

# KPERS' 2015 Actuarial Valuation



## **Presented by:**

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# Actuarial Valuations

## Purpose

- 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 to periods of service
- Calculate employer contribution rates
  - FY 2019 for State/School Group
  - CY 2018 for Local Group
- Baseline for any cost studies in 2017 legislative session

# Actuarial Valuation

## Discussion topics

- Key factors affecting 2015 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

# Legislative Changes

## 2015 Legislation

- 2015 Senate Bill 228:
  - Authorized issuance of \$1 billion in bonds to be used to reduce the unfunded actuarial liability for the State/School group
  - Reset State/School employer contribution rates for FY 2016 from 12.37% to 10.91% and for FY 2017 from 13.57% to 10.81%
- Impact of SB 228 rate changes reflected in this valuation and the projections
- Bond proceeds are included in this valuation

# Legislative Changes

Employer contribution rate recertification due to SB 228

	Actuarial Rate	Original Statutory Rate	Recertified Per SB 228	Contribution Reduction
<b>FY 2017</b>				
• State	10.77%	13.57%	10.81%	2.76%
• School	16.03%	13.57%	10.81%	2.76%
• C55*	11.45%	13.96%	10.81%	3.15%
• C60*	11.70%	13.70%	10.81%	2.89%

\*C55 = Corrections officers  
C60 = other selected corrections staff

# Legislative Changes

## 2016 Appropriations Legislation

- Senate Bills 161 and 249: Provided for the delay of up to \$100 million in State and School contributions to the Retirement System for Fiscal Year 2016 with full repayment, with interest at 8%, no later than June 30, 2018
- Actual delayed contributions from last quarter of FY 2016 were \$97.4 million
- Valuation results and projections treat the delayed contributions as a long-term receivable on KPERS' books and assume they are repaid as scheduled, with 8% interest.
  - As a result, the delayed contributions did not affect this valuation's results or projections
  - However, contribution rates in future years will be higher than projected if the contributions are not repaid as planned

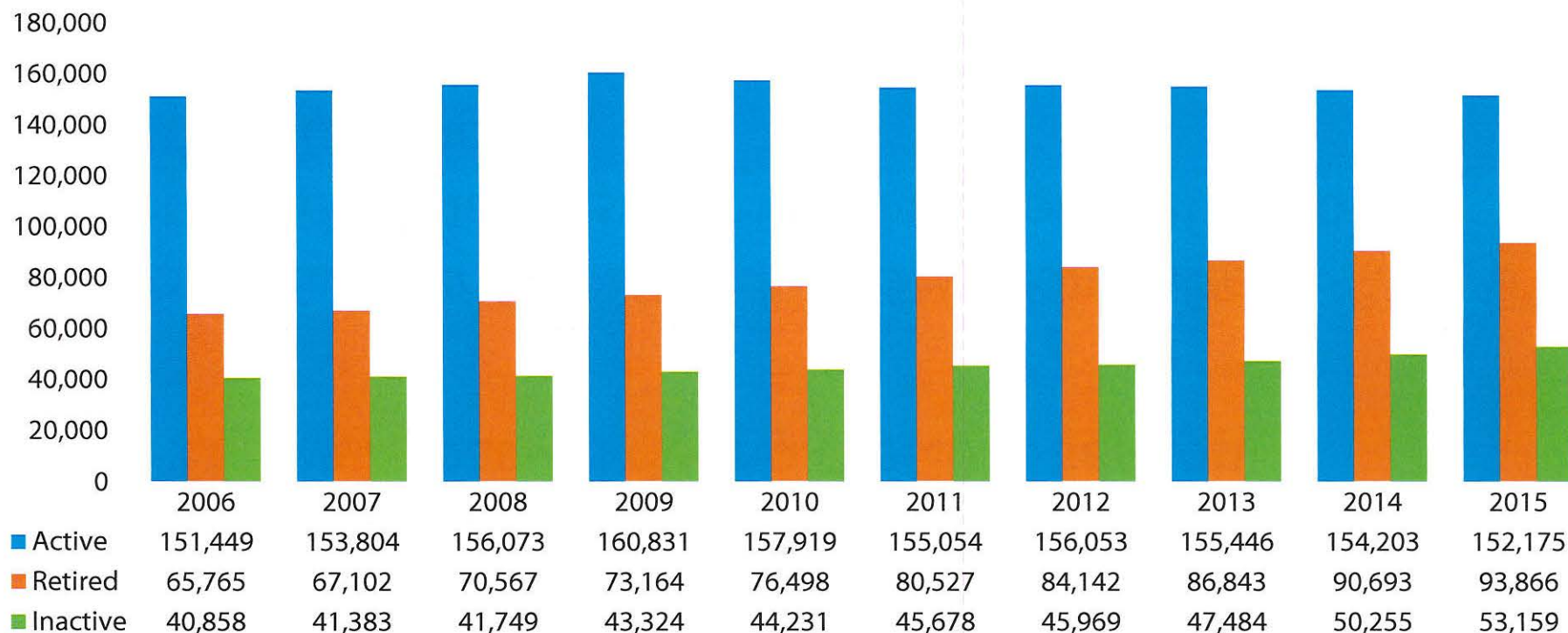
# Legislative Changes

## 2016 KPER Legislation

- No major changes impacting the funded status of KPER were passed during the 2016 session
- House Sub for SB 168 included working after retirement changes that will have some effect on future funding

# System Statistics

## Total system membership



0.05% average annual increase in active count since 2006 – declining for last few years.

3.9% average annual increase in retiree count since 2006 (6.8% increase for 2015).



