KPERS' 2016 Actuarial Valuation

Presented by:
Alan Conroy, Executive Director
Phone: 785-296-6880
Email: aconroy@kpers.org

Joint Committee on Pensions, Investments, and Benefits

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KPERS

KPERS Update & Funding Status

- KPERS overview
- Funding status
  - Valuation purpose
  - Key factors affection valuation:
    - 2017 appropriations legislation
    - Experience study
  - Valuation results
  - Projections

KPERS

KPERS OVERVIEW

KPERS

Kansas Public Employees Retirement System

Dependable Benefits. Trusted Partner.

KPERS is a fiduciary providing retirement, disability and survivor benefits to our members and their beneficiaries with a 98-member staff.

KPERS administers three statewide, defined benefit plans for public employees.

- Kansas Public Employees Retirement System
- Kansas Police and Firemen's Retirement System
- Kansas Retirement System for Judges

KPERS partners with more than 1,500 state and local government employers.

- State of Kansas
- 286 school districts
- 105 counties
- 425 cities and townships
- Other employers include libraries, hospitals, community colleges and conservation districts

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KPERS Overview

Board of Trustees

Chairperson Lois Cox, CFA, CFP, Manhattan
Vice President for Investments and
Chief Investment Officer,
Kansas State University Foundation
Appointed by the Governor

Vice-Chairperson Kelly Arnold, Wichita
County Clerk, Sedgwick County
Appointed by the Governor

Ernie Claudel, Olathe
Retired teacher
Elected member – school

Shawn Creger, Prairie Village
Financial Advisor, Edward Jones
Appointed by the Speaker of the House

James Cusser CFA, Mission Hills
Wall Street Investment Banker and Mutual Fund Manger;
Adjunct Associate Professor of Political Science,
Johnson County Community College
Appointed by the Governor

Jake LaTurner, Wichita
Kansas State Treasurer
Statutory member

Suresh Ramamurthi, Topeka
Chairman, CBW Bank
Appointed by the President of the Senate

Michael Rogers, Manhattan
Certified Public Accountant
Appointed by the Governor

Ryan Trader, Olathe
Firefighter/Paramedic, City of Olathe
Elected member - non-school

FUNDING STATUS:
Overview

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Actuarial Valuation

Discussion topics

- Purpose of valuation
- Key factors affecting 2016 valuation
- Valuation results
  - Key system statistics (e.g., membership, average benefit)
  - Funded status (Unfunded actuarial liability and funded ratio)
  - Employer contribution rates
- Projections of funded status and employer contribution rates for State/School and Local groups

Actuarial Valuations

Purpose of Valuation

- Measurement of assets and liabilities
- Best estimate of ultimate costs
  - Project future benefits using actuarial assumptions
  - Calculate present value of future benefits (their cost in today's dollars)
  - Apply cost method to allocate benefit costs to periods of service
- Calculate employer contribution rates
  - FY 2020 for State/School Group
  - CY 2019 for Local Group
- Baseline for any cost studies in 2018 legislative session

FUNDING STATUS:
Key Factors Affecting Valuation

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Actuarial Valuation

Key Factors in 2016 Valuation

Two particularly significant factors in the 2016 valuation:

- 2017 legislative appropriations changes
- Triennial experience study

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Key factors

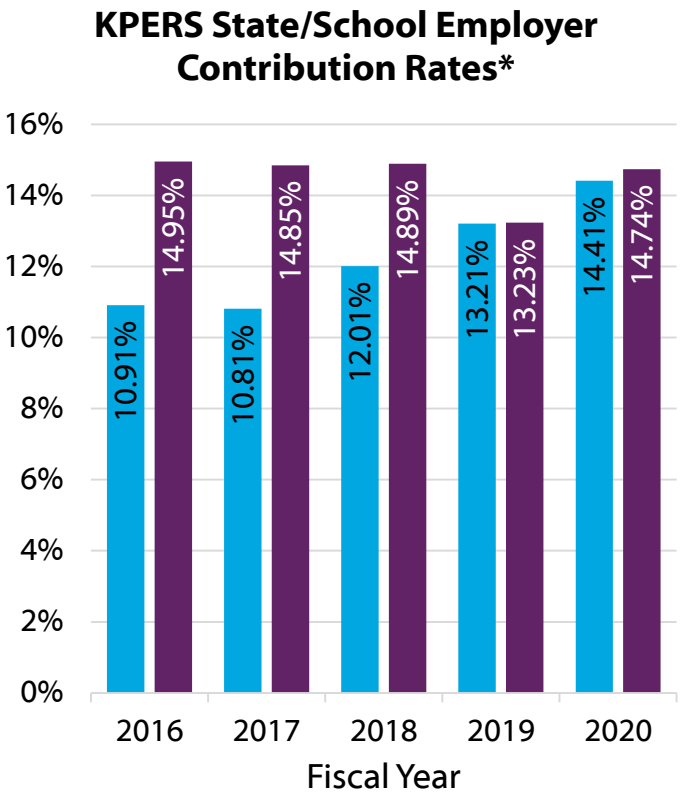
2017 Appropriations Legislation

- The appropriations bills passed by the 2017 Legislature made several changes to employer contributions.
  - The payment of the FY 2016 employer contribution reduction ($97.4 million plus interest) that was scheduled to be paid on June 30, 2018 was eliminated.
  - FY 2017 employer contributions were reduced by $64 million, but will be repaid over 20 years starting in FY 2018 (the first payment has already been made).
  - FY 2019 employer contributions are reduced by $194 million, but will be repaid over 20 years starting in FY 2020.
- Reductions that are scheduled to be repaid are counted as a long-term receivable.
  - Any changes to the repayment are reflected as non-collectible contributions (as was the case after the actions of the 2017 Legislature to cancel payment of FY 2016 deferred contributions).
- The employer contributions reductions were made without adjusting the statutory employer contribution rate.

