KPERS' 2017 Actuarial Valuation

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

Joint Committee on Pensions, Investments, and Benefits

KPERS

October 29, 2018

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

KPERS Update & Funding Status

- KPERS overview
- Funding status
  - Valuation purpose
  - Key factors affection valuation:
    - 2018 appropriations legislation
    - Experience study
  - Valuation results
  - Projections

KPERS

KPERS Overview

Board of Trustees

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 Manager Adjunct Associate Professor, 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
James Zakoura, Overland Park Partner, Smithyman & Zakoura law firm Appointed by the Governor	

Actuarial Valuation

Discussion topics

- Purpose of valuation
- Key factors affecting 2017 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 2021 for State/School Group
  - CY 2020 for Local Group
- Baseline for any cost studies in 2019 legislative session

Key factors

2018 Appropriations Legislation

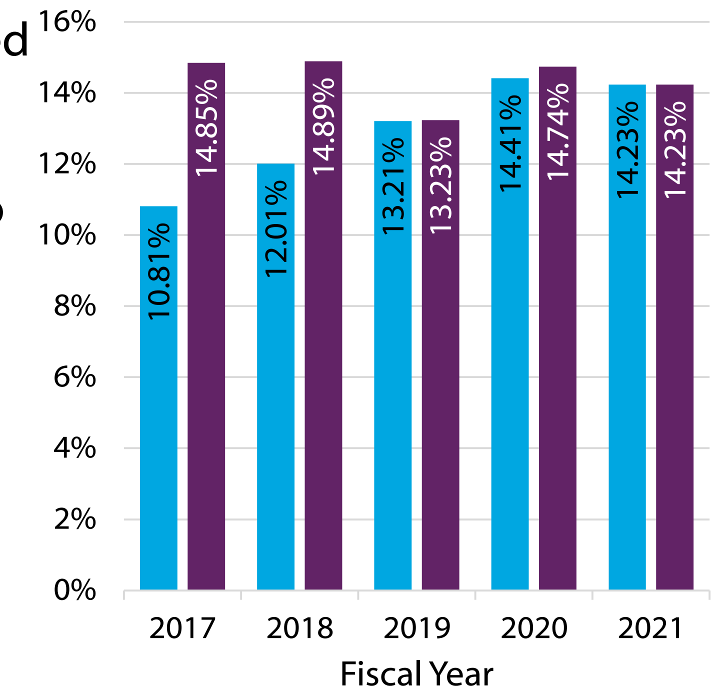
- The appropriations bills passed by the 2018 Legislature (H Sub for SB 109) provided for additional funding to the KPERS School Group
  - An additional payment of $82 million in July 2018 (received by KPERS).
  - A contingent additional payment of up to $56 million in FY 2018 if actual FY 2018 receipts exceed the April 2018 consensus revenue estimates (full $56 million payment received by KPERS.
  - A contingent additional payment of up to $56 million in FY 2019 if actual FY 2019 receipts exceed the April 2019 consensus revenue estimates.
- As a result of these additional contributions, the actuarial contribution rate for FY 2021 is lower by 0.36% for the State/School group.

Contributions

KPERS State/School Employer Contribution Rates

- The statutory State/School employer contribution rate for FY 2019 is 13.21%, but $194 million of that contribution will be delayed and paid over 20 years.
- The employer contribution rate is scheduled to increase to 14.41% for FY 2020.
- The 12/31/2017 valuation sets the employer contribution rates for FY 2021 for State/School employers.
- The State/School statutory employer contribution is scheduled to be equal to the actuarial required rate for the first time in 24 years.

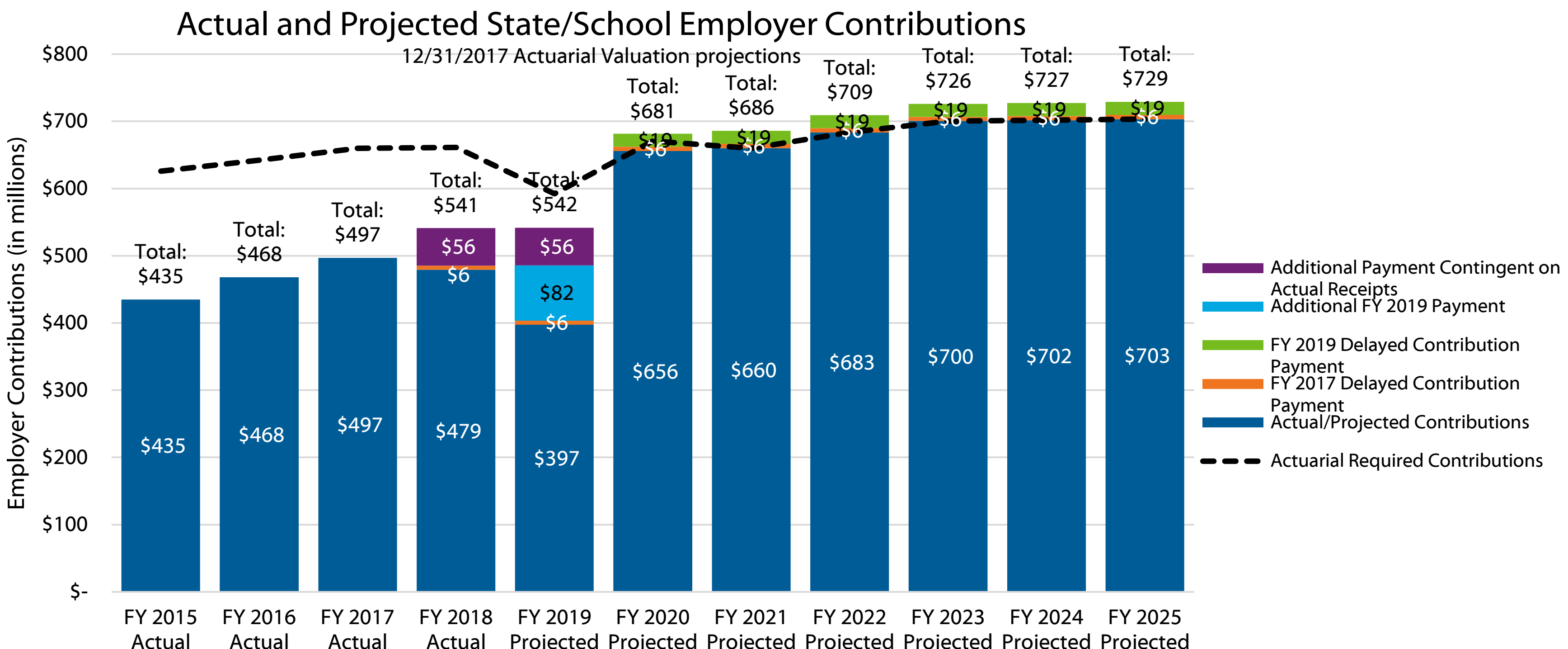
KPERS State/School Employer Contribution Rates*



*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.