# System Statistics

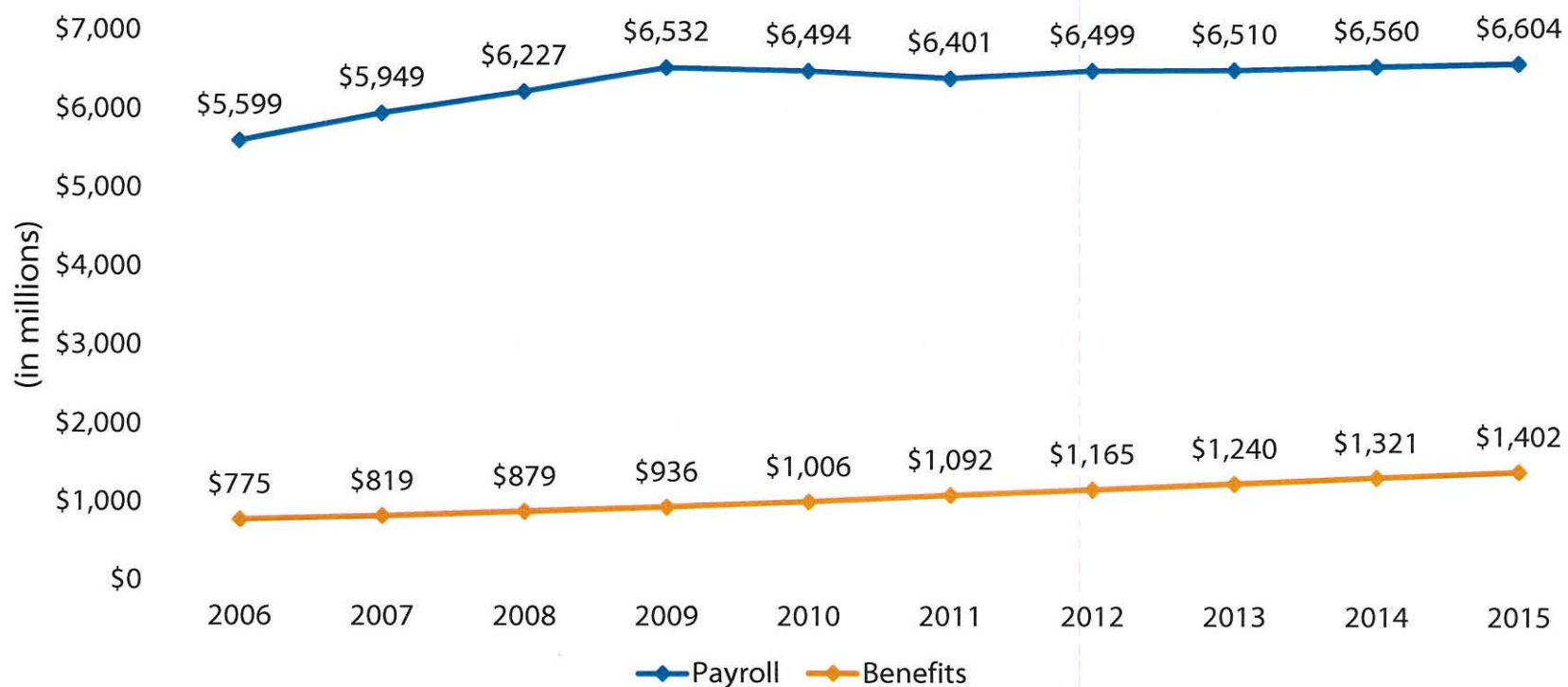
## Average salary and benefits (total system)



1.6% annual increase in average salary since 2006. 2.0% increase for 2015.  
 2.4% annual increase in average benefits since 2001. 2.5% increase for 2015.

# System Statistics

## Total payroll and benefits (total system)



## Key Valuation Results

- Investment return on market value basis in 2015 was 0.2%, but due to asset smoothing method, return on actuarial assets was 7.6%
- Valuation results for State/School group reflect receipt of \$1 billion of bond proceeds received in August, 2015
  - Split \$143.4M to State and \$856.6M to School
  - Increased the State/School funded ratio (65% compared to 59% last year) and decreased the unfunded actuarial liability (\$6.3B compared to \$7.2B last year)
- State/School statutory contribution rate is 13.21%, only 0.02% less than full employer actuarial contribution rate of 13.23%

## 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 (at 8%) evenly over 5 years

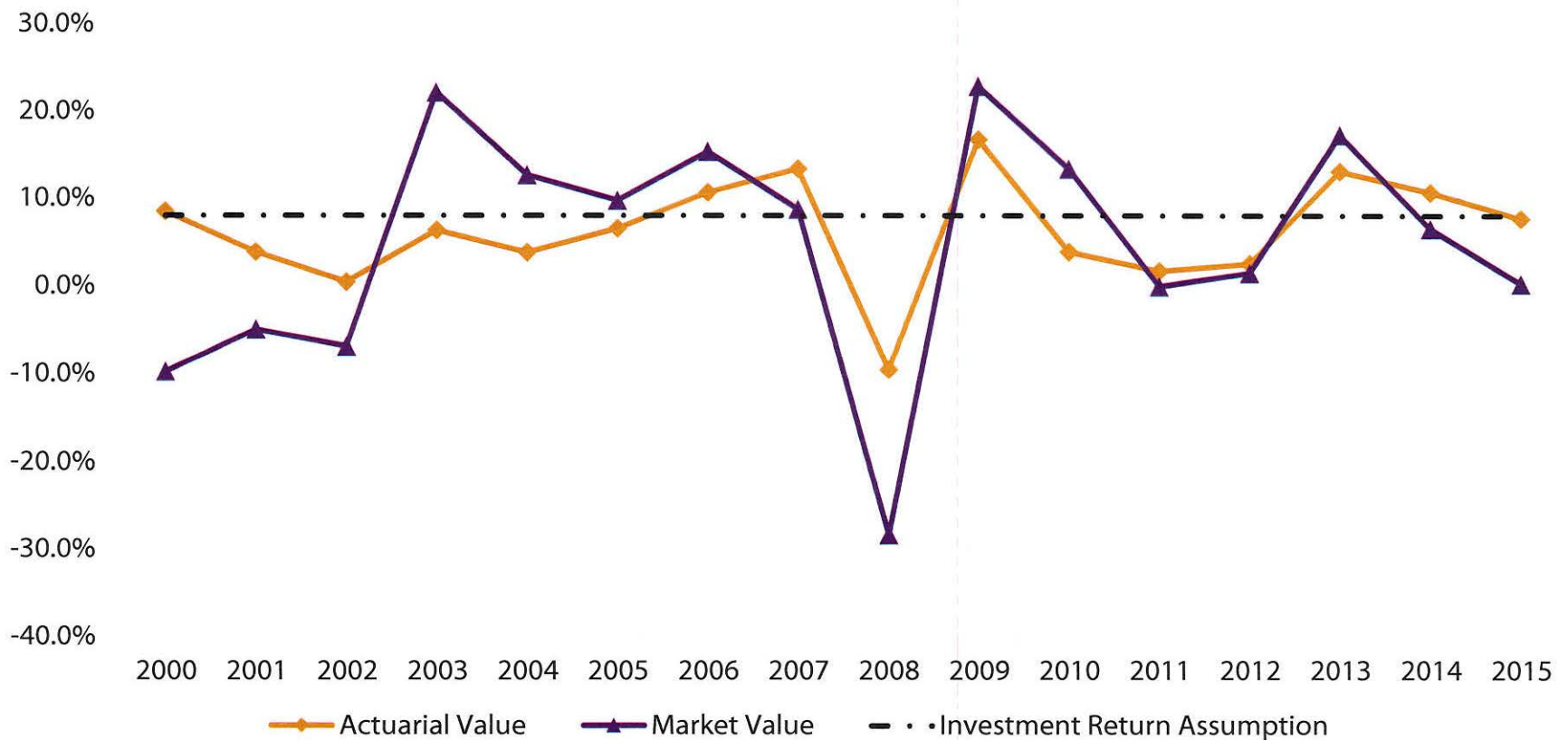
## Actuarial Asset Value

### Impact of deferred experience

- Deferred experience yet to be recognized
  - Net deferred loss of \$515 million this year vs. \$660 million net deferred gain 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