Legislative Changes

KPERS State/School Employer Contribution Rates

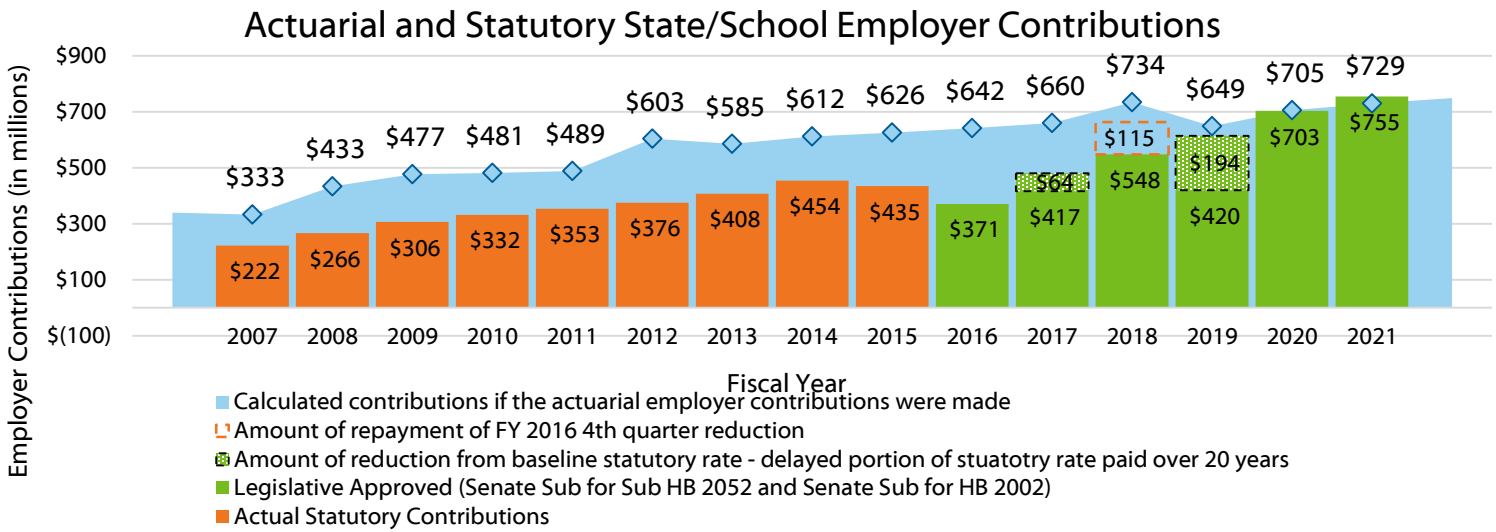
- The statutory State/School employer contribution rate for FY 2018 is 12.01%.
- The employer contribution rate is scheduled to increase to 13.21% for FY 2019, but $194 million of that contribution will be delayed and paid over 20 years.
- The 12/31/2016 valuation sets the employer contribution rates for FY 2020 for State/School employers, but the rate is capped by statute.
- The State/School statutory employer contribution has been below the actuarial required contribution for 24 years.



*Does not reflect reductions to the State/School employer contributions of $94 million in FY 2016, $64 million in FY 2017 and $194 million FY 2019.

Legislative Changes

State/School Contributions

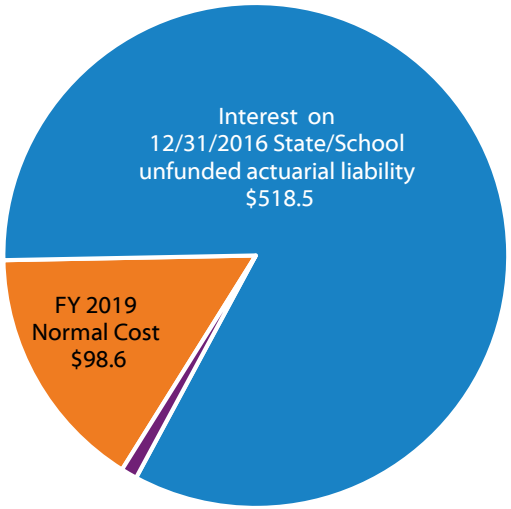


- Over three years (Fiscal Years 2017, 2018, and 2019), the State will pay or promise to pay KPERS $1.63 billion, of which $258 million will be layered or paid over 20-year periods, which totals the statutory amount that is due to KPERS over the three fiscal years.
- Assuming the layering payments are made, this will represent 3 years of the State paying at the statutory rate. The last year that the full statutory rate was paid was Fiscal Year 2014.
- No payment for the delayed $115 million payment from Fiscal Year 2016 in Fiscal Year 2018. That amount has been added to the unfunded actuarial liability as non-collectible pension contributions.
- The approved reductions in FY 2017 and FY 2019 will be treated as a long-term receivable and are included as assets in the 12/31/2016 actuarial valuation.

Key Factors

Triennial Experience Study

FY 2019 "Steady State" Contributions
(in Millions)



Total State/School employer contributions needed to maintain "steady state"
$623.5 million

				Payment of layer on FY 2017 deferred School contribution
				$6.4 million
12/31/2016 State/School unfunded actuarial liability	X	KPERS Investment Return Assumption	=	Interest on 12/31/2016 State/School unfunded actuarial liability
$6.690 billion	X	7.75%	=	**$518.5 million**
Actuarial payroll projection for FY 2019	X	Employer Normal Cost Rate	=	FY 2019 normal cost
$4.610 billion	X	2.14%	=	**$98.6 million**

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Key Factors

Triennial Experience Study

- During CY 2016, the Board of Trustees adopted a number of changes to actuarial assumptions and method, based on the statutory triennial experience study.
- The Board has a **fiduciary responsibility** to set the actuarial assumptions using their best judgment in light of available information.
- Assumptions are long-term in nature and try to anticipate what will happen over decades, not react to short-term trends.
- Having accurate assumptions is important so that costs are not too high today or passed on to future generations.

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Experience Study

Assumption changes

- Based on the recommendation of the Board's actuarial consultant, changes were made to both economic assumptions (i.e. inflation, wage growth, investment returns) and demographic assumptions (i.e. mortality, retirement rates)
- The new assumptions are reflected in the 12/31/2016 actuarial valuation.
- The change in assumptions, primarily the lowering of the investment return assumption from 8.0% to 7.75%, increased the unfunded actuarial liability for all groups.

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Experience Study

Unfunded Actuarial Liability Amortization Method

- Actuarial methods were also reviewed in the experience study
- Changes were made to the amortization method
- Previously amortized the entire unfunded actuarial liability as a level percent of pay over closed 40-year period, starting in 1994
- As recommended by the consulting actuary, revised to reduce the contribution rate volatility of a shorter period by –
  - Maintaining the same amortization schedule for the "legacy" unfunded actuarial liability
  - Establishing separate "layers" amortized over 20-25 years for future changes in the unfunded actuarial liability

