WIREPOINTS

September 2020

Solving Illinois' Pension Problem:

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

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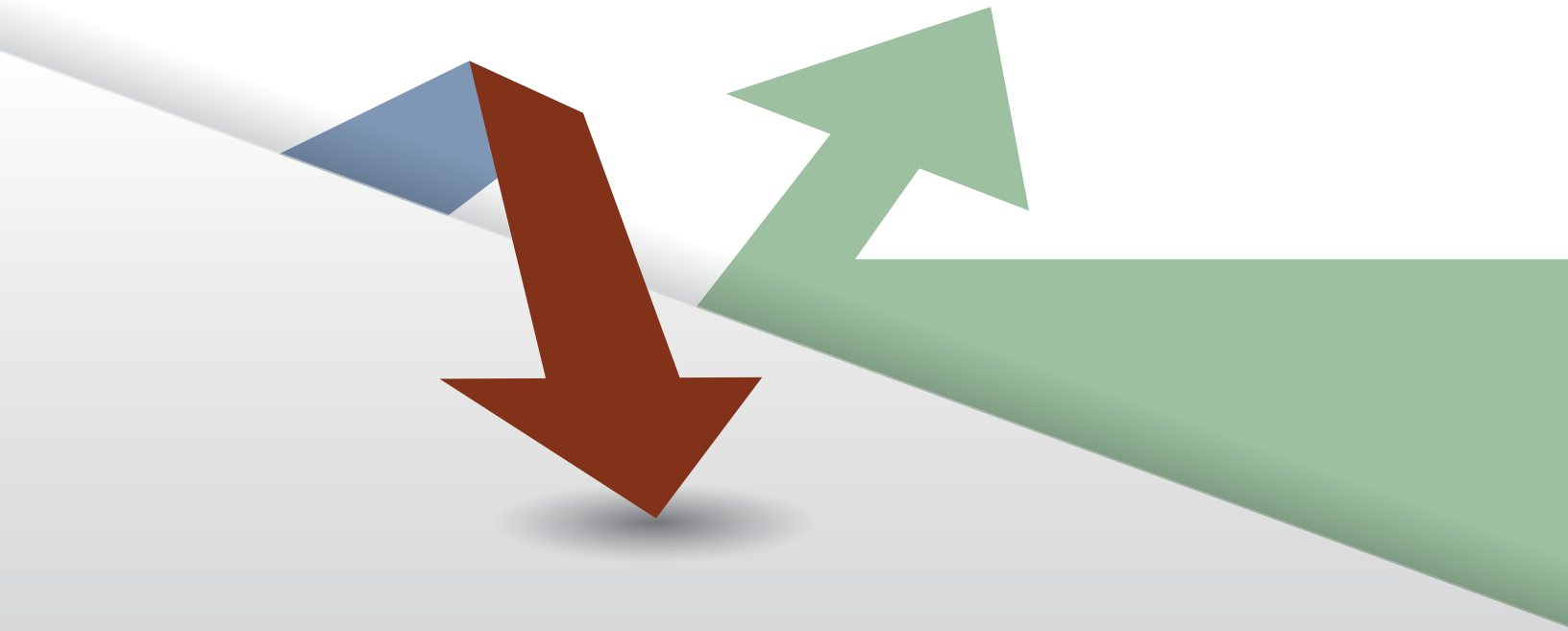


Table of Contents

Executive Summary

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.[1]

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.[2]

This report lays out:

1. Why an amendment would survive any legal challenges and how it should be worded.
2. Why pension reform is essential for Illinois.
3. A baseline reform proposal for the state's pensions.

This report shows 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 is included in this report.

Next, this report shows why Illinois must reform its pensions if it is to restore fiscal stability and return the state to competitive levels of services and taxation. It includes 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.

Finally, this report presents various reform options that might be pursued after an amendment. It includes 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.

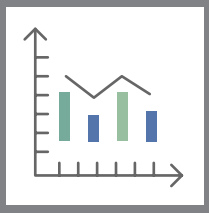
In addition, various other reform measures separate from Wirepoint's baseline proposal were also scored by the state's actuary. Those results are also included.

It should be noted that this report 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.

☑ Goals of restructuring

- ☐ 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.



Preface
The Numbers

A. Summary of Illinois' state and local retirement shortfalls

Illinois had $288 billion in official state and local public sector retirement shortfalls in 2018. That was made up of $134 billion in unfunded pension debt for its five state-run pension funds. Additionally, Illinois has a $56 billion retiree health insurance shortfall and $11 billion in pension obligation bonds. Local government retirements were short another $87 billion. As large as those amounts are, the official numbers vastly understate the true size of Illinois' debts.[3]

Illinoisans are on the hook for $420 billion in retirement debts based on Moody's calculations

State and local government retirement debt based on official government assumptions vs. Moody's Investors Service calculations,* FY 2018 (numbers may not add due to rounding)

Retirement funds	Government-reported retirement shortfalls (in billions)	Moody's calculated retirement shortfalls* (in billions)
State of Illinois		
Illinois' five state pension funds	$133.7	$240.8
Retiree health insurance debt	$56.1	$54.4
Pension obligation bonds	$11.0	$11.0
State subtotal	**$200.7**	**$306.1**
City of Chicago		
Chicago's four city funds	$28.9	$39.8
Chicago Teachers' Pension Fund	$12.0	$22.7
Park District fund	$0.8	$1.1
Retiree health insurance debt	$3.0	$2.9
Chicago subtotal	**$44.6**	**$66.5**
Cook County		
Cook County Pension Fund	$6.8	$10.9
MWRD Pension Fund	$1.1	$2.3
Forest Preserve Pension Fund	$0.1	$0.3
Retiree health insurance debt	$2.3	$1.7
Cook County subtotal	**$10.3**	**$15.1**
Suburban and downstate (government-reported data only)*		
Firefighter pension funds	$5.3	$5.3
Police pension funds	$7.1	$7.1
Illinois Municipal Retirement Fund	$4.5	$4.5
Retiree health insurance debt**	$15.1	$15.1
Suburban and downstate subtotal	**$32.0**	**$32.0**
Total retirement debts	**$287.7**	**$419.7**

Source: Moody's Investors Service; Commission on Government Forecasting and Accountability; 2018 pension fund actuarial reports

*Moody's does not provide its own debt estimates for downstate and suburban retirement data. Official data used instead.

**Includes school districts' share of Teachers' Retirement Insurance Program debt, colleges' share of College Insurance Program debt and municipalities' retiree health debt.

Official government numbers use rates near 7 percent to discount future obligations, while true market rates are far lower.[4]

Financial experts—from Nobel prize winners like Stanford's Prof. William F. Sharpe and University of Chicago's Prof. Eugene Fama to other academics including Hoover Fellow Joshua Rauh and Jeremy Gold—criticize the use of inflated discount rates.[5, 6, 7, 8]

Moody's Investors Service uses more appropriate discount rates based on AA-rated corporate bonds, resulting in pension shortfalls that are far higher than official estimates. The discount rate used by Moody's for its 2018 calculations was 4.14 percent.[9]

When Illinois' debts are added up based on Moody's analysis, Illinoisans are subject to $420 billion in state and local retirement shortfalls.

That's a 46 percent increase in the debt Illinoisans are on the hook for when compared to official numbers.

Illinois' total debts will get far larger, however, as Moody's updates its calculations with even lower discount rates. As of April 30, 2020, that rate had fallen to 2.8 percent, a reflection of the continued collapse in long-term yields. Structurally, those rates have fallen in tandem with the 10-year U.S. Treasury rate, which is now below 1 percent.[10, 11]

10-year Treasury Bonds are at record low rates, below 1%

10-Year Treasury constant maturity rate (monthly)

Source: U.S. Federal Reserve

B. Summary of Illinois' pension fund finances

FY 2018 core financial data of Illinois pension funds ($ in millions)

Pension fund	Actuarial assets	Accrued liability	Unfunded liability	Funded ratio
State of Illinois				
Teachers' Retirement System	$51,731	$127,019	$75,288	41%
State Employees' Retirement System	$17,478	$47,926	$30,448	36%
State Universities Retirement System	$19,348	$45,259	$25,911	43%
Judges' Retirement System	$1,013	$2,722	$1,709	37%
General Assembly Retirement System	$58	$376	$318	15%
State total	**$89,627**	**$223,301**	**$133,674**	**40%**
City of Chicago				
Municipal Employees' Annuity and Benefit Fund	$4,196	$16,809	$12,613	25%
Policemen's Annuity and Benefit Fund	$3,145	$13,215	$10,070	24%
Firemen's Annuity and Benefit Fund	$1,130	$6,156	$5,026	18%
Laborers' Annuity and Benefit Fund	$1,468	$2,653	$1,185	55%
Public School Teachers' Pension and Retirement Fund	$10,969	$22,923	$11,954	48%
Park Employees' Annuity and Benefit Fund	$367	$1,142	$775	32%
City of Chicago total	**$21,275**	**$62,897**	**$41,623**	**34%**
Cook County				
County Employees' Annuity and Benefit Fund	$10,513	$17,304	$6,791	61%
Forest Preserve Employees' Annuity and Benefit Fund	$203	$337	$134	60%
Metro Water Reclamation District Retirement Fund	$1,470	$2,601	$1,131	57%
Cook County total	**$12,186**	**$20,242**	**$8,056**	**60%**
Suburban and Downstate				
Illinois Municipal Retirement Fund	$46,993	$51,518	$4,524	91%
Suburban and Downstate Police Pension Funds	$8,697	$15,777	$7,080	55%
Suburban and Downstate Firefighter Pension Funds	$6,296	$11,564	$5,268	54%
Suburban and Downstate subtotal	**$61,986**	**$78,859**	**$16,872**	**79%**
Grand total	**$185,074**	**$385,299**	**$200,225**	**48%**

Source: Illinois Department of Insurance, Biennial Pension Report 2019

FY 2018 core financial data of Illinois pension funds ($ in millions)

Pension fund	Total employee contribution	Total employer contribution	Actuarially Determined Contrib. (ADC)	% of ADC paid	Annual benefit payout	Asset-to-payout ratio
State of Illinois						
Teachers' Retirement System	$938	$4,180	$7,081	59%	$6,336	8.2
State Employees' Retirement System	$254	$1,929	$2,739	70%	$2,498	7.0
State Universities Retirement System	$367	$1,677	$1,862	90%	$2,499	7.7
Judges' Retirement System	$14	$136	$168	81%	$150	6.8
General Assembly Retirement System	$1	$21	$32	66%	$23	2.5
State total	**$1,575**	**$7,943**	**$11,882**	**67%**	**$11,507**	**7.8**
City of Chicago						
Municipal Employees' Annuity and Benefit Fund	$138	$350	$1,050	33%	$889	4.7
Policemen's Annuity and Benefit Fund	$107	$588	$924	64%	$760	4.1
Firemen's Annuity and Benefit Fund	$46	$250	$412	61%	$329	3.4
Laborers' Annuity and Benefit Fund	$18	$48	$129	37%	$162	9.1
Public School Teachers' Pension and Retirement Fund	$184	$784	$856	92%	$1,437	7.6
Park Employees' Annuity and Benefit Fund	$12	$28	$51	54%	$75	4.9
City of Chicago total	**$505**	**$2,047**	**$3,422**	**60%**	**$3,652**	**5.8**
Cook County						
County Employees' Annuity and Benefit Fund*	$134	$549	$563	98%	$783	13.4
Forest Preserve Employees' Annuity and Benefit Fund*	$3	$3	$11	33%	$17	11.9
Metro Water Reclamation District Retirement Fund	$21	$87	$65	134%	$160	9.2
Cook County total	**$158**	**$640**	**$638**	**100%**	**$959**	**12.7**
Suburban and Downstate						
Illinois Municipal Retirement Fund*	$414	$948	NA	NA	$2,162	21.7
Suburban and Downstate Police Pension Funds**	$120	$562	$562	100%	$654	13.3
Suburban and Downstate Firefighter Pension Funds**	$80	$418	$430	97%	$495	12.7
Suburban and Downstate total	**$614**	**$1,928**	**NA**	**NA**	**$3,311**	**18.7**
Grand total* **	**$2,852**	**$12,558**	**$17,882**	**70%**	**$19,430**	**9.5**

Source: Illinois Department of Insurance, Biennial Pension Report 2019; Commission on Government Forecasting and Accountability; 2018 actuarial reports

*Employer contribution and ADC paid taken from 2018 Comprehensive Annual Financial Reports.

**ADC based on Illinois Department of Insurance actuarial calculations.

***Grand total ADC includes an estimated IMRF ADC of $948 million, which assumes IMRF's 2018 ADC was equal to the fund's employer contribution.

C. Summary of Illinois' pension fund beneficiaries and benefits

FY 2018 Membership data of Illinois pension funds

Pension fund	Total active members	Total beneficiaries	Total payroll	Current average salary (COGFA)
State of Illinois				
Teachers' Retirement System	160,425	120,453	$9,762,392,560	$60,853
State Employees' Retirement System	61,396	73,179	$3,965,372,328	$64,587
State Universities Retirement System	74,950	66,908	$4,264,293,749	$56,895
Judges' Retirement System	936	1,193	$182,482,348	$194,960
General Assembly Retirement System	132	417	$10,711,024	$81,144
State total	**297,839**	**262,150**	**$18,185,252,009**	**$61,057**
City of Chicago				
Municipal Employees' Annuity and Benefit Fund	31,285	25,899	1,734,595,691	$55,445
Policemen's Annuity and Benefit Fund	13,438	13,631	1,205,324,446	$89,695
Firemen's Annuity and Benefit Fund	4,481	5,028	440,369,844	$98,275
Laborers' Annuity and Benefit Fund	2,715	3,856	211,482,201	$77,894
Public School Teachers' Pension and Retirement Fund	28,958	28,550	2,094,830,446	$72,340
Park Employees' Annuity and Benefit Fund	3,187	2,854	129,923,175	$40,767
City of Chicago total	**84,064**	**79,818**	**$5,816,525,803**	**$69,192**
Cook County				
County Employees' Annuity and Benefit Fund	19,671	18,602	$1,533,721,507	$77,969
Forest Preserve Employees' Annuity and Benefit Fund	536	531	$34,071,319	$63,566
Metro Water Reclamation District Retirement Fund	1,832	2,475	$187,849,708	$102,538
Cook County total	**22,039**	**21,608**	**$1,755,642,534**	**$79,661**
Suburban and Downstate				
Illinois Municipal Retirement Fund	176,517	133,226	$7,321,479,593	$41,477
Suburban and Downstate Police Pension Funds	12,989	11,083	$1,144,711,642	$88,129
Suburban and Downstate Firefighter Pension Funds	9,231	8,632	$835,434,043	$90,503
Suburban and Downstate total	**198,737**	**152,941**	**$9,301,625,279**	**$46,804**
Grand total	**602,679**	**516,517**	**$35,059,045,625**	**$58,172**

Source: Illinois Department of Insurance, Biennial Pension Report 2019; Commission on Government Forecasting and Accountability

Pension benefit data of recently retired, career pensioners

(Members retired after 1/1/2017 with 30-plus years of service)

Pension fund	Final Average Salary	Average current pension	Average retirement age	Average expected total payout**
State of Illinois				
Teachers' Retirement System	$108,183	$79,379	59	$2.6 million
State Employees' Retirement System	$85,976	$54,317 + Social Security	59	$1.8 million + Social Security
State Universities Retirement System	$92,820	$71,282	59	$2.3 million
Judges' Retirement System*	$199,780	$175,047	72	$4.1 million
General Assembly Retirement System*	$89,698	$87,974	65	$1.8 million
State total	**$99,066**	**$70,612**	**59**	**$2.3 million**
City of Chicago				
Municipal Employees' Annuity and Benefit Fund***	$79,544	$58,447	60	$1.8 million
Policemen's Annuity and Benefit Fund***	$108,136	$81,400	58	$2.5 million
Firemen's Annuity and Benefit Fund	$123,400	$97,283	61	$2.6 million
Laborers' Annuity and Benefit Fund	$82,475	$62,018	60	$1.8 million
Public School Teachers' Pension and Retirement Fund	$93,903	$74,304	62	$2.3 million
Park Employees' Annuity and Benefit Fund***	$67,513	$43,295	60	$1.3 million
City of Chicago total	**$94,362**	**$70,375**	**60**	**$2.1 million**
Cook County				
County Employees' Annuity and Benefit Fund****	$77,817	$60,762	56	$2.2 million
Forest Preserve Employees' Annuity and Benefit Fund****	$65,221	$51,149	57	$1.8 million
Metro Water Reclamation District Retirement Fund***	$117,710	$84,218	59	$2.5 million
Cook County total	**$83,718**	**$64,194**	**57**	**$2.2 million**
IMRF, Downstate and Suburban Police and Firefighter funds excluded due to lack of member data				

Source: Pensioner data obtained from individual Illinois pension systems via 2020 FOIA requests; 2018 actuarial reports; Wirepoints calculations

Note: Unless otherwise noted, the pension data in this table was obtained from individual member data received from each fund via FOIA.

*Judges and General Assembly fund: Members retired after 1/1/2017 with 20-plus years of service.

**Estimated total payout is based on approximate life expectancies from Social Security's actuarial life tables. Current ages as of 2020 were used to determine pensioners' life expectancies.

***Final Average Salary for recently retired career retirees obtained from fund's 2018/2019 actuarial report.

****Cook County and Cook County Forest Preserve FOIA requests did not provide data. FAS and beginning pension data for recently retired, career members from funds' 2018 CAFRs were used as a proxy. Average total payout assumes life expectancy of 82.

D. Summary of Illinois' state retiree health insurance funds

Illinois owes $68 billion in retiree health insurance benefits to more than 560,000 government workers

Financial data and membership of Illinois' state retiree health insurance programs, 2018 ($ in millions)

Program	Total active and retired members	Accrued liabilities	Assets	Unfunded liabilities	Funded ratio
State Employee Group Insurance Program (SEGIP)	264,579	$40,093	$0	$40,093	0%
Teachers' Retirement Insurance Program (TRIP)	268,783	$26,327	-$18	$26,345	-0.1%
College Insurance Program (CIP)	33,271	$1,820	-$64	$1,885	-3.5%
Total	**566,633**	**$68,240**	**-$82**	**$68,323**	**-0.1%**

Source: 2018 actuarial valuations of Illinois' State Employee Group Insurance Program (SEGIP), Teachers' Retirement Insurance Program (TRIP) and College Insurance Program (CIP).

The state is on the hook for a vast majority of Illinois' retiree health insurance debt

Employers' share of Illinois state retiree health insurance liabilities, 2018 ($ in billions)

Employers	SEGIP		TRIP		CIP		Total	
	Accrued liability	Share	Accrued liability	Share	Accrued liability	Share	Accrued liability	Share
State of Illinois	$40.1	100%	$15.1	57.3%	$0.9	49.5%	$56.1	82.2%
School districts	$0.0	0%	$11.2	42.7%	$0.0	0%	$11.2	16.5%
Community colleges	$0.0	0%	$0.0	0%	$0.9	50.5%	$0.9	1.3%
Total	**$40.1**	**100%**	**$26.3**	**100%**	**$1.8**	**100%**	**$68.2**	**100%**

Source: 2018 actuarial valuations of Illinois' State Employee Group Insurance Program (SEGIP), Teachers' Retirement Insurance Program (TRIP) and College Insurance Program (CIP).

Part 1
Why It's Legal

A. An amendment is Illinois' only legal option

Under the Illinois Constitution as interpreted by Illinois courts, no meaningful pension or retiree health insurance reform is allowed without federal bankruptcy or a state constitutional amendment.

The Illinois Constitution's pension protection clause states that "membership in any pension or retirement system of the State, any unit of local government or school district, or any agency or instrumentality thereof, shall be an enforceable contractual relationship, the benefits of which shall not be diminished or impaired."[1]

Illinois Supreme Court interpretations of that clause have been strict, consistent and unequivocal. The court has made clear that no pension benefits in place at the date a worker is first hired can be reduced, whether earned or yet to be earned.

The primary decision of Illinois' high court was rendered in 2015, invalidating a statutory pension reform measure commonly known as SB 1. In that decision, the court rejected application of the "police power" doctrine. That doctrine is more appropriately called the "higher public purpose" exception and is a term this report will use herein. It permits modification of contracts when economic and other circumstances necessitate those modifications in order for the government to deliver needed services.[2]

Along with the pension itself, all other benefits incidental to membership in an Illinois public pension are constitutionally protected under the pension protection clause. That includes health insurance benefits, as the court ruled in *Kanerva v. Weems*.[3]

The Kanerva decision is also significant because it shows the extremes to which Illinois' top court will go to side with pensioners. As a harsh dissent pointed out, to protect health insurance as a pension benefit the court had to "read into the pension protection clause language that is not there.... To do so is to usurp the sovereign power of the people." With the stroke of a pen, the court added what is now a $56 billion, constitutionally guaranteed liability to the state's balance sheet and another $12 billion in debt to local governments.

Importantly, virtually all aspects of the Illinois Supreme Court's rulings apply to each of the five state-sponsored pensions, plus 650 pensions sponsored by local units of government and the Illinois Municipal Retirement Fund, which exists independently and covers certain municipal workers across the state.

Those rulings, and others that have rejected pension changes for the City of Chicago, leave no room for meaningful pension reform. Reforms available without an amendment are minor.

Pension buyouts, for example, may provide some relief. A buyout plan is currently in place for state pensions but the state has never documented potential savings and take-up rates have been poor so far. A "consideration model" of reform is also permitted, but that approach means swapping a pension benefit for something of equivalent value, leaving the state no better off.

Benefits for new hires can also be changed. However, reforms are already in place for new hires and they are not the problem: All workers hired since 2010 are in Tier 2, and their own contributions are more than enough to cover their projected benefits.

Therefore, it is critical to keep in mind that the entire pension problem Illinois faces – its billions in unfunded liabilities – are owed to Tier 1 workers and retirees for work already performed.

It's also conceivable, though extremely unlikely, that the Illinois Supreme Court would entirely reconsider its opposition to reform. Much of the court's reasoning is highly questionable and facts have changed since the court invalidated SB 1 in 2015. Official state unfunded liabilities have risen from $100 billion to $137 billion and a major income tax increase had little impact on the state's deteriorating financial condition.

However, because the court has been so consistent and so firm in siding against reform, no officeholders, legal commentators or advocacy groups are calling for an attempt to go back to Illinois courts.

Furthermore, as pensioners themselves, Illinois judges face a conflict of interest that they have flagrantly ignored. Even if reform legislation excludes their pension, as was the case with SB 1, rulings in favor of reform risk setting precedent that would jeopardize their own pensions. Yet no Illinois court has expressed any concern whatsoever about that conflict of interest.

For those reasons, sentiment on all sides is that a prolonged attempt to return to the Illinois Supreme Court in hopes that it would reverse earlier opinions would be futile. Indeed, the prevailing opinion of reformers is that Illinois courts must be avoided to the fullest extent possible.

Federal bankruptcy offers the only clear route to pension reform without a constitutional amendment. The federal bankruptcy power is expressly stated in the United States Constitution and has supremacy over state law, including state constitutional matters such as the pension protection clause. In other words, the power of federal bankruptcy courts to adjust debts, including pension obligations, trumps state constitutions and other state law.[4]

Towns, cities and other municipalities are covered by Chapter 9 of the United States Bankruptcy Code. However, Chapter 9 can only be used in states that have authorized it, and Illinois has not given that approval. States themselves could only be subject to federal bankruptcy if new, federal legislation gave them that option.

Bankruptcy is certainly a better alternative than nothing, which is descent into the disorderly chaos of an unstructured insolvency. However, bankruptcy is widely regarded as a last resort. It is complex and expensive, and outcomes are not entirely predictable. It only works in the right financial circumstances. Bankruptcy is therefore a less attractive route to pension reform than the simpler route of a constitutional amendment.

The conclusions are clear:

1. No material reforms can be made to Illinois pensions unless the pension protection clause is overridden.
2. Only a state constitutional amendment will work, other than the alternative of bankruptcy.
3. An amendment must clearly and comprehensively dispose of all potential obstacles in state law that Illinois courts might use to invalidate reform.

After an amendment is passed, the only conceivable legal objections to reform would be based on the United States Constitution and federal law interpreting it.

