058.2	(1,079.5)	(695.4)	39.2%	1,186.2	148,297.4	74,543.0	73,754.4	50.3%	7,957.8
2027	13,309.3	5,216.2	(1,112.3)	(669.6)	39.2%	1,222.3	152,213.6	77,947.9	74,265.7	51.2%	8,258.8
2028	13,701.6	5,360.8	(1,145.1)	(644.3)	39.1%	1,258.3	156,081.3	81,457.6	74,623.7	52.2%	8,569.1
2029	14,105.5	5,512.7	(1,178.8)	(619.9)	39.1%	1,295.4	159,884.9	85,078.1	74,806.9	53.2%	8,889.5
2030	14,525.7	5,659.0	(1,213.9)	(596.6)	39.0%	1,334.0	163,611.9	88,805.3	74,806.7	54.3%	9,216.9
2031	14,951.2	5,810.8	(1,249.5)	(573.9)	38.9%	1,373.1	167,241.2	92,640.4	74,600.8	55.4%	9,556.1
2032	15,383.5	5,983.2	(1,285.6)	(551.9)	38.9%	1,412.8	170,752.2	96,603.9	74,148.2	56.6%	9,904.2
2033	15,821.8	6,175.3	(1,322.3)	(530.4)	39.0%	1,453.0	174,122.1	100,713.5	73,408.5	57.8%	10,263.7
2034	16,264.0	7,000.8	(1,359.2)	(509.6)	43.0%	1,493.6	177,339.8	105,632.4	71,707.5	59.6%	10,625.9
2035	16,716.9	7,195.7	(1,397.1)	(489.5)	43.0%	1,535.2	180,387.4	110,759.0	69,628.3	61.4%	10,994.4
2036	17,178.2	7,394.2	(1,435.6)	(470.1)	43.0%	1,577.6	183,257.2	116,116.3	67,140.9	63.4%	11,359.0
2037	17,653.8	7,599.0	(1,475.4)	(451.5)	43.0%	1,621.3	185,936.7	121,727.9	64,208.8	65.5%	11,723.9
2038	18,136.6	7,806.8	(1,515.7)	(433.5)	43.0%	1,665.6	188,398.4	127,607.2	60,791.1	67.7%	12,096.7
2039	18,618.9	8,014.4	(1,556.0)	(415.9)	43.0%	1,709.9	190,624.9	133,780.6	56,844.2	70.2%	12,461.1
2040	19,104.0	8,223.2	(1,596.6)	(398.9)	43.0%	1,754.5	192,620.0	140,293.7	52,326.4	72.8%	12,802.8
2041	19,587.6	8,431.4	(1,637.0)	(382.2)	43.0%	1,798.9	194,376.2	147,169.2	47,206.9	75.7%	13,144.3
2042	20,073.8	8,640.7	(1,677.6)	(366.1)	43.0%	1,843.5	195,914.5	154,461.1	41,453.4	78.8%	13,460.0
2043	20,558.6	8,849.3	(1,718.1)	(350.4)	43.0%	1,888.0	197,255.4	162,234.5	35,020.9	82.2%	13,741.5
2044	21,040.7	9,056.8	(1,758.4)	(335.1)	43.0%	1,932.3	198,433.5	170,571.1	27,862.4	86.0%	13,975.9
2045	21,527.1	9,266.2	(1,799.1)	(320.5)	43.0%	1,977.0	199,505.3	179,554.8	19,950.5	90.0%	14,169.5
Total		$170,245.6	($33,426.4)	($13,683.4)		$37,717.9					$265,208.4

* Not reflecting buyout provisions per Public Act 100-0587 and 101-0010
** Does not include Federal Payroll

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Exhibit 3 – Scenario 1B ($100k Benefit Cap)

Funding Projections for the Teachers' Retirement System
Based on Laws in Effect on June 30, 2019* and $100,000 Maximum Annual Benefit Cap
Actuarially Assumed Rate of Return: 7.00%
($ in millions)