Contributions

State/School Contributions

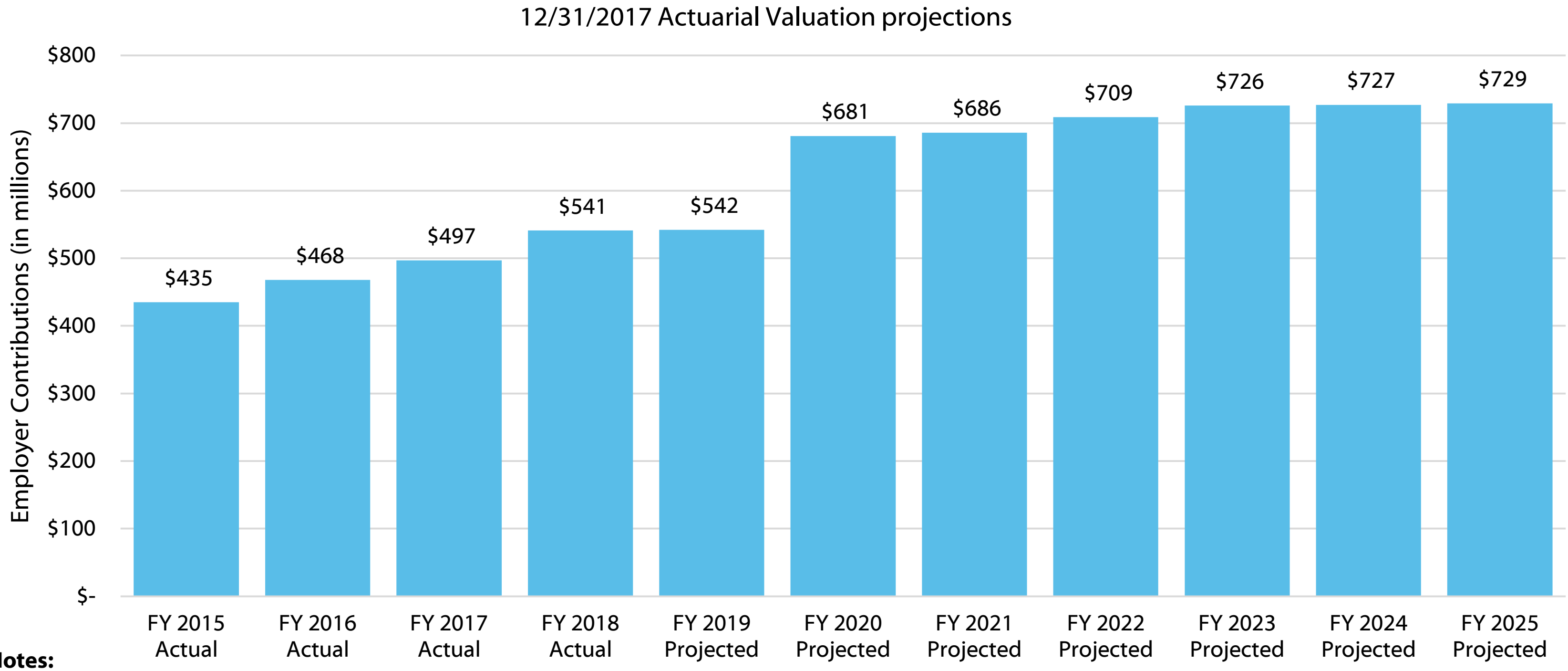


Notes:

1. The actuarial required contribution for FY 2019 totals $592 million and for FY 2020 totals $671 million. For years FY 2021 - FY 2025, the actuarial required contributions are equal to the statutory contributions (dark blue bars).
2. The first contingent payment (purple bars) was recevied in full on 6/30/2018. The second contingent payment of up to $56 million will be made if actual receipts in FY 2019 exceed the April 2019 consensus revenue estimates. **This funding projection assumes both $56 million payments are made in full**.
3. The delayed payments of $64 million in FY 2017 and $194 million in FY 2019 are scheduled to be paid over 20 years on a level dollar amortization.

Contributions

Total State Contribution Effort



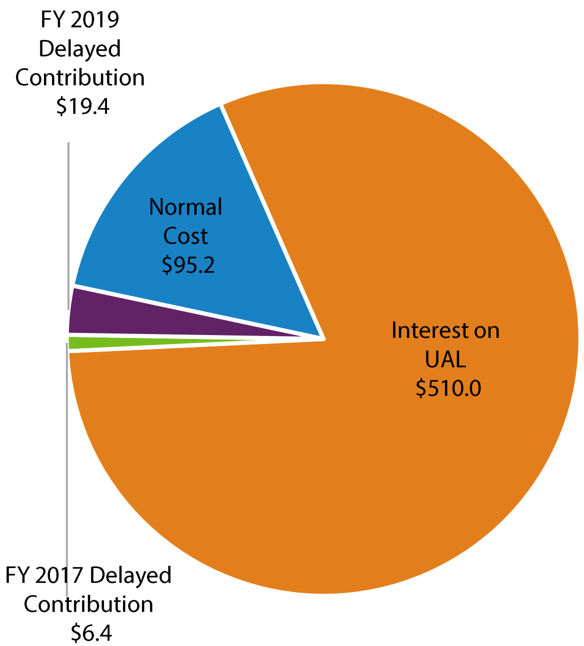
Notes:

1. The first contingent payment was received in full on 6/30/2018. The second contingent payment of up to $56 million will be made if actual receipts in FY 2019 exceed the April 2019 consensus revenue estimates. **This funding projection assumes both $56 million payments are made in full**.
2. The delayed payments of $64 million in FY 2017 and $194 million in FY 2019 are scheduled to be paid over 20 years on a level dollar amortization.
3. The State/School Employer contribution rate is scheduled to equal the actuarial required contribution rate starting in FY 2021.

Contributions

"Steady State" analysis

FY 2020 "Steady State" Contribution
(in Millions)



Total State/School employer contributions needed to maintain "steady state"
$631.0 million

Payment of layer on FY 2019 deferred School contribution

$19.4 million

Payment of layer on FY 2017 deferred School contribution

$6.4 million

12/31/2017 State/School unfunded actuarial liability	X	KPERS Investment Return Assumption	=	Interest on 12/31/2017 State/School unfunded actuarial liability
$6.581 billion	X	7.75%	=	**$510.0 million**

Actuarial payroll projection for FY 2020	X	Employer Normal Cost Rate	=	FY 2020 normal cost
$4.646 billion	X	2.05%	=	**$95.2 million**