FUNDING STATUS:
Key System Statistics

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Valuation Results

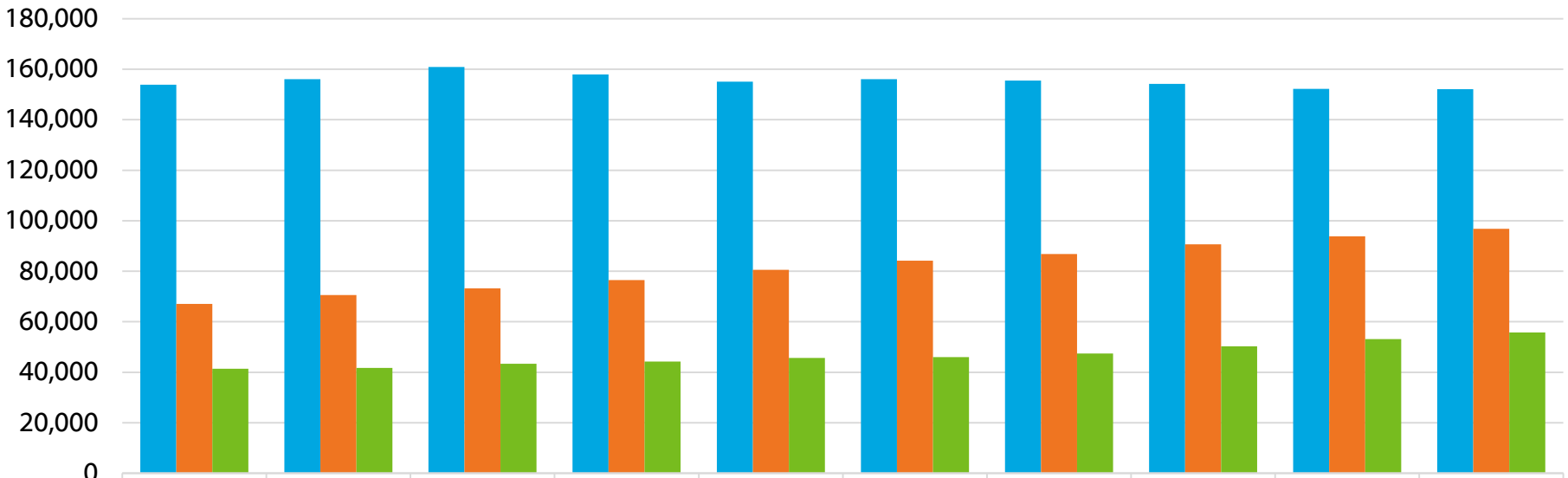
Key System Statistics

Valuations provide a snapshot of key system statistics and comparisons with historical data to identify trends

- Total system membership
- Average salary and benefits for total system
- Total payroll and benefits

System Statistics

Total system membership

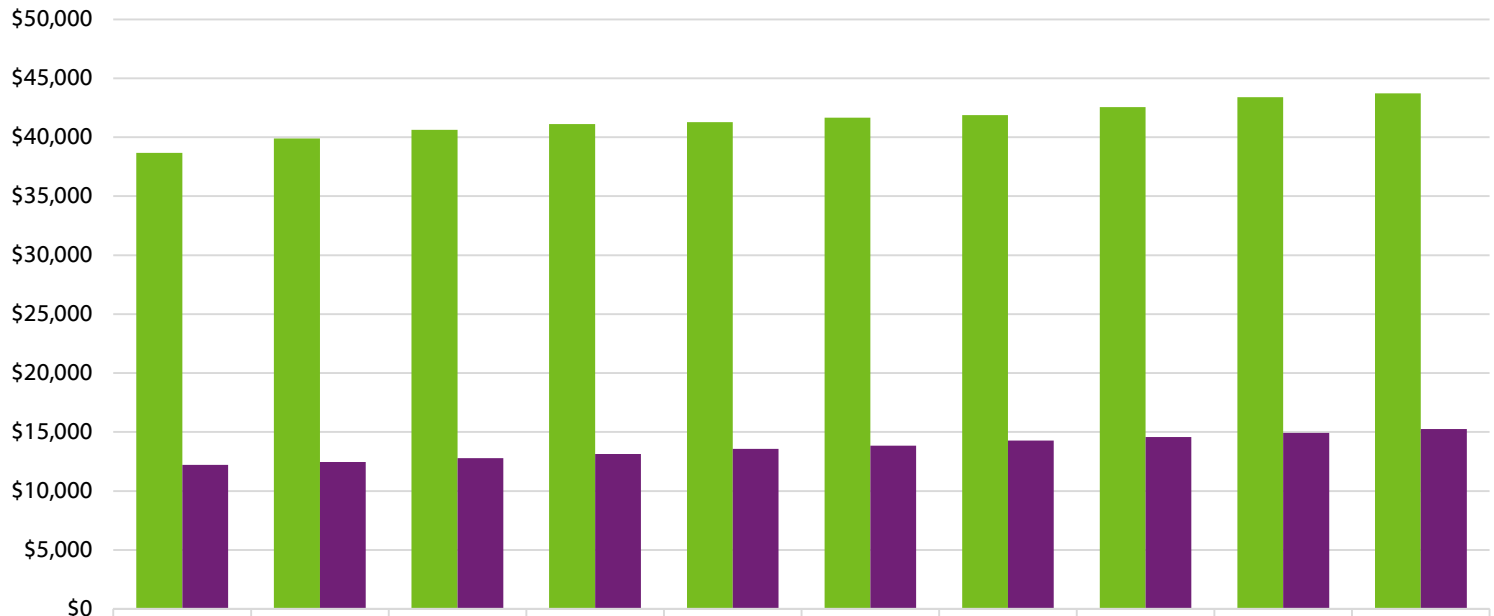


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Active	153,804	156,073	160,831	157,919	155,054	156,053	155,446	154,203	152,175	152,119
Retired	67,102	70,567	73,164	76,498	80,527	84,142	86,843	90,693	93,866	96,774
Inactive	41,383	41,749	43,324	44,231	45,678	45,969	47,484	50,255	53,159	55,755

-0.1% average annual change in active count since 2007.
3.4% average annual increase in retiree count since 2007 (4.9% increase for 2016).

System Statistics

Average salary and benefits (total system)