B. Challenges to a state constitutional amendment under the U.S. Constitution would fail

Reform opponents often claim that a state constitutional amendment to allow pension reform would be futile because reforms would still be struck down under the United States Constitution. Specifically, they claim that any changes to pension obligations would violate the Contract Clause in Article I, section 10, which says that no state shall pass any law "impairing the obligation of contracts."

Governor J.B. Pritzker went so far as to say in his February 2020 budget address that "the fantasy of a constitutional amendment to cut retirees' benefits is just that – a fantasy." He cited the Contract Clause as the reason.

Those claims are wrong. The United States Supreme Court has long made clear that the Contract Clause is not an absolute. Using the guidelines the high court has provided, many courts in many circumstances have permitted modification of a variety of contracts. As to pensions in particular, experience in other states shows that, in the right circumstances, reasonable modification of pension contracts is permissible.

The leading case on the higher purpose exception to the Contract Clause is *Home Building & Loan Association v. Blaisdell*. In that 1934 decision, the Supreme Court upheld a Minnesota law that temporarily restricted mortgage holders from foreclosing. The law was intended to prevent mass foreclosures during the Great Depression and the *Blaisdell* court said there must be a rational compromise between contract rights and the public welfare.[5]

Critically important is the notion, reflected in the third and fourth conditions on the right, that the contract modification cannot overreach. It must be narrowly tailored to honor contract rights as best as reasonably possible without exceeding the emergency's need.

Since *Blaisdell*, other courts have allowed contract impairment when that decision's common sense standards were met. For example, in 1987, the Seventh Circuit upheld an Illinois law that impaired leases by prohibiting charging more than $10 per month for late rent and requiring landlords to keep security deposits in federally insured banks in Illinois.[6]

The *Blaisdell* standards for applying the higher purpose exception to allow for contract modification remain in place today:

1. An emergency is present.
2. The legislation is addressed to a legitimate end – that is, the legislation was not for the mere advantage of particular individuals but for the protection of a basic interest of society.
3. The relief afforded is of a character appropriate to the emergency.
4. The state must limit its action "by reasonable conditions appropriate to the emergency."

And in 2002, a federal court upheld a new, retroactive law that created the presumption that divorce revokes beneficiary status for former spouses. A former wife argued that the law was unconstitutional under the Contracts Clause because it interfered with her entitlement to benefits from her deceased ex-husband's life insurance policy.[7]

The federal higher purpose standard for contract impairment was applied directly to public pension reform in a 2019 decision by the Rhode Island Supreme Court. That decision provides the best illustration of why the United States Supreme Court's guidelines allow for pension modification despite the Contract Clause.[8]

Rhode Island passed a law permitting modification of any pension plan that was in "critical status" as determined by its actuary. Facing severe financial difficulty, the City of Cranston, Rhode Island, then proceeded to attempt to lower certain benefits for its police and firefighter pension, which was less than 60 percent funded. Pensioners and the city settled through a consent judgment for a 10-year suspension of the 3 percent compounding cost-of-living adjustment (COLA) with a 1.5 percent COLA in years 11 and 12 with certain rights to opt out.

However, dissenting pensioners sued to invalidate the cuts claiming violation of a number of provisions in the United States Constitution, including the Contract Clause. It is important to note that federal law, not state law, was at issue, even though the case was tried in Rhode Island's courts. Rhode Island had no state pension protection clause, putting it in the same circumstance as Illinois would be after a state constitutional amendment.

Accordingly, the Rhode Island Supreme Court looked to rulings of the United States Supreme Court and applied federal law precedent for interpretation of the Contract Clause. Under those rulings, the court said the contract impairment must "have a significant and legitimate public purpose" such as remedying a broad and general social or economic problem. "The public purpose need not be addressed to an emergency or temporary situation," the courts have said. But the contract modifications must be "reasonable and necessary," and a more moderate course must not be available. Based on testimony from Cranston's mayor and other evidence, the court concluded that the city's reforms did not violate the Contract Clause.

Pensioners tried to appeal their loss to the United States Supreme Court but the high court let the Rhode Island decision stand.

The State of Arizona's experience also sheds light on Illinois' pathway to reform. It had a state constitutional pension protection clause substantially identical to Illinois'. Arizona has amended that clause twice to cut benefits, mostly centered on cost-of-living adjustments. Those amendments were negotiated and largely consented to by public unions, but not all pensioners agreed with the cuts. To this day, dissenters could, individually or as a group, attempt a lawsuit challenging the reforms under federal law. None have tried.

If Illinois pensioners, unlike those in Arizona, challenged reforms under the Contract Clause, those reforms would be tested just as they were in Rhode Island – by applying the fact test required by federal precedent. Earlier rulings by the Illinois Supreme Court, including its SB 1 decision, would matter little, if at all. In that connection, it should be noted that no trial on the facts was even held prior to the SB 1 decision and the facts, in any event, have deteriorated significantly since then.

What would be the result of that fact test? The plight of most Illinois pensions and their sponsoring units of government are well beyond the guidelines for breaking contracts laid down by the United States Supreme Court. Indeed, for some municipalities, it is difficult to see a path to recovery with or without pension reform. For some of them, essential services like police and fire protection are already impaired. For countless other municipalities, pension costs have crowded out basic services. For almost all, problems are worsening rapidly. All of Illinois is overtaxed. Property taxes alone, often over 3 percent per year, are feeding a death spiral in property values. Most would therefore pass that "higher public purpose" test, or very soon will.

The reforms passed in Illinois after a constitutional amendment would, however, have to be narrowly circumscribed as the courts have said. Only contract impairment that is reasonable and tailored to the needs at hand is permissible.

Importantly, the state itself very recently asserted the higher purpose exception in a different context, citing both state and federal precedent to describe that exception just as it is described herein. Landlords have sued the state over the moratorium on residential evictions contained in Governor Pritzker's emergency order to address COVID-19. The state's answer asserts that its police power allows it to override lease contracts. The state is arguing for the same principles that should be applied to pensions. No ruling has been rendered in that litigation as of the date this report was written.[9]

Wouldn't a court testing pension reform under the federal Contract Clause after a state constitutional amendment still defer, to some degree, to the Illinois' Supreme Court's SB 1 decision refusing to apply the higher purpose exception?

No, for several reasons.

First, the Illinois court expressly emphasized at the outset of its analysis that it was reviewing validity of SB 1 under the pension protection clause, not the Contract Clause, so Contract Clause precedent did not clearly apply. After the pension protection clause is deleted, however, that point would be void.

Second, the fact analysis for the higher purpose exception has changed drastically since the SB 1 decision. In 2015, the unfunded liabilities for state pensions were about $100 billion; they were $137 billion at the last official count and no doubt soaring because of the COVID-19 recession. Local pensions and unfunded retiree health insurance liabilities have likewise continued to worsen. At the time of the SB 1 decision, Illinois had just let a temporary income tax increase expire. A bigger increase was made permanent along with increases in a variety of fees, making Illinois the "least tax-friendly" state, according to a Kiplinger analysis.

Third, the Illinois court said the state's pension problems were entirely foreseeable and therefore arose only because of the state's inattention to the problem. That was probably an error even in 2015 when the court ruled. Much higher life spans, soaring health care costs and low inflation outpaced by an automatic 3 percent COLA were not anticipated when benefits were granted, and those factors are even more true today than in 2015. Nor was the severity of the COVID-19 downturn foreseeable. More importantly, foreseeability is not a factor under federal police power analysis.

Fourth, though the Illinois court said it was basing its decision on the pension protection clause and not the state's Contract Clause, it nevertheless discussed Contract Clause exceptions. That discussion focused mostly on previous Illinois decisions, leading to garbled reasoning that mixed the state's Contract Clause precedent with federal precedent, further confused by the court's claim that it wasn't focused on the Contract Clause. After state law issues are eliminated by a constitutional amendment, only the more straightforward analysis of federal law on the higher purpose exception will be applied.

Independent legal experts concur that the Contract Clause is not an obstacle to a constitutional amendment for pension reform.

The late James Spiotto, a nationally recognized insolvency lawyer, concluded a 2019 analysis in MuniNet this way:

> **"It is now time for all states to recognize what the U.S. Supreme Court and virtually all other state courts have agreed: For the financial survival of public pensions and for the necessary funding of essential governmental services and needed infrastructure improvements, reasonable and necessary modification of public pension benefits in times of dire financial distress must be permitted for a Higher Public Purpose as in the recent case of the City of Cranston, Rhode Island."**[10]

Mark D. Rosen, a University Distinguished Professor at the IIT Chicago-Kent College of Law, recently wrote in Crain's Chicago Business that:

> **"If Illinois amends its constitution, it must take account of the contracts clause's genuine limitations. But because the contracts clause does not absolutely bar impairments, [Governor J.B.] Pritzker should not invoke the United States Constitution as an excuse for not considering a state constitutional amendment."**[11]

Aside from the Contract Clause, pension reform opponents have sometimes also claimed that reform would run afoul of the Ex Post Facto Clause and the Takings Clauses in the United States Constitution. Those claims, however, are entirely spurious. The Ex Post Facto Clause has long been interpreted to apply only to criminal matters, and the "takings" argument was dismissed readily in the Rhode Island decision.

Finally, pension reform after a constitutional amendment could also be defended based on an argument never fully made in any court before: namely, the balanced budget requirement in the Illinois Constitution for the state and in statute for the local governments.

Article VIII Section 2 of the Illinois Constitution requires that, in the state's annual budget, "Proposed expenditures shall not exceed funds estimated to be available for the fiscal year as shown in the Budget." Similar statutory provisions bind municipal governments in Illinois. Was the state or local government authorized to enter into contracts that so clearly create deficits? Did the state-mandated pension regime for municipalities violate the balanced budget mandate?

Clearly, the state and local governments and their respective legislative bodies should not create a permanent deficit creating contractual obligations contrary to the law by the improvident granting of unaffordable, unfunded pension benefits. Courts have ruled contracts that violate constitutional or statutory mandates, such as balanced budgets, are ultra vires, unauthorized and invalid. This result is consistent with state and United States Supreme Court rulings on the unauthorized status and invalidity of government contractual obligations that violate constitutional and statutory mandates.

By combining that argument with the higher purpose doctrine, the underlying validity of pension contracts is undermined, strengthening the case that the contracts must be reformed.

The vast majority of other states nationally have made pension reforms, leaving Illinois as an outlier with a worsening crisis. The National Association of Retirement Administrators compiled a summary of all states that have reformed public pensions. Almost all have addressed their problems in one way or another.[12]

Most have required increased contributions by workers, a reform that's banned under current Illinois law. And most have also reduced benefits in some form.

The consequence is that Illinois is an outlier in growth of unfunded liabilities. A 2019 report by Pew Charitable Trust listed Illinois among the three worst states for growing unfunded liabilities, while other states have either improved their position or limited further deterioration in their pensions.[13]

C. How an amendment would work in Illinois

Precise wording may be adjusted, but an Illinois amendment should say substantially this:

Section 5 of Article XIII is hereby amended to read in its entirety as follows: Nothing in this Constitution or in any law shall be construed to limit the power of the General Assembly to reduce or change pension benefits or other benefits of membership in any public pension or public retirement system, whether now or in the future, accrued or yet to be earned.

The rationale for comprehensive and simple wording like the above is threefold.

First, if worded in that broad manner, all state constitutional issues would be avoided by definition. Beyond those constitutional issues, all other state law issues and previous Illinois court rulings must be overridden, including the pension protection clause (which is currently in the section referenced). That would leave only United States constitutional issues as potential obstacles. Pensioners who object to subsequent reforms might choose not to pursue any lawsuit, as in Arizona. If they do bring a lawsuit under federal constitutional grounds it would be disposed of in the same manner as in Rhode Island.

Second, an amendment specifying particular reforms, as in Arizona, is neither feasible nor sensible for Illinois. To comply with the Contract Clause and to be fair, pension reform must be necessary and reasonably based on facts specific to each pension fund and its sponsoring unit of government. However, those facts will vary for some of Illinois' 670 pensions.

For example, after an amendment is passed, the General Assembly would likely legislate reforms appropriate for the five state-run pension funds. A different approach would probably be taken for different groups of municipalities based on their particular circumstances. Still another approach might be needed for the Chicago teachers' pension where the state has assumed partial liability. Different legislative findings would be needed for the record in each case.

Illinois, in other words, is not able to amend its constitution in the manner Arizona did. There, the legislature passed a detailed reform statute which the amendment later ratified. That approach would be too cumbersome for Illinois, requiring multiple amendments. Nor would it allow future flexibility if the need arises to make further changes.

Third, the flexibility to address both earned and unearned benefits is probably necessary. As shown in this report, limiting reforms to unearned benefits would not be enough to restore the state to solvency and stability. Unfunded pension liabilities, which are the core problem, are owed entirely for work already performed by Tier 1 workers and retirees. Note also that the suggested language provides for a flexible option of adjusting all benefits attendant to membership in a pension system. That is intended to cover retiree health insurance benefits, which are a major liability and are also now protected under the pension protection clause. Whether those benefits or employee contributions for them need to be changed may vary among different pension systems.

The process for adopting an amendment would be the vote of three-fifths of both houses of the General Assembly followed by public approval in a general election. The earliest that could occur is November 2022.

However, if Illinois were prepared to be as aggressive as it should be on pension reform, it could pass reform legislation now that would be contingent on the amendment. It could also reduce its annual pension contributions now to levels consistent with the reforms intended. Those contribution levels are not dictated by the constitution or court rulings so there would be no legal impediment to the state proceeding in that manner.

That approach would have the additional benefit of showing the state's determination to reform, which would be welcomed by credit rating agencies, employers and citizens who are considering leaving the state.

Regardless of the timing, the final step would be passage of legislation tailored appropriately to the pensions addressed. One set of reforms could cover all the state-sponsored pensions. Different statutory reforms may be appropriate for different municipalities. For each of those statutes, however, the legislature would be obligated to limit reforms to the standards laid down by federal courts, thereby ensuring that the contract impairment is limited to what is fair, reasonable and necessary.

D. Illinois' past legal arguments for reform are far stronger today

Both sides of the aisle have recognized the urgent need for action over the years, but it was Democratic politicians who defended their 2013 pension reforms using the "higher public purpose" argument.

Then-Attorney General Lisa Madigan made the case in 2014 in front of the Illinois Supreme Court. The pension problem and the fiscal crisis it caused were so severe, she argued, that it justified an override of the state's constitutional pension protection clause. The state's position was clear: benefit reductions, not tax increases, were essential.

Madigan's case was based on the same points that financial realists and pension critics had been saying all along – that increasing taxes or cutting services instead of cutting some benefits would worsen the flight of employers from the state and devastate the poor. Specifically, the Attorney General argued:[14]

- Raising taxes instead of making the pension cuts under SB 1 wasn't a workable alternative. Doing so would reduce economic activity in Illinois by 1.1 percent and cost the state 64,000 jobs, "economically disadvantaging Illinois and worsening its competitive position."
- If the state tried to pay for pensions through spending cuts instead of higher taxes, cuts would hurt those most economically disadvantaged, hitting education, health care and social programs.
- Respecting the flight of employers from Illinois, they said it was not the big corporate headquarters with well-paid executives that were most subject to flight. Instead, manufacturers and transportation companies providing living wage jobs were most at risk.

Madigan also cited the conclusions reached by the General Assembly itself:

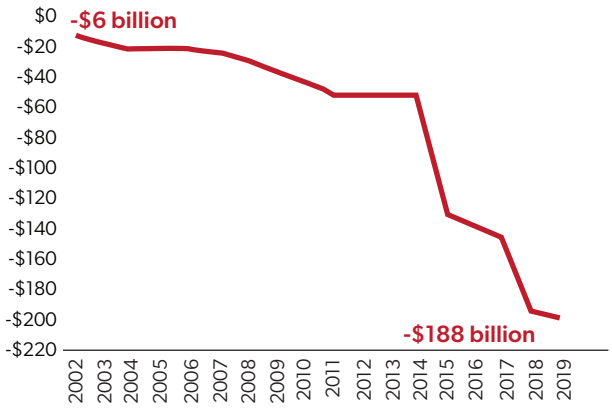
> "Having considered other changes that would not involve changes to the retirement system, the General Assembly has determined that the fiscal problems facing the state and its retirement systems cannot be solved without making some changes to the structure of the retirement systems."

No court, however, tried the case on those facts. The Illinois Supreme Court upheld a summary judgement against the state with no trial having ever been conducted. The top court did, however, indicate that it didn't believe the state's predicament was so dire. For example, it noted that the state had just let a temporary income tax expire, which they thought could be reinstated. Since then, the temporary income tax hike has been more than replaced by a permanent tax hike, and the state has raised additional taxes on gasoline, vehicle registrations, trailers and more.[15]

The warnings from 2014 have come to pass. The state's fiscal plight has worsened drastically. Illinois' official Net Position as shown in its audited financial statements plummeted by a stunning $139 billion from 2014 to 2018. Its Net Position now stands at negative $188 billion. Those losses are due overwhelmingly to the state finally acknowledging the extent of its unfunded pension and retiree health insurance obligations.[16]

Illinois is drowning in red ink

State of Illinois: total primary government Net Position (in billions)



Source: State of Illinois Comprehensive Annual Financial Report 2019

Part 2
Why It's Necessary

Why Reform Is Necessary

Illinois' General Assembly has refused to solve the state's ever-growing retirement crisis for more than three decades. And for three decades, Illinois' finances have steadily decayed. Debts have grown by billions year after year despite assurances by lawmakers that budgets were balanced and actions had been taken to bring the crisis under control. Illinois is now the national outlier, and in many cases, an extreme outlier – on almost every financial, economic and demographic metric that matters.

Pensions aren't Illinois' only problem, but because their costs dominate government budgets, their impact is felt everywhere. There's no fixing Illinois without changing the current system and dramatically reducing the state's retirement shortfalls.

The costs of retirement debts are overwhelming every constituency in Illinois. Retirement security for most government workers has collapsed in tandem with falling funded ratios. Spending on Illinois' most vulnerable is being crowded out as retirement costs have grown to consume more than a quarter of the state's budget; no other state spends nearly as much on retirements. And ordinary residents who pay for the costs of their public servants are being crushed by the country's highest property taxes and one of the nation's highest combined state and local tax burdens.

The evidence of the state's decay can be captured in just two metrics: the state's credit rating and domestic out-migration.

No state has ever been rated junk before, but today Illinois is rated just one notch above junk with a negative outlook. The rating embodies not just the state's fiscal failures, but also the continued failed governance of the General Assembly. It's not as if lawmakers weren't warned of the consequences of their mismanagement. The big three rating agencies have downgraded Illinois 22 times since 2009.[1]

Illinoisans have fled the state's growing problems in record numbers. No other state lost more people over the last decade than Illinois. What was revered as the country's destination state just 60 years ago is now a state with a shrinking population and the nation's second-largest rate of domestic out-migration.[2]

Illinois has reached the point where gimmicks used to avoid real reform – the same ones that landed Illinois its near-junk rating – are no longer available. The impact of COVID-19 has only further restricted the state's options. Borrowing any meaningful amount, without some sort of federal backing, will be extremely difficult. Tax hikes will inflict additional harm on residents and businesses that have been crippled by the economic shutdown. Shorting the pension funds will trigger even more punishment from rating agencies. And reamortizing pension debts further into the future won't be accepted by the agencies either.[3]

In the absence of bankruptcy, reforms are the only meaningful way to reduce the state's retirement debts. This section details how overpromising, and not underfunding, has been the main cause of the state's retirement crisis. It proves that overly generous pension and retiree health insurance benefits are a driver of that overpromising. And it shows how that's made Illinois an outlier nationally, burdening Illinoisans with an impossible debt load.

Illinois' history of failed reform

None of the retirement reforms that have been proposed or enacted over the past 30 years have attempted to actually solve Illinois' retirement crisis. Instead, they have perpetuated the problem.

Gov. Jim Edgar's 50-year pension funding ramp pushed the responsibility of paying Illinois' debt onto future generations. Pension obligation bonds, issued by both Govs. Rod Blagojevich and Pat Quinn, did nothing but convert pension shortfalls into general obligation debt, leaving taxpayers no better off. And massive tax hikes in 2011 and 2017 failed to solve the crisis, despite billions in new revenue poured into the pension funds.[4, 5, 6]

Paradoxically, every one of those "fixes" allowed more of the state's budget to go toward payrolls, resulting in even larger pension shortfalls.

Other changes have had marginal benefits, but overall have done nothing to fix the crisis. Pension buyouts have saved almost nothing. The consolidation of downstate public pension fund assets guarantees no savings. And the state's Tier 3 plan was inoperable when passed and remains so to this day.[7, 8, 9]

Even the 2013 reform proposal SB 1 would have only slightly slowed the growth of Illinois' debts while maintaining the same broken system.[10]

All those efforts have done little more than give the public the false impression that lawmakers were tackling the crisis.

Only the Tier 2 system enacted for new workers in 2011 significantly impacted future pension costs, but even those changes must be considered a failure. For one, the savings come from the fundamentally unfair structure of Tier 2, where new members are forced to provide a net subsidy to the state pension plans. Political or legal pressure could force lawmakers to dismantle Tier 2 sometime in the future, significantly increasing the state's pension obligations. Lawmakers' recent changes to the Tier 2 benefits of downstate and suburban public safety workers is evidence of that possibility.[11]

Second, even if the reduced costs of Tier 2 remain in place, pension payments will continue to consume an unsustainable one quarter of Illinois' budget for the next 25 years.[12]

A. Illinois' pensions are overpromised, not underfunded

A fundamental problem with the state pension protection clause is its asymmetry. Illinois lawmakers enacted strict constitutional language to ensure that pension benefits would never be diminished, but they didn't create a mechanism to control or limit the growth in those benefits.

What few spending controls they did put in place, such as the balanced budget amendment, have been entirely ignored. Lawmakers failed to contemplate that pension benefits could be used by future legislatures for political gain or that benefit growth could markedly outstrip the ability of its residents to pay for them.[13]

With no limits in place, accrued pension liabilities – the total sum of what's owed in future pension benefits at any one time – have inflicted serious damage to Illinois' economy, resident incomes and public worker retirement security.

Overpromising, and not underfunding, is the cause of Illinois' pension crisis.

In the following section, Wirepoints analyzes the accrued liability growth of the state's five pension funds – the Teachers' Retirement System (TRS), State Employees' Retirement System (SERS), State Universities Retirement System (SURS), Judges Retirement System (JRS) and General Assembly Retirement System (GARS) – and shows how those liabilities have overwhelmed the state's economy.

In addition, Illinois' accrued liability growth since 2003 is compared to the rest of the country. And finally, Wirepoints shows that Illinois has had one of the highest pension asset growth rates in the country, dispelling the notion that Illinois' crisis is due to underfunding.