Valuation Results

Key System Statistics

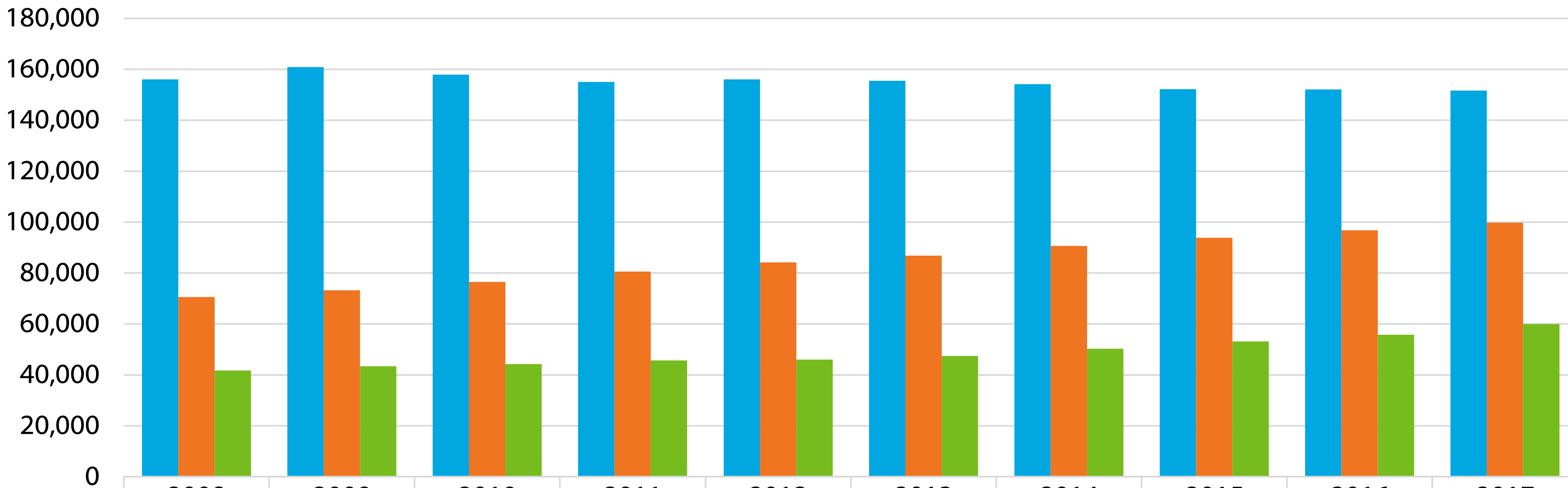
Valuations provide a snapshot of key system statistics and comparisons with historical data to identify trends

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

KPERS

System Statistics

Total system membership

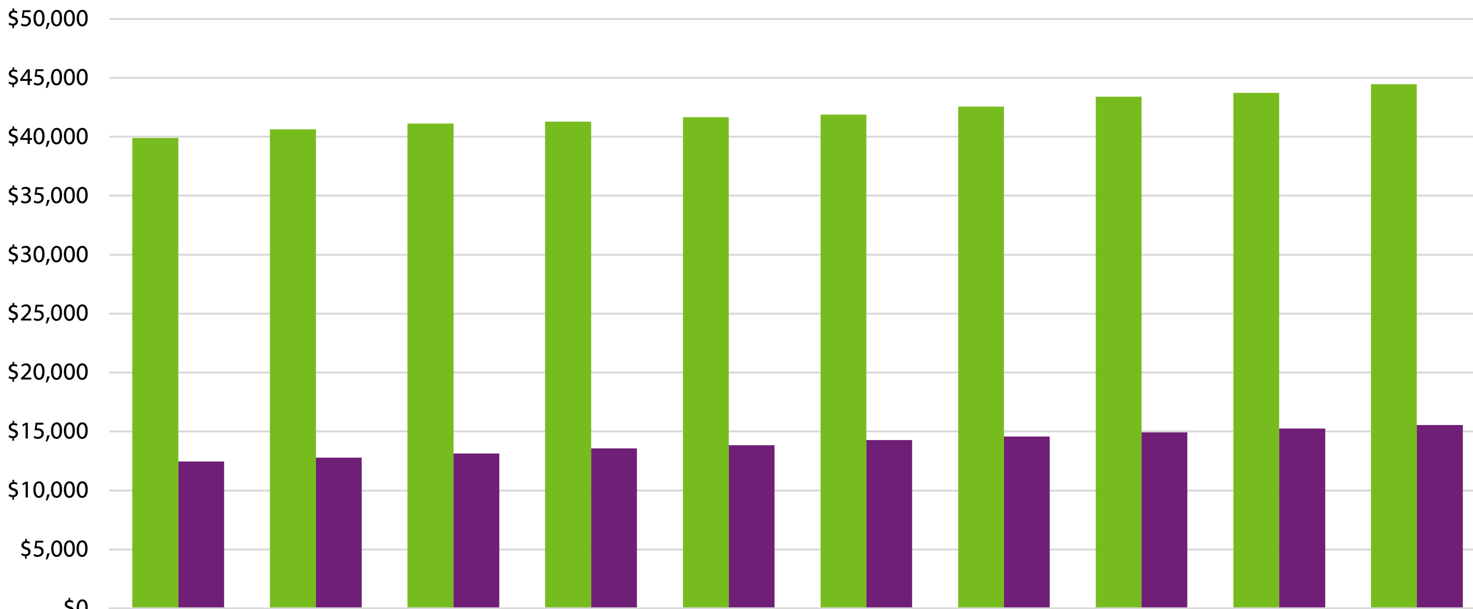


	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Active	156,073	160,831	157,919	155,054	156,053	155,446	154,203	152,175	152,119	151,687
Retired	70,567	73,164	76,498	80,527	84,142	86,843	90,693	93,866	96,774	99,807
Inactive	41,749	43,324	44,231	45,678	45,969	47,484	50,255	53,159	55,755	59,966

-0.3% average annual change in active count since 2008 (-0.3 decrease for 2017).
3.9% average annual increase in retiree count since 2008 (3.1% increase for 2017).

System Statistics

Average salary and benefits (total system)