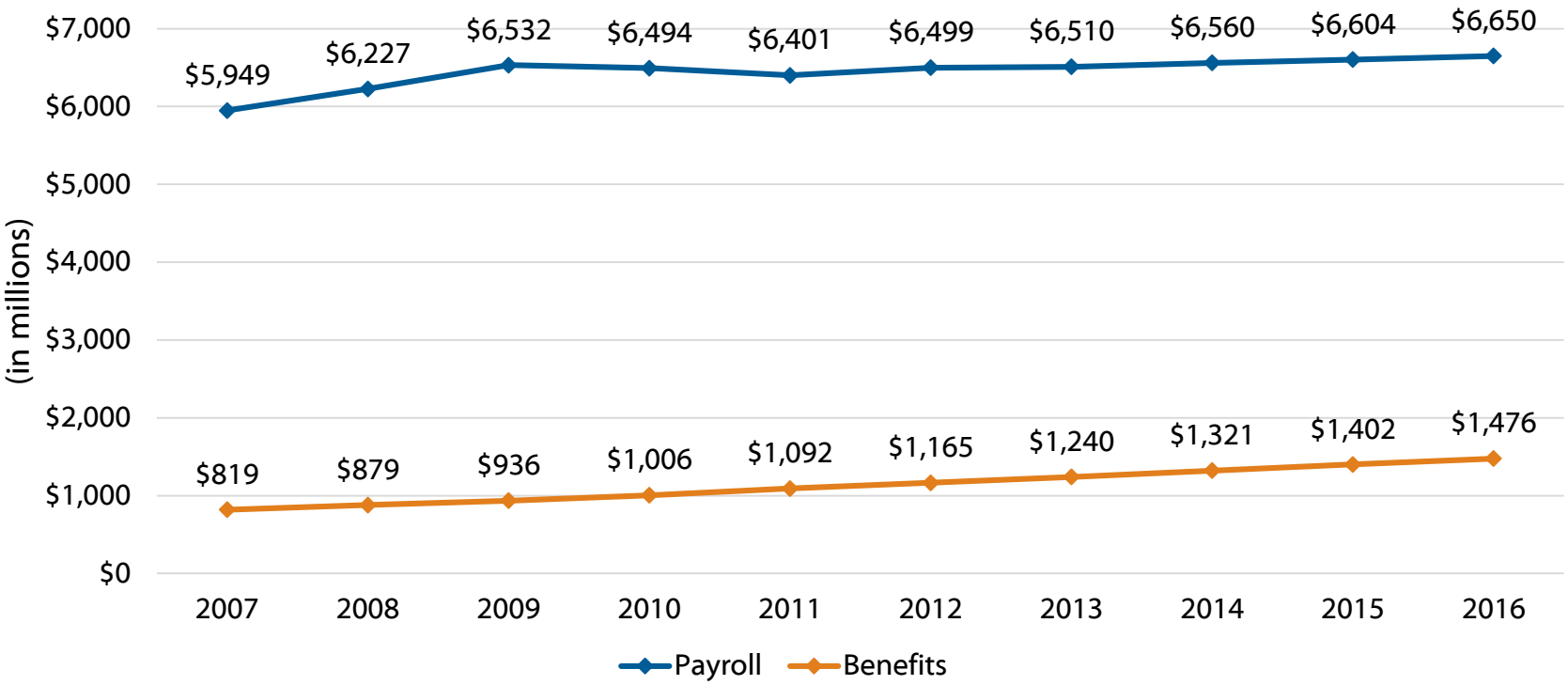


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Average Annual Salary	$38,681	$39,895	$40,617	$41,123	$41,285	$41,646	$41,878	$42,542	$43,395	$43,719
Average Annual Benefit	$12,207	$12,460	$12,792	$13,148	$13,560	$13,840	$14,280	$14,564	$14,933	$15,257

1.4% annual increase in average salary since 2007. 0.7% increase for 2016.
2.5% annual increase in average benefits since 2001. 2.2% increase for 2016.

System Statistics

Total payroll and benefits (total system)



2016 Valuation

Summary of Valuation Results

- As a system, KPERS' funded ratio remained stable, but the unfunded actuarial liability increased in the 12/31/2016 funding valuation.

	12/31/2016	12/31/2015
Funded Ratio	67%	67%
Unfunded Actuarial Liability	$9.06 billion	$8.54 billion

- Actuarially required contribution (ARC) rates increased for all groups, primarily due to the change in actuarial assumptions.
- The State/School group statutory employer contribution remains below the actuarial contribution rate.
  - The statutory State/School employer contribution rate is projected to reach the actuarial required contribution rate in FY 2021, if actuarial assumptions are met and statutory contributions are paid as scheduled.

FUNDING STATUS:
Actuarial Value of Assets

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Valuation Results

Development of Unfunded Actuarial Liability

Unfunded actuarial liability = actuarial liability less actuarial assets

- Actuarial liability:
  - Project future benefits using actuarial assumptions
  - Calculate present value of future benefits (their cost in today's dollars)
  - Apply cost method to allocate benefit costs to periods of service
- Actuarial value of assets
  - Average or "smoothed" values

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Actuarial Value of Assets

Market value vs smoothed value

- Market value not used directly in valuation
- Asset valuation method used to smooth the effect of market fluctuations
  - Goal is to provide more stability in contribution rates
  - Smoothed value is called actuarial value of assets
- Recognize difference in actual investment return compared to expected return evenly over 5 years (at 8% for CY 2016, will change to 7.75% for CY 2017).

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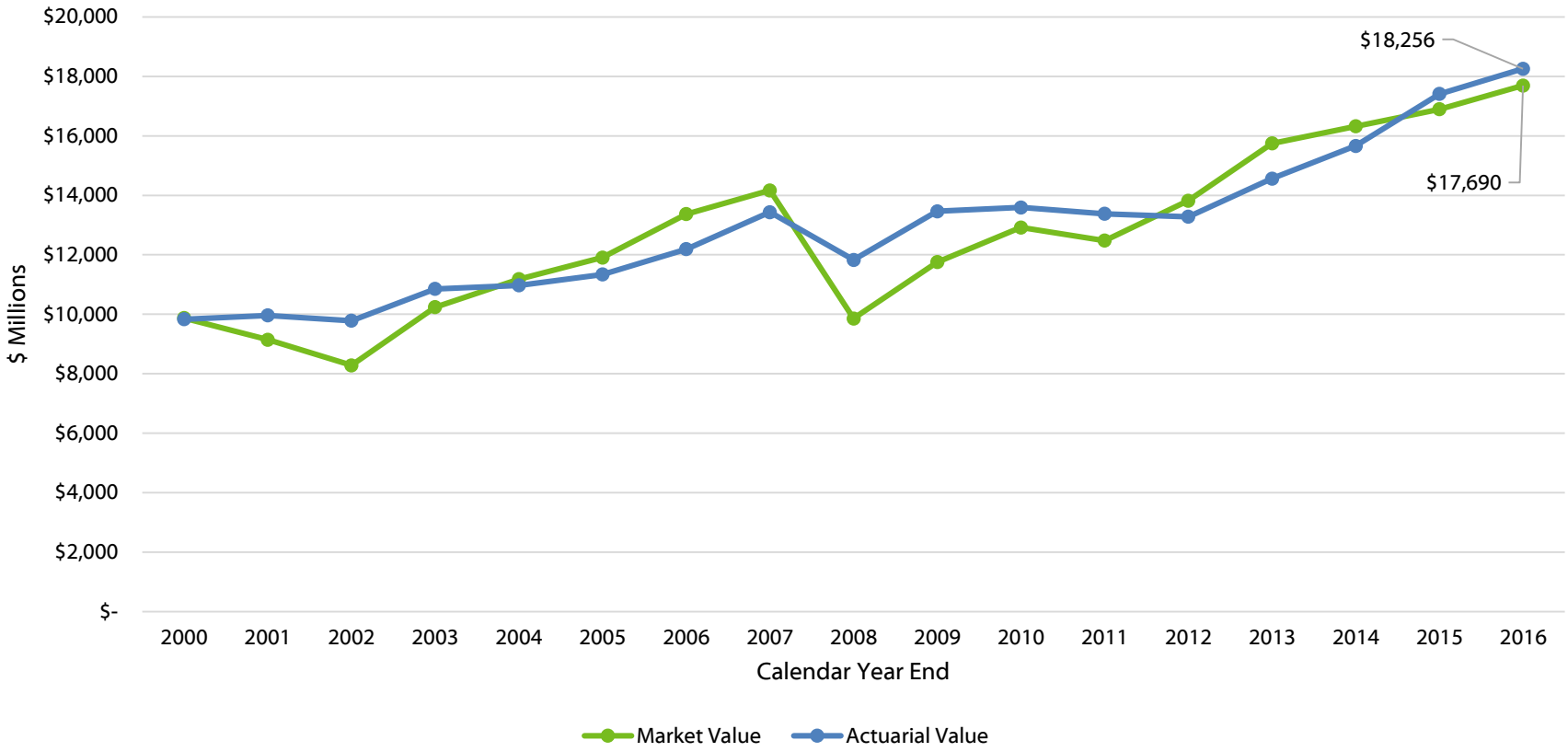
Actuarial Asset Value