History of Illinois' five state-run pension funds and other economic indicators

History of Illinois state teachers (TRS), university employees (SURS), state workers (SERS), judges (JRS) and legislators (GARS) pension funds and other economic indicators ($ in billions)

Year	Actuarial liabilities	Fund assets	Unfunded liability	Funded ratio	State general revenues	State personal income	Inflation	State population
1987	$17.9	$11.0	$7.0	61%	$11.1	$197.2	113.6	11,391,178
1988	$19.6	$11.9	$7.7	61%	$11.6	$212.6	118.3	11,390,183
1989	$21.6	$13.0	$8.6	60%	$12.1	$226.9	123.9	11,409,782
1990	$24.9	$14.4	$10.5	58%	$12.8	$240.8	130.7	11,446,979
1991	$27.2	$15.5	$11.7	57%	$13.3	$245.9	136.2	11,535,973
1992	$30.1	$17.2	$12.9	57%	$14.2	$265.7	140.3	11,635,197
1993	$32.9	$18.8	$14.1	57%	$15.1	$275.4	144.5	11,725,984
1994	$37.4	$20.4	$17.0	55%	$16.2	$290.1	148.2	11,804,986
1995	$41.0	$21.5	$19.5	52%	$17.3	$307.8	152.4	11,884,935
1996	$44.4	$23.6	$20.8	53%	$18.1	$327.6	156.9	11,953,003
1997	$45.9	$32.2	$13.7	70%	$18.9	$346.3	160.5	12,011,509
1998	$51.6	$37.2	$14.3	72%	$20.0	$367.4	163.0	12,069,774
1999	$54.2	$38.7	$15.5	71%	$21.7	$383.4	166.6	12,128,370
2000	$58.8	$42.8	$16.0	73%	$23.3	$412.4	172.2	12,434,161
2001	$67.8	$42.8	$25.0	63%	$24.1	$427.5	177.0	12,488,445
2002	$75.2	$40.3	$34.9	54%	$23.6	$432.4	179.9	12,525,556
2003	$83.8	$43.3	$40.5	52%	$25.0	$440.0	184.0	12,556,006
2004	$89.8	$54.7	$35.1	61%	$27.0	$457.4	188.9	12,589,773
2005	$97.2	$58.6	$38.6	60%	$28.2	$476.6	195.3	12,609,903
2006	$103.1	$62.3	$40.7	60%	$28.6	$508.5	201.6	12,643,955
2007	$112.9	$70.7	$42.2	63%	$30.3	$538.1	207.3	12,695,866
2008	$119.1	$64.7	$54.4	54%	$33.8	$551.5	215.3	12,747,038
2009	$126.4	$64.0	$62.4	51%	$32.1	$525.2	214.6	12,796,778
2010	$138.8	$63.1	$75.7	45%	$30.3	$540.5	218.1	12,840,503
2011	$146.5	$63.6	$82.9	43%	$33.8	$568.0	224.9	12,867,454
2012	$158.6	$64.0	$94.6	40%	$34.1	$593.2	229.6	12,882,510
2013	$165.5	$65.0	$100.5	39%	$36.6	$607.7	233.0	12,895,129
2014	$183.2	$72.1	$111.2	39%	$37.0	$637.3	236.7	12,884,493
2015	$191.0	$78.1	$112.9	41%	$36.6	$662.8	237.0	12,858,913
2016	$208.0	$81.5	$126.5	39%	$30.5	$670.5	240.0	12,820,527
2017	$214.5	$85.4	$129.1	40%	$29.4	$689.7	245.1	12,778,828
2018	$223.3	$89.8	$133.5	40%	$41.5	$724.2	251.1	12,723,071
Total growth	**1,146%**	**720%**	**1,819%**		**275%**	**267%**	**121%**	**12%**
Compounded annual growth rate	**8.5%**	**7.0%**	**10.0%**		**4.4%**	**4.3%**	**2.6%**	**0.4%**

Source: Illinois Department of Insurance; Illinois Comptroller; U.S. Bureau of Economic Analysis; U.S. Census Bureau

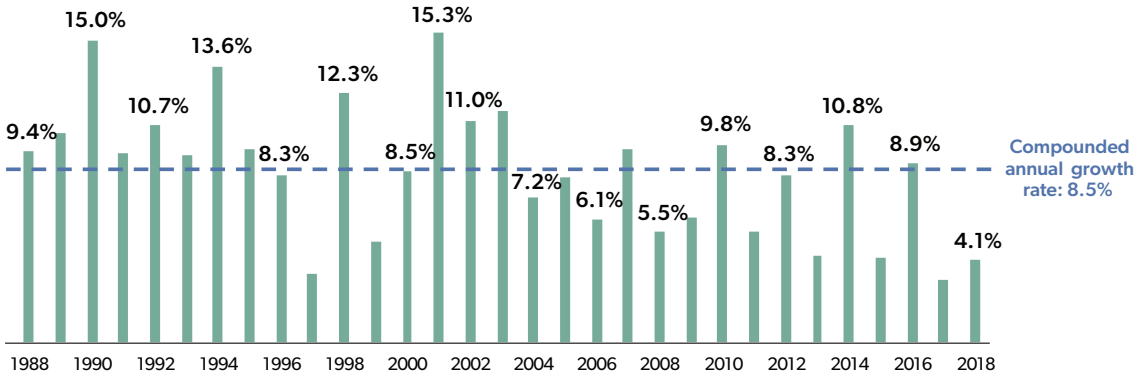
A1. Accrued liabilities have grown faster than Illinoisans can afford

Illinois' pension crisis is usually blamed on "underfunding." The term implies that Illinois' legislature failed systematically to pay into the five state-run pension systems with taxpayer contributions, resulting in massive shortfalls.

But an analysis of the state's pension data reveals that too few contributions into pensions hasn't been the real problem. More than enough funds have been poured into the systems. Instead, the true cause of Illinois' underfunding has been the dramatic and persistent growth in total pension benefits promised.

Illinois accrued liabilites have grown 8.5 percent per year on average since 1987

Accrued liabilities of Illinois' five state-run pension funds, year-by-year growth, 1987-2018



Source: Illinois Department of Insurance

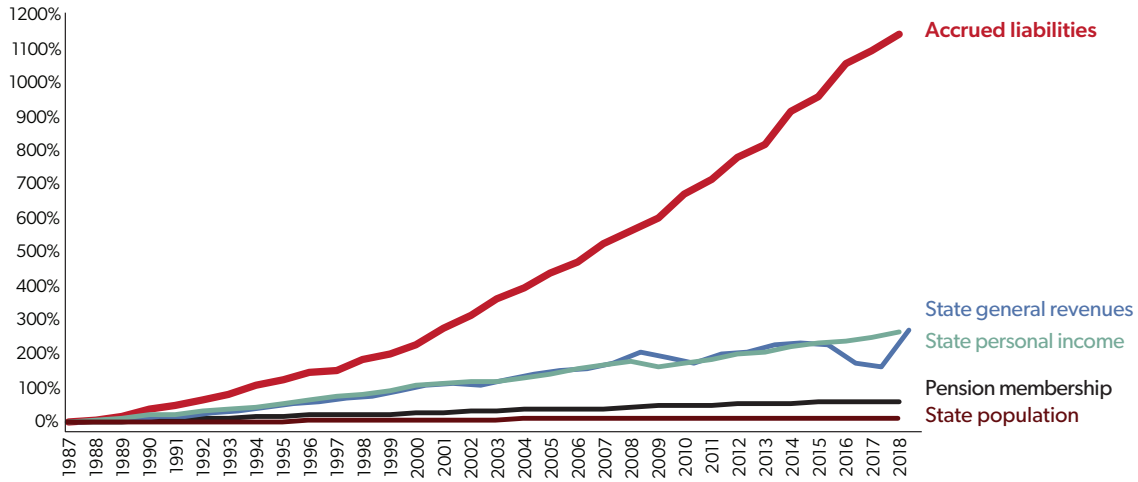
Wirepoints found that Illinois' accrued liabilities have exploded over the past three decades, growing far faster than what the state's economy, its tax base and personal incomes could ever have afforded. Illinois' pension promises have grown more than those in almost every other state since 2003, fueling a fiscal crisis that's unparalleled nationwide.

Wirepoints' findings are based on an analysis of Illinois pension and economic data stretching back to 1987, as well as 50-state pension plan data from 2003-2017 collected by Pew Charitable Trusts.[14]

The accrued liabilities of the state's five state-run pension funds have grown at a compounded rate of 8.5 percent a year since 1987, according to data from the Illinois Department of Insurance. Those liabilities grew by more than 10 percent annually for 11 of those years, resulting in stunning compounded growth.[15]

Pension benefit growth overwhelms Illinois' economy, state revenues

Cumulative growth: accrued liabilities of the five state-run pension funds vs. other indicators, 1987-2018



Source: Illinois Department of Insurance; Illinois Comptroller; U.S. Bureau of Economic Analysis; U.S. Census Bureau

That's resulted in a total increase of 1,146 percent over the entire 31-year period. No other state metric comes even remotely close to matching that kind of growth. The state's personal income, a proxy for GDP, grew just 267 percent over the same period and the state's general revenues were up 275 percent.[16]

Overall, total benefits have grown four to nine times faster than other key growth metrics.

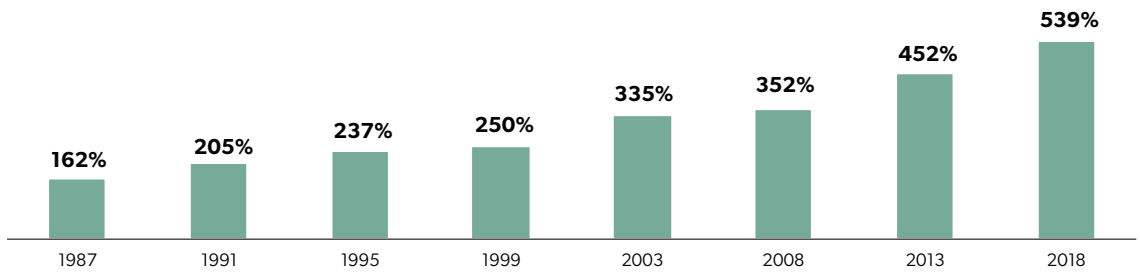
Another way to measure accrued liability growth is to compare it to the state's tax base over time. Thirty years ago, the state's obligations to active workers and retirees amounted to 162 percent of the state's general revenues. Today, those promises have ballooned to more than 500 percent of revenues.[17]

That's the result of benefits growing 8.5 percent a year since 1987, far outstripping the rapid 4.4 percent average annual growth of state general revenues over the same period.

With pension benefits outpacing every measure of Illinoisans' ability to pay for them, it's no wonder Illinois is in crisis, its taxpayers are fatigued, and core government services are being slashed.

Accrued pension liabilities overwhelm state budget

State pension accrued liabilities as a percentage of Illinois General Fund revenues



Source: Illinois Department of Insurance; Illinois Comptroller

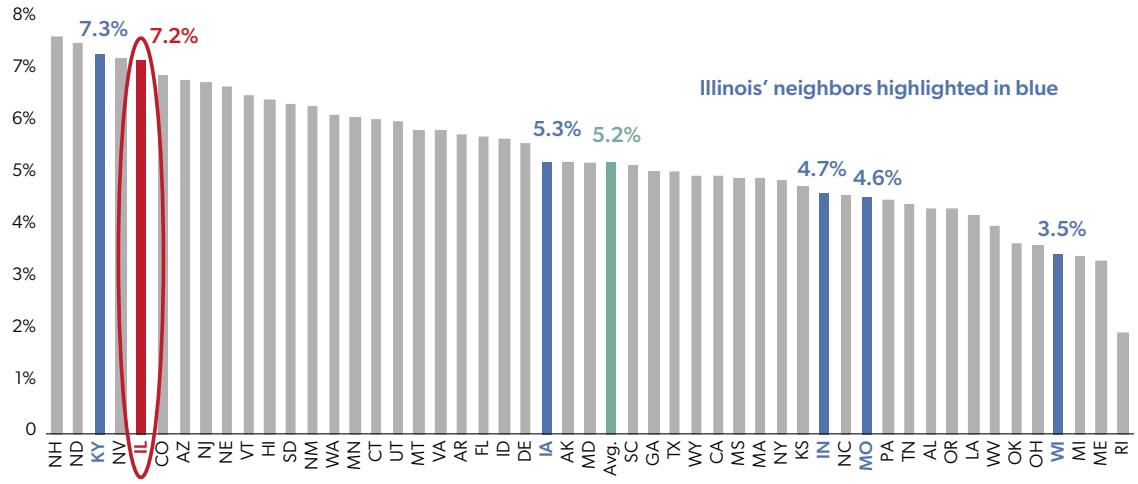
Illinois growth in accrued liabilities: a national outlier

A 50-state comparison over time reveals just how much of an outlier Illinois' pension promises really are. Wirepoints compared the growth of Illinois' accrued liabilities to those of other states using 2003-2017 data compiled by Pew Charitable Trusts. Comparable state-to-state data over a longer period was not available.[18]

During that 14-year period, Illinois' accrued liabilities grew 7.2 percent annually, the 5th-fastest pace of any state in the country. Illinois' growth rate was faster than the national average of 5.2 percent and far faster than the growth of all of its neighbors except Kentucky. (See Appendix A for more details.)

Illinois has the 5th-fastest pension benefit growth of any state

Average annual growth in state pension accrued liabilities, 2003-2017



Source: Pew Charitable Trusts, "The State Pension Funding Gap: 2017"

In contrast, states like Wisconsin, Maine, Michigan, Oklahoma and Ohio kept the growth of their pension obligations under 4 percent per year.

While a 2-3 percent differential in growth rates may not look like much, over a long period the compounding effect can be dramatic. Had Illinois' pension benefits simply grown at the national average of the Pew data back in 1987, Illinois' plans would be fully funded today based on official assumptions.

Too much growth in pension liabilities can also overwhelm a state's economy. Some states have seen the growth in their promises far exceed the growth in their GDPs.

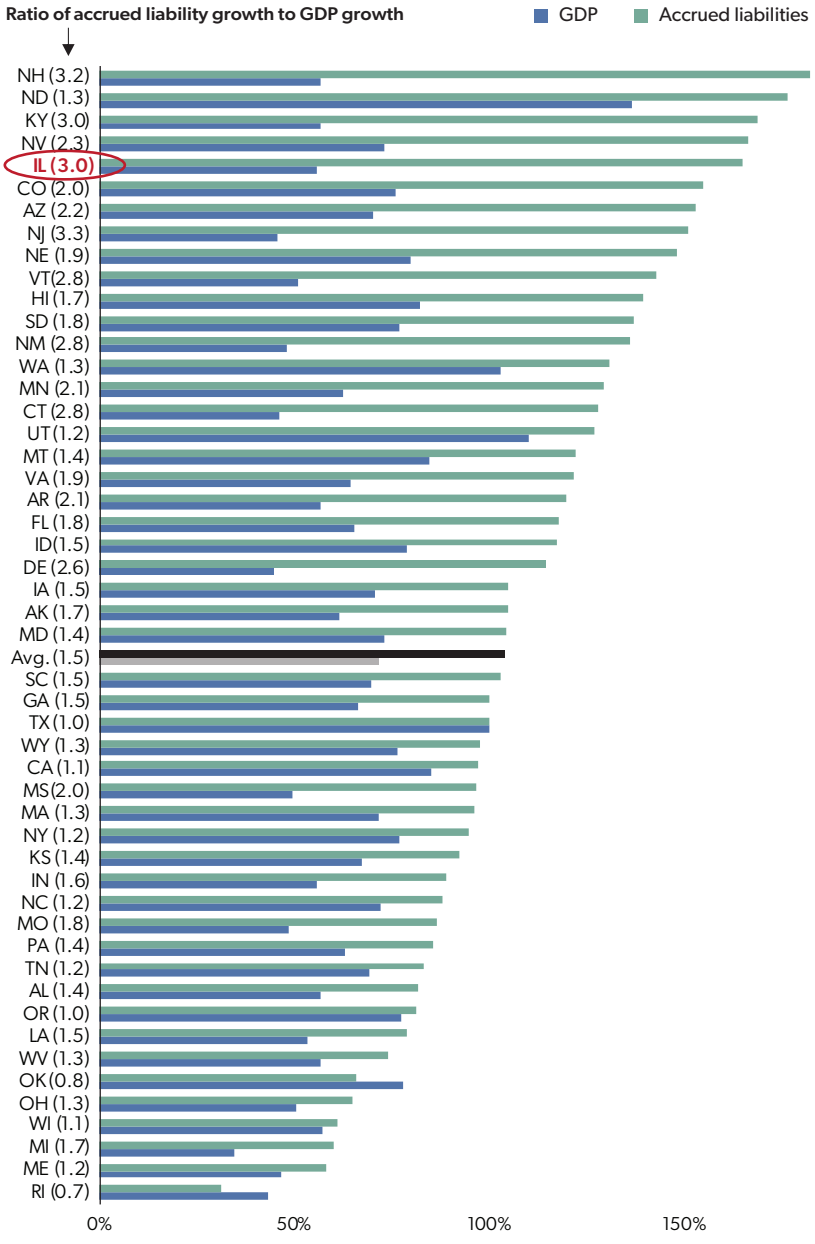
In 24 states, accrued liabilities outgrew their economies by 1.5 times or more between 2003 and 2017. And in 13 states, liabilities grew two times or more than their economies did. Illinois is one of them.[19]

Illinois' accrued liabilities grew 165 percent from 2003 to 2017, compared to a GDP growth of just 56 percent. That's three times more over the entire period. Only New Jersey, New Hampshire and Kentucky's accrued liabilities grew faster relative to their GDPs.

In contrast, states with low pension growth rates have largely prevented promises from overwhelming their economies.

Illinois pension promises grow three times faster than GDP

Cumulative growth: total state pension accrued liabilities vs. Gross Domestic Product (GDP), 2003-2017



Source: Pew Charitable Trusts, "The State Pension Funding Gap: 2017"; U.S. Bureau of Economic Analysis

Take Wisconsin, for example. The state's pension promises grew a total of 61 percent between 2003 and 2017, barely more than the state's GDP, which grew 57 percent. Rhode Island managed to keep its accrued liabilities from outgrowing its economy. Liabilities grew just 31 percent while the state's economy grew 43 percent.

A common factor among the low growth states is their more reasonable benefit structures and a willingness to enact pension reform.

Wisconsin's shared risk pension plan and relatively modest benefit structure have for decades kept the state's promises limited and its pension system healthier than most other states.[20]

Michigan pioneered comprehensive state pension reform in 1997 when it created 401(k)-style plans for new workers.[21]

Rhode Island enacted major pension reforms in 2011. That's one of the reasons why the state's benefits have grown far more slowly than the economy. The state introduced hybrid retirement plans for existing workers, froze cost-of-living adjustments and increased retirement ages for both new and current workers.[22]

Those states acted to get their retirement benefits under control. Unfortunately, Illinois can't do the same because of its asymmetric pension protection clause.

A2. Illinois pension assets have grown rapidly

Illinois' pension crisis is currently wrapped up in a narrative of underfunding – that the state, and by extension its residents, never contributed enough to Illinois pensions. Those opposed to reform consistently blame underfunding as the cause of the state's crisis.

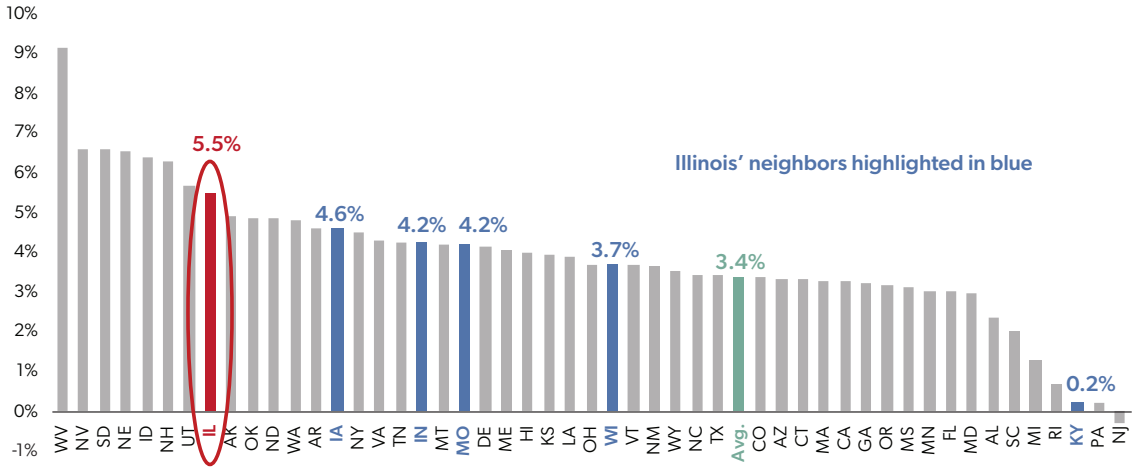
But contrary to most assumptions, Illinois' pension assets – buoyed by taxpayer contributions – have grown rapidly over the past three decades. Just like pension benefits, assets have grown far faster than any major measure of the state's economy.

Unfortunately, Illinois' extreme liability growth has simply overwhelmed one of the fastest pension asset growth rates in the country.

Illinois' pension assets grew 5.5 percent a year between 2003 and 2017, the 8th-fastest nationally, based on an analysis of Pew data. The 50-state average was a much lower 3.4 percent.[23] (See Appendix A for more details.)

Illinois has the 8th-fastest pension asset growth of any state

Average annual growth in state pension assets, 2003-2017



Source: Pew Charitable Trusts, "The State Pension Funding Gap: 2017"

Illinois' rapid asset growth also outpaced that of its neighbors. Iowa's assets grew 4.6 percent annually, while Wisconsin's grew 3.7 percent.

Illinois' high asset growth rate differentiates it from the other states suffering a major pension crisis. Both Kentucky and New Jersey saw their assets stagnate or fall even as their liabilities skyrocketed between 2003 and 2017. Kentucky's assets grew a paltry 0.2 percent annually at the same time that its liabilities grew 7.3 percent. And New Jersey's assets actually shrunk compared to liabilities that grew 6.8 percent annually.

The takeaway is that Illinois' fast-growing assets simply couldn't keep up with the state's growing promises.

Illinois' pension assets grew faster than its economy

Illinois' pension asset growth was even faster when measured over a longer period of time. The assets of the five state funds grew an average of 7 percent annually over the past 31 years, increasing from just $11 billion in 1987 to $90 billion in 2018.

Illinois' assets have grown far faster than any major measure of the state's economy. Assets are up 720 percent over the entire period while state general revenues grew just 275 percent.[24]

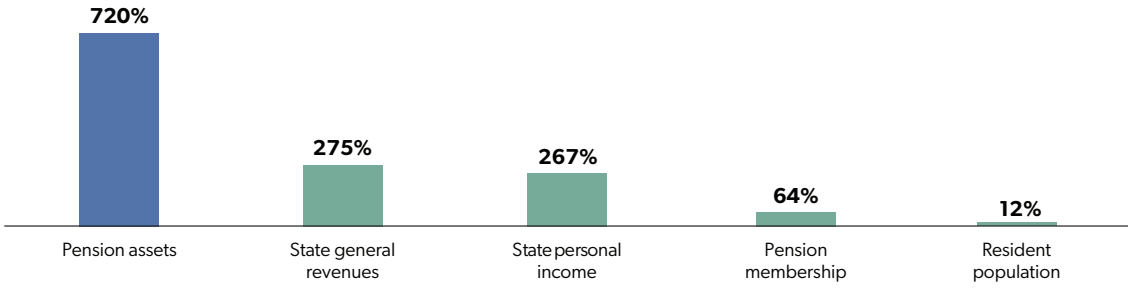
Much of the growth has come from taxpayer contributions into the pension plans. Most notable is the amount of funding put in by taxpayers since the implementation of the 1996 Edgar Ramp, the pension funding plan introduced by Gov. Jim Edgar.

The original ramp called for taxpayers to pay $56 billion into the pension systems from 1996 through 2018. But taxpayers have ended up contributing far more than that. Taxpayers put $83 billion into the pension funds, or $27 billion more than the original ramp called for. In 2018 alone, taxpayers contributed over $3.5 billion more than the original ramp required.[25]

However, that growth in assets has come at a cost. Illinois' contributions to the pension funds have become so large that they now consume more than a quarter of the state's annual budget. That's left less funding available for other vital programs and social services.

Illinois pension assets have grown far faster than state revenues, income, population

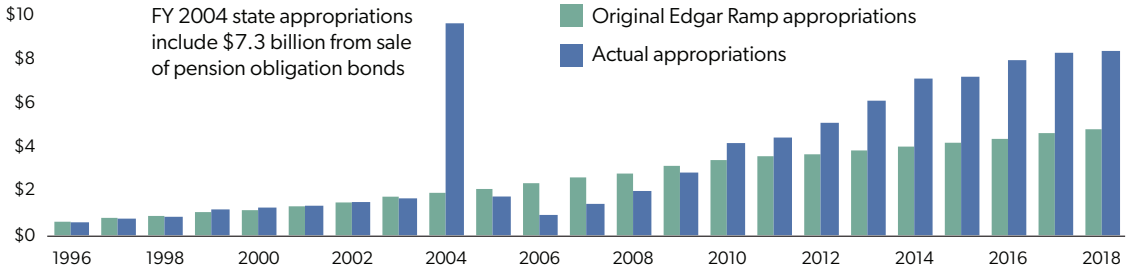
Total growth in state pension assets vs. other indicators, 1987 vs. 2018



Source: Illinois Department of Insurance; Illinois Comptroller; U.S. Bureau of Economic Analysis; U.S. Census Bureau

Illinoisans have contributed $27 billion more to pensions than original Edgar Ramp required

Total taxpayer contributions to Illinois five state-run pension funds, 1996-2018
Original Edgar Ramp projected appropriations vs. actual appropriations (in billions)



Source: Commission on Government Forecasting and Accountability

Illinois would not be in crisis if its promises had grown at a reasonable rate

Illinois' official $134 billion pension shortfall for 2018 would look dramatically different today if politicians had reformed pensions and slowed the growth of benefits back in 2003.