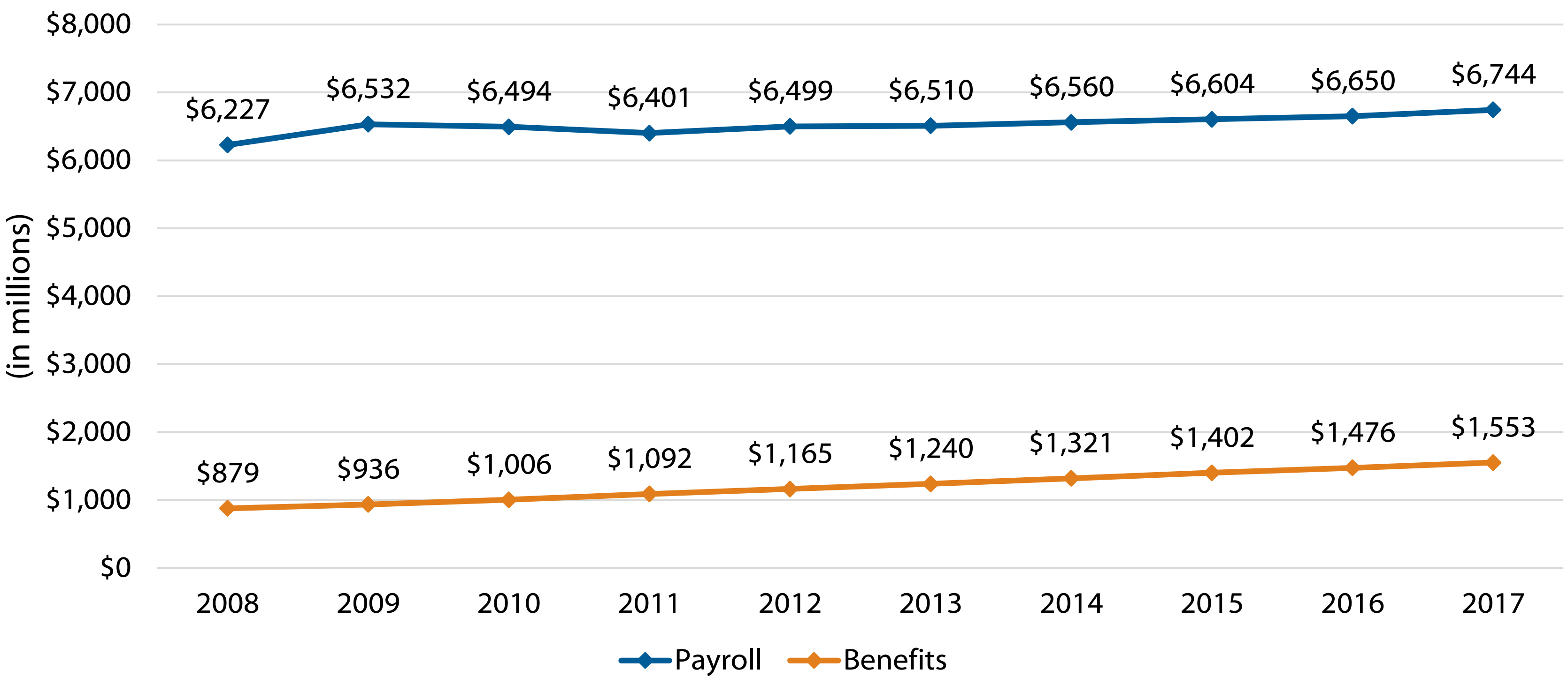


	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Average Annual Salary	$39,895	$40,617	$41,123	$41,285	$41,646	$41,878	$42,542	$43,395	$43,719	$44,462
Average Annual Benefit	$12,460	$12,792	$13,148	$13,560	$13,840	$14,280	$14,564	$14,933	$15,257	$15,555

1.2% annual increase in average salary since 2007. 1.7% increase for 2017.
2.5% annual increase in average benefits since 2001. 2.0% increase for 2017.

System Statistics

Total payroll and benefits (total system)



2017 Valuation

KPERS Funding Status

- As a system, KPERS' funded ratio remained improved and the unfunded actuarial liability decreased in the most recent valuation.

	12/31/2017	12/31/2016
Funded Ratio	68.4%	66.8%
Unfunded Actuarial Liability	$8.91 billion	$9.06 billion

- Actuarially required contribution (ARC) rates <u>decreased</u> for KPERS State/School employers, from 14.74% in FY 2020 to 14.23% in FY 2021.
- The statutory employer contribution for the State/School group is 13.21% in FY 2019 and 14.41% in FY 2020
- The State/School group statutory employer contribution is equal to the ARC rate in this valuation (rates take effect in FY 2021).

Actuarial Value of Assets

- Development of the UAL
- Market vs. smoothed value
- Impact of deferred experience
- Historical Asset Growth

KPERS

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

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 (7.75%) compared to expected return evenly over 5 years.