Impact of deferred experience

- Investment return on market value basis in CY 2016 (net) was 8.5%,
- Due to asset smoothing method, return on actuarial assets was 8.4%.
- Deferred experience yet to be recognized:
  - Net deferred loss of $566 million this year vs. $515 million net deferred loss in last year's valuation.
  - Will flow through smoothing method over the next 4 years.
  - Expected to increase the unfunded actuarial liability and lower the funded ratio, absent favorable experience in future years.

2016 Valuation

Historical Asset Growth



FUNDING STATUS:
Unfunded Actuarial Liability

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Key Valuation Results

Unfunded actuarial liability

- Unfunded actuarial liability = actuarial liability less actuarial assets

- Unfunded Actuarial Liability increased by $522 million to $9.061 billion

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Valuation Results

Development of 12/31/2016 unfunded actuarial liability

	Actuarial Liability (in millions)	Actuarial Assets (in millions)	Unfunded Actuarial Liability (in millions)	Funded Ratio
State	$ 4,385	$ 3,463	$ 922	79.0%
School	14,481	8,713	5,768	60.2%
State/School*	$ 18,867	$ 12,177	$ 6,690	64.5%
Local	$ 5,095	$ 3,580	$ 1,515	70.3%
KP&F	3,175	2,329	846	73.4%
Judges	182	171	11	93.9%
Total*	$ 27,318	$ 18,256	$ 9,061	66.8%

*Amounts may not add due to rounding

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Valuation Results

Factors affecting the unfunded actuarial liability

- In 2016, the unfunded actuarial liability was impacted by:
  - experience gains/losses (e.g., investment return and demographic changes like slower payroll growth)
  - actual contributions (e.g., reduced contributions)
  - amortization method (set in 1993 as a level percent of pay, added layering of annual changes in 2016)
  - assumption changes (changes to economic and demographic assumptions as part of statutorily required triennial review)

- Factors specific to changes in the System's unfunded actuarial liability over the last year are quantified on next slide

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Valuation Results

Factors affecting System's unfunded actuarial liability

System Unfunded Actuarial Liability: 12/31/2015	**$**	**8,539M**
Contribution cap/time lag*		70M
Amortization method		(38)M
Experience		
– Investment		(59)M
– Demographic/other		(144)M
Actuarial assumption changes		593M
Benefit changes		1M
Contribution reductions (from FY 2016)		98.9M
System Unfunded Actuarial Liability: 12/31/ 2016		**$9,061M**

Note: Amounts may not add due to rounding

*Time lag is the period from the valuation date (12/31/2016) to the date the new contribution rate takes effect – e.g., 7/1/2019 for State and School Groups, 1/1/2019 for Local Group)

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Valuation Results

Factors impacting change in unfunded actuarial liability

	State	School	Local	KPF	Judges	Total
12/31/15 unfunded actuarial liability	**$870.4**	**$5,405.5**	**$1,485.7**	**$771.6**	**$6.0**	**$8,539.2**
• Contribution cap/lag	(25.7)	119.8	(16.5)	(4.8)	(2.5)	70.3
• Amortization method	(3.9)	(24.2)	(6.6)	(3.4)	(0.2)	(38.3)
• Investment experience	(15.3)	(27.0)	(8.7)	(7.5)	(0.6)	(59.2)
• Demographic experience	(36.3)	(88.0)	(37.6)	7.7	(1.4)	(155.7)
• All other experience	8.1	6.8	(2.2)	(0.7)	0.2	11.8
• Actuarial assumption changes	120.3	281.0	100.6	81.9	9.6	593.4
• FY '16 contribution reductions	4.1	94.4	0	0.4	0	98.9
12/31/16 unfunded actuarial liability	**$921.7**	**$5,768.3**	**$1,514.7**	**$845.5**	**$11.1**	**$9,061.4**

Note: Dollars in millions

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Valuation Results

Changes to funded ratio and unfunded actuarial liability

	December 31		December 31	
	2015	2016	2015	2016
State	79.3%	79.0%	$870M	$922M
School	60.8%	60.2%	$5,406M	$5,768M
State/School	65.2%	64.5%	$6,276M	$6,690M
Local	69.1%	70.3%	$1,486M	$1,515M
KP&F	74.0%	73.4%	$772M	$846M
Judges	96.4%	93.9%	$6M	$11M
Total	**67.1%**	**66.8%**	**$8,539**	**$9,061**

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Key Valuation Results

Funding the unfunded liability

- The System has a funding plan to fully fund the System.
- The Legislature set a 40-year, closed amortization period in 1993.
- The Board of Trustees approved a layered amortization approach as part of the triennial experience study.
  - The existing unfunded liability (legacy unfunded liability) remains on the 40-year amortization schedule, ending in 2033.
  - Each year any experience different than the actuarial assumptions (either positive or negative) will be realized in separate 20-year amortization periods.
  - Each layer will have an annual "payment" calculated and each layer's payment is added together to calculate a single unfunded liability payment.

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Key Valuation Results

Funding the unfunded liability

- "Level percent of pay" amortization methodology results in an increase in the dollar amount of unfunded actuarial liability over more than half of amortization period, even if full actuarial required contribution rate is paid.

- Amortization period on the legacy unfunded liability has declined and at the point where unfunded actuarial liability will start decreasing if full actuarial required contribution rate is paid and all assumptions are met.