For example, if lawmakers had taken action to limit accrued liability growth to neighboring Indiana's 2003-2017 rate of 4.7 percent, Illinois' pension shortfall would have totaled just $76 billion in 2018. Or, if politicians had reformed pensions to match Wisconsin's growth rate of 3.5 percent, Illinois' shortfall would have been just $50 billion.

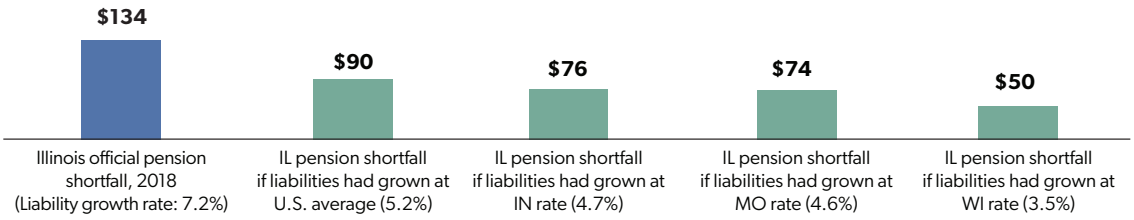
And if politicians had taken steps to slow the growth in pension liabilities three decades ago, Illinois could have avoided its current crisis.

Had Illinois' accrued liabilities grown 5.3 percent annually since 1987, close to the 2003-2017 average growth rate nationally, instead of at 8.5 percent, the state's assets would have caught up to its promises and Illinois would have been 100 percent funded in 2018 – at least under the state's official actuarial assumptions.

A 5.3 percent growth rate in promises would still have been rapid when compared to Illinois' economy and taxpayers' ability to pay. But it shows that a more moderate growth in benefits over the past 30 years would have spared Illinoisans the burden of the nation's worst pension crisis.

Illinois' pension shortfall would be far lower today if liabilities had grown at neighboring states' rates since 2003

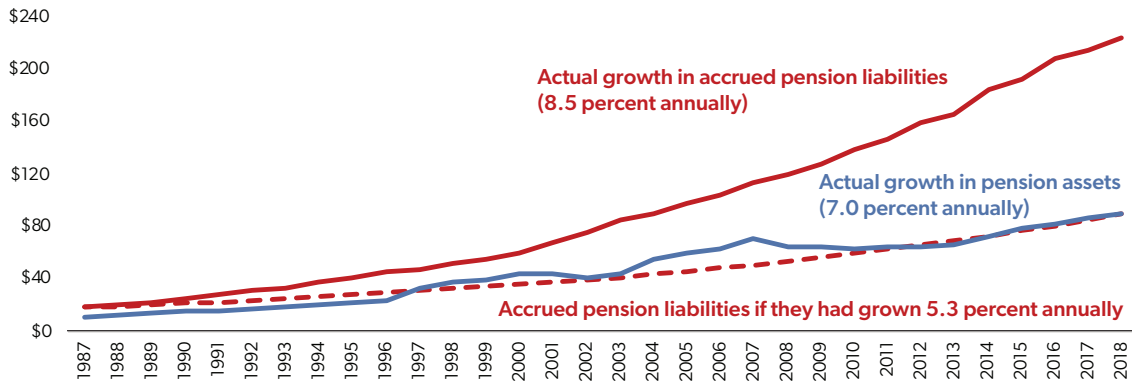
Illinois' official state pension shortfall (unfunded liabilities) in 2018 vs. shortfall if Illinois accrued liabilities had grown at neighbors' growth rates since 2003 (in billions)



Source: Pew Charitable Trusts, "The State Pension Funding Gap: 2017"; Wirepoints calculations

Illinois would have no crisis today if pension benefits had grown 5.3 percent a year since 1987

Actual state pension assets vs. actual accrued liabilities vs. liabilities grown at 5.3 percent a year (in billions)



Source: Illinois Department of Insurance, Wirepoints calculations

B. Illinois' pensions are overly generous

Illinois' long-term growth in pension promises stems largely from the generous benefits state workers receive. The state's rules on retirement ages, cost-of-living adjustments (COLAs) and employee contributions – combined with automatic spiking, pension pickups, automatic sick leave and other perks – have resulted in annual pension benefits worth millions in retirement for career workers.[1]

Critics of the current system often focus on double dippers and those with outrageous yearly pensions as the reason why Illinois pensions are unsustainable. Beneficiaries like that do contribute to the crisis, but that's not where the bulk of the problem lies. Illinois' pension crisis stems from the simple fact that the benefits provided to the average retiree are too expensive.

The best way to compare how overly generous Illinois retirements are is to look at the benefits of recently retired career workers with 30 or more years of service. That captures the full value of benefits and allows for an apples-to-apples comparison across states.

The average, recently retired, career state pensioner in Illinois receives $70,600 in annual pension benefits and can expect to collect over $2.3 million in total benefits. That's a result of one of the most generous COLAs in the country, which doubles a retiree's annual pension after 25 years in retirement.[2]

Pensions aren't the only generous benefit career workers receive. Nearly 75 percent of Illinois state employees also receive free retiree health insurance. Those benefits are worth, in present value terms, $200,000 – $500,000 per retiree, depending on their tier.[3]

In the following pages, Wirepoints compares Illinois' teacher pension benefits and state worker retiree health insurance benefits to those of its peer states. Due to the high costs of hiring actuaries, Wirepoints limited its analysis to teacher pensions and state worker retiree health benefits.

Pension benefits of recently retired career state pensioners

Pension benefit data for Illinois state retirees who retired after 1/1/2017 with 30-plus years of service

Fund	Final Average Salary	Approximate age at retirement	Current annual pension	Total direct employee contributions	Estimated total payout in retirement**	Employee contributions vs. estimated payout
TRS	$108,183	59	$79,379	$172,257	$2.6 million	7%
SURS	$92,820	59	$71,282	$141,895	$2.3 million	6%
SERS	$85,976	59	$54,317 + Social Security	$69,698	$1.8 million + Social Security	4%
JRS*	$199,780	72	$175,047	$252,454	$4.1 million	7%
GARS*	$89,698	65	$87,974	$191,499	$1.8 million	12%
Average	**$99,066**	**59**	**$70,612**	**$134,038**	**$2.3 million**	**6%**

Source: Pensioner data obtained from the 5 state-run pension systems via 2020 FOIA requests.
*Retired since January 1, 2017 with 20 or more years creditable service.
**Estimated total payout is based on approximate life expectancies from Social Security's actuarial life tables. Current ages as of 2020 were used to determine pensioners' life expectancies.

A brief history of teacher pension benefit increases

Given the one-sided nature of the pension protection clause, past Illinois lawmakers should have been extremely careful about giving away any new benefits. But a review of teacher benefits – the Illinois Teachers' Retirement System publishes a complete list of changes to the pension plan since 1915 – shows they weren't. (See Appendix B for a summary of TRS benefit changes.)[4]

Notable changes to teacher pensions benefits:

Cost-of-living increases

- 1969: COLA increased to 1.5 percent simple
- 1971: COLA increased to 2 percent simple.
- 1978: COLA increased to 3 percent simple.
- 1990: 3 percent COLA increase compounded annually.

Pension benefit formula

- 1947: Pension formula: 1.5 percent of Final Average Salary (FAS) per year of creditable service with a 60 percent maximum. Final Average Salary calculated based on the last 10 years of service.
- 1971: Pension formula upgraded to 1.67 percent for first 10 years of service; 1.9 percent for next 10; 2.1 percent for next 10; and 2.3 percent for years over 30. Maximum percentage of FAS increased to 75 percent. FAS calculation changed to highest four consecutive years within the last 10 years of service.
- 1998: Pension formula upgraded to 2.2 percent a year. TRS member contributions increased by 1 percent.

Sick leave benefits

- 1972: Service credit granted for up to one-half year of unpaid sick leave.
- 1984: Service credit granted for up to one year of unpaid sick leave.
- 1998: Any unused sick leave could be used for credit, if not compensated in any other way.
- 2003: Service credit granted for up to two years of unpaid sick leave.

Retirement ages

- 1947: Retirement permitted at age 55 with 20 years of service; age 60 with 15 or more years of service.
- 1969: Retirement permitted at age 55 with 20 years of service; age 60 with 10 or more years of service; age 62 with 5 years or more of service.

B1. Illinois teachers are the most generously compensated among neighbors, largest states

Wirepoints compared Illinois teacher pensions to 10 other peer states and found Illinois teachers receive the most generous pension benefits by far. High Final Average Salaries, early retirement ages, and one of the nation's most generous COLAs allow Illinois teachers to out-earn their colleagues in expensive states like California and New York, even before adjusting for cost of living.

Wirepoints focused on teacher benefits since they're a proxy for the generosity of Illinois' overall pension system. Teachers' Retirement System benefits make up nearly 60 percent of the state's obligations and teachers are the nation's single largest homogenous group of government workers.

Important factors considered (See Appendix C for additional details.)

- Wirepoints focused on the benefits of career teachers with 30-plus years of service who retired in FY 2018, allowing for an apples-to-apples comparison across states. Wirepoints acknowledges there are many new tiers offering different levels of benefits across the states, including in Illinois, but the overwhelming majority of earned benefits are still owed to teachers in older tiers.
- Illinois' peer states were limited to the following: Illinois' five neighboring states, which directly compete for talent and investment, and the nation's five largest states by population.
- Teachers in the majority of Illinois' peer states participate in Social Security. Those benefits are included in our analysis of teachers' total retirement benefits.[5]
- Wirepoints used the U.S. Bureau of Economic Analysis' Regional Price Parities Index to adjust for cost-of-living differences across states.[6]
- Teacher benefit data was obtained from 2018 Comprehensive Annual Financial Reports or from individual state FOIA requests.

Summary findings

The average career teacher in Illinois, after adjusting for regional price differences, will receive approximately $2.9 million in pension benefits over the course of her retirement. That same teacher in New York will receive approximately $2.1 million, while a California teacher will receive $2.0 million.

Teachers in Illinois' neighboring states will, on average, receive far less than that. Benefits range from $2.4 million for Kentucky teachers to $1.6 million for Indiana teachers. Teachers in Texas will receive about $1.36 million, the lowest of Illinois' peer states.

Those total benefits include expected Social Security payments. Teachers in New York, Florida, Pennsylvania, Wisconsin, Iowa and Indiana participate in Social Security. Teachers in Illinois, California, Kentucky, Missouri and Texas do not. (Individual districts in Texas and Missouri have the option to enroll teachers in Social Security, but a majority of districts in each state do not do so.)[7]

Total expected benefits for a recently retired career teacher

Total expected benefits for a recently retired career teacher
(retired in 2018 with 30-plus years of service), (in millions)

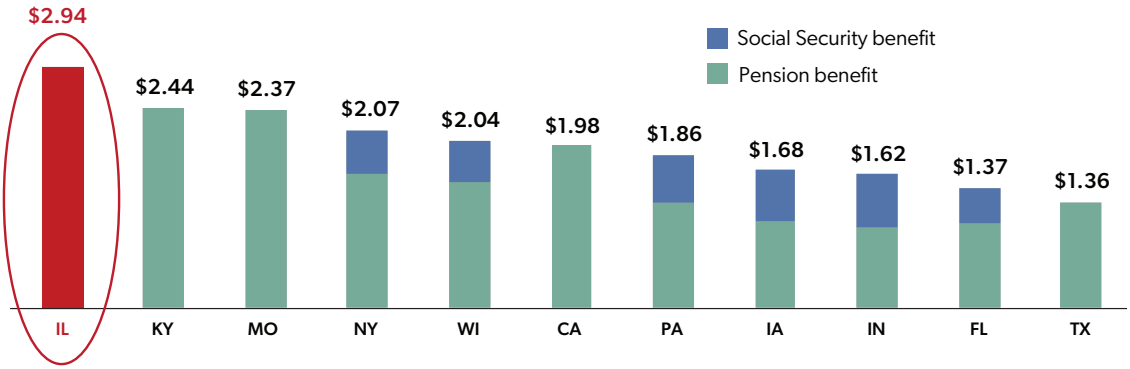
State	Pension benefits	Social Security benefits	Total benefits in retirement	Regional Price Parity (RPP)	Total benefits adjusted for RPP
Illinois	**$2.90**	**—**	**$2.90**	**98.5**	**$2.94**
Kentucky	$2.14	—	$2.14	87.9	$2.44
Missouri	$2.12	—	$2.12	89.5	$2.37
New York	$1.78	$0.62	$2.40	115.8	$2.07
Wisconsin	$1.42	$0.46	$1.88	92.4	$2.04
California	$2.27	—	$2.27	114.8	$1.98
Pennsylvania	$1.26	$0.56	$1.82	97.9	$1.86
Iowa	$0.95	$0.56	$1.51	89.8	$1.68
Indiana	$0.88	$0.58	$1.46	89.8	$1.62
Florida	$0.96	$0.41	$1.37	99.9	$1.37
Texas	$1.32	—	$1.32	97.0	$1.36

Source: FY 2018 Actuarial Reports; Comprehensive Annual Financial Reports and/or FOIA requests of state pension funds; U.S. Bureau of Economic Analysis; Wirepoints calculations

Note: See Appendix C for additional details on state benefits and Wirepoints' assumptions.

Peer state comparison: Career Illinois teachers receive the most retirement benefits

Total expected benefits for a recently retired career teacher (retired in 2018 with 30-plus years of service)
Adjusted for regional price differences, (in millions)



Source: FY 2018 Actuarial Reports; Comprehensive Annual Financial Reports and/or FOIA requests of state pension funds; U.S. Bureau of Economic Analysis; Wirepoints calculations

Note: See Appendix C for additional details on state benefits and Wirepoints' assumptions.

Breaking down the elements of teacher pensions

Pension comparisons are complicated given the host of factors that help determine total benefits. Those include salaries, pension formulas, ages at retirement, cost of living adjustments and other perks including end-of-career spiking and accrual of unused sick leave days.

Fortunately, most of those elements are captured in four numbers: Final Average Salary, beginning pension benefit, age at retirement, and post-retirement cost-of-living adjustments. Wirepoints compares those factors across the surveyed states for career teachers with 30-plus years of service who retired in FY 2018.

1. Final Average Salaries

Career Illinois teachers retire with a final average annual salary of $108,628, the highest amount among the states Wirepoints surveyed. New York and California teachers are close behind with salaries of about $106,000. No other state salary breaks $100,000.

After adjusting for regional price differences, the gap in salaries between Illinois and its peer states grows significantly. Illinois teachers alone receive more than $110,000 in salaries, while New York and California's drop to the $92,000 range.

Teachers in several states, including Pennsylvania and Florida, have Final Average Salaries after adjustment that are $30,000-$50,000 lower than Illinois'.

Those salaries matter because they serve as the base for the calculation of teacher pension benefits. The rules for determining the Final Average Salary across states are relatively uniform, with most states calculating it as the average of the three highest years (36 months) of salary. Illinois' Tier 1 pension rules base a teacher's Final Average Salary on her four highest consecutive years of service.

California has the most generous rules; there, teachers' Final Average Salary is based on the average of the 12-highest months of service. At the other end, Indiana averages the last five years of a teacher's service. The rules for the remaining states fall somewhere in between.

Peer state comparison: Career Illinois teachers retire with the highest Final Average Salaries

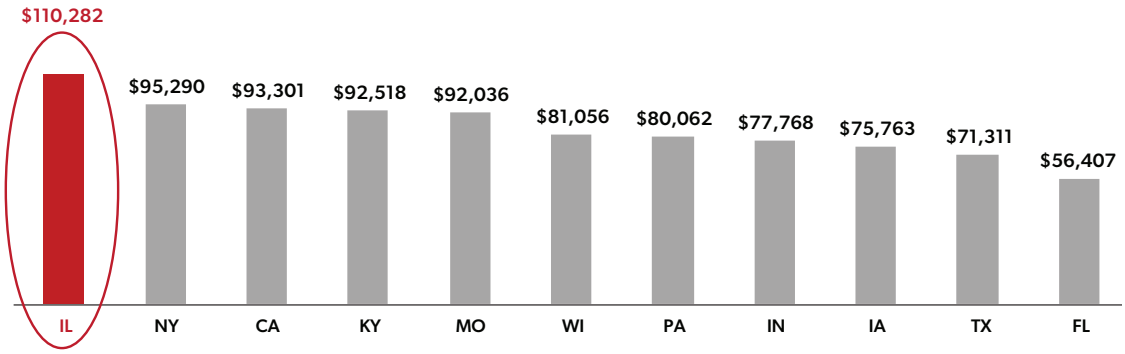
Average Final Average Salary for a recently retired career teacher (retired in 2018 with 30-plus years of service)

State	Final Average Salary	Regional Price Parity (RPP)	Final Average Salary adjusted for RPP
Illinois	**$108,628**	**98.5**	**$110,282**
Kentucky	$83,760	87.9	$95,290
Missouri	$83,504	89.5	$93,301
California	$106,211	114.8	$92,518
New York	$106,578	115.8	$92,036
Pennsylvania	$79,353	97.9	$81,056
Indiana	$71,896	89.8	$80,062
Wisconsin	$71,857	92.4	$77,768
Iowa	$68,035	89.8	$75,763
Texas	$69,172	97.0	$71,311
Florida	$56,351	99.9	$56,407

Source: FY 2018 Actuarial Reports; Comprehensive Annual Financial Reports and/or FOIA requests of state pension funds; U.S Bureau of Economic Analysis; Wirepoints calculations
Note: See Appendix C for additional details on state benefits and Wirepoints' assumptions.

Peer state comparison: Career Illinois teachers retire with the highest Final Average Salaries

Average Final Average Salary for a recently retired career teacher
(retired in 2018 with 30-plus years of service), adjusted for regional price differences



Source: FY 2018 Actuarial Reports; Comprehensive Annual Financial Reports and/or FOIA requests of state pension funds; U.S. Bureau of Economic Analysis; Wirepoints calculations

Note: See Appendix C for additional details on state benefits and Wirepoints' assumptions.

2. Beginning pension benefit

The beginning pension benefit of a retiring career Illinois teacher was $80,839 after adjusting for cost-of-living. Again, that is the highest among Illinois' peer states.

Career teachers in New York receive the next highest starting benefits of $78,687 – including both a pension and a Social Security benefit. Teachers in Missouri, California and Pennsylvania receive approximately $74,000.

Below that, teachers from Kentucky to Florida receive beginning annual benefits ranging anywhere from $73,884 to just $43,161.

Peer state comparison: Career Illinois teachers receive the highest beginning retirement benefits

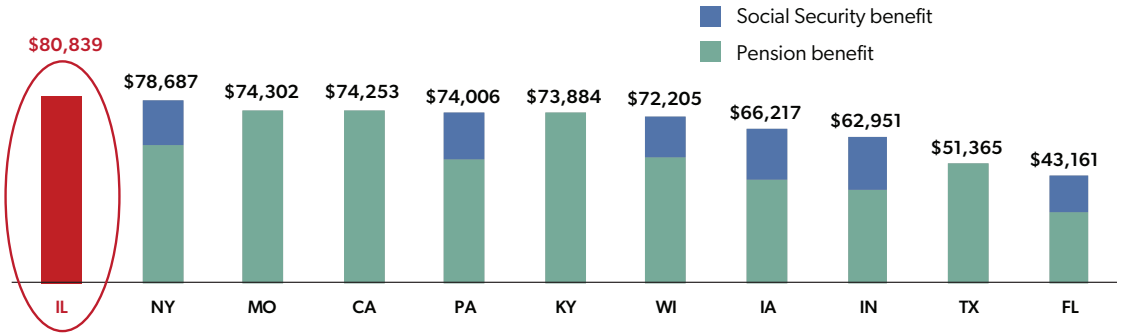
Total expected benefits for a recently retired career teacher
(retired in 2018 with 30-plus years of service)

State	Beginning pension benefit	Beginning Social Security benefit	Total beginning benefit	Regional Price Parity	Total benefits adjusted for RPP
Illinois	**$79,626**	**—**	**$79,626**	**98.5**	**$80,839**
New York	$68,968	$22,152	$91,120	115.8	$78,687
Missouri	$66,500	—	$66,500	89.5	$74,302
California	$85,242	—	$85,242	114.8	$74,253
Pennsylvania	$52,508	$19,944	$72,452	97.9	$74,006
Kentucky	$64,944	—	$64,944	87.9	$73,884
Wisconsin	$50,385	$16,332	$66,717	92.4	$72,205
Iowa	$39,711	$19,752	$59,463	89.8	$66,217
Indiana*	$35,986	$20,544	$56,530	89.8	$62,951
Texas	$49,824	—	$49,824	97.0	$51,365
Florida	$28,466	$14,652	$43,118	99.9	$43,161

Source: FY 2018 Actuarial Reports; Comprehensive Annual Financial Reports and/or FOIA requests of state pension funds; U.S. Bureau of Economic Analysis; Wirepoints calculations
Note: See Appendix C for additional details on state benefits and Wirepoints' assumptions.

Peer state comparison: Career Illinois teachers receive the highest beginning retirement benefits

Total expected benefits for a recently retired career teacher (retired in 2018 with 30-plus years of service)
Adjusted for regional price differences



Source: FY 2018 Actuarial Reports; Comprehensive Annual Financial Reports and/or FOIA requests of state pension funds; U.S. Bureau of Economic Analysis; Wirepoints calculations
Note: See Appendix C for additional details on state benefits and Wirepoints' assumptions.

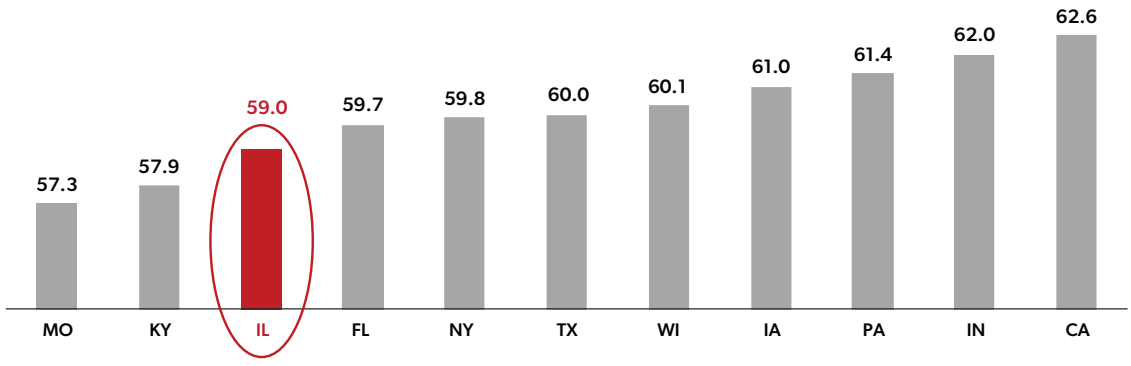
3. Retirement age

The age at which teachers begin to collect their pensions partially determines the total lifetime benefits they'll receive. Retirement age rules vary widely among states, but in general, most allow teachers to begin collecting benefits in their 50s after about 30 years of service.

The average career Illinois teacher began collecting a pension at age 59, while career Missouri teachers had the lowest average retirement age at 57.3. California teachers, meanwhile, begin drawing pensions at the average age of 62.6, almost four years after career Illinois teachers do.

Peer state comparison: Illinois teachers begin collecting benefits earlier than most

Average age at retirement for a recently retired career teacher (retired in 2018 with 30-plus years of service)



Source: FY 2018 Actuarial Reports; Comprehensive Annual Financial Reports and/or FOIA requests of state pension funds; U.S. Bureau of Economic Analysis; Wirepoints calculations
Note: See Appendix C for additional details on state benefits and Wirepoints' assumptions.