			Compared to Exhibit 1								
Fiscal Year Ending 6/30	Annual State Payroll**	Total State Contribution	(Reduction)/ Increase in State Contribution	Present Value of (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	Expected Benefit Payments
2019							$128,402.0	$53,391.2	$75,010.8	41.6%	
2020	$10,735.5	$4,882.9	$0.0	$0.0	45.5%	$985.9	132,393.0	55,860.0	76,533.0	42.2%	$6,901.7
2021	10,990.3	4,935.2	(277.9)	(251.1)	44.9%	1,009.3	136,418.7	58,998.3	77,420.5	43.2%	7,166.1
2022	11,369.7	5,186.9	(287.5)	(242.8)	45.6%	1,044.2	140,476.9	61,866.6	78,610.3	44.0%	7,435.0
2023	11,756.3	5,314.4	(297.3)	(234.6)	45.2%	1,079.7	144,561.7	64,696.6	79,865.1	44.8%	7,710.8
2024	12,147.9	5,463.6	(307.2)	(226.6)	45.0%	1,115.6	148,660.4	67,831.6	80,828.9	45.6%	7,995.8
2025	12,530.0	5,634.6	(316.9)	(218.4)	45.0%	1,150.7	152,762.1	71,097.6	81,664.4	46.5%	8,288.7
2026	12,916.6	5,811.0	(326.6)	(210.4)	45.0%	1,186.2	156,853.5	74,500.0	82,353.5	47.5%	8,591.3
2027	13,309.3	5,992.0	(336.6)	(202.6)	45.0%	1,222.3	160,912.6	78,037.9	82,874.7	48.5%	8,908.8
2028	13,701.6	6,159.4	(346.5)	(195.0)	45.0%	1,258.3	164,921.6	81,696.7	83,224.9	49.5%	9,235.8
2029	14,105.5	6,334.8	(356.7)	(187.6)	44.9%	1,295.4	168,863.3	85,483.9	83,379.4	50.6%	9,572.9
2030	14,525.7	6,505.6	(367.3)	(180.5)	44.8%	1,334.0	172,721.7	89,397.9	83,323.9	51.8%	9,916.9
2031	14,951.2	6,682.2	(378.1)	(173.7)	44.7%	1,373.1	176,473.9	93,441.6	83,032.3	52.9%	10,272.7
2032	15,383.5	6,879.8	(389.0)	(167.0)	44.7%	1,412.8	180,098.4	97,637.8	82,460.6	54.2%	10,636.9
2033	15,821.8	7,097.5	(400.1)	(160.5)	44.9%	1,453.0	183,569.6	102,006.8	81,562.9	55.6%	11,012.1
2034	16,264.0	7,948.7	(411.3)	(154.2)	48.9%	1,493.6	186,870.6	107,213.6	79,657.0	57.4%	11,389.6
2035	16,716.9	8,170.0	(422.8)	(148.1)	48.9%	1,535.2	189,980.7	112,660.5	77,320.2	59.3%	11,772.7
2036	17,178.2	8,395.4	(434.4)	(142.3)	48.9%	1,577.6	192,890.1	118,373.9	74,516.2	61.4%	12,150.9
2037	17,653.8	8,627.9	(446.4)	(136.6)	48.9%	1,621.3	195,581.9	124,382.3	71,199.6	63.6%	12,527.8
2038	18,136.6	8,863.8	(458.7)	(131.2)	48.9%	1,665.6	198,028.5	130,703.5	67,324.9	66.0%	12,911.6
2039	18,618.9	9,099.6	(470.9)	(125.9)	48.9%	1,709.9	200,220.6	137,369.6	62,851.1	68.6%	13,284.8
2040	19,104.0	9,336.7	(483.1)	(120.7)	48.9%	1,754.5	202,161.3	144,431.7	57,729.6	71.4%	13,633.2
2041	19,587.6	9,573.0	(495.4)	(115.7)	48.9%	1,798.9	203,830.0	151,918.6	51,911.4	74.5%	13,979.2
2042	20,073.8	9,810.6	(507.6)	(110.8)	48.9%	1,843.5	205,246.0	159,891.1	45,354.8	77.9%	14,296.7
2043	20,558.6	10,047.5	(519.9)	(106.0)	48.9%	1,888.0	206,440.8	168,421.4	38,019.4	81.6%	14,576.7
2044	21,040.7	10,283.2	(532.1)	(101.4)	48.9%	1,932.3	207,464.1	177,602.2	29,861.9	85.6%	14,805.0
2045	21,527.1	10,520.9	(544.4)	(97.0)	48.9%	1,977.0	208,363.8	187,527.4	20,836.4	90.0%	14,990.1
Total		$193,557.2	($10,114.7)	($4,140.7)		$37,717.9					$283,963.8