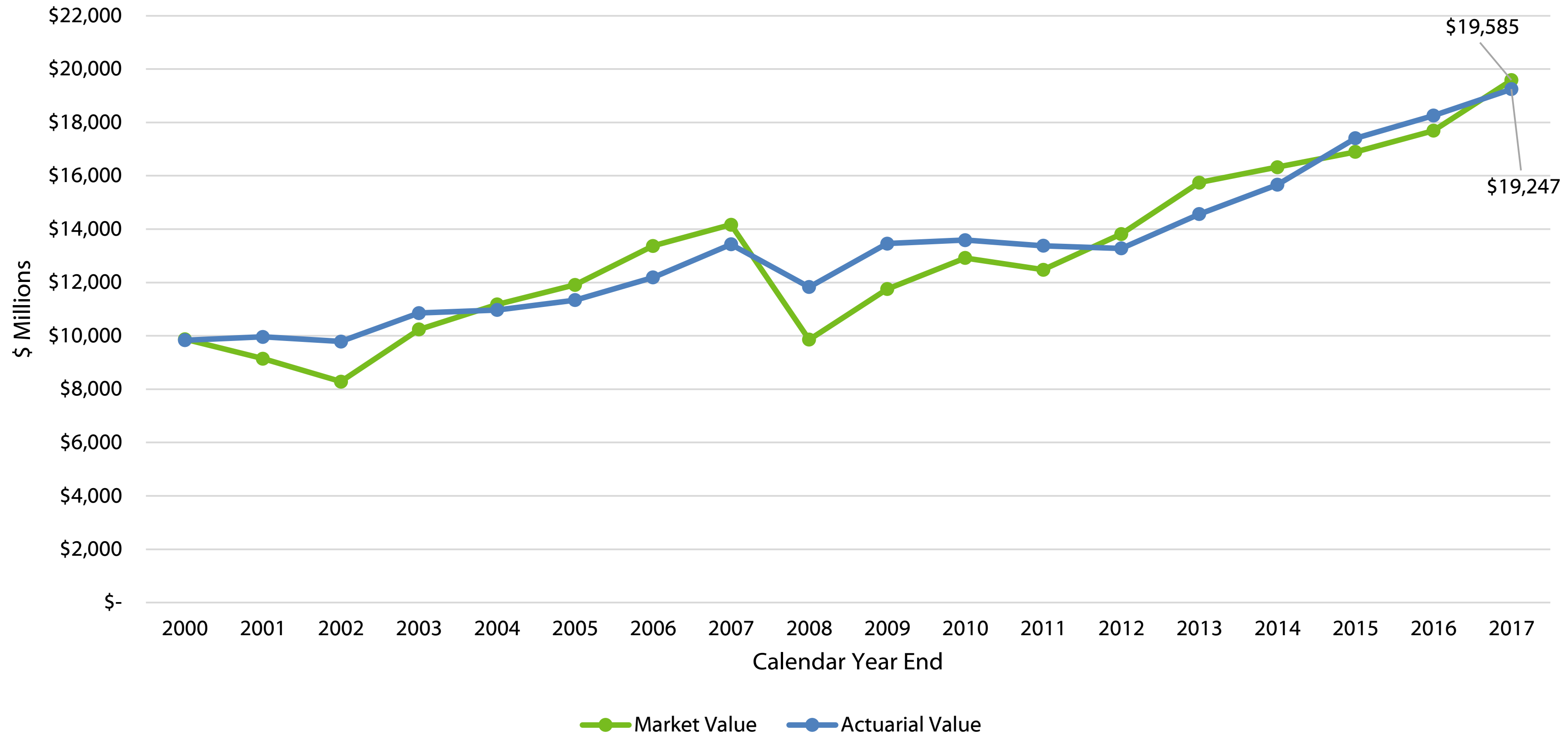
Actuarial Asset Value

Impact of deferred experience

- Investment return on market value basis in CY 2017 (net) was 14.0%.
- Due to asset smoothing method, return on actuarial assets was 8.4%.
- Deferred experience yet to be recognized:
  - Net deferred gains of $338 million this year vs. $566 million net deferred loss in last year's valuation.
  - Will flow through smoothing method over the next 4 years.
  - Expected to improve the unfunded actuarial liability and funded ratio, depending on experience in future years.

2017 Valuation

Historical Asset Growth



Unfunded Actuarial Liability (UAL)

- Development of the UAL
- Factors affecting the UAL
- Funding the UAL

KPERS

Key Valuation Results

Unfunded actuarial liability

- Unfunded actuarial liability = actuarial liability less actuarial assets
- Unfunded Actuarial Liability decreased by $154 million to $8.907 billion

Valuation Results

Development of 12/31/2017 unfunded actuarial liability

	Actuarial Liability (in millions)	Actuarial Assets (in millions)	Unfunded Actuarial Liability (in millions)	Funded Ratio
State	$ 4,457	$ 3,588	$ 869	80.5%
School	14,891	9,178	5,712	61.6%
State/School*	$ 19,347	$ 12,767	$ 6,581	66.0%
Local	$ 5,300	$ 3,841	$ 1,458	72.5%
KP&F	3,320	2,460	860	74.1%
Judges	186	179	8	93.9%
Total*	$ 28,154	$ 19,247	$ 8,907	68.4%

*Amounts may not add due to rounding

Valuation Results

Factors affecting the unfunded actuarial liability

- In 2017, the unfunded actuarial liability was impacted by:
  - experience gains/losses (e.g., investment return and demographic changes like slower payroll growth)
  - amortization method (set in 1993 as a level percent of pay, added layering of annual changes in 2016)

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

Valuation Results

Factors affecting System's unfunded actuarial liability

System Unfunded Actuarial Liability: 12/31/2016	**$ 9,061**
Contribution cap/time lag*	149M
Amortization method	(136)M
Experience	
– Investment	(117)M
– Demographics (i.e. fewer retirements than expected, lower wage growth)	(50)M
System Unfunded Actuarial Liability: 12/31/ 2017	**$8,907M**

Note: Amounts may not add due to rounding

*Time lag is the period from the valuation date (12/31/2017) to the date the new contribution rate takes effect – (e.g., 7/1/2020 for State and School Groups, 1/1/2020 for Local Group)

Valuation Results

Factors impacting change in unfunded actuarial liability

	State	School	Local	KPF	Judges	Total
12/31/16 unfunded actuarial liability	**$921.7**	**$5,768.3**	**$1,514.7**	**$845.5**	**$11.1**	**$9,061.4**
• Contribution cap/lag	(9.4)	138.7	6.0	13.7	(0.3)	148.7
• Amortization method	(13.8)	(86.1)	(22.6)	(12.6)	(0.4)	(135.5)
• Investment experience	(24.7)	(54.0)	(24.9)	(13.1)	(0.8)	(117.5)
• Demographic experience	(7.4)	(57.7)	(9.6)	30.5	(1.7)	(45.8)
• All other experience	2.4	3.3	(5.3)	(4.1)	(0.2)	(4.0)
12/31/17 unfunded actuarial liability	**$868.8**	**$5,712.5**	**$1,458.3**	**$859.9**	**$7.7**	**$8,907.2**

Note: Dollars in millions

Valuation Results

Changes to funded ratio and unfunded actuarial liability

	December 31		December 31	
	2016	2017	2016	2017
State	79.0%	80.5%	$922M	$869M
School	60.2%	61.6%	$5,768M	$5,712M
State/School	64.5%	66.0%	$6,690M	$6,581M
Local	70.3%	72.5%	$1,515M	$1,458M
KP&F	73.4%	74.1%	$846M	$860M
Judges	93.9%	95.9%	$11M	$8M
Total	**66.8%**	**68.4%**	**$9,061**	**$8,907**

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 last 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.

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.

Employer Contribution Rates

- Statutory and actuarial contribution rates
- Components of State/School employer contribution rate

KPERS

Key Valuation Results

Statutory and actuarial required contribution rates

- Rates effective for years beginning in 2020 (FY 2021 for State/School; CY 2020 for Local).
- Employer contribution rates for State and Local continue to be at the full actuarial rate.
  - State actuarial rate went from 9.49% to 9.22%
  - Local actuarial rate went from 8.89% to 8.61%
- School only actuarial rate totals 15.59%, higher than the statutory rate of 14.23% for FY 2020.
- State/School combined statutory rate in FY 2021 is equal to the actuarial required contribution rate 14.23%, for the first time in 24 years.

KPERS

Valuation Results

Actuarial vs. statutory employer contribution rates

	December 31, 2017*		
	Actuarial	Statutory	Shortfall
State	9.22%	14.23%	(5.01%)**
School	15.59%	14.23%	1.36%
State/School	14.23%	14.23%	0.00%
Local	8.61%	86.1%	0.00%
KP&F	21.93%	21.93%	0.00%
Judges	17.26%	17.26%	0.00%

* Rates apply in fiscal years **beginning** in 2020 (FY 2021 for State/School; CY 2020 for Local).
** As provided in statute, contributions above the State actuarial required contribution rate will be used to fund the School Group.