4. Cost-of-living adjustments

Cost-of-living adjustments have one of the biggest impacts on a teacher's overall benefits because they determine how much annual benefits grow in retirement, if at all.

Illinois grants all teachers, beginning at age 61, an automatic, 3-percent compounded COLA, which is the most generous of any of the 11 states surveyed.

Texas, Pennsylvania, and Indiana grant COLAs on an ad-hoc basis, meaning the legislature decides each year whether to grant an increase, also called a "13th check." That rarely happens in some states. Last year, Texas gave its first increase in more than a decade and Pennsylvania hasn't granted an increase since 2002. Indiana granted small 13th checks to retirees in 2019 and 2020.[8, 9, 10]

Florida stopped offering an automatic COLA in 2011. And Wisconsin's COLA benefit varies widely from year to year based on the fund's investment returns, sometimes even creating negative annual benefits.[11, 12, 13]

Even New York and California don't offer COLA benefits as generous as Illinois'. California grants a 2 percent simple COLA with a special provision protecting against inflation. And New York's COLA benefits range from 1 to 3 percent a year, but only apply to the first $18,000 of a teacher's pension, meaning the maximum annual benefit a teacher can receive is $540.[14, 15]

The impact COLAs can have on annual pension benefits is dramatic. For example, Illinois' compounded, automatic 3 percent increase doubles a teacher's annual pension benefit after 25 years. A teacher retiring with a starting pension of $100,000 in 2020 will receive more than $200,300 in 2045.

Kentucky's 1.5 percent compounded COLA would grow a $100,000 starting pension to $142,950 in 25 years, a 43 percent increase. New York's COLA benefit would boost a teacher's $100,000 starting pension to $112,960, assuming the teacher receives the maximum 3 percent simple increase each year. Meanwhile, teachers in Iowa don't receive a post-retirement pension boost at all.

Peer state comparison: career Illinois teachers receive the most generous COLAs in retirement

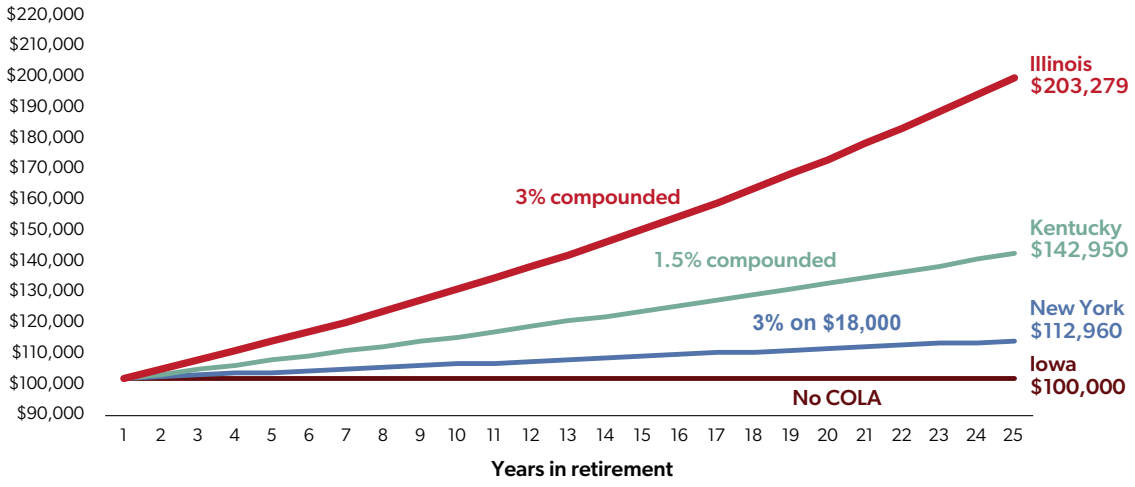
Cost-of-Living Adjustments for a recently retired career teacher (retired in 2018 with 30-plus years of service)

State	Cost-of-Living Adjustments
Illinois	**Compounded 3% annually**
Kentucky	Compounded 1.5% annually
Missouri	Compounded 0%-5% annually based on CPI, can't exceed 80% of initial benefit
Wisconsin	Compounded, based on investment performance, can provide negative benefits
Florida	Compounded 3%, only for years worked before 7/1/2011
California	Simple 2%, real benefit cannot fall below 85% of initial benefit
New York	Simple, only on first $18,000, Half CPI, min 1% to max 3%
Indiana	Ad Hoc "13th check" passed by legislature, checks provided in 2019, 2020
Texas	Ad Hoc "13th check" passed by legislature, 2019 check was 1st in a decade
Pennsylvania	Ad Hoc "13th check" passed by legislature, no check since 2002
Iowa	No COLA provided

Source: FY 2018 Actuarial Reports; Comprehensive Annual Financial Reports and/or FOIA requests of state pension funds; U.S. Bureau of Economic Analysis; Wirepoints calculations
Note: See Appendix C for additional details on state benefits and Wirepoints' assumptions.

Illinois teachers' 3% compounded COLA doubles benefits in 25 years

Effect of state COLA benefits on a $100,000 starting pension



Source: FY 2018 Actuarial Reports; Comprehensive Annual Financial Reports and/or FOIA requests of state pension funds; U.S. Bureau of Economic Analysis; Wirepoints calculations

Note: See Appendix C for additional details on state benefits and Wirepoints' assumptions.

The comparison to their peers shows Illinois teachers receive some of the nation's most generous benefits. But a more appropriate comparison is to the retirements of the private sector workers who pay for public sector workers. That's where real discrepancy exists.

Private sector Illinoisans retiring today would have to have approximately $1.8-$2 million at the time of their retirement to get the same $2.3 million lifetime payout career state workers receive. The vast majority of ordinary Illinoisans have nowhere near that amount saved.[16]

The benefits provided by Social Security don't approach the level of pensions, either. The average Social Security benefit for Illinoisans is just $17,000 a year, and the annual maximum is just $36,000. The combined benefits in the private sector from retirement accounts and Social Security don't come close to matching the pension of a career public sector worker.[17]

B2. Career state workers in Illinois receive free retiree health insurance

Wirepoints compared state worker retiree health insurance benefits across Illinois' 10 peer states and found Illinois workers enrolled in the State Employees Group Insurance Program (SEGIP) receive the most generous subsidies.

Illinois state workers with at least 20 years of service can retire in their mid-50s and receive full health insurance coverage at no charge, with state taxpayers picking up the entire cost of premiums.

SEGIP offers state workers a 5 percent discount on their retiree health insurance premiums for every year of work, starting at 50 percent (after 10 years of vesting) and maxing out at 100 percent for 20 years of service. Members who retired before 1998 earned free health insurance after just 8 years of service.[18]

Most workers receive the full premium subsidy during retirement since a vast majority retire with more than 20 years of service. Wirepoints found that 73 percent of currently retired State Employee Retirement System members are eligible for free retiree health insurance.[19]

The plan is especially rich because it covers the full cost of retiree health insurance premiums for workers who retire before they are Medicare-eligible (age 65). That means state taxpayers pick up the full insurance costs of those retirees until they turn age 65, when Medicare finally becomes the primary payer for those retirees. Since some workers can retire with full pension benefits and retiree health benefits as early as age 55, the increased costs to taxpayers become significant.

Medicare-eligible retirees with 20 years or more of service cost state taxpayers between $6,500 and $7,000 a year. Pre-Medicare age retirees currently cost the state $12,000 to $15,000 annually.[20]

The present value of that benefit for career workers was worth $200,000 to $500,000 per retiree in 2013, depending on the pension tier and age, according to FOIA data obtained from Illinois' Office of the Governor.[21]

In all, the state pays for 90 percent and retirees pay for 10 percent of SEGIP's annual retiree health insurance costs.

Free retiree health insurance for state workers costs Illinois taxpayers $200,000-$500,000 per retiree

SEGIP Actuarial Valuation Sample Life Costs, June 30, 2013

Value of retiree healthcare benefit depending on member age and pension benefit tier

Regular pension formula			Alternate pension formula		
Pension tier	Current age	Present value of benefit	Pension tier	Current age	Present value of benefit
1	35	$339,624	1	35	$492,113
1	40	$333,356	1	40	$482,102
1	45	$315,686	1	45	$462,029
1	50	$283,267	1	50	$412,488
1	55	$269,963	1	55	$313,993
2	28	$248,372	2	28	$251,524
2	40	$223,096	2	40	$212,628

Source: Data obtained from a 2016 FOIA request to the Governor's Office.

Note: A worker in the private sector would need the present value amounts available at retirement to purchase the equivalent amount of health insurance provided to retired Illinois state workers.

Illinois retiree health benefits vs. other states

Illinois is at the extreme end of state-provided retiree health insurance. Its benefits outclass most states and anything workers in the private sector receive. According to a 2011 study by Mercer Consulting on behalf of Illinois' Commission on Government Forecasting and Accountability (COGFA), state, county and city governments across the nation offer retiree health insurance benefits that, on average, require employees to pay just over half of their premiums.[22]

Among Illinois' 10 peer states, four provide no subsidies for retiree health insurance and four provide a partial subsidy, according to 2016 data collected by Pew Charitable Trusts. Two states provide a maximum guaranteed subsidy of 100 percent of premiums like Illinois does, but cap the subsidy amount they provide.[23]

Specifically, Indiana, Wisconsin, Florida and Iowa provide no retiree health insurance subsidies.

Missouri and New York provide a maximum subsidy of 65 percent and 88 percent of premiums, respectively. Pennsylvania subsidizes the remaining insurance costs after pre-Medicare retirees contribute 3 percent and post-Medicare retirees pay 1.5 percent of their final salary. Kentucky provides a subsidy of $120 for every year of a retiree's service (the subsidy for 30 years of work totals $3,600 annually).

Public and private employers who offer retiree health insurance benefits require retirees to pay half the cost

2010 Mercer Survey – Average participant contributions* for retiree healthcare

Retiree status	States	Counties	Cities	Private sector (500+ employees)
Pre-Medicare	54%	49%	53%	54%
Medicare eligible	54%	49%	59%	52%

Source: COGFA; Mercer Consulting, "Retiree Healthcare Contributions May 2011"
*As a percentage of premiums (does not include out-of-pocket costs; e.g., deductibles and copays).

California has the same subsidy structure as Illinois: 5 percent for every year worked. And Texas provides up to a 100 percent subsidy for annually determined premium contributions based on years of service. But both limit their maximum provided subsidy to $7,704 and $6,504, respectively. In contrast, Illinois' maximum subsidy in 2015 was the highest of all its peer states, at $13,500 annually.[24]

Finally, when it comes to a private sector comparison, Illinois' free, state retiree insurance benefits make it an outlier. Most small- and medium-sized employers, which account for 80 percent of all workers, don't offer retiree health insurance at all. There's simply no comparison. And of the few large private sector firms that do offer coverage, employees are, on average, responsible for paying half of their costs.[25]

Peer state comparison: Illinois provides the most generous retiree health insurance subsidies

Details of state retiree heath insurance premium subsidies for state employees, 2016

State	Employer's premium contribution	Prorating description
Illinois	50-100%	10 years of service (YOS) = 50% subsidy; then 5% per YOS, up to 100%
California	50%-100%, up to $7,704	10 YOS = 50% subsidy; then 5% per YOS, up to 100%
Texas	50-100%, FY 2015 rates: $236 to $542 (varies depending on plan)	The difference between the total premium and the annually established retiree contribution, which varies based on YOS as of Sept. 1, 2014: 10- 14 YOS = 50%; 15-19 YOS = 75%; 20 or more YOS = 100%
New York	84-88%	Based on employee grade; grades 1-9 = 88%; grades 10 or higher = 84%
Missouri	25-65%	YOS times 2.5% of PPO 600 Plan premium, capped at 65%
Pennsylvania	Varies	Pre-Medicare retirees pay 3% of Final Average Salary Medicare-eligible retirees pay 1.5% of Final Average Salary State pays rest of premium
Kentucky	$1,800 and up (no maximum)	$120 times YOS
Iowa	85-100% until sick leave credits are depleted	Sick Leave Insurance Program: Retirees may use unused sick leave to pay for premiums until funds are depleted
Wisconsin	No benefits offered	No benefits offered
Florida	No benefits offered	No benefits offered
Indiana	No benefits offered	No benefits offered

Source: Pew Charitable Trusts, "State Retiree Health Plan Spending: May 2016"

C. Illinois' worst-in-nation crisis

The growth in retirement benefits over the last three decades has left Illinois a national outlier when it comes to the financial well-being of the state and its residents.

Illinois has the nation's largest pension shortfalls, both in amount and on a per capita basis. Total retirement debts consume more of Illinois' budget than they do in any other state in the country, by far. And retirement costs have helped drive Illinois' overall tax burden to one of the highest in the nation.

All of that has created a crisis of confidence in Illinois. The state has the nation's lowest credit rating, sitting at just one notch above junk.

And since 2010, Illinois' population has shrunk by more than any other state as residents have left in record numbers. That's contributed to a fall in real property values and a vicious downward spiral for the state.

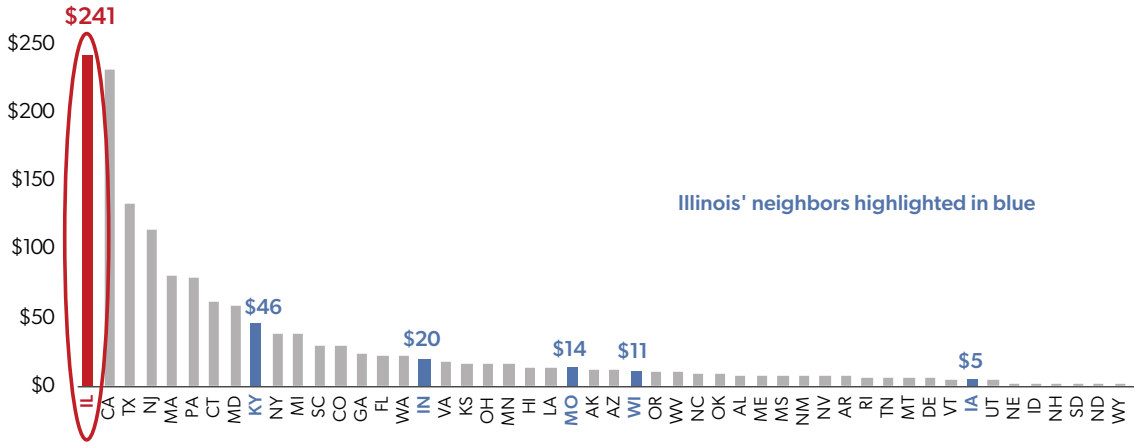
In the following section, Wirepoints details Illinois' national outlier status and the negative impact that status has on people's lives and livelihoods.

C1. Illinois is the nation's extreme outlier

Moody's Investors Service puts the pension shortfall for Illinois' five state-run pension funds at $241 billion. Illinois' debts dwarf those of its neighbors as well as those of the largest states in the country by population. Illinois is the extreme outlier nationally.[1]

Illinois has the nation's largest pension shortfall

Total unfunded state-level pension debts based on Moody's Adjusted Net Pension Liability, FY 2018 (in billions)



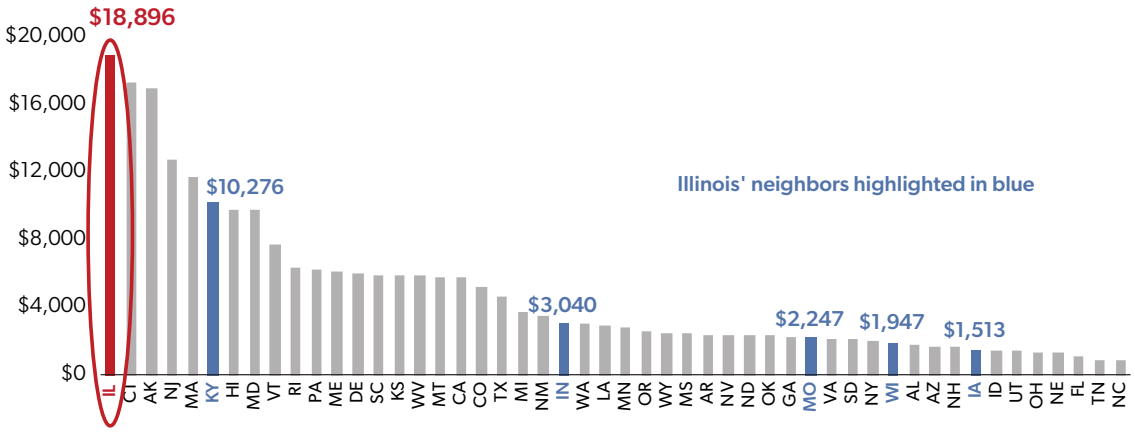
Source: Moody's Investors Service, "FY 2018 State Pension Medians Show Declines Due to Strong Investment Returns"

The same can be said when debts are measured on a per-capita basis. At nearly $19,000 per person, Illinoisans' pension debt burden is six times larger than the national average. Compared to residents in neighboring Wisconsin and Iowa, Illinoisans' burden is 10-12 times larger.[2]

That burden is overwhelming the state's economy, with state level-debts alone now equivalent to 28 percent of the state's annual GDP. In most of Illinois' neighboring states, the debt is just 3 to 6 percent of the economy.[3]

Illinoisans on the hook for the nation's largest pension shortfall

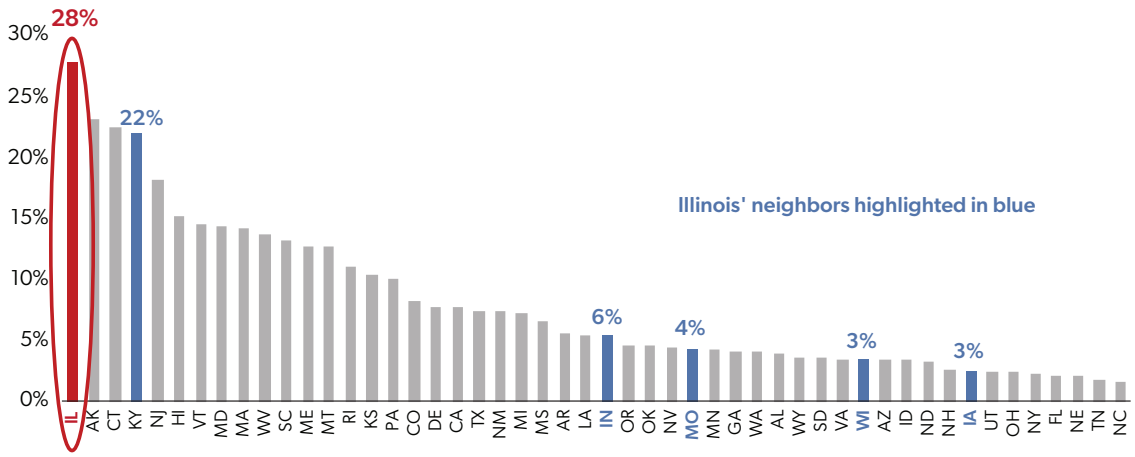
Total unfunded state-level pension debts per capita, based on Moody's Adjusted Net Pension Liability, FY 2018



Source: Moody's Investors Service, "FY 2018 State Pension Medians Show Declines Due to Strong Investment Returns"

Illinois' pension shortfall equals 28 percent of state GDP, nation's highest

Total unfunded state-level pension debts as a percentage of state Gross Domestic Product (GDP), based on Moody's Adjusted Net Pension Liability, FY 2018



Source: Moody's Investors Service, "FY 2018 State Pension Medians Show Declines Due to Strong Investment Returns"

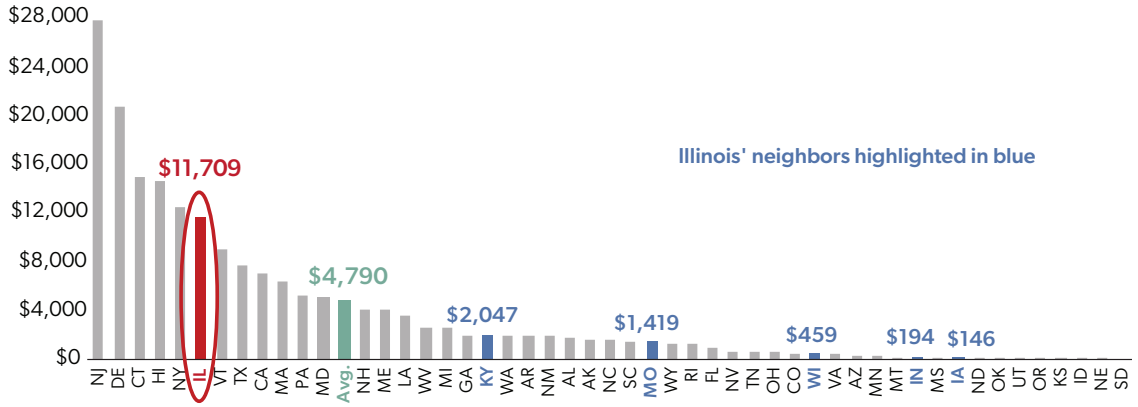
State-level retiree health insurance liabilities add to Illinois' debt load. According to Moody's, as of 2018 each Illinois household was on the hook for more than $11,700 in official unfunded retiree health insurance benefits, the nation's 6th-most. That amount is more than double the national average and six times what Kentuckians owe.

And it's many times more than what households in states like Wisconsin and Indiana are burdened with.[4]

The combined cost of those retirement debts already consumes more than a quarter of Illinois' state budget – the most of any state nationally.[5]

Illinois households on hook for over $11,700 in retiree health insurance shortfalls, one of the nation's highest burdens

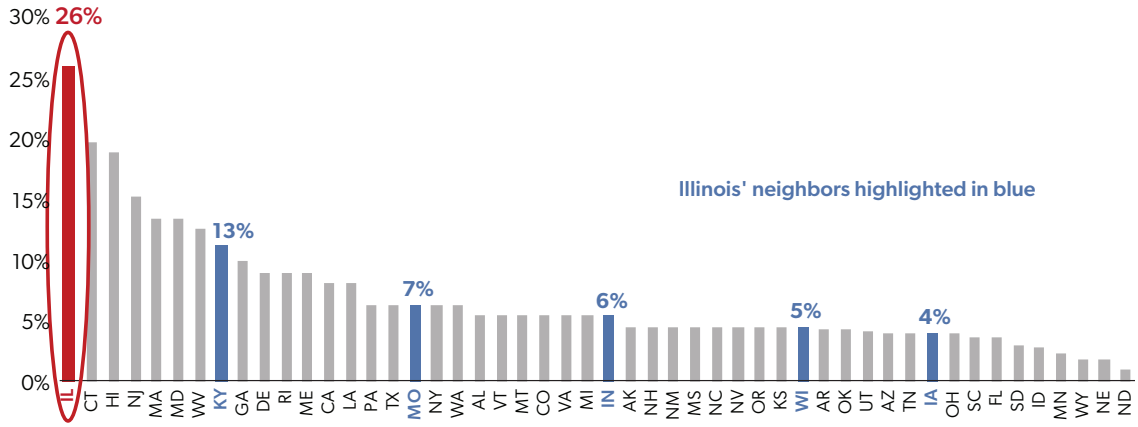
Total official unfunded state retiree health insurance liabilities per household, 2018



Source: Moody's Investors Service, "FY 2018 State Pension Medians Show Declines Due to Strong Investment Returns"

Illinois' statutory retirement costs consume 26 percent of budget – the most of any state

Official retirement costs* as a percentage of state revenues, FY 2017



Source: JP Morgan's Michael Cembalest: "The ARC and the Covenants 4.0"

*Sum of interest on net direct debt, the state's share of unfunded pension and retiree health liabilities, and defined contribution payments.