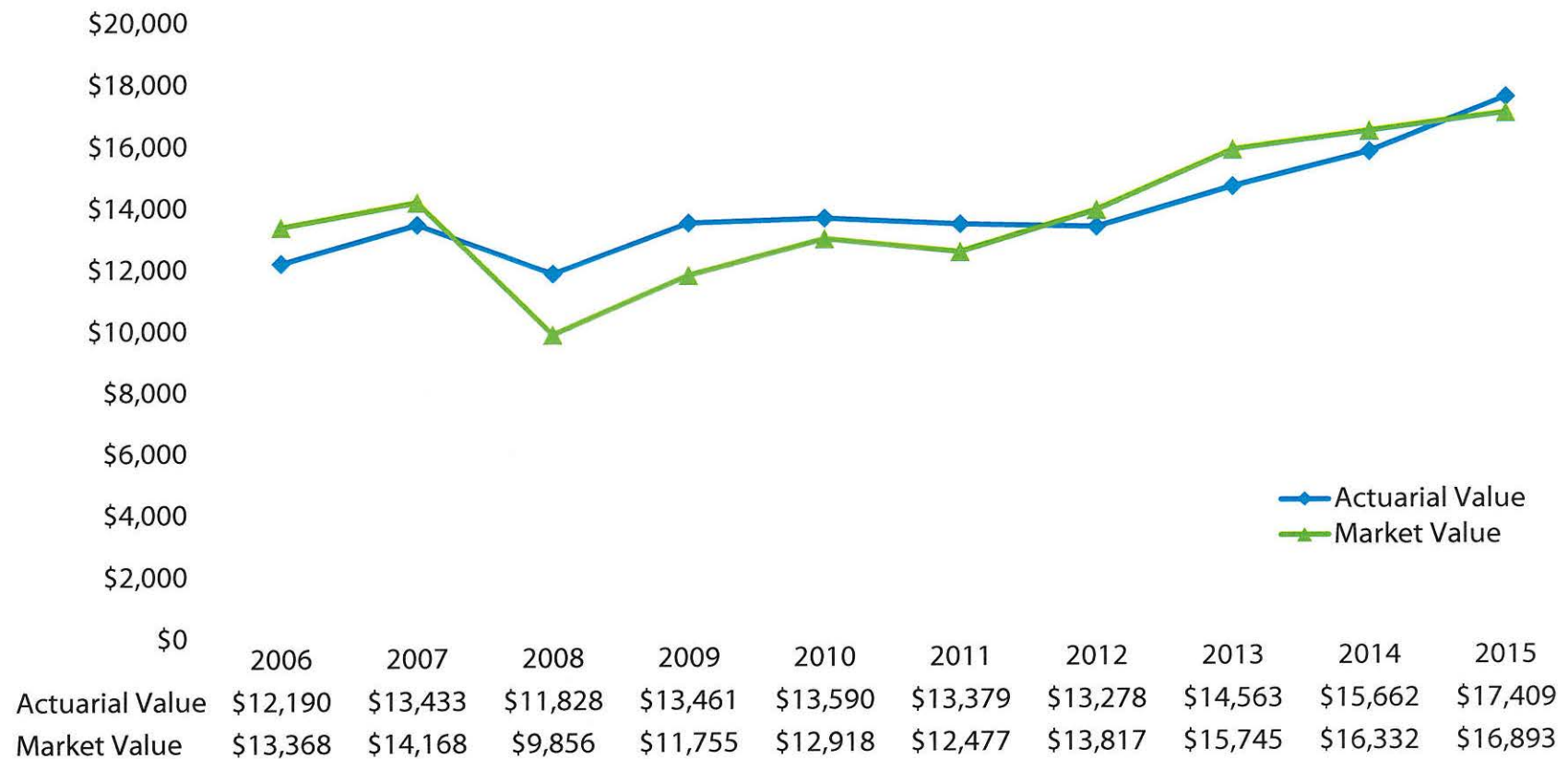
# Actuarial Asset Value

## Historical Rates of Return



# Actuarial Asset Value

## Historical Asset Growth (In millions)



## Key Valuation Results

Funded status of system as of 12/31/2015

- Unfunded Actuarial Liability decreased by \$929 million to \$8.539 billion, due primarily to bond proceeds
- Funded status improved for the total System
- Funded ratio for total System increased from 62.3% to 67.1%



## Key Valuation Results

### Unfunded actuarial liability

- Unfunded actuarial liability = actuarial liability less actuarial assets
- “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 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
- Any difference between statutory and actuarial contribution rate increases unfunded actuarial liability
- Other factors, such as experience gains/losses and changes in actuarial assumptions, also impact unfunded actuarial liability

# Valuation Results

Development of 12/31/2015 unfunded actuarial liability

	<b>Actuarial Liability (in millions)</b>	<b>Actuarial Assets (in millions)</b>	<b>Unfunded Actuarial Liability (in millions)</b>	<b>Funded Ratio</b>
State	\$ 4,211	\$ 3,341	\$ 870	79.3%
School	13,799	8,393	5,406	60.8%
State/School*	\$ 18,010	\$ 1,734	\$ 6,276	65.2%
Local	\$ 4,806	\$ 3,320	\$ 1,486	74.0%
KP&F	2,966	2,194	772	71.0%
Judges	166	160	6	96.4%
<b>Total*</b>	<b>\$25,948</b>	<b>\$17,409</b>	<b>\$ 8,539</b>	<b>67.1%</b>

\*Amounts may not add due to rounding

# Valuation Results

Changes to funded ratio and unfunded actuarial liability

	December 31		December 31	
	2014	2015	2014	2015
State	75.0%	79.3%	\$1,039M	\$870M
School	53.8%	60.8%	\$6,205M	\$5,406M
State/School	58.8%	65.2%	\$7,244M	\$6,276M
Local	67.4%	69.1%	\$1,488M	\$1,486M
KP&F	74.1%	74.0%	\$726M	\$772M
Judges	93.5%	96.4%	\$11M	\$6M
<b>Total</b>	<b>62.3%</b>	<b>67.1%</b>	<b>\$9,468M</b>	<b>\$8,539</b>

# Valuation Results

## Factors affecting the unfunded actuarial liability

- In 2015, 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., revised contribution rates)
  - amortization method (set in 1993 as a level percent of pay)
  - bond proceeds
- Factors specific to changes in the System's unfunded actuarial liability over the last year are quantified on next slide

# Valuation Results

## Factors affecting change in unfunded actuarial liability

<b>Unfunded Actuarial Liability:</b>	<b>\$9,468M</b>
<b>December 31, 2014</b>	
Contribution cap/time lag*	160M
Amortization method**	(11)M
Experience	
– Investment	52M
– Demographic/other	(130)M
Bond proceeds	(1,000)M
<b>Unfunded Actuarial Liability:</b>	<b>\$8,539M</b>
<b>December 31, 2015</b>	