Valuation Results

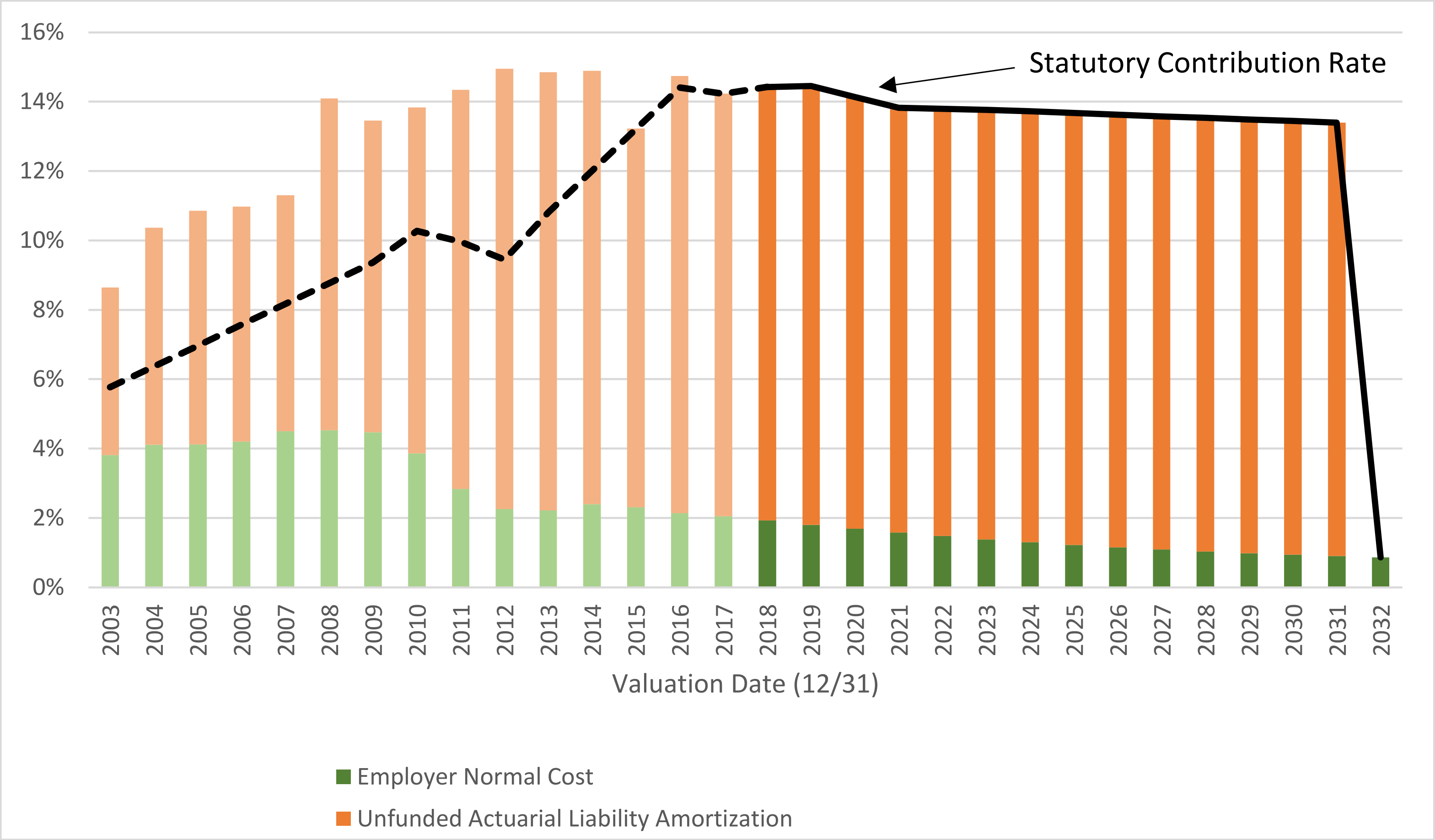
Employer contribution rate comparisons

System	Actuarial Rate	Statutory Rate	Percent of ARC Contributed
State*	9.22%	14.23%	154%
School	15.59%	14.23%	91%
State/School	14.23%	14.23%	100%
Local	8.61%	8.61%	100%
KP&F	21.93%	21.93%	100%
Judges	17.26%	17.26%	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

- State/School Funding
- Unfunded Actuarial Liability
- Funded Ratio
- Employer Contribution Rate

KPERS

KPERS

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 2018 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

Funding Projections

State/School funding

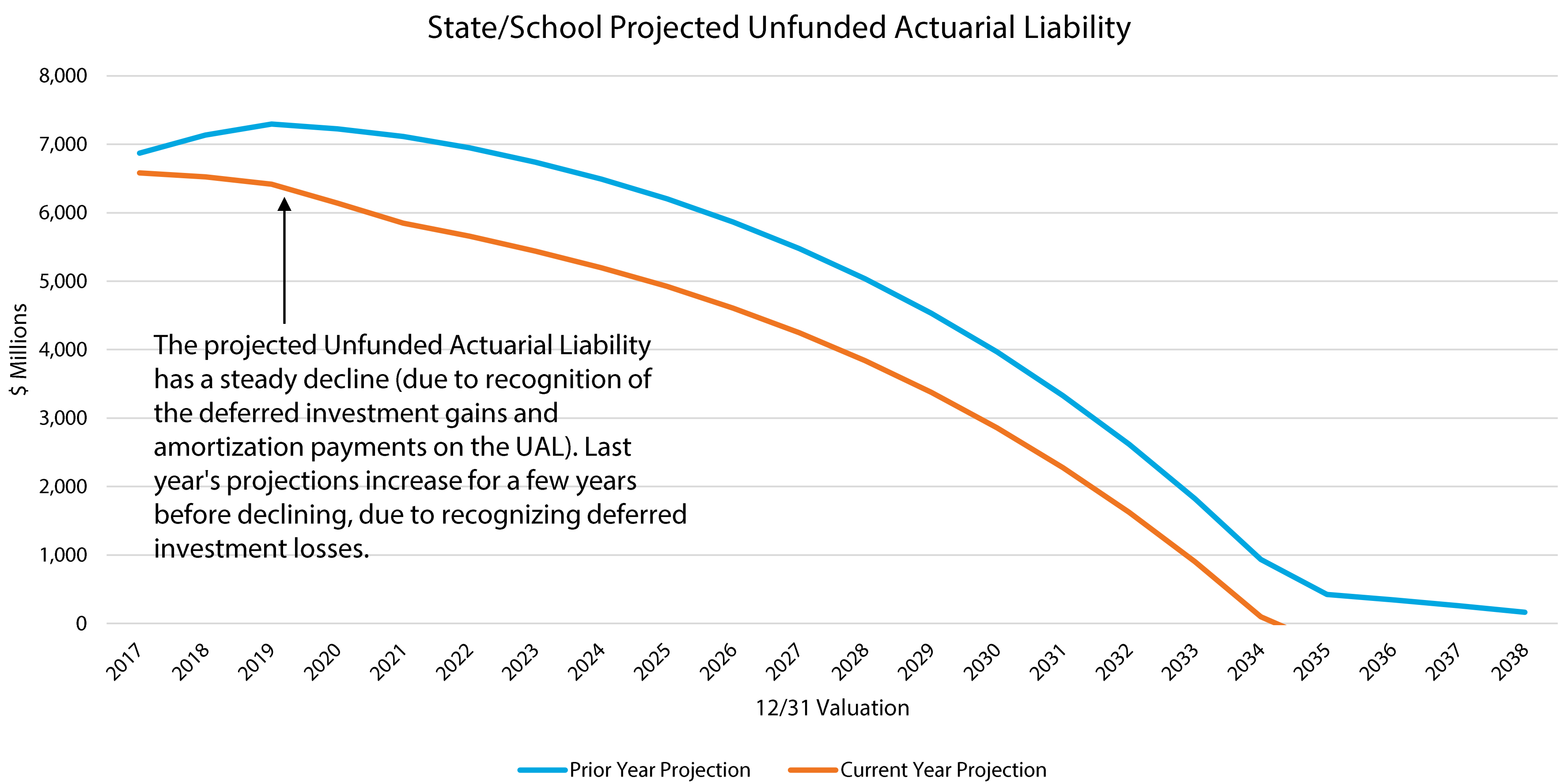
- 12/31/17 Valuation
  - Funded Ratio: 66.0%
  - Actuarial rate: 14.23%
  - Statutory rate: 14.23%