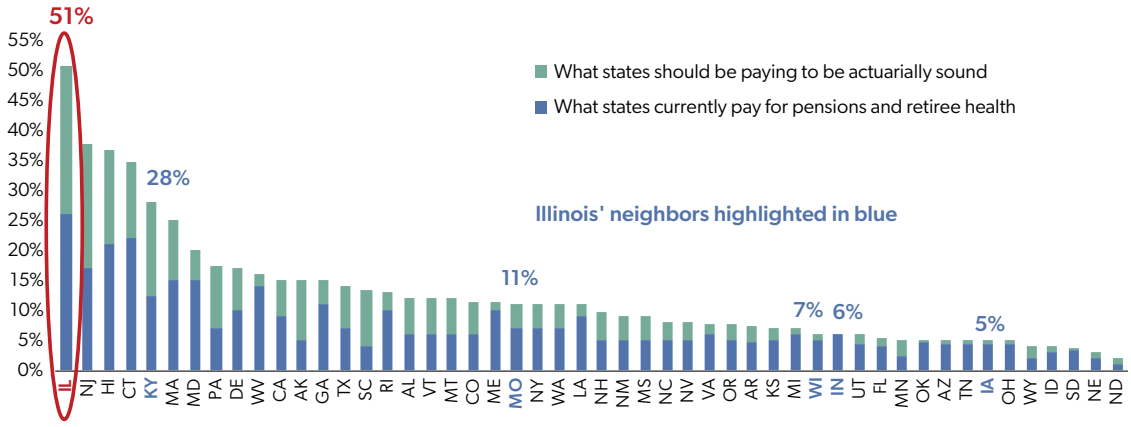
That has crowded out new spending on other core priorities such as education. Billions of state appropriations for K-12 and higher education dollars are being spent on pension costs instead of students in the classroom.[6]

And it's still not enough. Illinois' retirement crisis continues to grow because the state can't afford to pay what it really should to get its retirement costs under control. J.P. Morgan's Michael Cembalest calculates that more than half of the state's budget is needed to make pensions and retiree health insurance actuarially sound. That's the largest share of any state budget, by far. Yet again, Illinois is the nation's extreme outlier.[7]

The problem of crowd out is not going to go away. The Commission on Government Forecasting and Accountability projects that the state's statutory pension costs alone will consume a quarter or more of the budget for the next 25 years. And that's the official, rosy estimate. Additional revisions to the pension funds' assumed investment rates of return and other actuarial assumptions will likely cause official pension costs to consume even more of the budget over the next two decades.[8]

Illinois' true retirement costs would consume 51 percent of budget – the most of any state

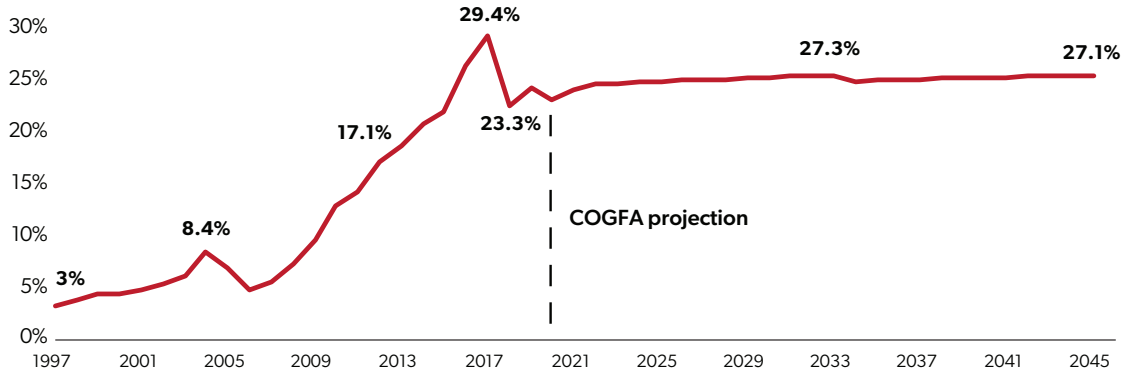
True retirement costs* as a percentage of state revenues, 2017



Source: JP Morgan's Michael Cembalest: "The ARC and the Covenants 4.0"
*Sum of interest on net direct debt, the state's share of unfunded pension and retiree health liabilities, and defined contribution payments.
"True" costs assume a 6 percent plan return and 30 year level dollar amortization.

Pension costs alone will consume a quarter of the state's budget for the next 25 years

State pension costs as a percentage of Illinois general revenues, historical and projected



Source: Commission on Government Forecasting and Accountability

Illinois simply can't compete with its neighbors on services and tax levels when over a quarter of its budget is perpetually consumed by pensions.

The extreme cost of Illinois' retirement debts has also pushed residents' overall tax burdens to punitive levels.

As pension costs have grown to consume nearly half of what the state appropriates on K-12 spending, local school districts have raised local property taxes to pay for Illinois' bloated educational bureaucracy. Add to that the costs of Illinois' local public safety pension crisis and that's helped drive the state's property tax rates to the highest in the nation – more than double what residents in Missouri, Indiana and Kentucky pay.[9]

That statewide average doesn't do justice to how destructive property taxes have become for some homeowners. In many Illinois communities, particularly in Chicago's southland area, effective property tax rates have reached confiscatory levels of 5 percent or more.

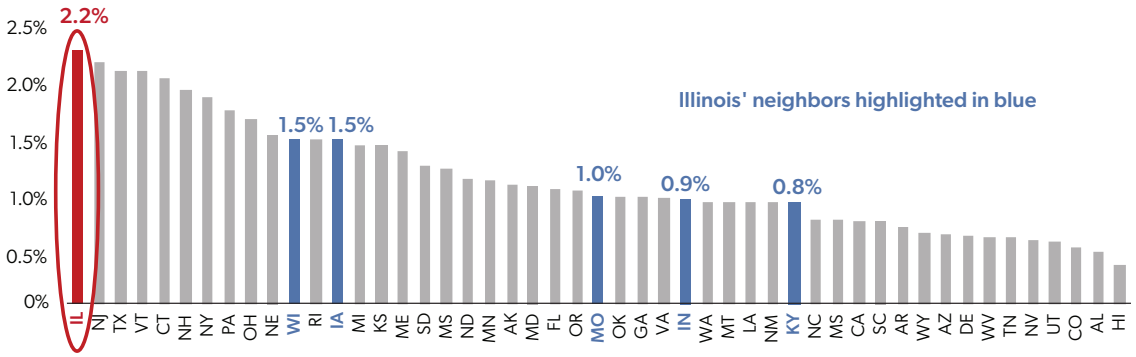
According to Cook County Treasurer Maria Pappas, more than 57,000 Cook County property owners were delinquent on their taxes in 2019. Many are at risk of losing their homes.[10]

But while property taxes impose the most public and painful burden in Illinois, they are only a part of the state's overall tax structure.

Illinois' overall state-local tax burden is one of the nation's highest. Kiplinger and Wallethub both rank Illinois' tax burden as the highest/worst of any state, with Kiplinger calling Illinois the "Least Tax-Friendly State" in the nation. The Tax Foundation says Illinoisans are burdened by the 5th-highest taxes in the nation.[11, 12]

Illinoisans pay the highest property taxes in the nation

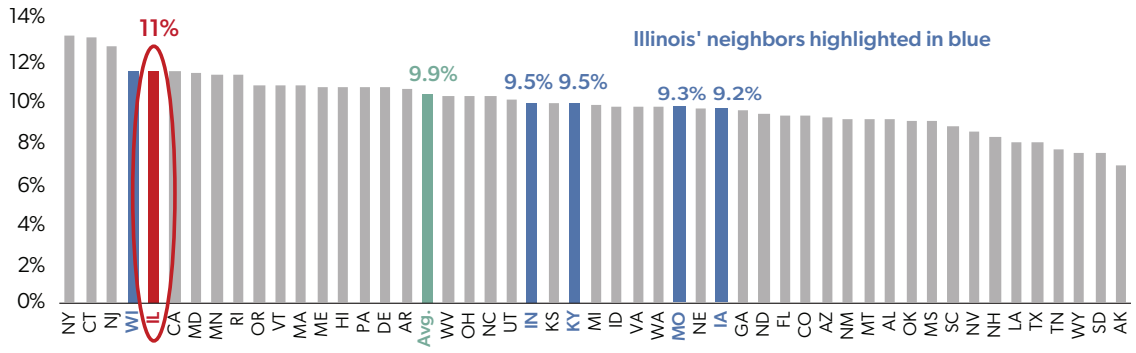
Effective property tax rate: taxes as a percentage of property value, 2019



Source: Attom Data Solutions
Note: Attom does not provide data on Idaho property taxes

Illinoisans burdened by the 5th-highest state/local taxes in the nation

Total state/local tax burden as a percentage of state income, FY 2012*

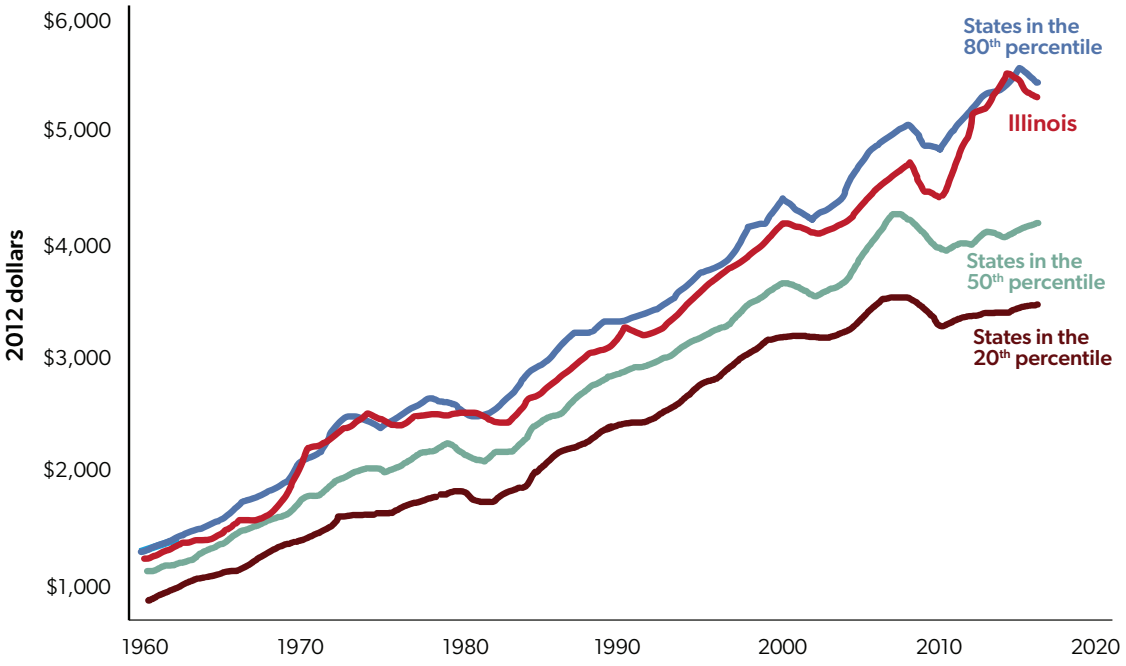


Source: Tax Foundation, "Facts and Figures 2020: How Does Your State Compare?"
*FY 2012 is most recent data available from the Tax Foundation, it serves as a proxy for IL's 2020 taxes given the similar income tax rate.

Federal Reserve Bank of Chicago economist Leslie McGranahan goes further, saying Illinois' combined tax burden has been consistently high for decades. McGranahan says Illinois has consistently ranked near the top of all states for state and local tax revenues per capita – tracking closely with the 80th percentile (the country's top 10 states). Illinoisans have been paying more in total taxes than residents in most other states for the last 60 years.[13]

Illinoisans have paid some of the nation's highest taxes for decades

State and local tax revenues per capita, by percentile



Source: Leslie McGranahan, "Comparing the Finances of Illinois and Other States" Federal Reserve Bank of Chicago, Midwest Economy Blog; Author's calculations based on data from the U.S. Census Bureau and Haver Analytics.

A crisis of confidence

Illinois' damaging budget crowd out and taxes – and the expectations for even more of both – have created a crisis of confidence in Illinois.

The state's credit rating is arguably the most comprehensive indicator of Illinois' financial health. It has collapsed after 22 downgrades from the nation's three major ratings agencies over the past 11 years.[14]

Moody's Investors Service, S&P Global Ratings and Fitch Ratings have each downgraded Illinois to just one notch above junk, the lowest rating of any state. All three have also assigned a negative outlook to Illinois, warning of future downgrades. No state has ever been rated junk.[15]

The City of Chicago is already rated one notch into junk by Moody's, while Chicago Public Schools is four notches into junk. Cook County continues to be investment grade, with an A2 rating, but its rating is stuck between New Jersey and Connecticut, the nation's two worst-rated states excluding Illinois.[16]

Illinois' credit rating was downgraded 22 times between 2009 and 2020

Downgrades by the big-three credit rating agencies, 2009-2020

Date	Moody's	S&P	Fitch
March, July 2009	↓	↓	↓
December 2009		↓	↓
April 2010			↓
June 2010	↓		↓
January 2012	↓		
August 2012		↓	
January 2013		↓	
June 2013	↓		↓
October 2015	↓		↓
June 2016	↓	↓	
September 2016		↓	
February 2017			↓
June 2017	↓	↓	
April 2020			↓

Source: Commission on Government Forecasting and Accountability

Illinois is the lowest rated state in the nation, one notch from junk

State credit ratings by Moody's Investors Service, 2020

Investment grade		
Highest quality, lowest credit risk	Aaa	Delaware, Florida, Georgia, Indiana, Iowa, Maryland, Missouri, North Carolina, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, Washington
High quality, very low credit risk	Aa1	Alabama, Arizona, Arkansas, Colorado, Hawaii, Idaho, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New York, North Dakota, Ohio, Oregon, Vermont, Wisconsin
	Aa2	California, Kansas, Maine, Mississippi, New Mexico, Oklahoma, Rhode Island, West Virginia
	Aa3	Alaska, Kentucky, Louisiana, Pennsylvania
Upper-medium grade, low credit risk	A1	Connecticut
	A2	**Cook County**
	A3	New Jersey
Medium grade, speculative elements and moderate credit risk	Baa1	
	Baa2	
	Baa3	**Illinois**
Speculative grade "Junk"		
Speculative elements, significant credit risk	Ba1	**Chicago**
	Ba2	
	Ba3	Detroit, Detroit Public Schools
	B1	**Chicago Public Schools**
5 additional ratings	⋮	
Lowest rated, in default	C	

Source: Moody's Investors Service
Note: Wyoming is not rated by Moody's Investor Service

The state's low rating has resulted in punitive borrowing costs. Illinois pays interest rates on its debts that are multiple times higher than other states. At over 5.5 percent as of May 2020, Illinois' rate is now five times the 1.1 percent rate it costs AAA-rated states to borrow.[17]

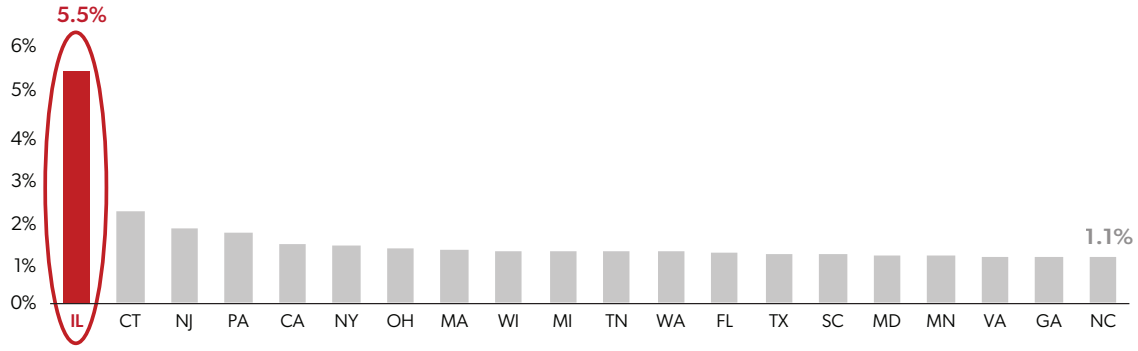
The lack of confidence is costing Illinois jobs and investments as businesses stay out of the state. For example, Warren Buffett says he wouldn't relocate a business to a place like Illinois:[18]

> **"In the public sector, you know, it's a disaster...If I were relocating into some state that had a huge unfunded pension plan, I'm walking into liabilities...And those are big numbers, really big numbers... And when you see what they would have to do – I say to myself, 'Why do I want to build a plant there that has to sit there for 30 or 40 years?'"**

Illinoisans have expressed their own lack of confidence in Illinois by voting with their feet. U.S. Census data show that a net of 1.6 million Illinoisans have moved out of this state since 2000. Only New York and California lost more people. In all, domestic out-migration from Illinois resulted in a net loss of almost 13 percent of the state's population as of 2000.[19]

Illinois pays the nation's highest borrowing rates, by far

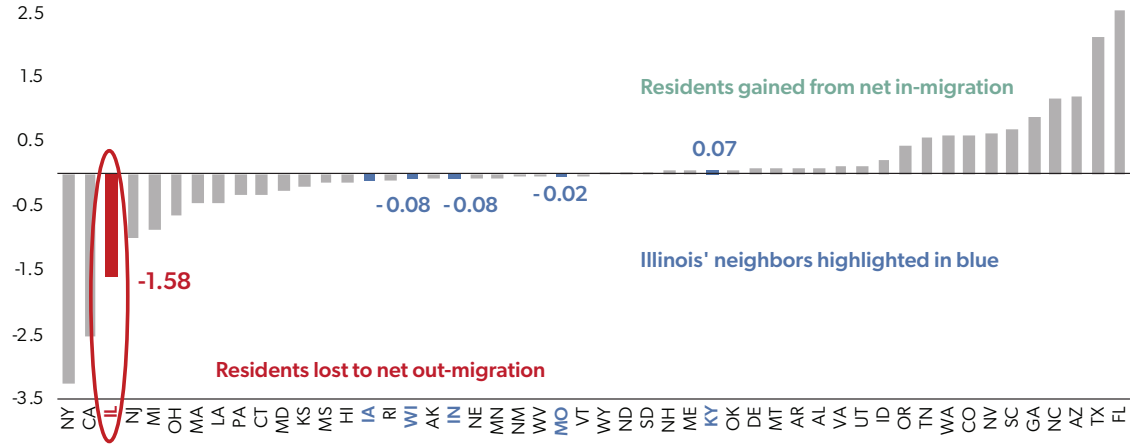
State 10-year bond yields as of May 2020



Source: Bloomberg

Illinois' out-migration losses are 3rd-biggest of any state

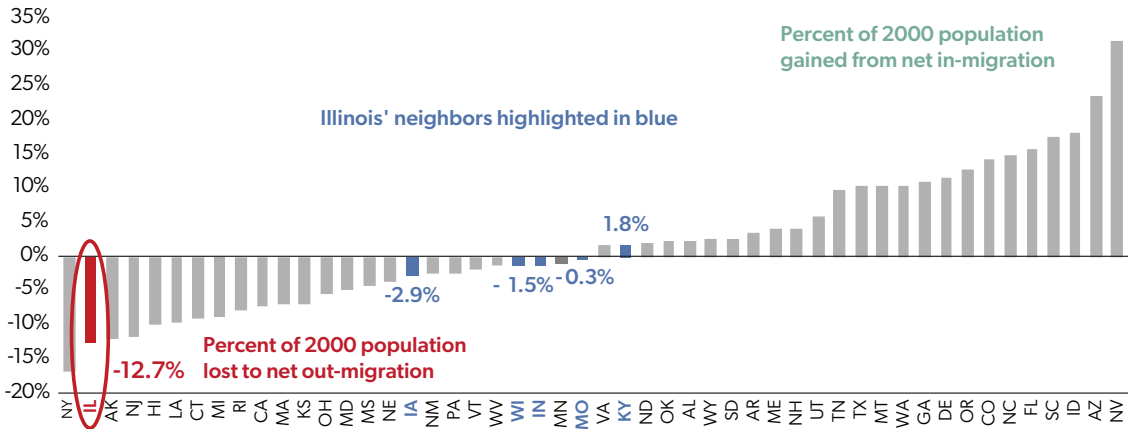
Net domestic migration of residents (in millions), 2019 vs. 2000



Source: U.S. Census Bureau, Annual Estimated Components of Population Change

Illinois is 2nd-biggest net loser to out-migration on a percentage basis

Net domestic migration of residents gained/lost as a percent of population, 2019 vs. 2000



Source: U.S. Census Bureau, Annual Estimated Components of Population Change

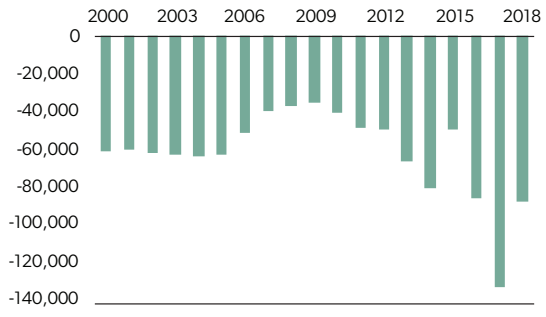
Those losses aren't normal, even for a cold weather state in the Rust Belt. Neighboring states like Indiana, Wisconsin and Iowa have seen far smaller out-migration losses both in nominal and percentage terms.

And as residents have left, they've hurt Illinois' tax base. According to domestic migration data from the Internal Revenue Service, Illinois has lost an average of 62,000 tax filers and their dependents to other states every year since 2000. On average, Illinois lost $2.8 billion in adjusted gross income (AGI) due to out-migration annually.[20]

Those numbers have ramped up in recent years as Illinois' crisis has deepened. Net annual losses of residents have exceeded 80,000 while AGI losses have topped $5 billion.

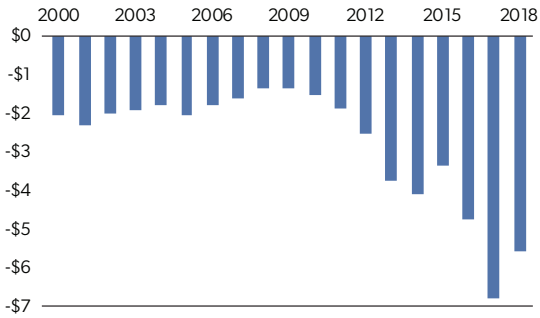
As Illinois loses a record number of people to other states…

Annual Illinois residents (tax filers and dependents) lost due to net domestic out-migration



…its tax base is taking a big hit, too.

Annual adjusted gross income (AGI) lost due to net domestic out-migration, (in billions)



Source: IRS - SOI migration data

The impact of losing those residents and their income is even bigger than it first appears. One year's worth of losses don't just affect the tax base the year they leave, but also all subsequent years. The losses build on each other, year after year. Add up the compounded losses since 2000 and Illinois' cumulative AGI loss totals $410 billion.[21]

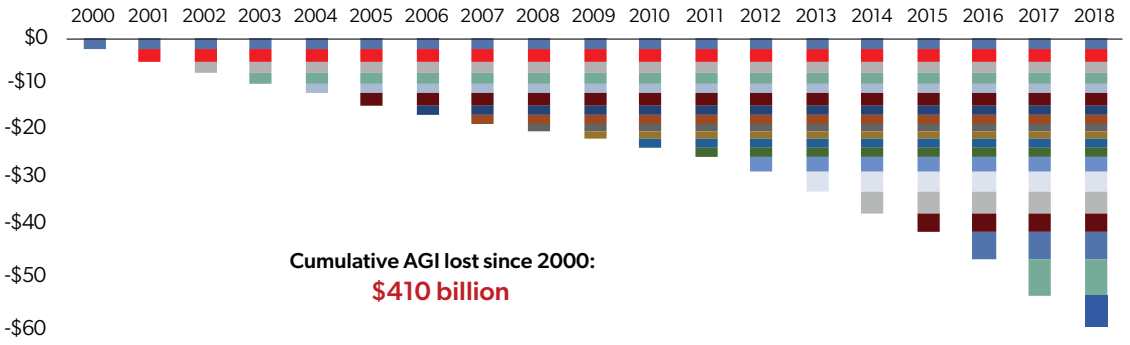
The taxes lost as AGI has left have contributed to the state's deepening fiscal woes. Illinois' record losses to out-migration have been just one part of the state's overall demographic collapse. Net foreign immigration to Illinois has fallen by half since 2001. And the state's net natural increase (births minus deaths) is down more than 50 percent.