Note: Amounts may not add due to rounding

\*Time lag is the period from the valuation date (12/31/2015) to the date the new contribution rate takes effect – e.g., 7/1/2018 for State and School Groups, 1/1/2018 for Local Group)

\*\*Set in 1993 as a level percent of pay

# Valuation Results

Factors impacting change in unfunded actuarial liability

	State	School	Local	KPF	Judges	Total
<b>12/31/14 unfunded actuarial liability</b>	<b>\$1,038.8</b>	<b>\$6,205.1</b>	<b>\$1,478.8</b>	<b>\$726.2</b>	<b>\$10.6</b>	<b>\$9,468.5</b>
• Contribution cap/lag	7.5	189.2	(20.8)	(13.3)	(2.4)	160.2
• Amortization method	(1.2)	(7.0)	(1.7)	(0.8)	(0.3)	(11.0)
• Investment experience	9.3	25.4	10.1	6.5	0.4	51.8
• Demographic experience	(45.3)	(134.9)	11.0	54.3	(2.6)	(117.6)
• Other	4.7	(15.7)	(0.7)	(1.3)	0.3	(12.7)
• Bond Proceeds	(143.4)	(856.6)	0	0	0	(1,000)
<b>12/31/15 unfunded actuarial liability</b>	<b>\$870.4</b>	<b>\$5,405.5</b>	<b>\$1,485.7</b>	<b>\$771.6</b>	<b>\$6.0</b>	<b>\$8,539.2</b>

Note: Dollars in millions

## Key Valuation Results

### Statutory and actuarial required contribution rates

- Rates effective for years beginning in 2018 (FY 2019 for State/School; CY 2018 for Local)
- Employer contribution rates for State and Local continue to be at the full actuarial rate
  - State actuarial rate dropped from 9.62% to 8.28%
  - Local actuarial rate dropped from 8.46% to 8.39%
- School actuarial rate totals 14.59%, higher than the statutory rate of 13.21% for FY 2019
- State/School combined statutory rate is 0.02% below the actuarial required rate in the 12/31/15 valuation

# Valuation Results

Actuarial vs. statutory employer contribution rates

	December 31, 2015*		
	Actuarial	Statutory	Shortfall
State	8.28%	13.21%	(4.93%)**
School	14.59%	13.21%	1.38%
State/School	13.23%	13.21%	0.02%***
Local	8.39%	8.39%	0.00%
KP&F	20.09%	20.09%	0.00%
Judges	14.68%	14.68%	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 2020 at a rate of 13.12%.



# Valuation Results

## Employer contribution rate comparisons

System	Actuarial Rate (ARC as % of Pay)		Statutory Contribution Rate		% of ARC Contributed
	12/31/2014	12/31/2015	12/31/2014	12/31/2015	12/31/2015
State*	9.62%	8.28%	12.01%	13.21%	159.5%
School	16.38%	14.59%	12.01%	13.21%	90.5%
State/School	14.89%	13.23%	12.01%	13.21%	99.8%
Local	8.46%	8.39%	8.46%	8.39%	100%
KP&F	19.03%	20.09%	19.03%	20.09%	100%
Judges	15.89%	14.68%	15.89%	14.68%	100%