* Not reflecting buyout provisions per Public Act 100-0587 and 101-0010
** Does not include Federal Payroll

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Exhibit 4 – Scenario 1C ($125k Benefit Cap)

Funding Projections for the Teachers' Retirement System
Based on Laws in Effect on June 30, 2019* and $125,000 Maximum Annual Benefit Cap
Actuarially Assumed Rate of Return: 7.00%
($ in millions)

			Compared to Exhibit 1								
Fiscal Year Ending 6/30	Annual State Payroll**	Total State Contribution	(Reduction)/ Increase in State Contribution	Present Value of (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	Expected Benefit Payments
2019							$130,853.4	$53,391.2	$77,462.2	40.8%	
2020	$10,735.5	$4,882.9	$0.0	$0.0	45.5%	$985.9	134,864.6	55,677.1	79,187.5	41.3%	$7,078.5
2021	10,990.3	5,132.2	(81.0)	(73.2)	46.7%	1,009.3	138,909.9	58,819.2	80,090.7	42.3%	7,347.7
2022	11,369.7	5,390.6	(83.8)	(70.8)	47.4%	1,044.2	142,987.3	61,693.8	81,293.5	43.1%	7,621.5
2023	11,756.3	5,525.1	(86.6)	(68.4)	47.0%	1,079.7	147,090.4	64,532.6	82,557.8	43.9%	7,902.3
2024	12,147.9	5,681.3	(89.5)	(66.0)	46.8%	1,115.6	151,207.2	67,679.3	83,527.8	44.8%	8,192.1
2025	12,530.0	5,859.2	(92.3)	(63.6)	46.8%	1,150.7	155,327.3	70,960.4	84,366.9	45.7%	8,489.7
2026	12,916.6	6,042.5	(95.2)	(61.3)	46.8%	1,186.2	159,436.7	74,381.2	85,055.5	46.7%	8,796.9
2027	13,309.3	6,230.5	(98.1)	(59.1)	46.8%	1,222.3	163,512.9	77,941.6	85,571.4	47.7%	9,119.0
2028	13,701.6	6,404.9	(101.0)	(56.8)	46.7%	1,258.3	167,538.3	81,627.1	85,911.1	48.7%	9,450.4
2029	14,105.5	6,587.5	(104.0)	(54.7)	46.7%	1,295.4	171,494.9	85,446.1	86,048.8	49.8%	9,791.9
2030	14,525.7	6,765.9	(107.1)	(52.6)	46.6%	1,334.0	175,366.1	89,397.6	85,968.5	51.0%	10,140.1
2031	14,951.2	6,950.1	(110.2)	(50.6)	46.5%	1,373.1	179,128.3	93,485.3	85,643.0	52.2%	10,499.8
2032	15,383.5	7,155.5	(113.4)	(48.7)	46.5%	1,412.8	182,760.0	97,733.0	85,027.0	53.5%	10,867.6
2033	15,821.8	7,381.0	(116.6)	(46.8)	46.7%	1,453.0	186,235.0	102,161.6	84,073.3	54.9%	11,246.2
2034	16,264.0	8,240.1	(119.9)	(44.9)	50.7%	1,493.6	189,535.6	107,437.5	82,098.1	56.7%	11,626.7
2035	16,716.9	8,469.6	(123.2)	(43.2)	50.7%	1,535.2	192,639.2	112,963.8	79,675.4	58.6%	12,012.4
2036	17,178.2	8,703.3	(126.6)	(41.5)	50.7%	1,577.6	195,536.2	118,768.4	76,767.7	60.7%	12,392.8
2037	17,653.8	8,944.3	(130.1)	(39.8)	50.7%	1,621.3	198,211.9	124,881.8	73,330.1	63.0%	12,771.1
2038	18,136.6	9,188.8	(133.7)	(38.2)	50.7%	1,665.6	200,636.9	131,323.1	69,313.7	65.5%	13,156.0
2039	18,618.9	9,433.2	(137.2)	(36.7)	50.7%	1,709.9	202,799.0	138,126.1	64,672.9	68.1%	13,529.5
2040	19,104.0	9,679.0	(140.8)	(35.2)	50.7%	1,754.5	204,701.7	145,344.0	59,357.7	71.0%	13,877.5
2041	19,587.6	9,924.0	(144.4)	(33.7)	50.7%	1,798.9	206,329.5	153,007.6	53,321.9	74.2%	14,222.4
2042	20,073.8	10,170.3	(147.9)	(32.3)	50.7%	1,843.5	207,699.5	161,180.3	46,519.2	77.6%	14,537.8
2043	20,558.6	10,415.9	(151.5)	(30.9)	50.7%	1,888.0	208,841.5	169,936.4	38,905.1	81.4%	14,814.9
2044	21,040.7	10,660.2	(155.1)	(29.6)	50.7%	1,932.3	209,807.0	179,371.2	30,435.9	85.5%	15,039.1
2045	21,527.1	10,906.6	(158.7)	(28.3)	50.7%	1,977.0	210,646.7	189,582.1	21,064.7	90.0%	15,219.4
Total		$200,724.5	($2,947.9)	($1,206.9)		$37,717.9					$289,743.3