All those demographic factors combine into a single fact: Illinois is shrinking. There are 170,000 fewer people in Illinois today than in 2010. No other state lost as many people and, in fact, only four states nationally lost population over that time period.[22]

A falling population has perpetuated Illinois' downward spiral. Lower demand for homes, in tandem with growing debts and rising taxes, has pushed real home values down. U.S. Census Bureau data show Illinois median home values have grown just 11 percent since 2005, the 6th-worst growth nationally. That's far short of inflation, which was up 30 percent over the same period.[23]

Illinois has lost a cumulative $410 billion in AGI since 2000

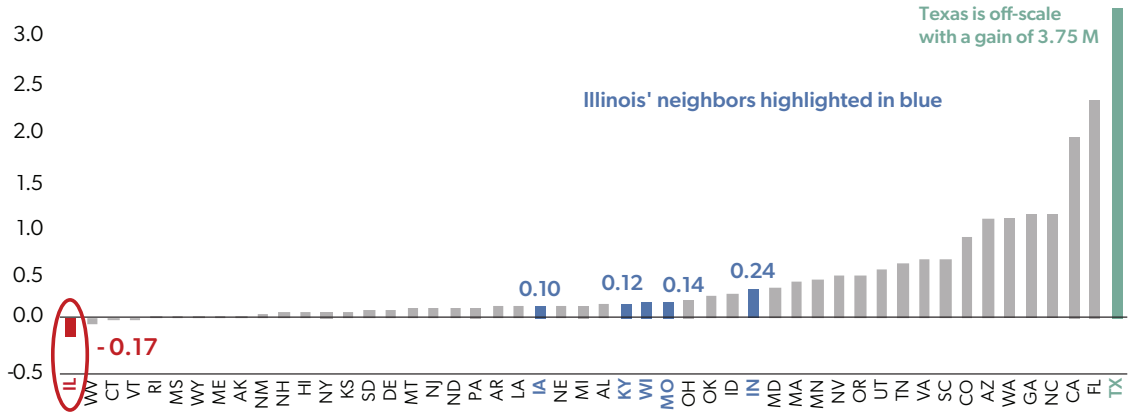
Annual cumulative net adjusted gross income (AGI) lost due to net domestic out-migration (in billions)



Source: IRS - SOI migration data

Illinois has lost more population than any other state

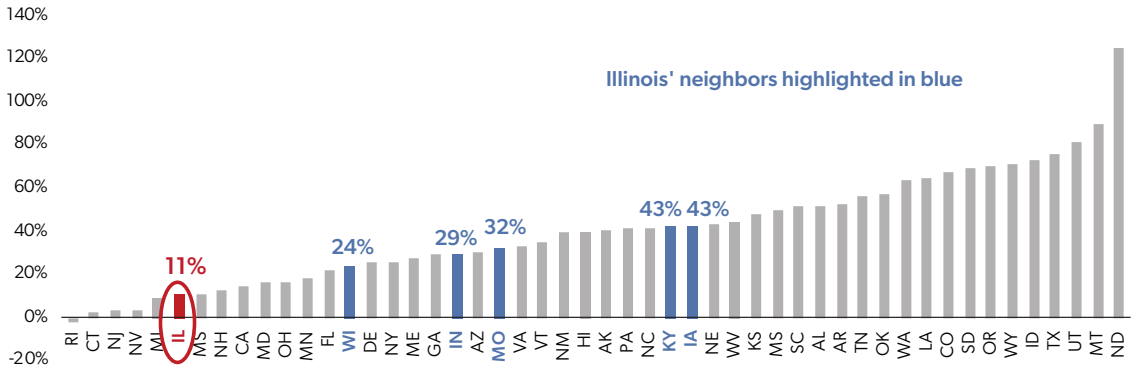
Total change in state population (in millions), 2019 vs. 2010



Source: U.S. Census Bureau, Annual Estimated Components of Population Change

Illinois ranked 6th-worst in median home value growth between 2005 and 2018

Total growth in median home value of owner-occupied housing units, 2018 vs. 2005



Source: U.S. Census Bureau, ACS "Median value: Owner-occupied housing units"

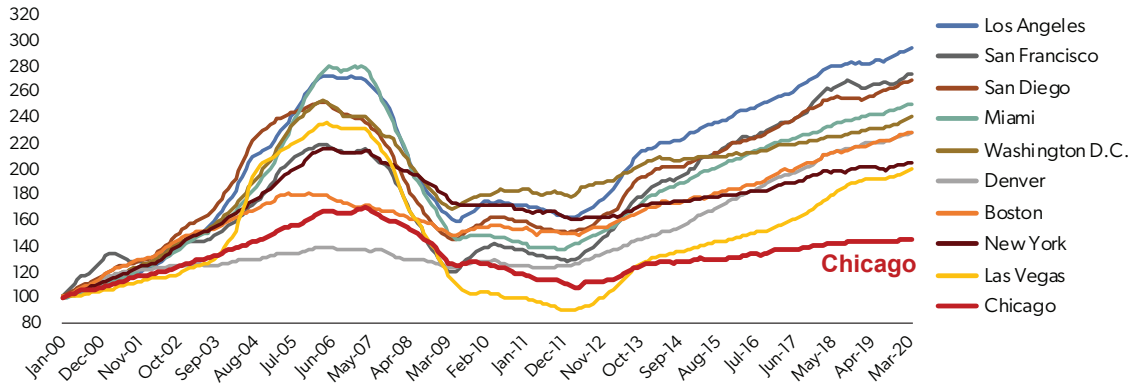
Chicagoans, in particular, have been hit hard since 2000 when it comes to their home values. Windy City residents would have been far better off today if they'd owned property in any of the other nine cities that make up the Case-Shiller 10-City Composite Home Price Index.[24]

Chicago home prices have grown just 44 percent since 2000. By comparison, inflation was up 46 percent over the same time period. Meanwhile, home prices in Los Angeles grew four times those in Chicago, or 181 percent. Prices in Miami, up 143 percent, and Washington D.C., up 130 percent, have grown three times more than those in Chicago.

All these facts reflect Illinois' outlier status before the COVID-19 crisis. The damage inflicted by the virus and the economic shutdown will inevitably make those numbers even worse.

Chicago home prices have stagnated compared to properties in other big cities

Case-Shiller Home Price Index, January 2000 - March 2020



Source: S&P CoreLogic: Case-Shiller 10-City Composite Home Price SA Index

C2. Illinois' per capita debts are overwhelming

Another way to understand the depth of the retirement crisis is to look at Illinois' $420 billion in Moody's-calculated retirement debts on a per household basis. (See the Preface for a full breakdown of the $420 billion.)

Residents in the City of Chicago are burdened with $141 billion of those retirement debts. That's the total overlapping city, county and state debt, based on Moody's calculations, each Chicago household is saddled with. Divide that shortfall between the city's one-million-plus households and the burden works out to $135,000 each. Call it a "shadow mortgage."[25]

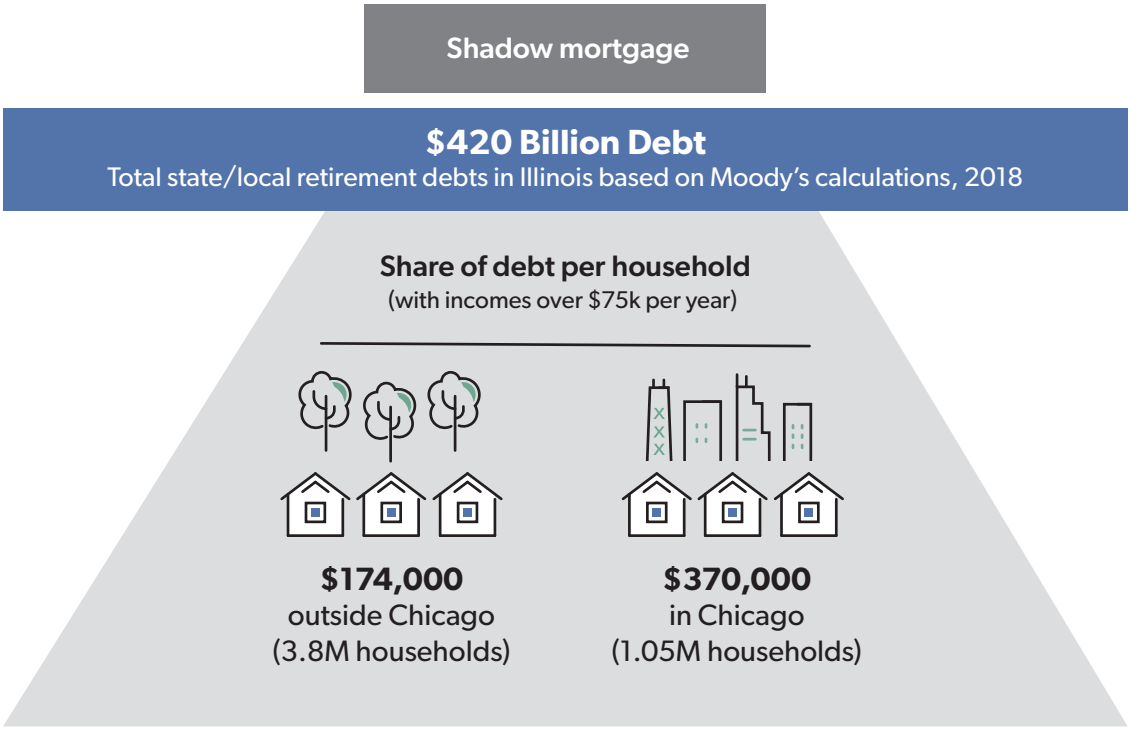
Take the remaining $279 billion in debt and divvy it up among the 3.8 million households outside of Chicago, and their burden amounts to $74,000 each.

The true household burden is far larger

The reality is many Illinois families don't have the means to contribute toward Illinois' retirement shortfalls. Nearly 15 percent of all Illinoisans are in poverty and just 44 percent of Illinois households make more than $75,000 – a proxy for which households are more capable of taking on a shadow mortgage.[26]

When the burden of that $420 billion debt is placed solely on those households earning $75,000 or more, Chicagoans are saddled with $370,000 each. And non-Chicago households are on the hook for $174,000 each.

The amounts are overwhelming and will only get worse as Illinoisans continue to escape that shadow mortgage. As more Illinoisans leave, the debt on those that remain will grow even larger.



Source: Moody's Investors Service; Commission on Government Forecasting and Accountability; 2018 pension fund actuarial reports
Note: Debts prorated by population. Moody's does not provide its own debt estimates for downstate and suburban retirement data, so official data was used instead.

Part 3
What It Looks Like

A. 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 (Section B) and the retiree health insurance plan for state workers (Section C), and provides a summary of the savings those plans provide (Section D). Savings of other potential reforms are also included (Section E). 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]

B. 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		Plan results	
1. Freeze defined benefit plans going forward – no future pension accruals.		Immediate drop in 2019 unfunded liabilities	↓ $54 Billion
2. Move all existing workers to defined contribution plan based on existing SURS SMP plan	8% Employee contribution + 7% Employer contribution = 15% Total contribution	Average drop in annual contributions through 2045	↓ $4.2 Billion
		Total drop in present value of state contributions through 2045	↓ $43.7 Billion
3. Means-test COLAs: 1% simple benefit for all pensioners receiving less than $50,000. Frozen for all others until pensions are fully funded.		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]

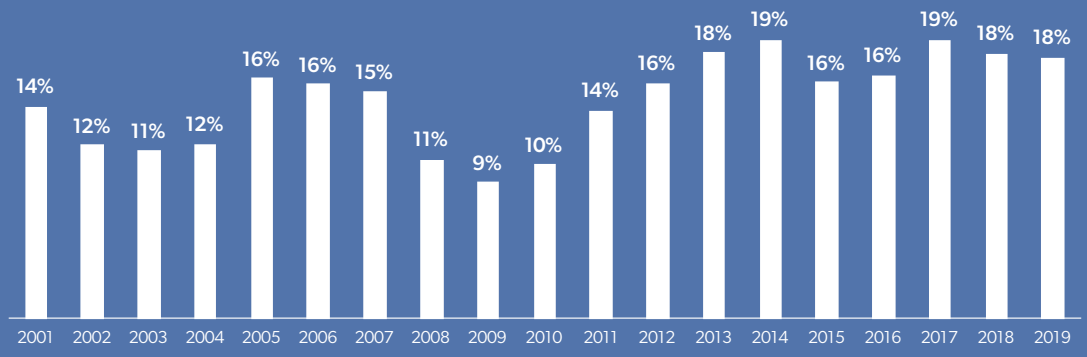
University workers who opt in to the SMP are required by law to contribute to their 401(k)-style accounts. They can't skip contributions or borrow funds from their accounts like many in the private sector can. SURS offers two investment providers to choose from, TIAA and Fidelity Investments, both of 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 D 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 F for more information.)

Actuarial runs performed by Segal Consulting

(See Appendix E 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.

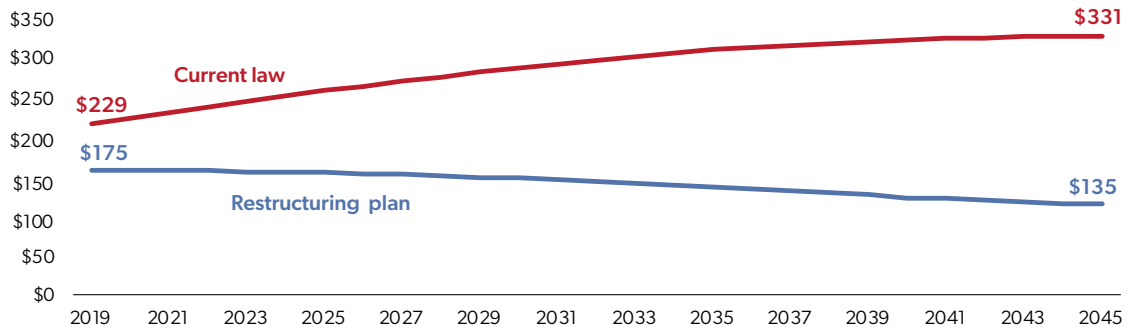
Pension restructuring plan vs. current law

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)



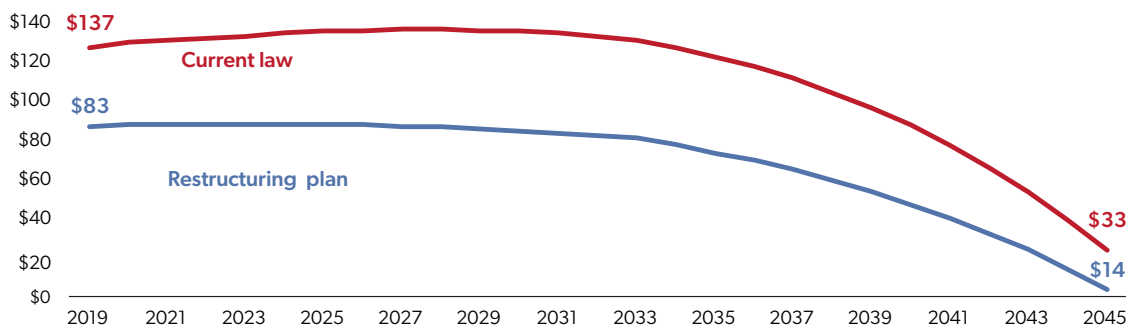
Source: Segal Consulting; Wirepoints calculations. Actuarial data as of FY 2018.
*Extrapolated based on TRS' share of total state accrued liabilties.

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)



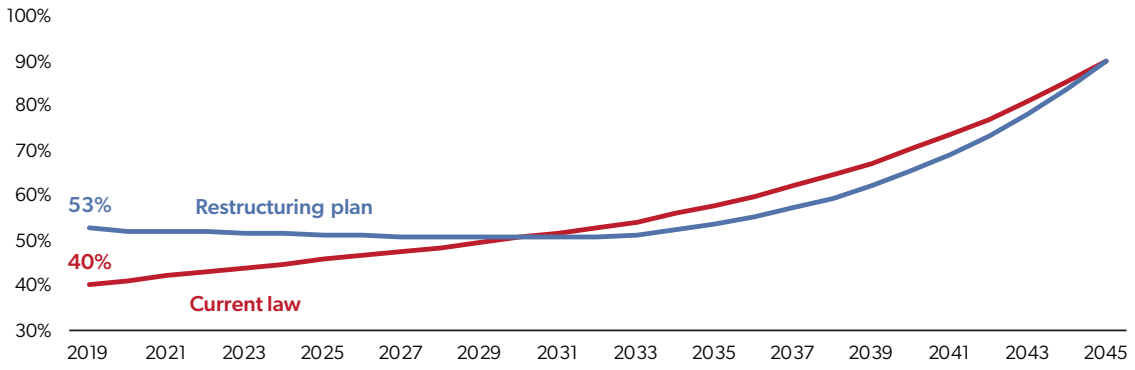
Source: Segal Consulting; Wirepoints calculations. Actuarial data as of FY 2018.
*Extrapolated based on TRS' share of total state accrued liabilties.

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.

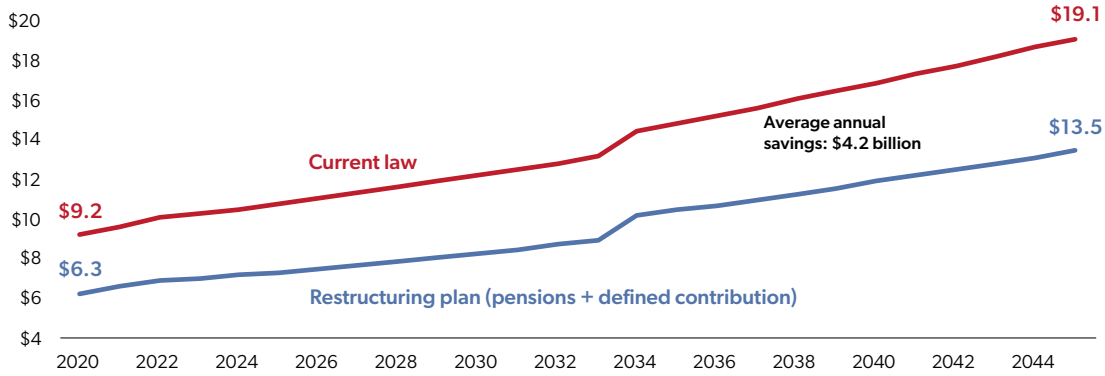
Required annual state contributions through 2045 fall by an average $4.2 billion

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.

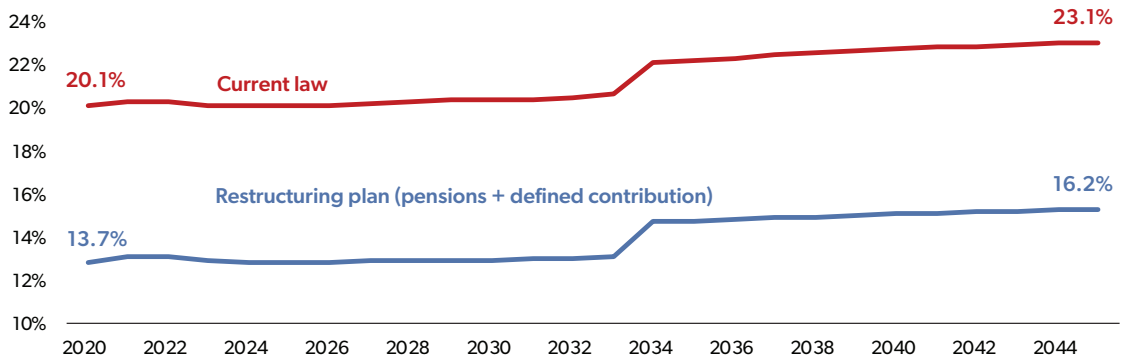
Those smaller contributions would put less pressure on Illinois' budget as compared to current law. Currently, state contributions to pensions will consume an average of 21 percent of Illinois' budget through 2045. Under the plan, the state's retirement contributions would fall to 15 percent on average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

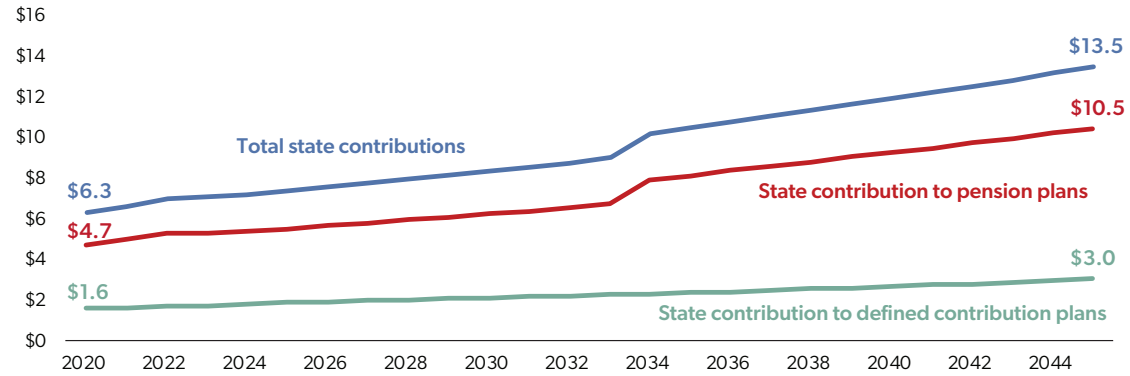
Current law vs. restructuring plan: Employer contributions to state retirement plans* as a percentage of state General Fund budget**



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.

C. 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"

D. 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]

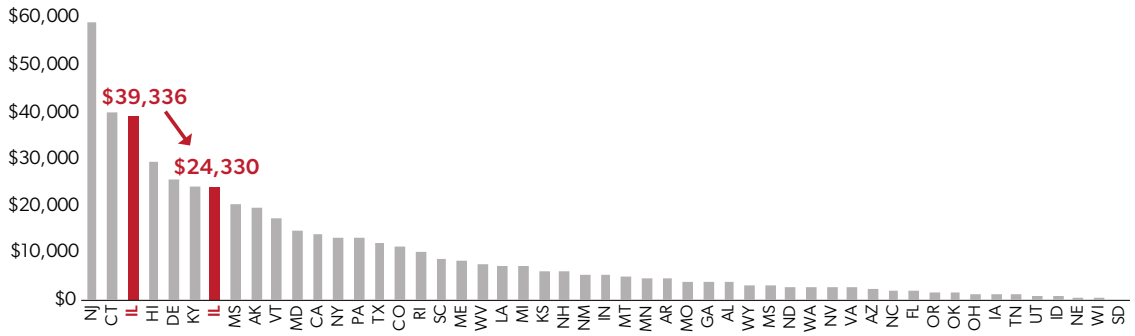
That's still high in relative terms, but moving to a defined contribution for all workers means not having to cut as much retirement debt as would otherwise be necessary. The elimination of new defined benefits and additional member contributions to retiree health means that Illinois' per capita debt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

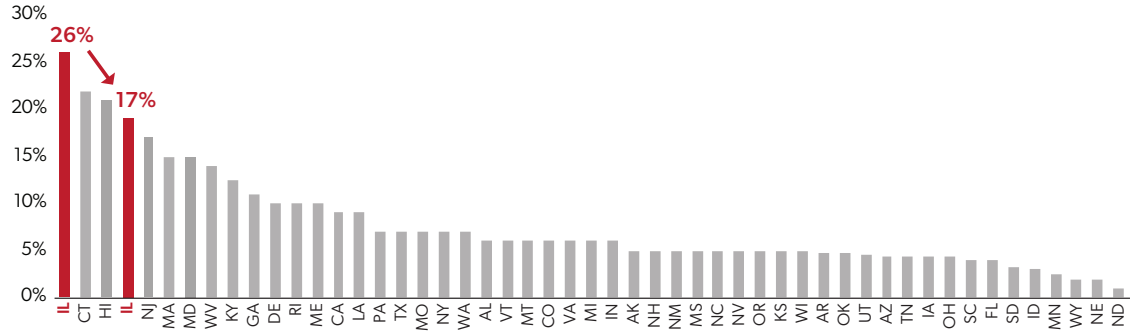
Illinois state pension and retiree health unfunded liabilities per household vs. other states, FY 2018
Current law vs. restructuring plan



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.

E. 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.

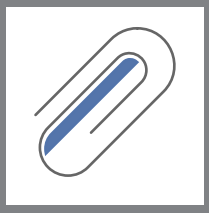
Many fiscal, governance and economic reforms are needed to restore Illinois. This paper has focused on just one: the state's overwhelming and suffocating pension debts. No state can properly serve its residents or take care of its most vulnerable if it's constantly on the brink of a financial crisis.

