12/31/2018 Actuarial Valuation

PRESENTED BY:

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Joint Committee on Pensions, Investments, and Benefits

November 4, 2019

KPERS

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
- 426 cities and townships
- Other employers include libraries, hospitals, community colleges and conservation districts

KPERS Board of Trustees

Kelly Arnold – Wichita, Chairperson	County Clerk, Sedgwick County	Appointed by the Governor
Suresh Ramamurthi – Topeka, Vice-Chairperson	Chairman, CBW Bank	Appointed by the President of the Senate
Ernie Claudel – Olathe	Retired Teacher and Administrator	Elected Member - School
Emily Hill – Lawrence	Executive Director, Morgan Stanley	Appointed by the Governor
Ron Johnson – Seneca	President and CEO, Community National Bank	Appointed by the Speaker of the House
Jake LaTurner – Pittsburg	Kansas State Treasurer	Statutory Member
(Appointment Pending)		Governor's Appointment
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

- The Governor has nominated Brad Stratton (Overland Park) to fill the remaining Board position, but the Confirmation Oversight Committee has not yet reviewed the nomination.

Covering Today

Purpose of the Annual Actuarial Valuation

System Statistics

Current Funded Status

Employer Contributions

Impact of Legislative Actions

Funding Projections

Purpose of the Annual Actuarial 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

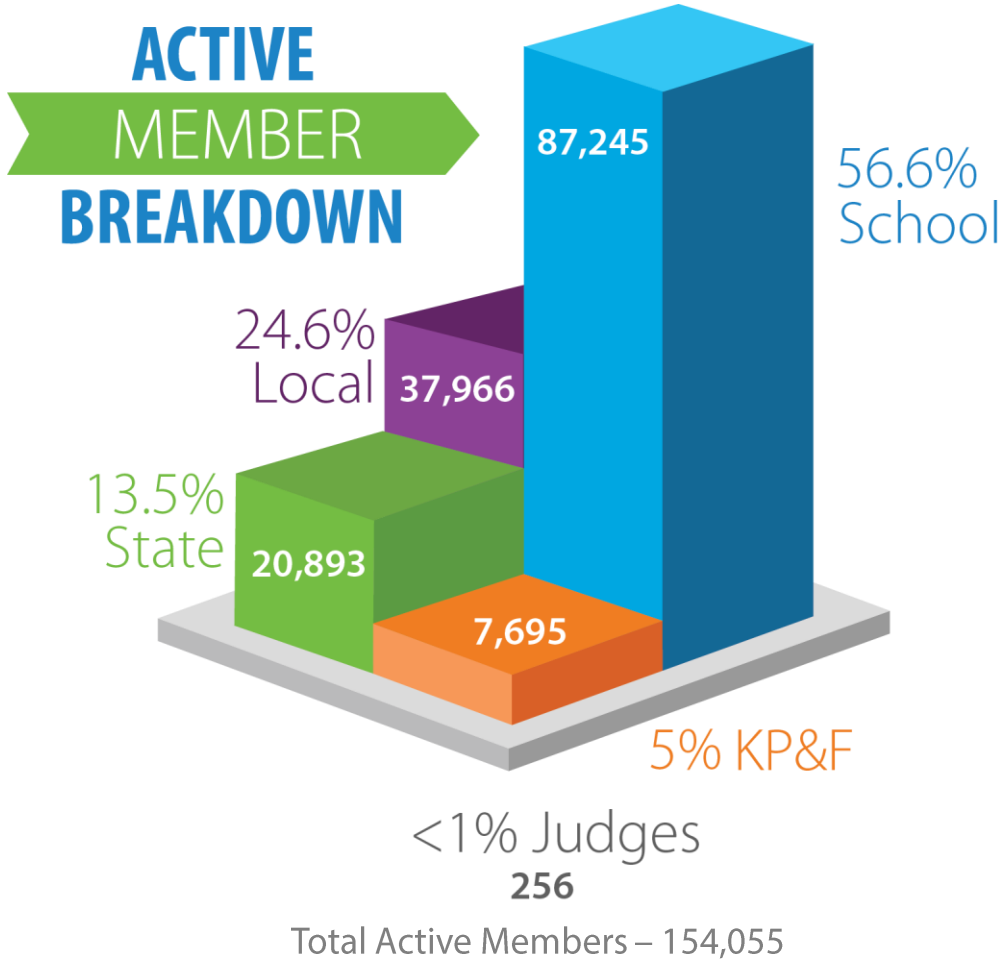
- Calculate employer contribution rates
  - The 12/31/2018 valuation sets the contribution rates for FY 2022 for State and School employers and CY 2021 for Local employers.