FUNDING STATUS:
Employer Contribution Rates

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Key Valuation Results

Statutory and actuarial required contribution rates

- Rates effective for years beginning in 2019 (FY 2020 for State/School; CY 2019 for Local).
- Employer contribution rates for State and Local continue to be at the full actuarial rate.
  - State actuarial rate went from 8.28% to 9.49%
  - Local actuarial rate went from 8.39% to 8.89%
- School only actuarial rate totals 16.15%, higher than the statutory rate of 14.41% for FY 2020.
- State/School combined statutory rate is 0.33% below the actuarial required rate in the 12/31/16 valuation (14.41% vs 14.74%).

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Valuation Results

Actuarial vs. statutory employer contribution rates

	December 31, 2016*		
	Actuarial	Statutory	Shortfall
State	9.49%	14.41%	(4.92%)**
School	16.15%	14.41%	1.74%
State/School	14.74%	14.41%	0.33%***
Local	8.89%	8.89%	0.00%
KP&F	22.13%	22.13%	0.00%
Judges	18.65%	18.65%	0.00%

* Rates apply in fiscal years **beginning** in 2018 (FY 2019 for State/School; CY 2018 for Local).
** As provided in statute, contributions above the State actuarial required contribution rate will be used to fund the School Group.
*** State/School projected to reach actuarial required contribution date in FY 2021 at a rate of 14.99%.

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Valuation Results

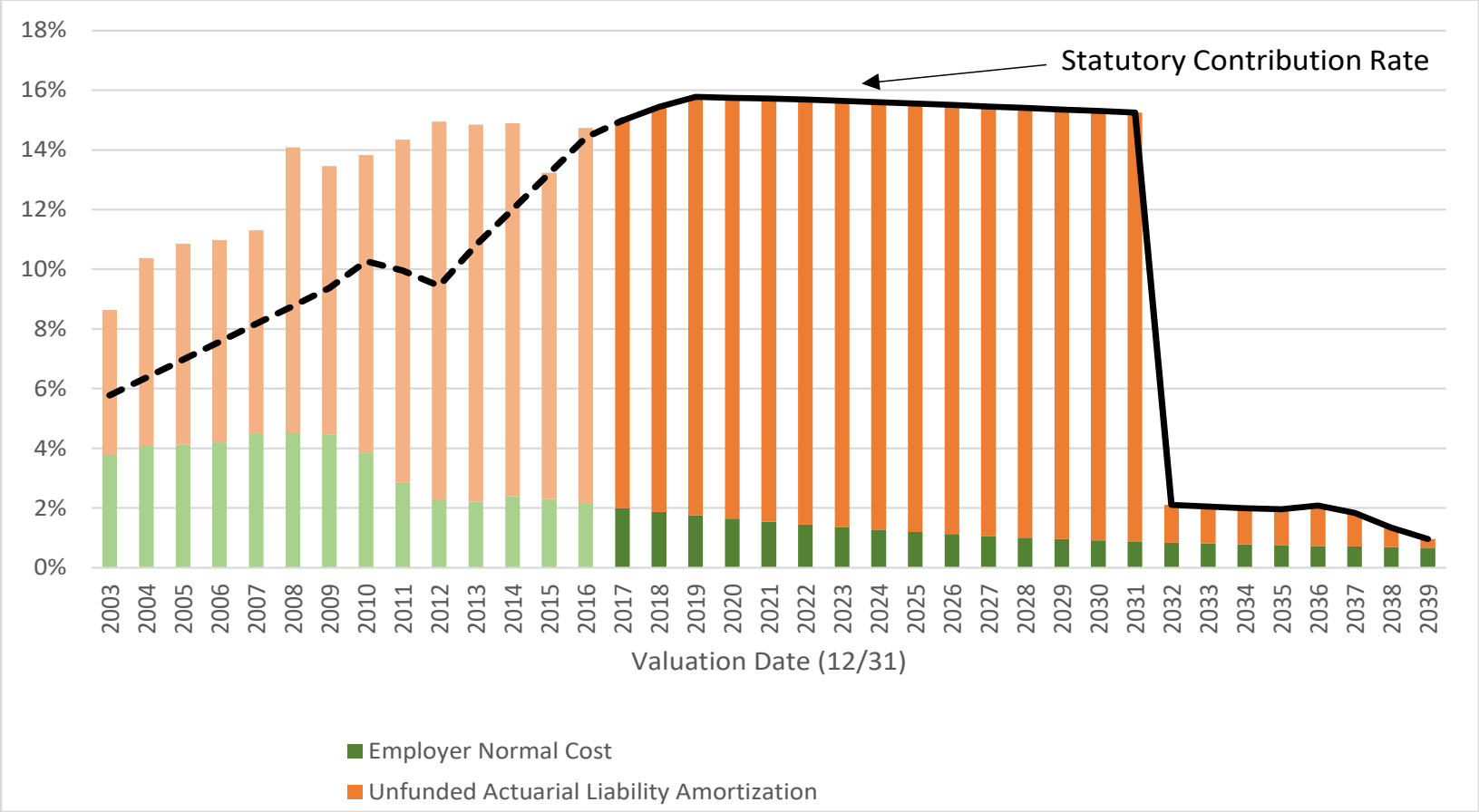
Employer contribution rate comparisons

System	Actuarial Rate (ARC as % of Pay)		Statutory Contribution Rate		% of ARC Contributed
	12/31/2015	12/31/2016	12/31/2015	12/31/2016	12/31/2016
State*	8.28%	9.49%	13.21%	14.41%	151.8%
School	14.59%	16.15%	13.21%	14.41%	89.2%
State/School	13.23%	14.74%	13.21%	14.41%	97.8%
Local	8.39%	8.89%	8.39%	8.89%	100%
KP&F	20.09%	22.13%	20.09%	22.13%	100%
Judges	14.68%	18.65%	14.68%	18.65%	100%

*NOTE: The excess of the statutory over the actuarial contribution rate on State payroll is contributed to the School group.

Valuation Results

Components of State/School actuarial employer contribution rates



FUNDING PROJECTIONS

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Funding Projections

- Not precise predictions but general estimates
  - Preliminary model results – final review continuing

- Projections based on many assumptions
  - 7.75% return on market value in 2017 and all future years
  - All actuarial assumptions met
  - Current plan provisions
  - Contributions are paid per current statutes
  - New entrants in future years are similar to recent history