- Actuarial required contribution date/rate (actuarial and statutory contribution rates are equal)
  - Date: FY 2021 at rate of 14.23%
  - Projected Date and Rate, based on prior valuation, was 14.99% in FY 2021
  - 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
  - Delayed contributions 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.
  - Additional contributions under Senate Bill 109 ($56M in FY 2018 and $82 million and $56 million in FY 2019)

KPERS

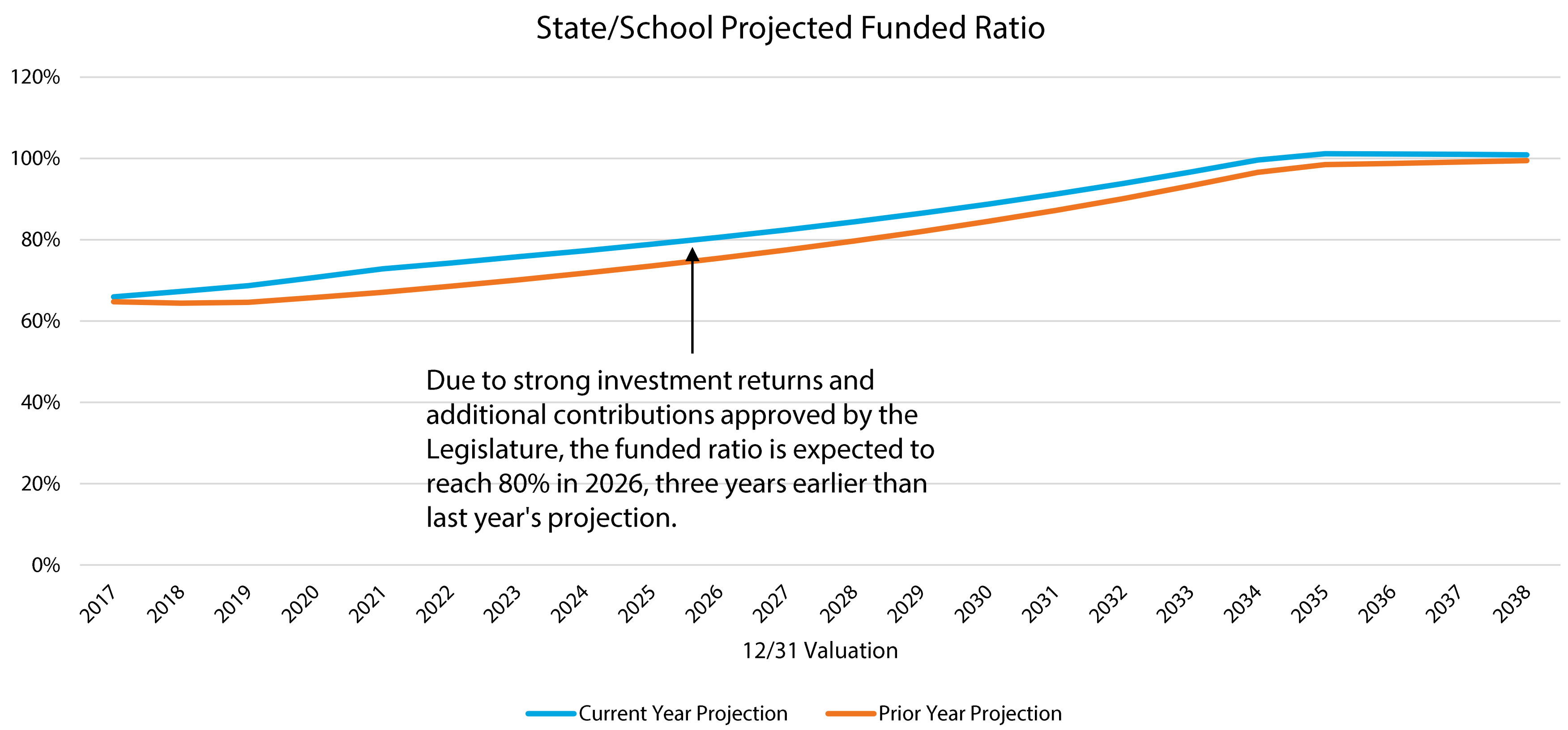
2017 Valuation

Unfunded Actuarial Liability (UAL)