* Not reflecting buyout provisions per Public Act 100-0587 and 101-0010
** Does not include Federal Payroll

5928684v2/13826.002

Exhibit 5 – Scenario 2 (Tiered Benefit Reduction)

Funding Projections for the Teachers' Retirement System
Based on Laws in Effect on June 30, 2019* and Tiered Benefit Reduction
Actuarially Assumed Rate of Return: 7.00%
($ in millions)

			Compared to Exhibit 1								
Fiscal Year Ending 6/30	Annual State Payroll**	Total State Contribution	(Reduction)/ Increase in State Contribution	Present Value of (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	Expected Benefit Payments
2019							$121,473.1	$53,391.2	$68,081.9	44.0%	
2020	$10,735.5	$4,882.9	$0.0	$0.0	45.5%	$985.9	125,218.4	56,297.6	68,920.8	45.0%	$6,479.0
2021	10,990.3	4,330.4	(882.7)	(797.5)	39.4%	1,009.3	128,986.4	59,289.5	69,696.9	46.0%	6,727.4
2022	11,369.7	4,561.2	(913.2)	(771.1)	40.1%	1,044.2	132,786.9	61,996.5	70,790.4	46.7%	6,979.9
2023	11,756.3	4,667.5	(944.2)	(745.1)	39.7%	1,079.7	136,604.8	64,648.6	71,956.2	47.3%	7,239.3
2024	12,147.9	4,795.2	(975.7)	(719.6)	39.5%	1,115.6	140,425.1	67,587.8	72,837.3	48.1%	7,507.6
2025	12,530.0	4,945.1	(1,006.4)	(693.7)	39.5%	1,150.7	144,246.3	70,640.5	73,605.8	49.0%	7,783.2
2026	12,916.6	5,100.3	(1,037.4)	(668.3)	39.5%	1,186.2	148,059.3	73,810.9	74,248.4	49.9%	8,067.8
2027	13,309.3	5,259.6	(1,069.0)	(643.6)	39.5%	1,222.3	151,833.9	77,097.7	74,736.2	50.8%	8,366.4
2028	13,701.6	5,405.4	(1,100.5)	(619.2)	39.5%	1,258.3	155,560.6	80,486.0	75,074.5	51.7%	8,673.4
2029	14,105.5	5,558.6	(1,132.9)	(595.7)	39.4%	1,295.4	159,227.0	83,982.0	75,245.0	52.7%	8,990.0
2030	14,525.7	5,706.3	(1,166.7)	(573.3)	39.3%	1,334.0	162,800.7	87,581.8	75,219.0	53.8%	9,312.9
2031	14,951.2	5,859.4	(1,200.8)	(551.5)	39.2%	1,373.1	166,280.3	91,288.3	74,992.0	54.9%	9,646.3
2032	15,383.5	6,033.3	(1,235.6)	(530.4)	39.2%	1,412.8	169,642.9	95,123.1	74,519.9	56.1%	9,987.3
2033	15,821.8	6,226.8	(1,270.8)	(509.8)	39.4%	1,453.0	172,885.0	99,106.0	73,779.0	57.3%	10,338.4
2034	16,264.0	7,053.7	(1,306.3)	(489.8)	43.4%	1,493.6	175,973.7	103,900.5	72,073.1	59.0%	10,690.9
2035	16,716.9	7,250.1	(1,342.7)	(470.5)	43.4%	1,535.2	178,871.7	108,906.4	69,965.4	60.9%	11,048.5
2036	17,178.2	7,450.1	(1,379.7)	(451.8)	43.4%	1,577.6	181,560.2	114,147.1	67,413.0	62.9%	11,401.1
2037	17,653.8	7,656.5	(1,417.9)	(433.9)	43.4%	1,621.3	184,078.6	119,650.5	64,428.0	65.0%	11,752.3
2038	18,136.6	7,865.8	(1,456.7)	(416.6)	43.4%	1,665.6	186,394.5	125,431.8	60,962.7	67.3%	12,109.9
2039	18,618.9	8,075.0	(1,495.4)	(399.7)	43.4%	1,709.9	188,536.2	131,520.6	57,015.6	69.8%	12,458.2
2040	19,104.0	8,285.4	(1,534.4)	(383.3)	43.4%	1,754.5	190,409.2	137,959.9	52,449.3	72.5%	12,783.5
2041	19,587.6	8,495.1	(1,573.2)	(367.3)	43.4%	1,798.9	191,990.7	144,773.7	47,217.0	75.4%	13,107.6
2042	20,073.8	8,706.0	(1,612.3)	(351.8)	43.4%	1,843.5	193,412.2	152,022.3	41,389.9	78.6%	13,404.9
2043	20,558.6	8,916.2	(1,651.2)	(336.7)	43.4%	1,888.0	194,652.6	159,770.8	34,881.8	82.1%	13,667.5
2044	21,040.7	9,125.3	(1,689.9)	(322.1)	43.4%	1,932.3	195,761.5	168,102.6	27,658.9	85.9%	13,882.4
2045	21,527.1	9,336.3	(1,729.0)	(308.0)	43.4%	1,977.0	196,779.6	177,101.6	19,678.0	90.0%	14,057.8
Total		$171,547.5	($32,124.6)	($13,150.3)		$37,717.9					$266,463.5