- Baseline for any cost studies in 2020 legislative session

Key Findings

- All groups remain at the full Actuarial Required Contribution rate
- Net investment returns on a calendar year basis were -2.9%.
- Overall funded ratio remained the same (68.4%)
- Total unfunded actuarial liability increased from $8.9 billion last year to $9.2 billion this year
- Contribution rates increased for all groups except State/School due to the investment return in 2018
- The Legislature passed additional direct contributions to the State/School group which mitigated the impact of the low 2018 return

System Statistics



- The active KPERS group membership is comprised of
  - 65,708 active KPERS 1 members
  - 31,775 active KPERS 2 members
  - 48,621 active KPERS 3 members

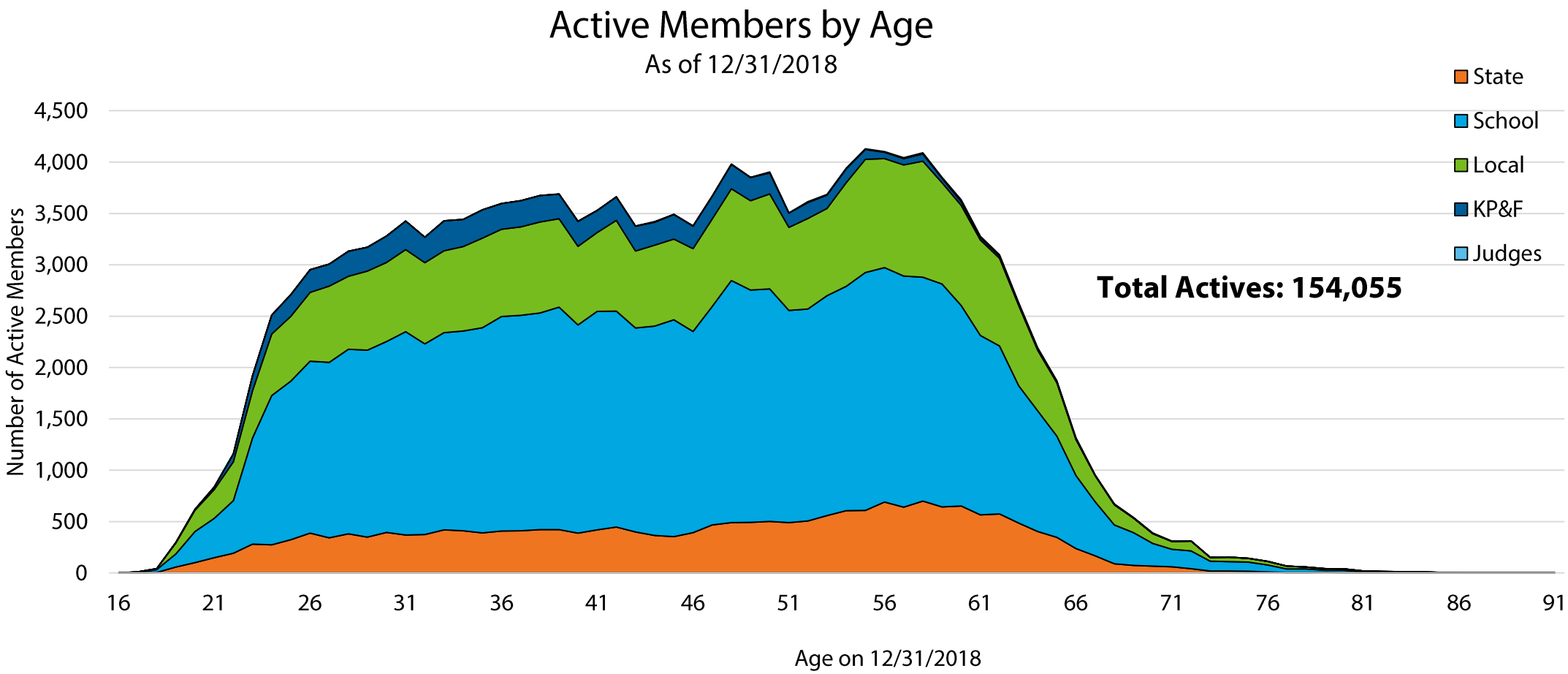
- Average service for active members:

State/School	11.23 years
Local	10.21 years
KP&F	10.99 years
Judges	11.74 years

- Average salary for active members:

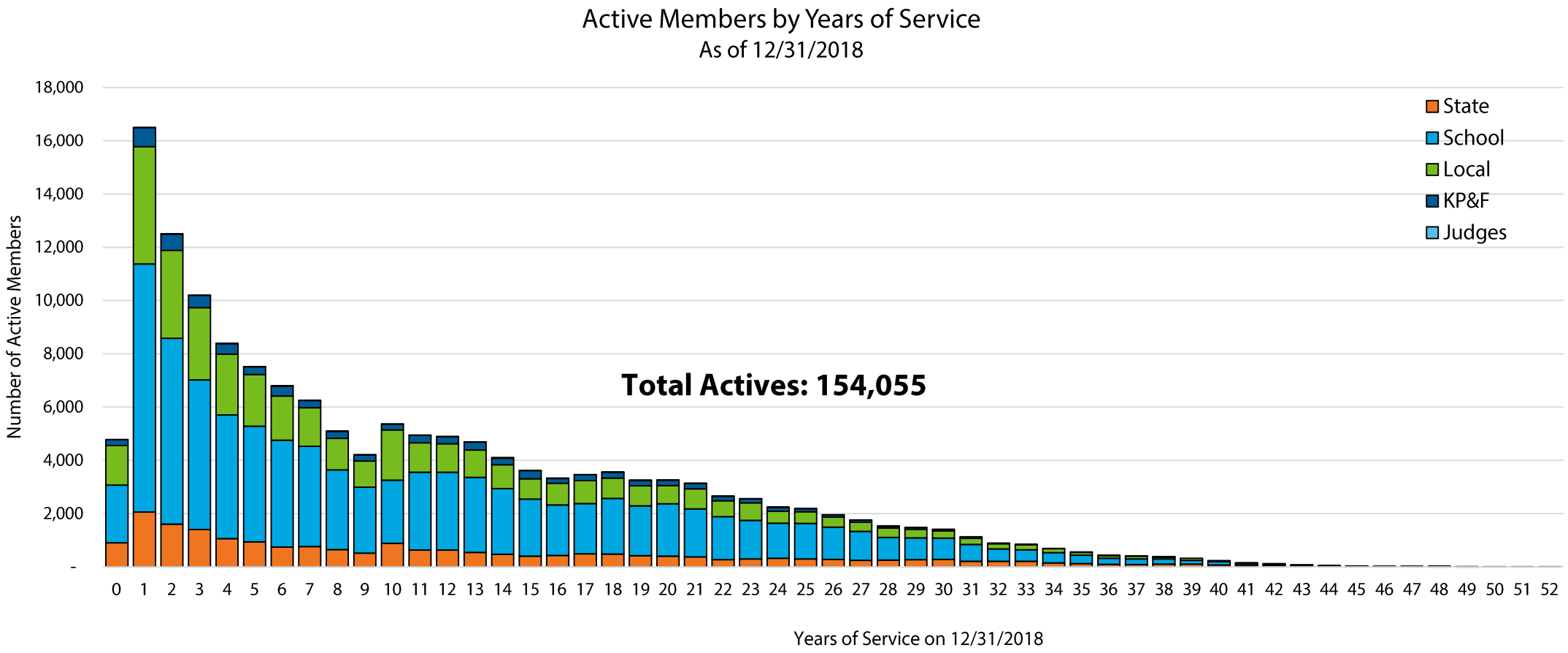
State/School	$43,416
Local	$47,221
KP&F	$69,184
Judges	$111,465

System Statistics



- The youngest active members is 16 years old.
- The oldest active member is 91 years old.

System Statistics



- More than half of the active members (53%) have less than 10 years of service.
- More than 700 members had 40 years of service or more on 12/31/2018.