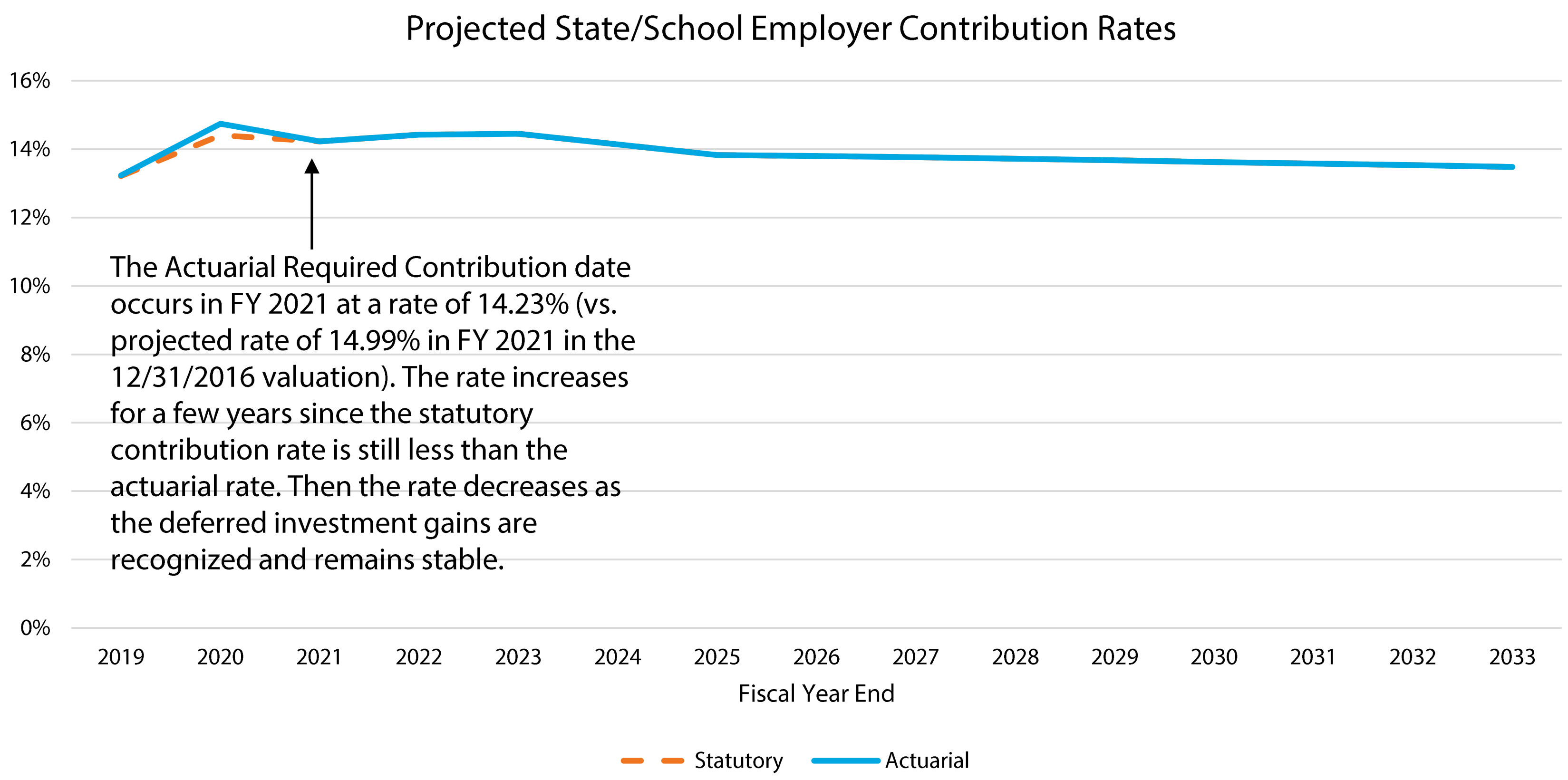
2017 Valuation

Funded Ratio



2017 Valuation

Employer Contribution Rates



Funding Projections

Short term projections (Total system)

Return in 2018*

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
2018	$8,871M	70%	$9,171M	68%	$9,471M	67%
2019	8,737M	71%	9,453M	68%	10,169M	66%
2020	8,346M	73%	9,488M	69%	10,629M	66%
2021	7,921M	75%	9,479M	70%	11,037M	65%

*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 more than $1 billion in contributions each year from employees and employers.
- The market value of the KPERS Trust Fund increased by over $1 billion during FY 2018.
- KPERS pays more than $1 billion in monthly benefits each year.

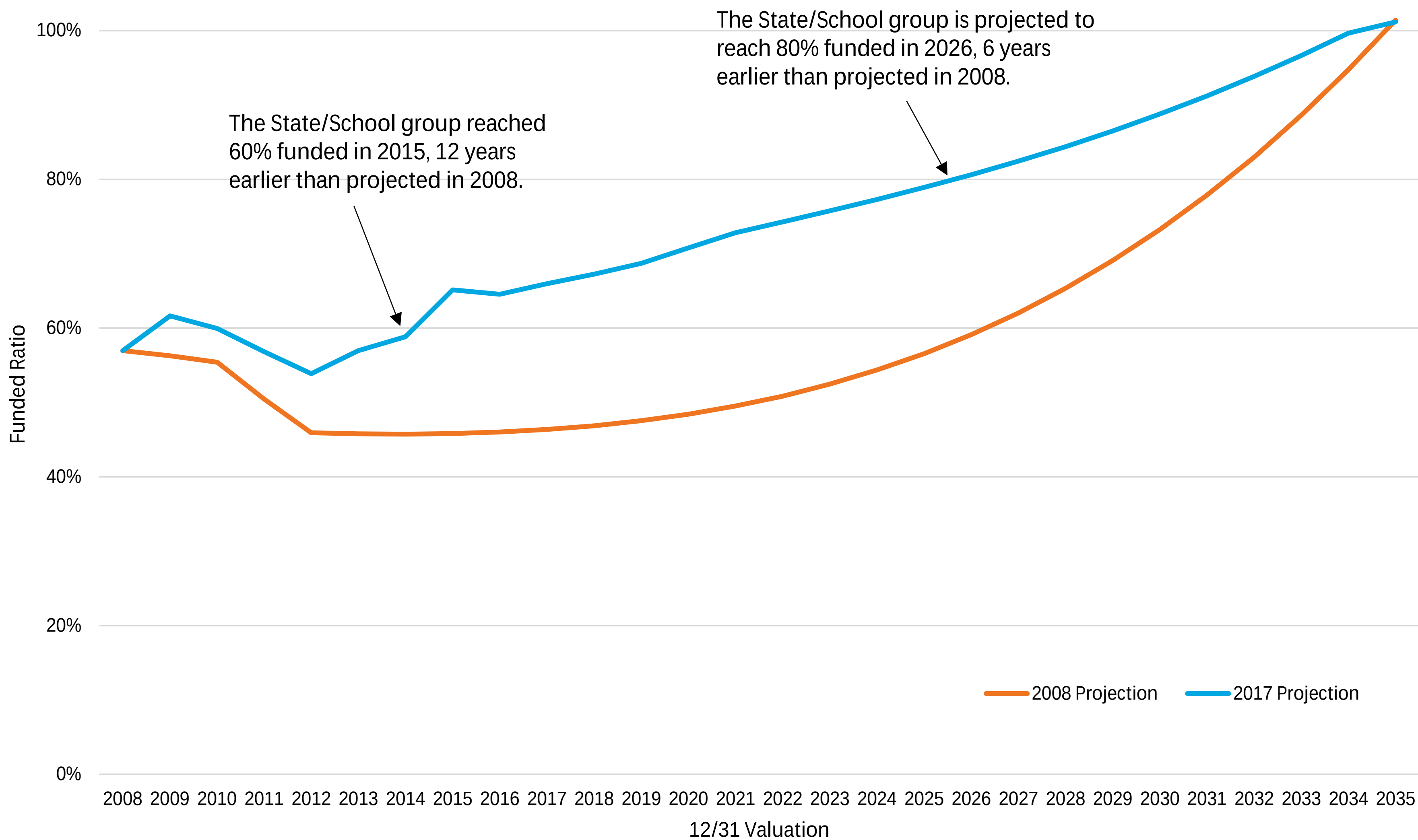
Status of KPERS

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 <u>can never be removed</u> from a trust fund like KPERS for any reason other than to fund the benefits of members and pay expenses of the System.
- With nearly $20 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 making the full employer contribution is key to continued improvement.

State/School Funded Ratio Projection Comparison

2008 valuation v. 2017 valuation



Notes:

1. The amortization period is the same for both the 2008 valuation and the 2017 valuation so both projections reach full funding around 2033. Even though the amortization period is the same, the 2017 projections show a much stronger funded position for the System through the end of the amortization period.

October 2018

KPERS