* Not reflecting buyout provisions per Public Act 100-0587 and 101-0010
** Does not include Federal Payroll

Exhibit 6 – Scenario 3A (5 Year Salary Freeze)

Funding Projections for the Teachers' Retirement System

Based on Laws in Effect on June 30, 2019* and 5-Year Freeze on Pensionable Earnings
Actuarially Assumed Rate of Return: 7.00%
($ in millions)

			Compared to Exhibit 1									
Fiscal Year Ending 6/30	Annual State Payroll**	Total State Contribution	(Reduction)/ Increase in State Contribution	Present Value of (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	Expected Benefit Payments
2019							$130,518.0	$53,391.2	$77,126.8	40.9%	
2020	$10,735.5	$4,882.9	$0.0	$0.0	45.5%	$985.9	134,290.0	55,598.7	78,691.3	41.4%	$7,154.2
2021	10,990.3	4,993.3	(219.9)	(198.7)	45.4%	1,009.3	138,059.3	58,507.2	79,552.1	42.4%	7,425.7
2022	11,369.7	5,246.9	(227.5)	(192.1)	46.1%	996.3	141,767.8	61,075.1	80,692.7	43.1%	7,700.9
2023	11,756.3	5,376.5	(235.2)	(185.6)	45.7%	984.7	145,406.5	63,532.4	81,874.1	43.7%	7,980.7
2024	12,147.9	5,527.8	(243.0)	(179.3)	45.5%	974.5	148,964.6	66,222.0	82,742.6	44.5%	8,266.1
2025	12,530.0	5,700.8	(250.7)	(172.8)	45.5%	964.5	152,434.8	68,970.3	83,464.5	45.2%	8,555.3
2026	12,916.6	5,879.3	(258.4)	(166.5)	45.5%	955.6	155,810.5	71,783.2	84,027.3	46.1%	8,849.7
2027	13,309.3	6,062.3	(266.3)	(160.3)	45.5%	993.7	159,119.0	74,707.3	84,411.8	47.0%	9,155.0
2028	13,701.6	6,231.8	(274.1)	(154.2)	45.5%	1,032.2	162,348.3	77,729.6	84,618.7	47.9%	9,466.8
2029	14,105.5	6,409.3	(282.2)	(148.4)	45.4%	1,071.8	165,484.7	80,859.6	84,625.1	48.9%	9,785.7
2030	14,525.7	6,582.3	(290.6)	(142.8)	45.3%	1,113.1	168,515.0	84,097.0	84,418.0	49.9%	10,108.9
2031	14,951.2	6,761.1	(299.1)	(137.4)	45.2%	1,155.4	171,419.3	87,447.4	83,971.9	51.0%	10,440.9