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Funding Projections

State/School funding

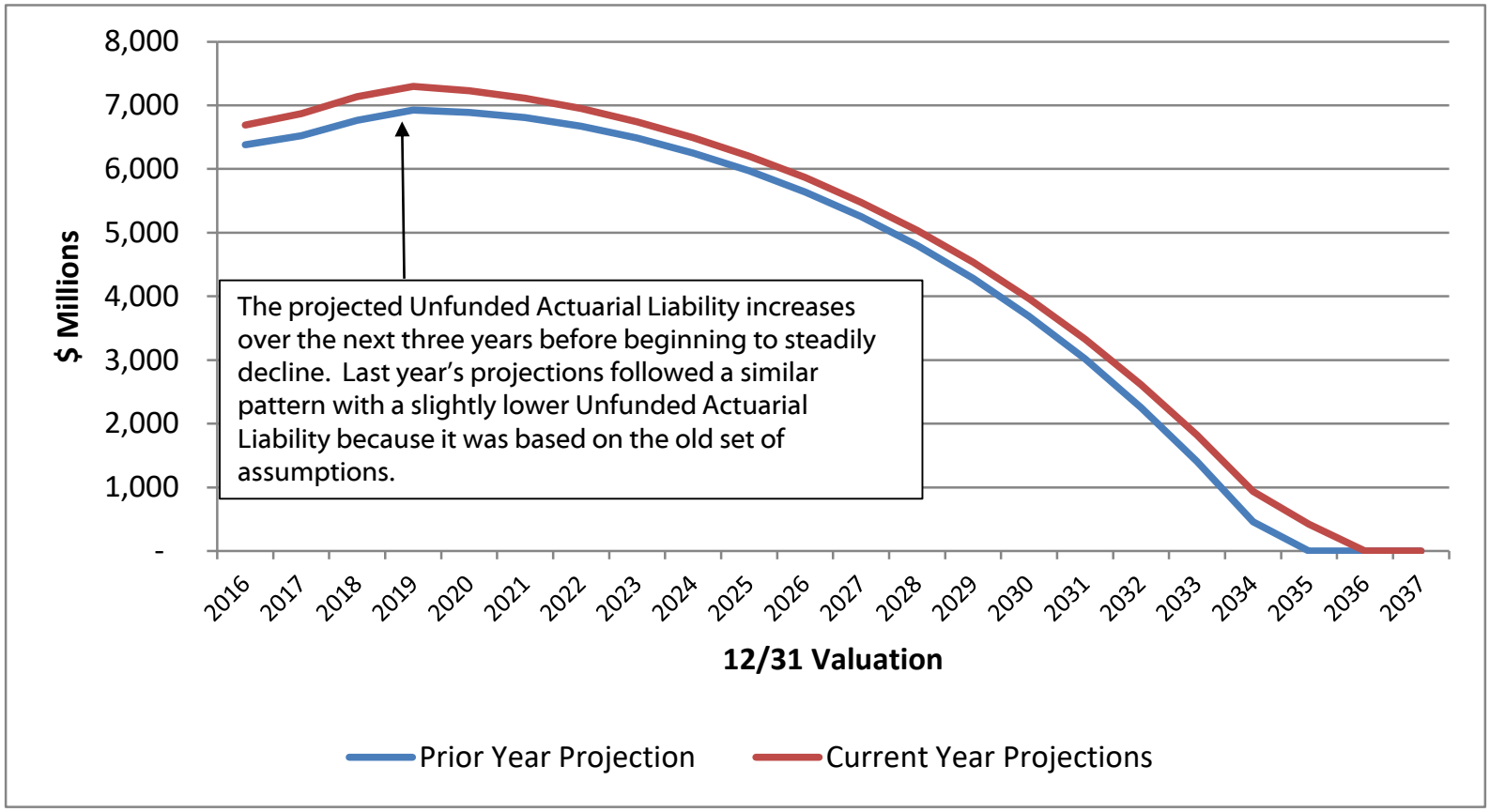
- 12/31/16 Valuation
  - Funded Ratio: 64.5%
  - Actuarial rate: 14.74%
  - Statutory rate: 14.41%

- Actuarial required contribution date/rate (actuarial and statutory contribution rates are equal)
  - Date: FY 2021 at rate of 14.99%
  - Projected Date and Rate, based on prior valuation, was 13.12% in FY 2020
  - State/School statutory rate has exceeded the State-only actuarial rate since the December 31, 2010 valuation (setting the FY 2014 contribution rate), except for the Legislature's reset of the FY 2016 statutory rate
  - Reductions of $64 million in FY 2017 and $194 million in FY 2019 in State/School contributions are assumed to be repaid over 20 years starting in FY 2018 and FY 2020 respectively.