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

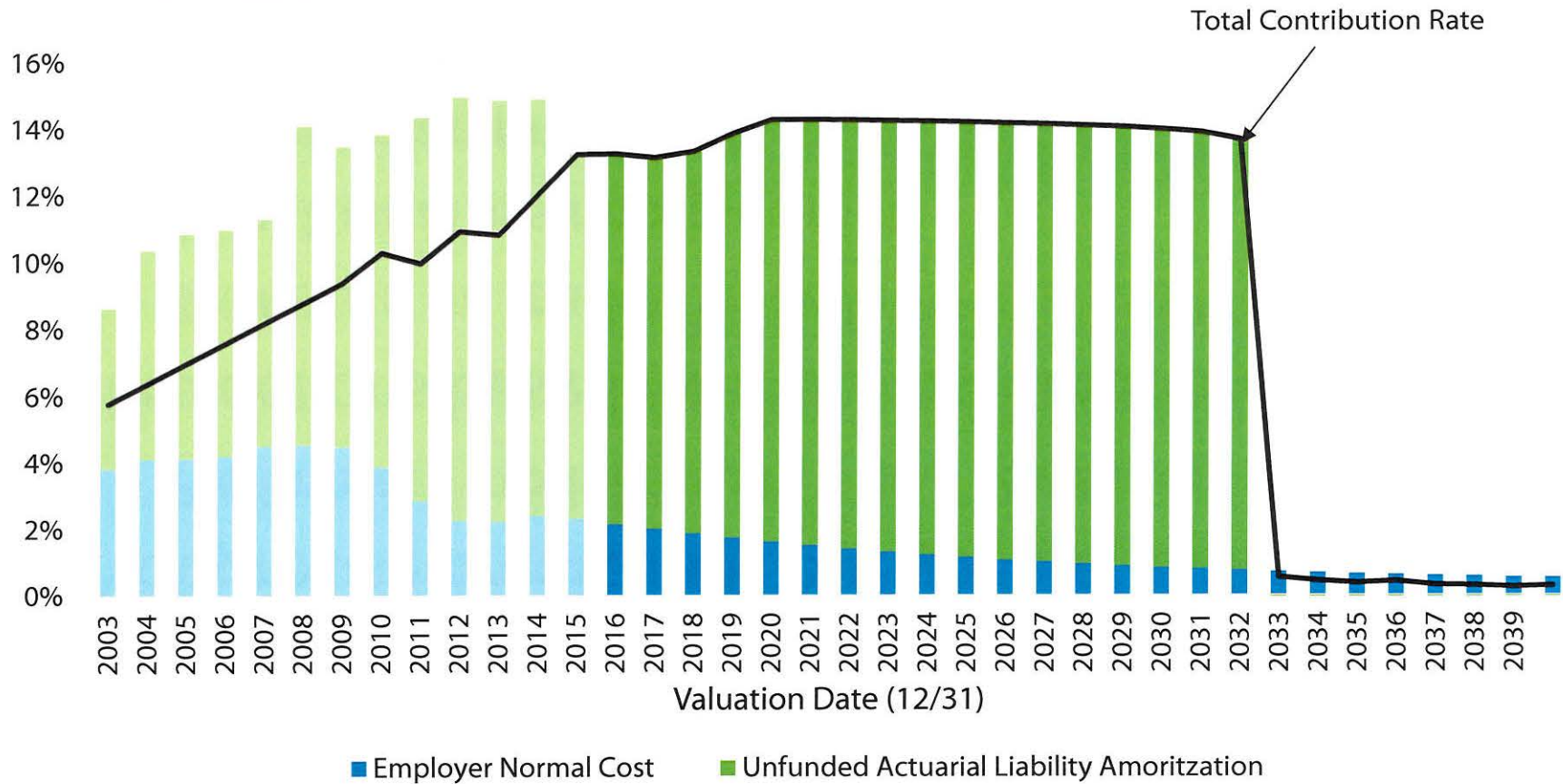
# Valuation Results

Change in actuarial required contribution (ARC) by group

	State	School	Local	KPF	Judges
<b>12/31/14 actuarial required contribution</b>	<b>9.62%</b>	<b>16.38%</b>	<b>8.46%</b>	<b>19.03%</b>	<b>15.89%</b>
• Contribution cap and lag	0.06	0.42	(0.09)	(0.21)	(0.83)
• Amortization method	(0.01)	(0.02)	(0.01)	(0.01)	(0.09)
• Investment experience	0.07	0.06	0.04	0.10	0.14
• Liability experience	(0.36)	(0.30)	0.05	0.86	(0.90)
• Other	0.04	(0.07)	(0.06)	0.32	0.47
• Bond proceeds	(1.14)	(1.88)	0.00	0.00	0.00
<b>12/31/15 actuarial required contribution</b>	<b>8.28%</b>	<b>14.59%</b>	<b>8.39%</b>	<b>20.09%</b>	<b>14.68%</b>

# Valuation Results

## Components of State/School employer contribution rates



## Funding Projections

- Not precise predictions but general estimates
  - Preliminary model results – final review continuing
- Projections based on many assumptions
  - 8% return on market value in 2016 and all future years
  - All actuarial assumptions met
  - Current plan provisions
  - Contributions are paid per statutory cap and FY 2016 delayed contributions are repaid as scheduled
  - New entrants in future years are similar to recent history

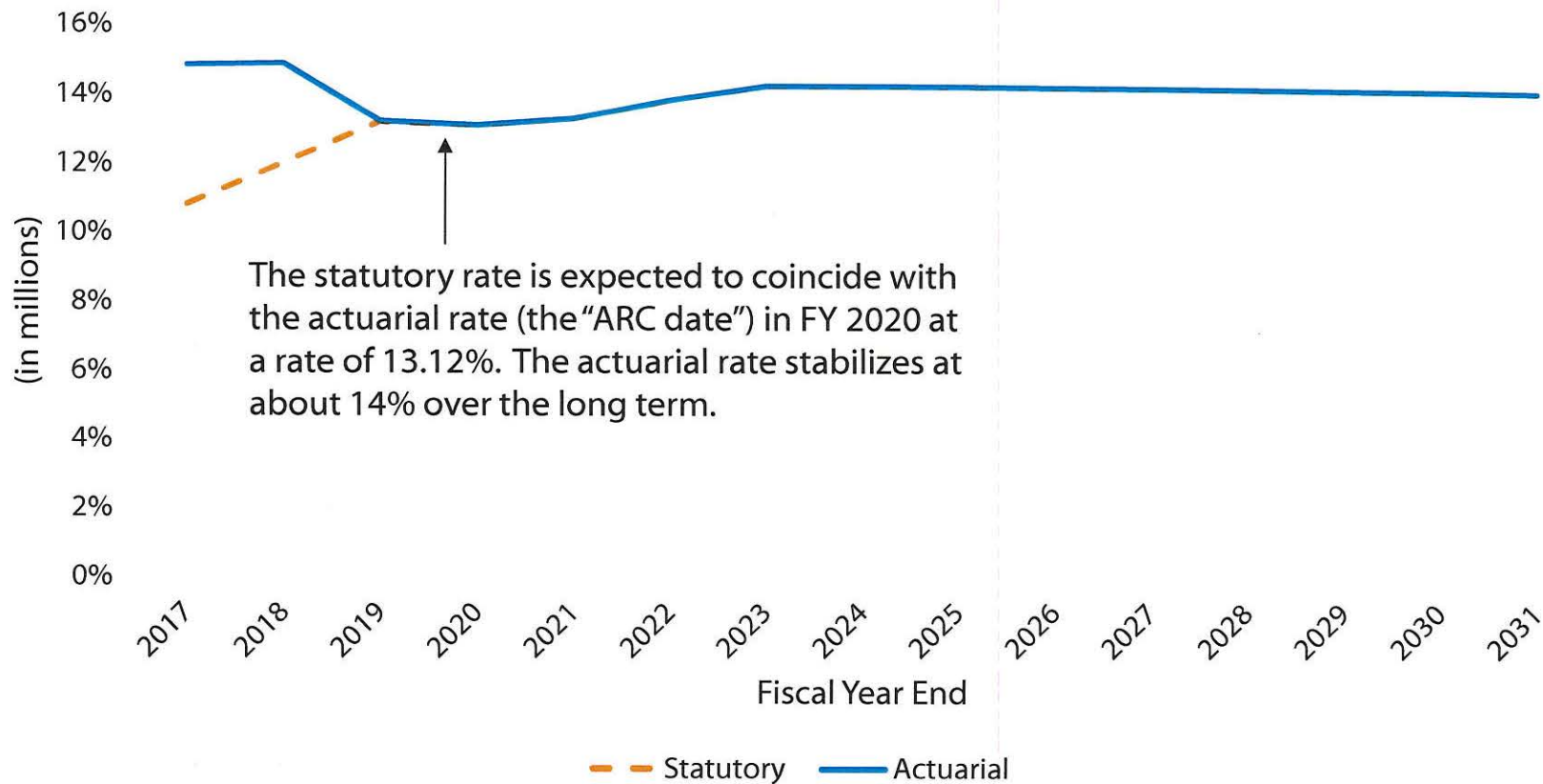
# Funding Projections

## State/School funding

- 12/31/15 Valuation
  - Funded Ratio: 65.2%
  - Actuarial rate: 13.23%
  - Statutory rate: 13.21%
- Actuarial required contribution date/rate (actuarial and statutory contribution rates are equal)
  - Date: FY 2020 at rate of 13.12%
  - Projected Date and Rate, based on prior valuation, was 13.55% 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
  - Delay of \$97.4 million in State/School contributions for FY 2016 is assumed to be repaid by June 30, 2018, with 8% interest, as scheduled