2032	15,383.5	6,961.0	(307.8)	(132.1)	45.3%	1,199.2	174,179.0	90,936.1	83,242.9	52.2%	10,778.4
2033	15,821.8	7,181.0	(316.6)	(127.0)	45.4%	1,244.4	176,771.8	94,586.8	82,184.9	53.5%	11,123.6
2034	16,264.0	8,034.6	(325.4)	(122.0)	49.4%	1,290.8	179,184.5	99,069.2	80,115.2	55.3%	11,467.0
2035	16,716.9	8,258.3	(334.5)	(117.2)	49.4%	1,338.8	181,401.1	103,790.4	77,610.7	57.2%	11,811.4
2036	17,178.2	8,486.2	(343.7)	(112.5)	49.4%	1,388.1	183,416.5	108,781.5	74,634.9	59.3%	12,146.7
2037	17,653.8	8,721.2	(353.2)	(108.1)	49.4%	1,438.9	185,221.4	114,077.3	71,144.1	61.6%	12,475.5
2038	18,136.6	8,959.6	(362.9)	(103.8)	49.4%	1,491.0	186,797.1	119,704.7	67,092.4	64.1%	12,803.6
2039	18,618.9	9,197.9	(372.5)	(99.6)	49.4%	1,543.6	188,144.4	125,707.6	62,436.8	66.8%	13,111.3
2040	19,104.0	9,437.6	(382.2)	(95.5)	49.4%	1,596.6	189,279.9	132,149.9	57,130.1	69.8%	13,384.5
2041	19,587.6	9,676.4	(391.9)	(91.5)	49.4%	1,649.6	190,196.5	139,069.9	51,126.6	73.1%	13,649.0
2042	20,073.8	9,916.6	(401.6)	(87.6)	49.4%	1,702.0	190,914.4	146,534.7	44,379.7	76.8%	13,881.8
2043	20,558.6	10,156.1	(411.3)	(83.9)	49.4%	1,753.8	191,466.2	154,621.7	36,844.5	80.8%	14,075.1
2044	21,040.7	10,394.3	(421.0)	(80.2)	49.4%	1,804.3	191,903.6	163,428.1	28,475.6	85.2%	14,216.6
2045	21,527.1	10,634.6	(430.7)	(76.7)	49.4%	1,853.6	192,273.4	173,046.0	19,227.3	90.0%	14,318.6
Total		$195,669.7	($8,002.3)	($3,275.8)		$33,531.7					$284,133.0

* Not reflecting buyout provisions per Public Act 100-0587 and 101-0010
** Does not include Federal Payroll or reflect 5-year freeze

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Exhibit 7 – Scenario 3B (10 Year Salary Freeze)

Funding Projections for the Teachers' Retirement System

Based on Laws in Effect on June 30, 2019* and 10-Year Freeze on Pensionable Earnings

Actuarially Assumed Rate of Return: 7.00%

($ in millions)