2016 Valuation

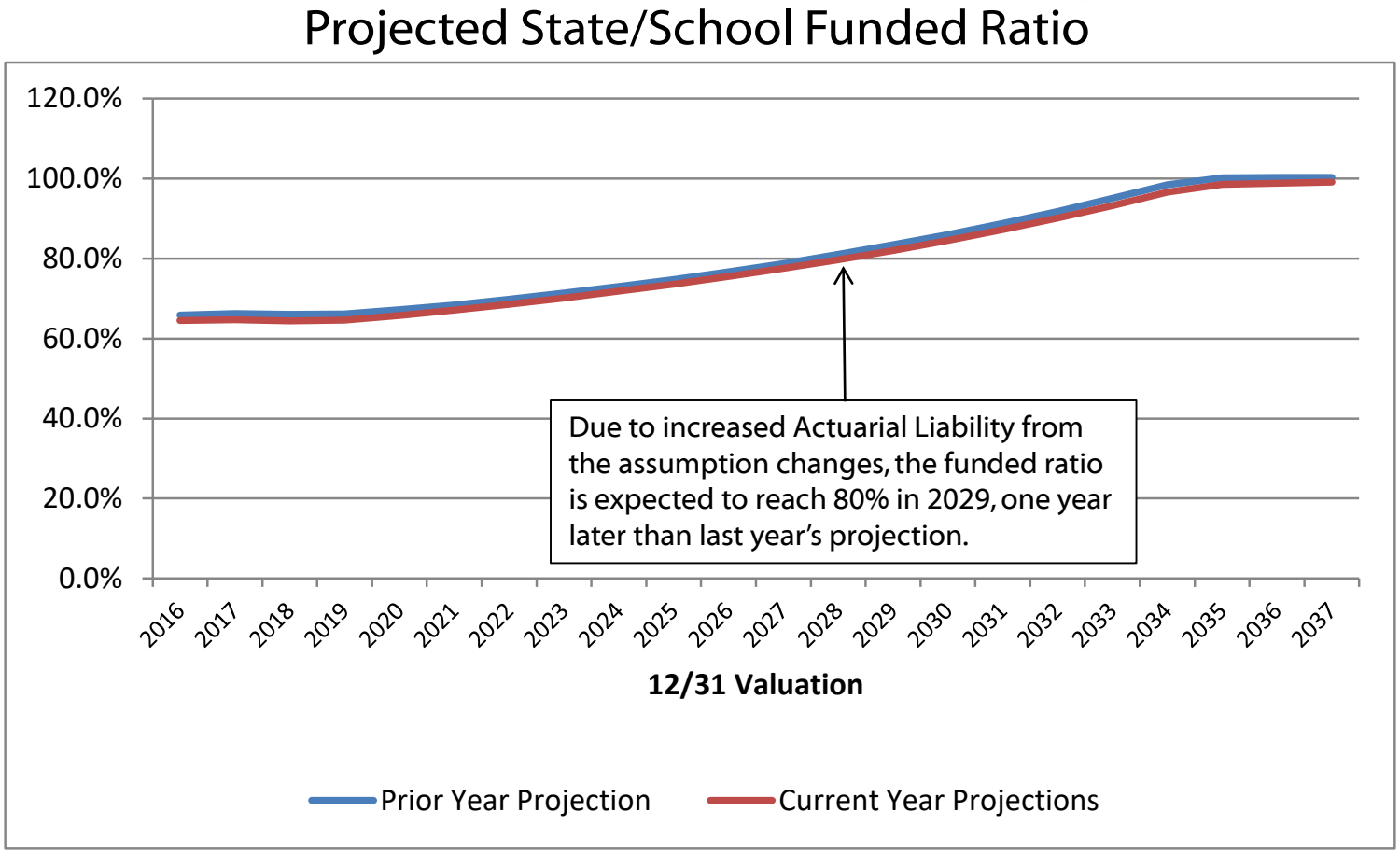
Long-term actuarial funding progress

Projected State/School Unfunded Actuarial Liability (UAL)



2016 Valuation

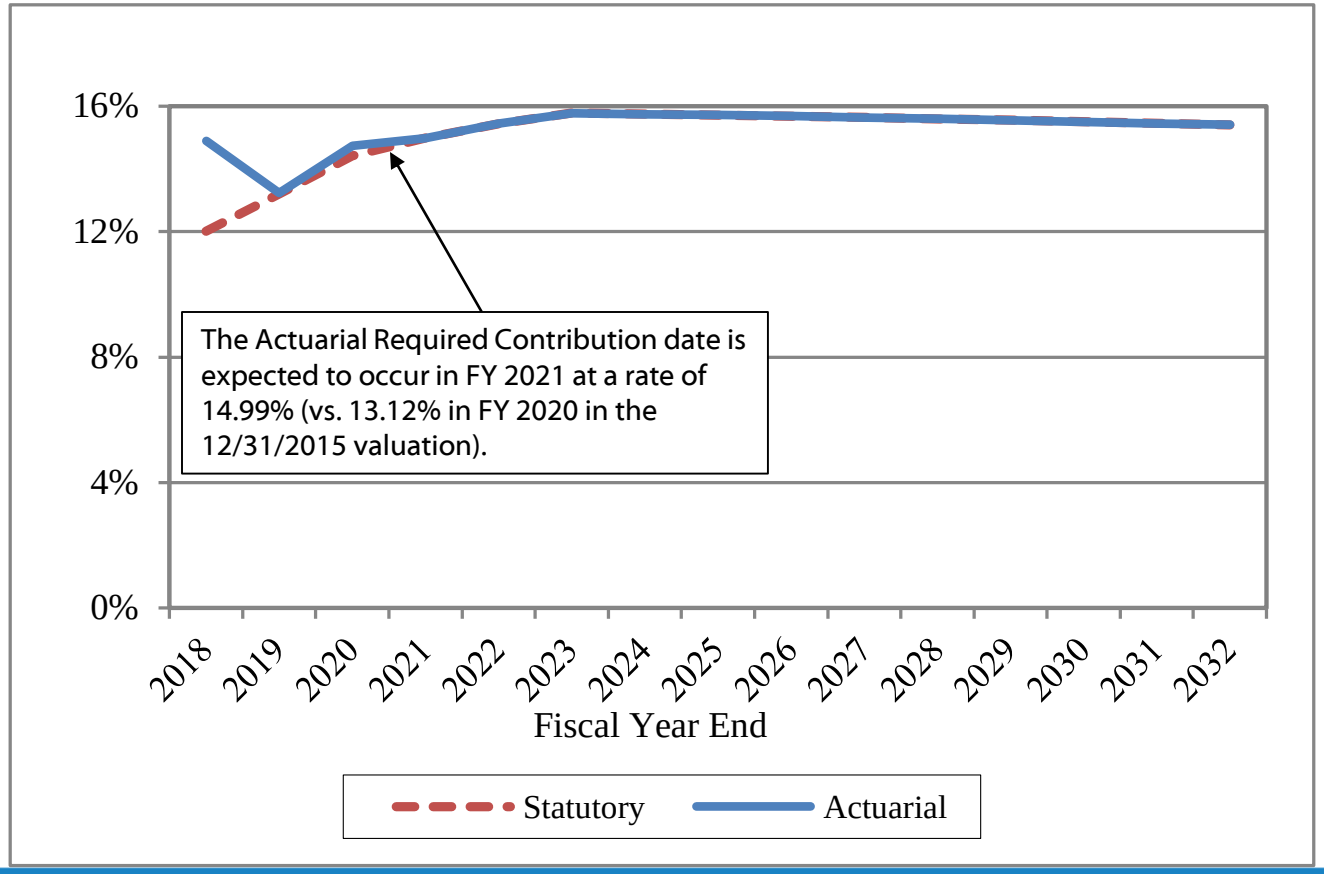
Long-term actuarial funding progress



2016 Valuation

Long-term actuarial funding progress

Projected State/School Employer Contribution Rates



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Funding Projections

Short term projections (Total system)

Return in 2017*

Valuation Date (12/31)	7.75% Unfunded Actuarial Liability	7.75% Funded Ratio	0% Unfunded Actuarial Liability	0% Funded Ratio	-7.75% Unfunded Actuarial Liability	-7.75% Funded Ratio
2017	$9,284M	67%	$9,554M	66%	$9,824M	65%
2018	9,665M	67%	10,309M	65%	10,953M	63%
2019	9,900M	67%	10,927M	64%	11,954M	60%
2020	9,807M	68%	11,209M	64%	12,611	59%

*Assumes a 7.75% return in all years after 2017 so current deferred investment experience is reflected in future years. Also assumes reduced contributions for FY 2017 and FY 2019 are repaid as scheduled.

Status of KPERS

Benefits will be here

- KPERS benefits are structured to be prefunded during each member's career.
- KPERS receives about $1 billion in contributions each year from employees and employers.
- KPERS had over $1 billion in investment income in FY 2017.
- KPERS pays about $1 billion in monthly benefits each year.

Status of KPERS

Benefits will be here

- The fiduciary standard is our guiding principle and driving force.
- As a fiduciary, KPERS serves members by:
  - Holding assets in trust;
  - Growing those assets through investments; and
  - Delivering promised benefits when the time comes.
- Funds can never be removed from a trust fund like KPERS for any reason other than to fund the benefits of members and pay expenses of the System.
- With over $19 billion in assets today and a well diversified investment portfolio, KPERS is able to pay promised benefits for many years.
- However, long-term funding is very important, and KPERS strives to provide the Legislature the funding needs of the System.