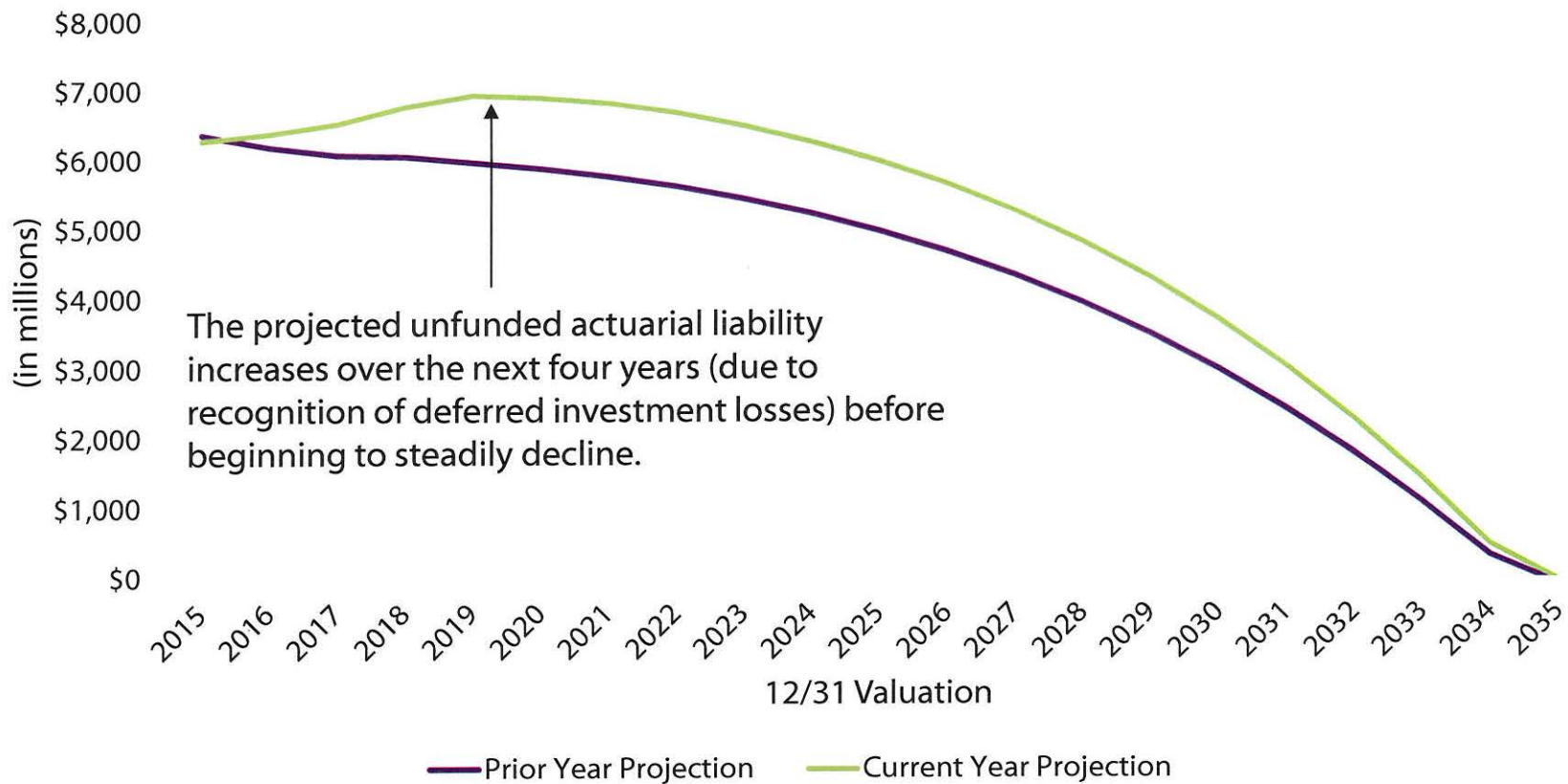
# Funding Projections

## Projected State/School employer contribution rates



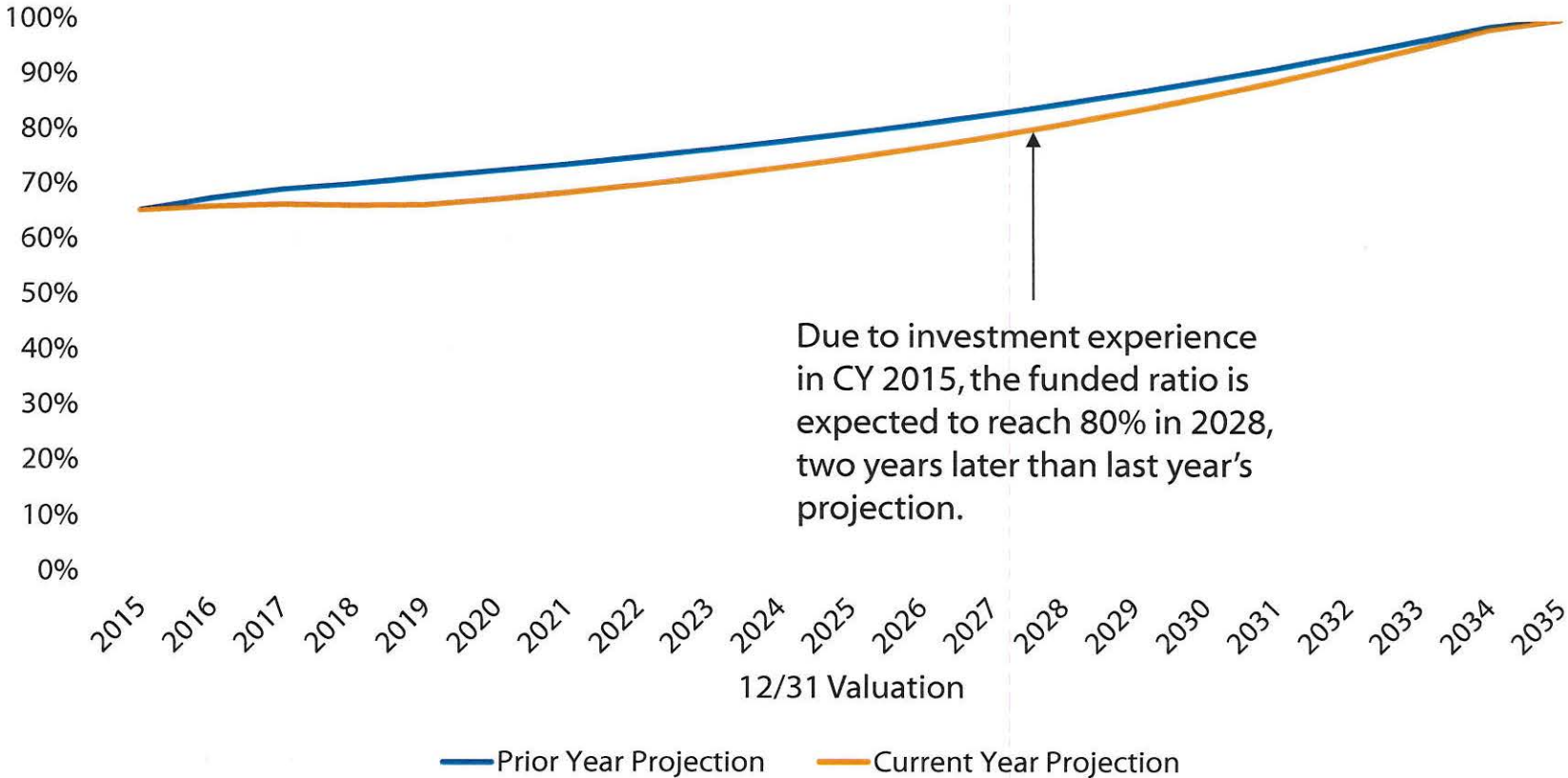
# Funding Projections

## Projected State/School unfunded actuarial liability



# Funding Projections

## Projected State/School funded ratio





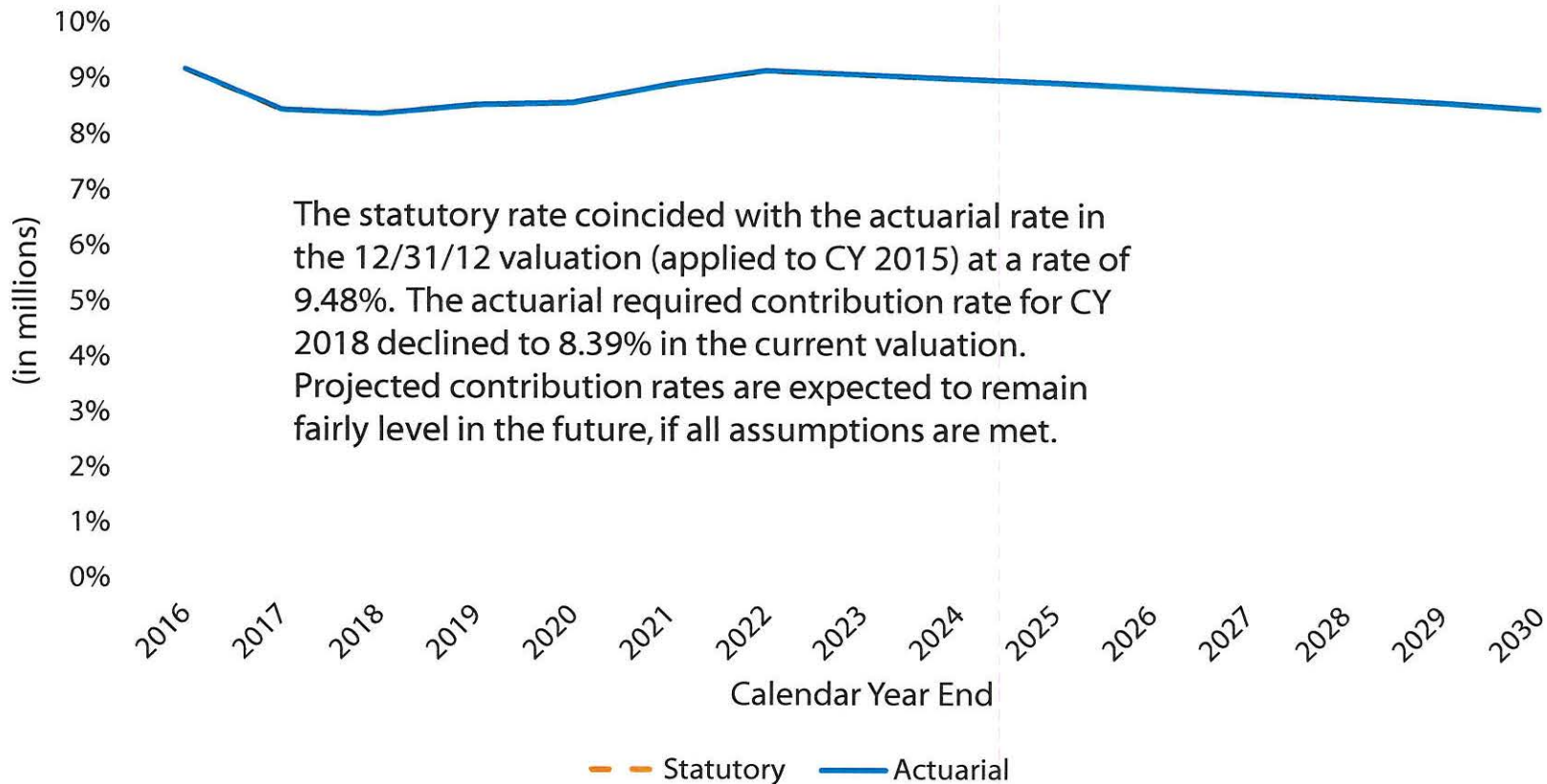
# Funding Projections

## Local funding

- 12/31/15 Valuation
  - Funded ratio: 69.1%
  - CY 2018 actuarial rate: 8.39%
  - CY 2018 statutory rate: 8.39%
- Actuarial required contribution date/rate occurred in 12/31/12 valuation (setting calendar year 2015 rate)
  - Continues to be at full actuarial rate in 12/31/15 valuation
  - Actuarial required contribution rate declined from 8.46% in last year's valuation to 8.39% in this year's valuation