			Compared to Exhibit 1								
Fiscal Year Ending 6/30	Annual State Payroll**	Total State Contribution	(Reduction)/ Increase in State Contribution	Present Value of (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	Expected Benefit Payments
2019							$129,981.9	$53,391.2	$76,590.7	41.1%	
2020	$10,735.5	$4,882.9	$0.0	$0.0	45.5%	$985.9	133,651.7	55,598.7	78,053.0	41.6%	$7,154.2
2021	10,990.3	4,905.5	(307.7)	(278.0)	44.6%	1,009.3	137,304.1	58,414.6	78,889.6	42.5%	7,425.7
2022	11,369.7	5,156.1	(318.3)	(268.8)	45.3%	996.3	140,879.4	60,879.9	79,999.5	43.2%	7,700.9
2023	11,756.3	5,282.6	(329.2)	(259.8)	44.9%	984.7	144,366.7	63,224.1	81,142.6	43.8%	7,980.7
2024	12,147.9	5,430.7	(340.1)	(250.8)	44.7%	974.5	147,753.3	65,789.2	81,964.2	44.5%	8,266.1
2025	12,530.0	5,600.7	(350.8)	(241.8)	44.7%	964.5	151,029.7	68,400.8	82,628.9	45.3%	8,555.3
2026	12,916.6	5,776.1	(361.6)	(233.0)	44.7%	955.6	154,186.7	71,063.8	83,122.9	46.1%	8,849.7
2027	13,309.3	5,955.9	(372.6)	(224.3)	44.7%	948.1	157,208.3	73,777.4	83,430.9	46.9%	9,154.2
2028	13,701.6	6,122.3	(383.6)	(215.8)	44.7%	941.5	160,084.9	76,527.2	83,557.7	47.8%	9,463.7
2029	14,105.5	6,296.6	(394.9)	(207.7)	44.6%	936.7	162,806.4	79,320.5	83,485.9	48.7%	9,778.5
2030	14,525.7	6,466.3	(406.7)	(199.9)	44.5%	934.0	165,363.4	82,154.8	83,208.6	49.7%	10,096.0
2031	14,951.2	6,641.7	(418.6)	(192.3)	44.4%	932.7	167,740.8	85,033.3	82,707.4	50.7%	10,420.5
2032	15,383.5	6,838.1	(430.7)	(184.9)	44.5%	979.4	169,953.3	88,026.4	81,926.9	51.8%	10,748.5
2033	15,821.8	7,054.6	(443.0)	(177.7)	44.6%	1,027.6	171,979.7	91,157.7	80,822.0	53.0%	11,082.8
2034	16,264.0	7,904.6	(455.4)	(170.7)	48.6%	1,077.5	173,808.6	95,097.2	78,711.3	54.7%	11,413.6
2035	16,716.9	8,124.7	(468.0)	(164.0)	48.6%	1,129.2	175,425.8	99,253.1	76,172.7	56.6%	11,743.2
2036	17,178.2	8,348.9	(481.0)	(157.5)	48.6%	1,182.8	176,829.1	103,658.8	73,170.3	58.6%	12,060.6
2037	17,653.8	8,580.1	(494.3)	(151.3)	48.6%	1,238.3	178,012.7	108,351.3	69,661.4	60.9%	12,368.1
2038	18,136.6	8,814.7	(507.8)	(145.2)	48.6%	1,295.3	178,964.6	113,362.7	65,601.9	63.3%	12,668.9
2039	18,618.9	9,049.1	(521.3)	(139.3)	48.6%	1,353.5	179,694.7	118,744.7	60,950.1	66.1%	12,941.7
2040	19,104.0	9,284.9	(534.9)	(133.6)	48.6%	1,412.6	180,228.9	124,569.3	55,659.6	69.1%	13,172.3
2041	19,587.6	9,519.9	(548.4)	(128.0)	48.6%	1,471.5	180,567.4	130,880.8	49,686.6	72.5%	13,388.5
2042	20,073.8	9,756.2	(562.0)	(122.6)	48.6%	1,529.8	180,734.3	137,749.4	42,984.9	76.2%	13,570.5
2043	20,558.6	9,991.9	(575.6)	(117.4)	48.6%	1,586.5	180,764.5	145,254.4	35,510.2	80.4%	13,711.6
2044	21,040.7	10,226.2	(589.1)	(112.3)	48.6%	1,641.1	180,709.5	153,491.8	27,217.7	84.9%	13,801.4
2045	21,527.1	10,462.6	(602.7)	(107.4)	48.6%	1,693.6	180,613.0	162,551.7	18,061.3	90.0%	13,853.7
Total		$192,473.9	($11,198.3)	($4,584.1)		$30,182.5					$281,370.9

* Not reflecting buyout provisions per Public Act 100-0587 and 101-0010

** Does not include Federal Payroll or reflect 10-year freeze

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A Solution for Illinois' State Retirement Crisis

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About Wirepoints

Wirepoints is a nonpartisan, nonprofit organization dedicated to telling the truth about Illinois' financial and economic condition. We are fiscal realists that oppose the failed, bipartisan governance that has perpetuated Illinois' decline. We provide research, analysis and news in a way that's understandable to ordinary citizens and are committed to promoting policies that will make this state competitive again in tax burdens, public services and economic opportunity.