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. Pension liabilities across the 50 states

Growth in accrued pension liabilities and pension assets across the 50 states

By average annual growth in accrued liabilities, 2017 vs. 2003

	Total state accrued pension liabilities ($ in billions)				Total state pension assets ($ in billions)				Funded ratio	
State	2003	2017	Total growth	Average annual growth	2003	2017	Total growth	Average annual growth	2003	2017
New Hampshire	$4.7	$13.2	182%	7.7%	$3.5	$8.3	136%	6.3%	75%	63%
North Dakota	$3.0	$8.2	177%	7.5%	$2.7	$5.3	94%	4.8%	91%	64%
Kentucky	$24.1	$64.9	169%	7.3%	$21.3	$22.0	3%	0.2%	88%	34%
Nevada	$19.6	$52.1	166%	7.2%	$15.9	$38.8	144%	6.6%	81%	74%
Illinois	**$83.8**	**$222.3**	**165%**	**7.2%**	**$40.4**	**$85.4**	**111%**	**5.5%**	**48%**	**38%**
Colorado	$40.5	$103.3	155%	6.9%	$30.6	$48.7	59%	3.4%	76%	47%
Arizona	$28.7	$72.5	153%	6.8%	$28.5	$45.1	58%	3.3%	99%	62%
New Jersey	$88.3	$221.6	151%	6.8%	$82.5	$79.3	-4%	-0.3%	93%	36%
Nebraska	$6.1	$15.1	148%	6.7%	$5.6	$13.6	143%	6.6%	92%	90%
Vermont	$2.6	$6.4	143%	6.5%	$2.5	$4.1	67%	3.7%	94%	64%
Hawaii	$12.0	$28.6	140%	6.4%	$9.1	$15.7	73%	4.0%	76%	55%
South Dakota	$4.9	$11.6	137%	6.4%	$4.8	$11.6	144%	6.6%	97%	100%
New Mexico	$18.6	$44.0	136%	6.3%	$16.6	$27.5	65%	3.7%	89%	63%
Washington	$41.2	$95.0	131%	6.1%	$44.0	$85.1	93%	4.8%	107%	90%
Minnesota	$44.2	$101.5	130%	6.1%	$42.3	$64.3	52%	3.0%	96%	63%
Connecticut	$28.1	$64.1	128%	6.1%	$18.6	$29.3	58%	3.3%	66%	46%
Utah	$15.5	$35.3	127%	6.0%	$14.7	$31.9	117%	5.7%	95%	90%
Montana	$6.8	$15.0	122%	5.9%	$6.1	$10.9	78%	4.2%	91%	73%
Virginia	$42.5	$94.3	122%	5.9%	$40.5	$72.8	80%	4.3%	95%	77%
Arkansas	$15.5	$34.1	120%	5.8%	$13.9	$26.2	88%	4.6%	90%	77%
Florida	$89.3	$194.5	118%	5.7%	$101.9	$154.2	51%	3.0%	114%	79%
Idaho	$7.9	$17.3	117%	5.7%	$6.6	$15.8	139%	6.4%	83%	91%
Delaware	$5.3	$11.4	115%	5.6%	$5.3	$9.4	77%	4.2%	100%	83%
Iowa	$18.4	$37.6	105%	5.3%	$16.4	$31.0	88%	4.6%	89%	82%
Alaska	$10.6	$21.7	105%	5.2%	$7.4	$14.5	96%	4.9%	70%	67%
Maryland	$35.2	$71.9	104%	5.2%	$32.7	$49.3	51%	3.0%	93%	69%
South Carolina	$27.4	$55.7	103%	5.2%	$22.9	$30.2	32%	2.0%	83%	54%
Georgia	$55.2	$110.3	100%	5.1%	$55.8	$87.4	57%	3.3%	101%	79%
Texas	$115.2	$230.3	100%	5.1%	$109.3	$175.2	60%	3.4%	95%	76%
Wyoming	$5.7	$11.2	98%	5.0%	$5.2	$8.5	62%	3.5%	92%	76%
California	$310.5	$612.1	97%	5.0%	$268.7	$421.8	57%	3.3%	87%	69%
Mississippi	$22.2	$43.7	97%	5.0%	$17.5	$26.9	54%	3.1%	79%	62%
Massachusetts	$45.4	$89.1	96%	4.9%	$33.9	$53.4	57%	3.3%	75%	60%
New York	$107.3	$209.1	95%	4.9%	$106.6	$197.6	85%	4.5%	99%	95%
Kansas	$14.4	$27.8	92%	4.8%	$10.9	$18.6	72%	3.9%	75%	67%
Indiana	$26.2	$49.5	89%	4.7%	$18.0	$32.2	79%	4.2%	69%	65%
North Carolina	$54.9	$103.2	88%	4.6%	$58.2	$93.6	61%	3.5%	106%	91%
Missouri	$38.1	$71.2	87%	4.6%	$31.2	$55.5	77%	4.2%	82%	78%
Pennsylvania	$80.5	$149.2	85%	4.5%	$80.2	$82.6	3%	0.2%	100%	55%
Tennessee	$26.1	$47.8	83%	4.4%	$25.7	$46.1	79%	4.3%	99%	97%
Alabama	$28.8	$52.3	82%	4.4%	$26.7	$37.1	39%	2.4%	93%	71%
Oregon	$44.1	$79.9	81%	4.3%	$42.8	$66.4	55%	3.2%	97%	83%
Louisiana	$29.2	$52.2	79%	4.2%	$20.0	$34.0	70%	3.9%	68%	65%
West Virginia	$10.7	$18.6	74%	4.0%	$4.3	$14.7	242%	9.2%	40%	79%
Oklahoma	$23.4	$38.7	66%	3.7%	$15.5	$30.2	94%	4.9%	66%	78%
Ohio	$121.4	$200.0	65%	3.6%	$96.2	$160.3	67%	3.7%	79%	80%
Wisconsin	$63.2	$101.8	61%	3.5%	$62.7	$104.4	67%	3.7%	99%	103%
Michigan	$58.1	$93.1	60%	3.4%	$50.8	$60.6	19%	1.3%	87%	65%
Maine	$10.5	$16.6	58%	3.3%	$7.8	$13.6	74%	4.1%	74%	82%
Rhode Island	$9.0	$11.8	31%	2.0%	$5.7	$6.3	10%	0.7%	64%	54%
U.S. Total	**$2,024.7**	**$4,132.6**	**104%**	**5.2%**	**$1,791.1**	**$2,857.0**	**60%**	**3.4%**	**88%**	**69%**

Source: Pew Charitable Trusts, "The State Pension Funding Gap: 2017"

Growth in state economies vs. state accrued pension liabilities across the 50 states

By total growth in state accrued pension liabilities, 2017 vs. 2003

	State Gross Domestic Product (GDP) ($ in billions)				Total accrued pension liabilities	Ratio of accrued liability growth to GDP growth
State	2003	2017	Average annual growth	Total growth	Total growth, 2003-2017	
New Hampshire	$51.7	$80.9	3.3%	57%	182%	3.2
North Dakota	$22.2	$52.5	6.3%	136%	177%	1.3
Kentucky	$128.1	$200.7	3.3%	57%	169%	3.0
Nevada	$91.8	$158.8	4.0%	73%	166%	2.3
Illinois	**$531.1**	**$826.8**	**3.2%**	**56%**	**165%**	**3.0**
Colorado	$198.8	$350.0	4.1%	76%	155%	2.0
Arizona	$192.7	$327.5	3.9%	70%	153%	2.2
New Jersey	$408.9	$595.3	2.7%	46%	151%	3.3
Nebraska	$66.9	$120.5	4.3%	80%	148%	1.9
Vermont	$21.4	$32.2	3.0%	51%	143%	2.8
Hawaii	$49.1	$89.4	4.4%	82%	140%	1.7
South Dakota	$28.1	$49.7	4.2%	77%	137%	1.8
New Mexico	$63.6	$94.3	2.8%	48%	136%	2.8
Washington	$258.4	$524.8	5.2%	103%	131%	1.3
Minnesota	$216.5	$351.4	3.5%	62%	130%	2.1
Connecticut	$183.5	$268.3	2.7%	46%	128%	2.8
Utah	$79.6	$167.3	5.4%	110%	127%	1.2
Montana	$25.7	$47.6	4.5%	85%	122%	1.4
Virginia	$310.2	$509.4	3.6%	64%	122%	1.9
Arkansas	$78.8	$123.4	3.3%	57%	120%	2.1
Florida	$595.3	$985.7	3.7%	66%	118%	1.8
Idaho	$40.7	$72.7	4.2%	79%	117%	1.5
Delaware	$48.9	$70.8	2.7%	45%	115%	2.6
Iowa	$106.7	$181.8	3.9%	71%	105%	1.5
Alaska	$32.0	$51.8	3.5%	62%	105%	1.7
Maryland	$227.8	$394.3	4.0%	73%	104%	1.4
South Carolina	$131.5	$223.1	3.8%	70%	103%	1.5
Georgia	$340.6	$566.5	3.7%	66%	100%	1.5
Texas	$833.5	$1,665.6	5.1%	100%	100%	1.0
Wyoming	$21.2	$37.5	4.1%	76%	98%	1.3
California	$1,523.5	$2,819.1	4.5%	85%	97%	1.1
Mississippi	$73.8	$110.2	2.9%	49%	97%	2.0
Massachusetts	$315.4	$540.8	3.9%	71%	96%	1.3
New York	$905.6	$1,604.1	4.2%	77%	95%	1.2
Kansas	$96.4	$161.2	3.7%	67%	92%	1.4
Indiana	$225.3	$351.1	3.2%	56%	89%	1.6
North Carolina	$312.4	$538.4	4.0%	72%	88%	1.2
Missouri	$205.2	$304.9	2.9%	49%	87%	1.8
Pennsylvania	$456.7	$744.3	3.6%	63%	85%	1.4
Tennessee	$204.2	$345.9	3.8%	69%	83%	1.2
Alabama	$134.4	$210.4	3.3%	57%	82%	1.4
Oregon	$127.6	$226.6	4.2%	78%	81%	1.0
Louisiana	$155.9	$239.2	3.1%	53%	79%	1.5
West Virginia	$46.7	$73.2	3.3%	57%	74%	1.3
Oklahoma	$105.9	$188.4	4.2%	78%	66%	0.8
Ohio	$428.7	$645.3	3.0%	51%	65%	1.3
Wisconsin	$204.8	$322.0	3.3%	57%	61%	1.1
Michigan	$376.3	$505.6	2.1%	34%	60%	1.7
Maine	$42.3	$62.0	2.8%	47%	58%	1.2
Rhode Island	$40.8	$58.5	2.6%	43%	31%	0.7
U.S. total	**$11,367.3**	**$19,519.4**	**3.9%**	**72%**	**104%**	**1.5**

Source: Pew Charitable Trusts, "The State Pension Funding Gap: 2017"; U.S. Bureau of Economic Analysis

Appendix B. A brief history of granted pension benefits

Given the one-sided nature of the pension protection clause, past Illinois lawmakers should have been extremely careful about giving away any new benefits. But a review of teacher benefits – the Illinois Teachers' Retirement System publishes a complete list of changes to the pension plan since 1915 – shows they weren't.[4]

Politicians have granted teachers compounding COLAs, increased benefit formulas, early retirement options, sick leave accumulation and more since the 1950s. Some of those benefits have been given away for free. Other benefits, though "paid for" with increased teacher contributions, were still grossly underpriced.

Lawmakers have continually granted Illinois teachers additional pension benefits

History of major pension benefit increases and sweeteners granted to Illinois teachers

1957	The maximum retirement amount became $8,000 per year.
1959	170 days of work now equal to 1 year of service.
1961	The maximum retirement allowance became $12,000 per year.
1967	Working four or more clock hours daily now considered full-time employment.
1969	Retirement became permitted at age 60 with 10 years; age 62 with 5 years; and age 55 with 20 years of service.
1969	COLA benefit increased to 1.5 percent, simple.
1971	Average final salary became based on the highest four consecutive years within the last 10 years of service.
1971	Pension formula upgraded: 1.67% for first 10 years; 1.9% for next 10, 2.1% for next 10; 2.3% for years over 30. TRS member contributions increased by 1 percent.
1971	Maximum starting pension as a percentage of salary became 75 percent.
1971	COLA benefit increased to 2 percent, simple.
1972	Credit for one-half year or 85 days of sick leave granted.
1978	COLA benefit increased to 3 percent, simple.
1979	An Early Retirement Option (ERO) is established for members.
1980	TRS' health insurance program established with 50 percent subsidy of premiums.
1981	Employer pick-up (tax sheltering) of employee contributions allowed.
1984	Maximum of one year of service for 170 or more days sick leave granted.
1985	Insurance could be paid by the member's school district.
1990	3 percent COLA benefit increased to compound from simple.
1990	Part-time and substitute teachers now members of TRS.
1991	TRS retirees allowed to teach without restriction in colleges and universities.
1998	Pension formula upgraded: 2.2 percent per year. TRS member contributions increased by 1 percent.
1998	Unused sick leave could be used for credit if not compensated in any other way.
1998	State subsidy for the Group Insurance Program became 5 percent per year up to a 20-year maximum of 100 percent.
1999	Early Retirement Option extended to June 30, 2005.
2003	Service credit became permitted for members with up to 2 years of unused sick leave.
2006	Provided additional exemptions from employer contributions for excess salary increases.
2013	Early Retirement Option extended for another three years.

Source: Illinois Teachers' Retirement System, "Evolution of the Teachers' Retirement System of the State of Illinois Benefit Structure as of July 1, 2016"

Cost-of-living increases

Illinois' current cost-of-living adjustments for Tier 1 workers are the single biggest contributor to the state's pension distress. What started as a simple annuity increase at levels approximating inflation has now become a compounded yearly increase that doubles a retiree's annual pension after 25 years.

- 1969: COLA increased to 1.5 percent simple
- 1971: COLA increased to 2 percent simple.
- 1978: COLA increased to 3 percent simple.
- 1990: 3 percent COLA increase compounded annually.

Pension benefit formula

Pension benefits for every year worked were originally calculated as 1.5 percent of each worker's final average salary (FAS) with a maximum of 60 percent. By 1998, the formula had been changed to 2.2 percent of final salary with a maximum of 75 percent. Under the original rules, a teacher had to work 40 years to get the 60 percent maximum. Today, a Tier 1 teacher only needs to work 34 years to achieve the 75 percent maximum.

- 1947: Pension formula: 1.5 percent of FAS per year of creditable service with a 60 percent maximum. Average final salary calculated based on the last 10 years of service.
- 1971: Pension formula upgraded to 1.67 percent for first 10 years of service; 1.9 percent for next 10; 2.1 percent for next 10; and 2.3 percent for years over 30. Maximum percentage of FAS increased to 75 percent maximum. Average final salary calculation changes to highest four consecutive years within the last 10 years of service.
- 1998: Pension formula upgraded to 2.2 percent a year. TRS member contributions increased by 1 percent.

Sick leave benefits

Sick leave days in the private sector are typically treated as "use it or lose it." But teachers and other government workers in Illinois can accumulate unused sick leave days over the course of an entire career – and then cash those days out when they retire by adding them to their years of pensionable service.

- 1972: Service credit granted for up to one-half year of unpaid sick leave.
- 1984: Service credit granted for up to one year of unpaid sick leave.
- 1998: Any unused sick leave could be used for credit, if not compensated in any other way.
- 2003: Service credit granted for up to two years of unpaid sick leave.

Retirement ages

Teachers can begin drawing pensions with full benefits while still in their 50's. And a majority of teachers haven taken advantage of this rule. Sixty percent of teachers currently collecting a pension retired in their 50's.

- 1947: Retirement permitted at age 55 with 20 years of service; age 60 with 15 or more years of service.
- 1969: Retirement permitted at age 55 with 20 years of service; age 60 with 10 or more years of service; age 62 with 5 years or more of service.

Appendix C. Details of teacher pension comparison

General methodology/assumptions

- Wirepoints calculated the benefits of career teachers with 30-plus years of service who retired in FY 2018. Average age at retirement, Final Average Salary, beginning pension benefit and cost-of-living adjustments were used to calculate total benefits in retirement.
- The U.S. Bureau of Economic Analysis' Regional Price Parities Index was used to adjust for cost-of-living differences across states.[5]
- Assumed average total years of service: 34
- Assumed annual rate of inflation based on 30-year Expected Inflation as of June 2020: 1.8 percent. (Impacts state pension and Social Security COLA benefits)[6]
- Assumed life expectancy: 84. (Based on Social Security actuarial life tables)
- Social Security benefits were included in the retirement benefit calculations for teachers in New York, Florida, Pennsylvania, Wisconsin, Iowa and Indiana. Teachers in Illinois, California, Kentucky, Missouri and Texas were assumed to not receive Social Security benefits.
- The Social Security Administration's online "Social Security Quick Calculator" was used to estimate beginning Social Security benefits. Beginning benefits were based on teachers' Final Average Salary and their age at retirement. All teachers on Social Security were assumed to begin collecting benefits at age 62 regardless of the age they retired and began to collect their pension benefit.

Source data

Career teacher benefit data was obtained from 2018/2019 Comprehensive Annual Financial Reports or individual FOIA requests to each state pension fund that manages teacher retirements.

Sources of pension data for teachers who retired in FY 2018 with 30 or more years of service

State	Average age at retirement	"Final Average Salary/Beginning pension benefit"
Illinois	**FOIA request to TRS**	**2018 TRS CAFR, p.121**
California	2018 CALSTRS CAFR, P.185	2018 CALSTRS CAFR, P.185
Florida	FOIA request to FRS	FOIA request to FRS
Indiana	FOIA request to PERF	2018 PERF CAFR, p.235
Iowa	FOIA request to IPERS	FOIA request, 2018 IPERS CAFR, p.109
Kentucky	FOIA request to TRS	2018 TRS CAFR, p.189
Missouri	FOIA request to PSRS/PEERS	2018 PSRS/PEERS CAFR, p.130
New York	2018/2019 TRS CAFR, p.116	2018/2019 TRS CAFR, p.128
Pennsylvania	2018 PSERS Actuarial Report, p.38	2018/2019 PSERS CAFR, p.128
Texas	FOIA request to TRS	2018 TRS CAFR, p.146
Wisconsin	FOIA request to WRS	FOIA request to WRS

State-specific data proxies/assumptions

Florida

- Teacher-specific data is not included in the Florida Retirement System's public financial documents as teachers are classified as members of the state's "Regular" class of retirees, which comprise a vast majority of the state fund's pension membership. Wirepoints submitted a FOIA request to FRS for "retired members last employed by Florida school boards" to acquire specific pension, Final Average Salary and retirement age data for career, recently retired education employees.
- COLA estimate: Florida provides a 3 percent compounded COLA to members retiring after July 1, 2011 based on the following formula: Member's years of service completed before 2011 / members' total years of service * 3 percent = annual COLA benefit. Wirepoints' Florida teacher worked 34 years in total with 27 of those years occurring before July 1, 2011; (27 years/34 years) * 3 percent = 2.4 percent annual COLA

New York

- COLA estimate: Wirepoints assumed an average annual 1 percent simple COLA during retirement (based on 1.8 percent average future inflation).

Texas

- COLA estimate: Wirepoints assumed a $2,000 annual benefit provided every 12 years based on the 13th check provided in 2019.

Pennsylvania

- Average retirement age: Wirepoints' FOIA request for the average retirement age for teachers retired in FY 2018 with 30 or more years of service was denied by the Pennsylvania Public School Employees' Retirement System. The average retirement age for all teachers who retired in FY 2018 was used as a proxy.
- COLA estimate: No COLA increase applied during retirement.

Wisconsin

- The average benefits for Wisconsin teachers are likely lower than what is stated in this report as public school teachers, university professors and technical college professors are all classified as "teachers" by the Wisconsin Retirement System. The WRS was unable to provide Wirepoints with a more detailed data breakdown comprising just K-12 public school teachers in its returned FOIA.
- COLA estimate: The annual COLA provided to WRS retirees can vary significantly from year to year as it is based on the investment return performance of a "Core Trust Fund" and an optional "Variable Trust Fund." Wirepoints' Wisconsin teacher is assumed to only enroll in the "core" fund and is assumed to receive a 1 percent compounded COLA in retirement based on the average annual benefit provided to members over the 2000-2019 period: 0.9 percent.

Missouri

- COLA estimate: Missouri provides a compounded COLA benefit ranging from 0 percent to 5 percent based on the rate of inflation: Under 2 percent inflation, no COLA but inflation is cumulative with next year, resetting to zero after a COLA benefit is provided; 2 percent to 5 percent inflation, 2 percent COLA; 5 percent or more inflation, 5 percent COLA. Based on an average future inflation rate of 1.8 percent annually, Wirepoints assumes a 2 percent COLA every other year for a retired Missouri teacher.

Indiana

- The Indiana Public Retirement System (INPRS) denied Wirepoints request for pension and salary data for recently retired career teachers. Wirepoints used the available data for the Teachers' Pre-1996 Defined Benefit Account in INPRS' 2018 Comprehensive Annual Financial Report for its estimates. Wirepoints multiplied the average "Final Average Salary," "Average Monthly ASA Annuity" and "Average Monthly Defined Benefit" for all career teachers as of 2018 by 120 percent to serve as a proxy for the benefits of career teachers who retired in 2018. Wirepoints' multiplier of 120 percent is based on the average difference between the benefits of "all teachers with 30-plus years of service retired as of 2018" and "teachers with 30-plus years of service who retired in 2018" of the other surveyed states.
- Indiana teachers also receive retirement benefits from a 401(k)-style account as part of INPRS. Those payments are included in their total pension benefit.
- COLA estimate: An Indiana teacher is assumed to receive an annual compounded COLA of 0.4 percent to 0.6 percent based on the assumptions used in INPRS' 2018 Actuarial Valuation Report.

Iowa

- The Iowa Public Employees Retirement System denied Wirepoints' request for final annual salary data of "Education-classified" retirees. Wirepoints multiplied the average "High Average Salary" for all career retirees as of 2018 by 120 percent to serve as a proxy for a recently-retired career teacher's final salary.
- COLA estimate: No COLA increase applied during retirement.

Appendix D. 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.[7]

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] Begnning 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 E. Results of Segal-scored pension restructuring plan

Segal Consulting

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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
Page 2

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.

Scenario	Based on Total Payroll	
	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
Commission on Government Forecasting and Accountability
March 6, 2019
Page 3

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 F. 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			
Year	Current law	Restructuring plan	Savings
2020	$4.8	$3.3	$1.5
2021	$5.1	$3.5	$1.6
2022	$5.3	$3.7	$1.6
2023	$5.4	$3.7	$1.7
2024	$5.5	$3.8	$1.8
2025	$5.7	$3.9	$1.8
2026	$5.9	$4.0	$1.9
2027	$6.1	$4.1	$1.9
2028	$6.2	$4.2	$2.0
2029	$6.4	$4.4	$2.0
2030	$6.6	$4.5	$2.1
2031	$6.8	$4.6	$2.2
2032	$6.9	$4.7	$2.2
2033	$7.2	$4.9	$2.3
2034	$8.0	$5.6	$2.4
2035	$8.2	$5.8	$2.4
2036	$8.4	$5.9	$2.5
2037	$8.7	$6.1	$2.6
2038	$8.9	$6.3	$2.6
2039	$9.1	$6.4	$2.7
2040	$9.4	$6.6	$2.8
2041	$9.6	$6.8	$2.8
2042	$9.9	$6.9	$2.9
2043	$10.1	$7.1	$3.0
2044	$10.3	$7.3	$3.1
2045	$10.6	$7.4	$3.1
Total savings			$59.6
Average annual savings			$2.3

Extrapolated to the five state-run pension funds* State contributions			
Year	Current law	Restructuring plan	Savings
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 savings			$109.3
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 G. 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

5928684v2/13826.002

- 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.

5928684v2/13826.002

($ 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, FSA, MAAA, EA
Senior Vice President and Actuary

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

Tanya Dybal, FSA, MAAA, EA
Consulting Actuary

5928684v2/13826.002

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

1

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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

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

3

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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

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

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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

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

Executive Summary & Preface

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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.