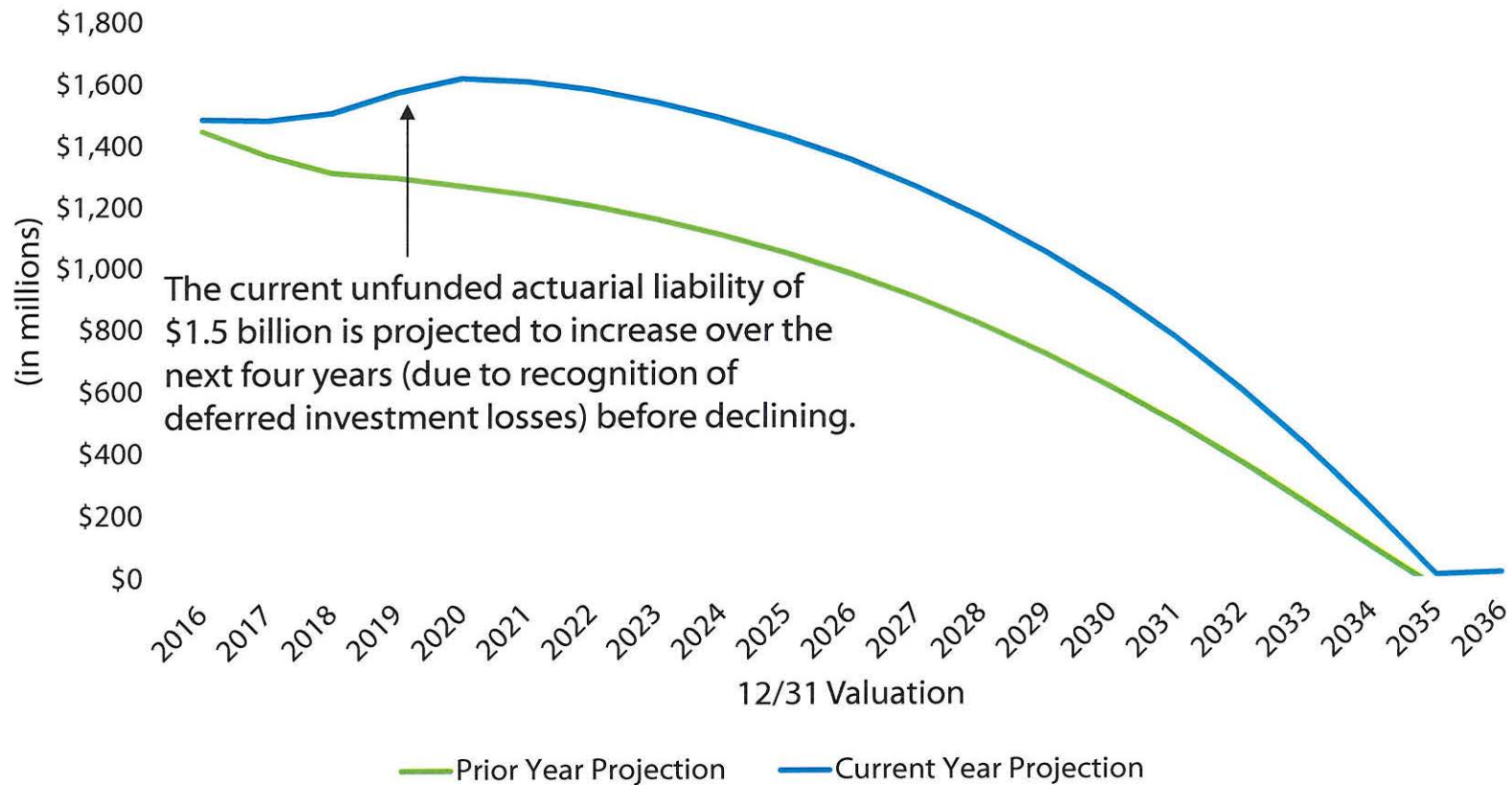
# Funding Projections

## Projected Local employer contribution rates



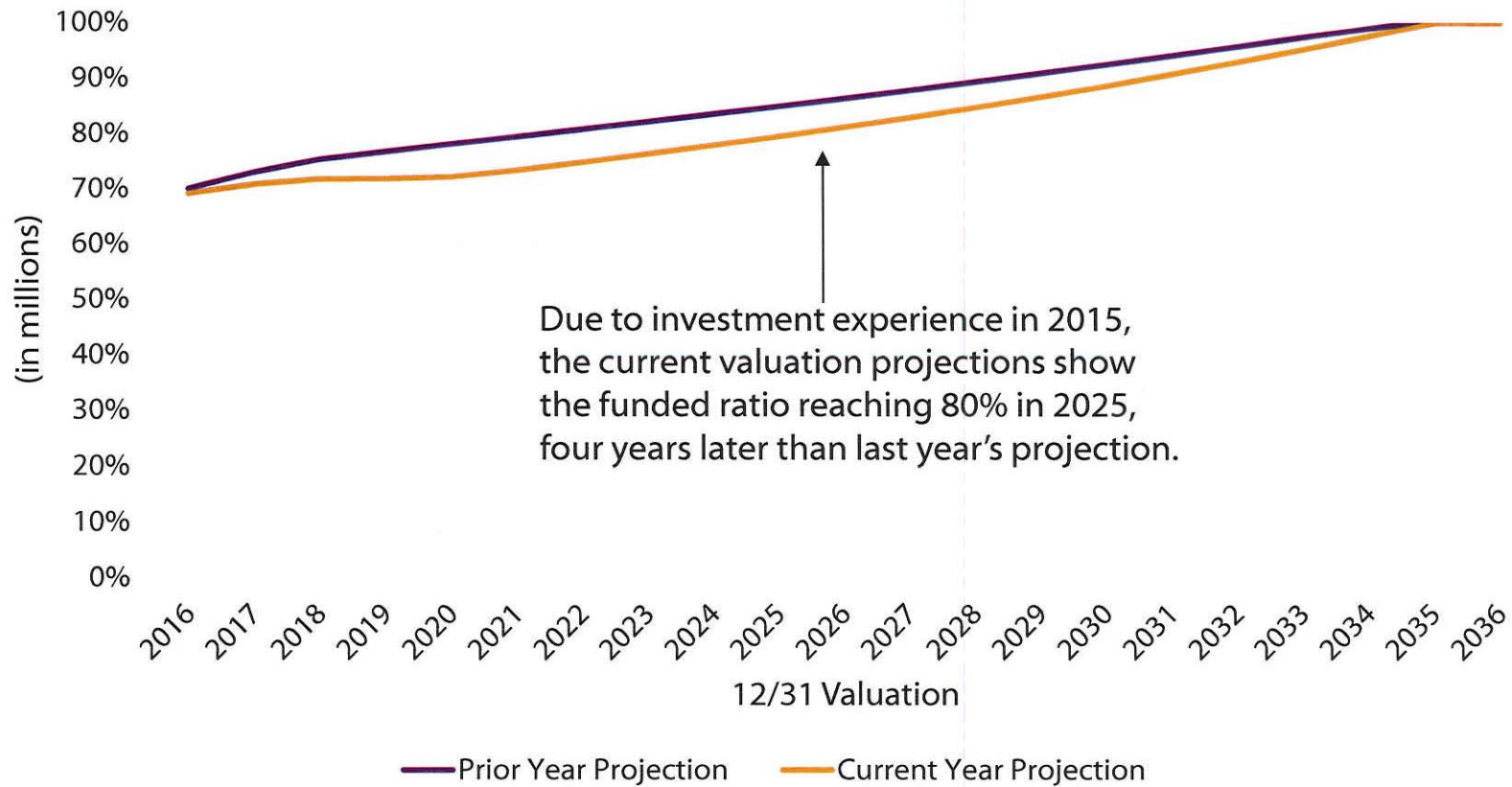
# Funding Projections

## Projected Local unfunded actuarial liability



# Funding Projections

## Projected Local funded ratio



# Funding Projections

Short term projections (Total system)

## Return in 2016\*

	8%		0%		- 8%	
Valuation Date (12/31)	<u>Unfunded Actuarial Liability</u>	<u>Funded Ratio</u>	<u>Unfunded Actuarial Liability</u>	<u>Funded Ratio</u>	<u>Unfunded Actuarial Liability</u>	<u>Funded Ratio</u>
2016	\$8,630M	68%	\$8,906M	67%	\$9,182M	66%
2017	8,814M	69%	9,461M	66%	10,107M	64%
2018	9,170M	68%	10,196M	65%	11,221M	61%
2019	9,420M	69%	10,815M	64%	12,210M	59%

\*Assumes an 8% return in all years after 2016 so current deferred investment experience is reflected in future years. Also assumes delayed contribution in FY 2016 repaid as scheduled.