Active Membership by Age and Service

KPERS, KP&F and Judges Combined - 12/31/2018

Age	Service: 0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & Up	Total
Under 25	7,300	97	0	0	0	0	0	0	0	7,397
25 to 29	11,349	3,585	38	1	0	0	0	0	0	14,973
30 to 34	7,512	6,870	2,450	13	0	0	0	0	0	16,845
35 to 39	6,221	4,318	5,626	1,942	14	1	0	0	0	18,122
40 to 44	4,940	3,382	3,387	4,153	1,544	12	0	0	0	17,418
45 to 49	4,280	3,183	3,099	2,741	3,848	1,201	26	0	0	18,378
50 to 54	3,511	2,722	2,951	2,571	2,618	3,018	1,239	19	0	18,649
55 to 59	3,455	2,587	2,946	2,855	2,861	2,396	2,185	892	43	20,220
60 to 64	2,364	1,987	2,230	2,043	2,178	1,638	1,075	925	395	14,835
65 to 69	1,006	798	901	719	645	505	357	202	228	5,361
70 & Up	444	360	389	193	151	130	79	43	68	1,857
Total	52,382	29,889	24,017	17,231	13,859	8,901	4,961	2,081	734	154,055

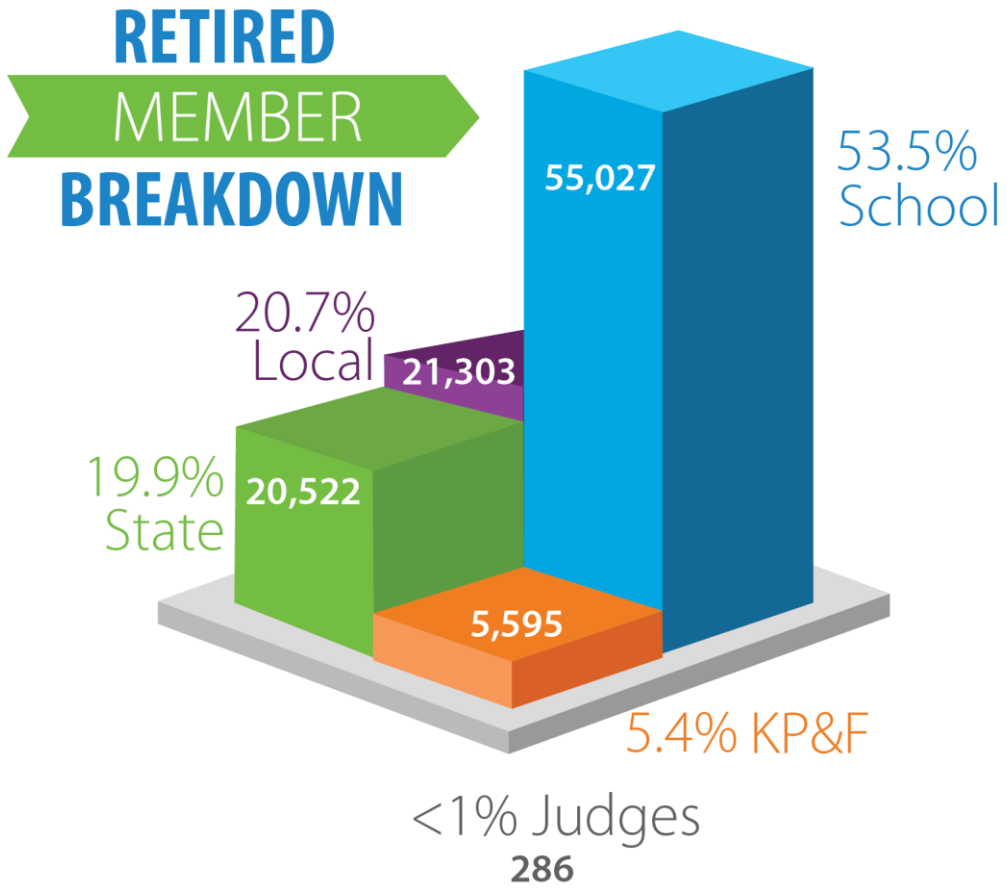
System Statistics

- The average benefit (retirees and beneficiaries) as of 12/31/2018 is:

State	$14,501
School	$15,657
Local	$12,526
KP&F	$34,217
Judges	$42,716

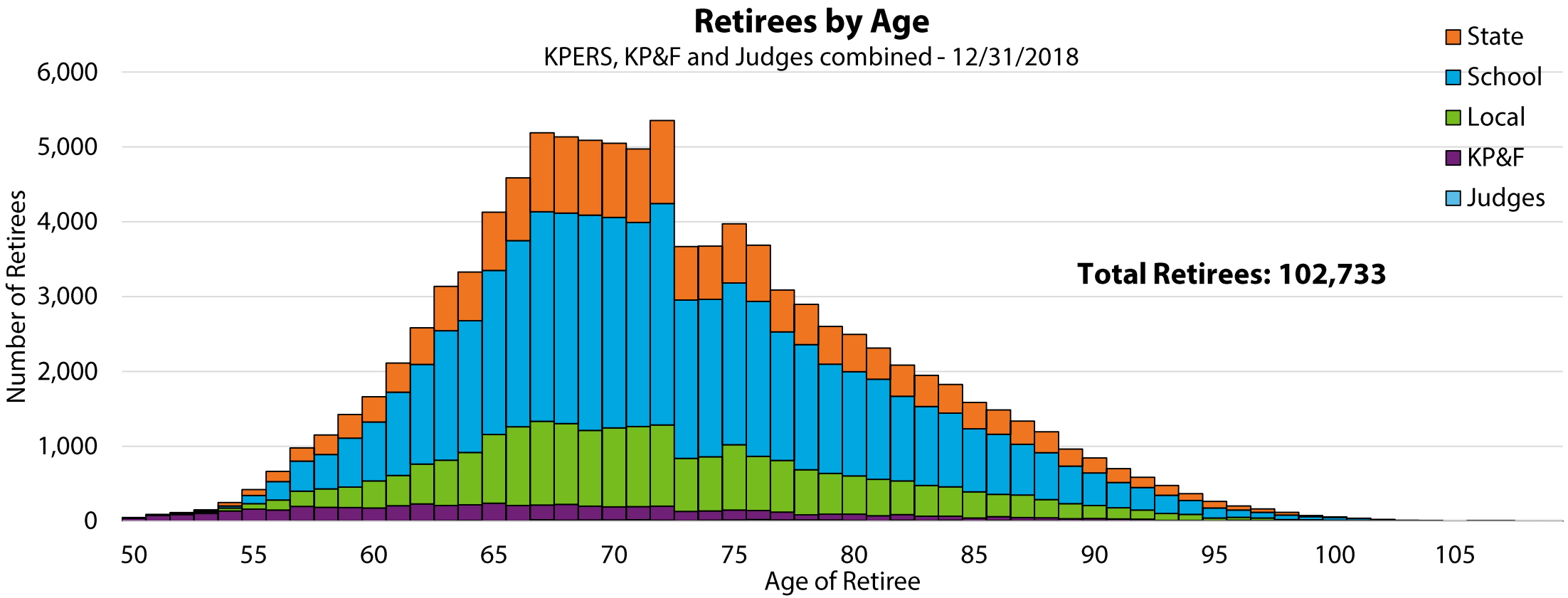
- The average age of retirees and beneficiaries as of 12/31/2018 is:

State	72.3
School	72.3
Local	72.4
KP&F	65.9
Judges	75.4



Total Retirees – 102,733

System Statistics



Note: This chart starts at age 50, but there are some annuitants younger than 50, primarily beneficiaries.

- KPERS has 148 retirees and beneficiaries that have reached 100 years.
- The oldest retiree is 108 years old, the oldest beneficiary is 110.

Current Funded Status

- As a system, KPERS' funded ratio remained level and the unfunded actuarial liability increased in the 12/31/2018 valuation.

	12/31/2017	12/31/2018
Funded Ratio	68.4%	68.4%
Unfunded Actuarial Liability	$8.91 billion	$9.20 billion

- Actuarially required contribution (ARC) rates decreased for KPERS State/School employers, from 14.23% in FY 2021 to 14.09% in FY 2022.
- The statutory employer contribution for the State/School group is 14.41% in FY 2020 and 14.23% in FY 2021.
- The State/School group statutory employer contribution is equal to the ARC rate in FY 2021 for the first time in 25 years.

Development of the Unfunded Actuarial Liability

- Actuarial Liabilities – Actuarial Assets = Unfunded Actuarial Liability (UAL)

- 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

Calculating Liabilities

- Each year the actuary calculates a future benefit for each member using a number of economic and demographic assumptions.
- When the future benefit amount is calculated, the total future benefit is then discounted to today's dollars (present value) using the investment return assumption (7.75%).
- The present value of every benefit is added together to calculate the total actuarial liability.
- The total actuarial liabilities on 12/31/2018 totaled $29.1 billion.

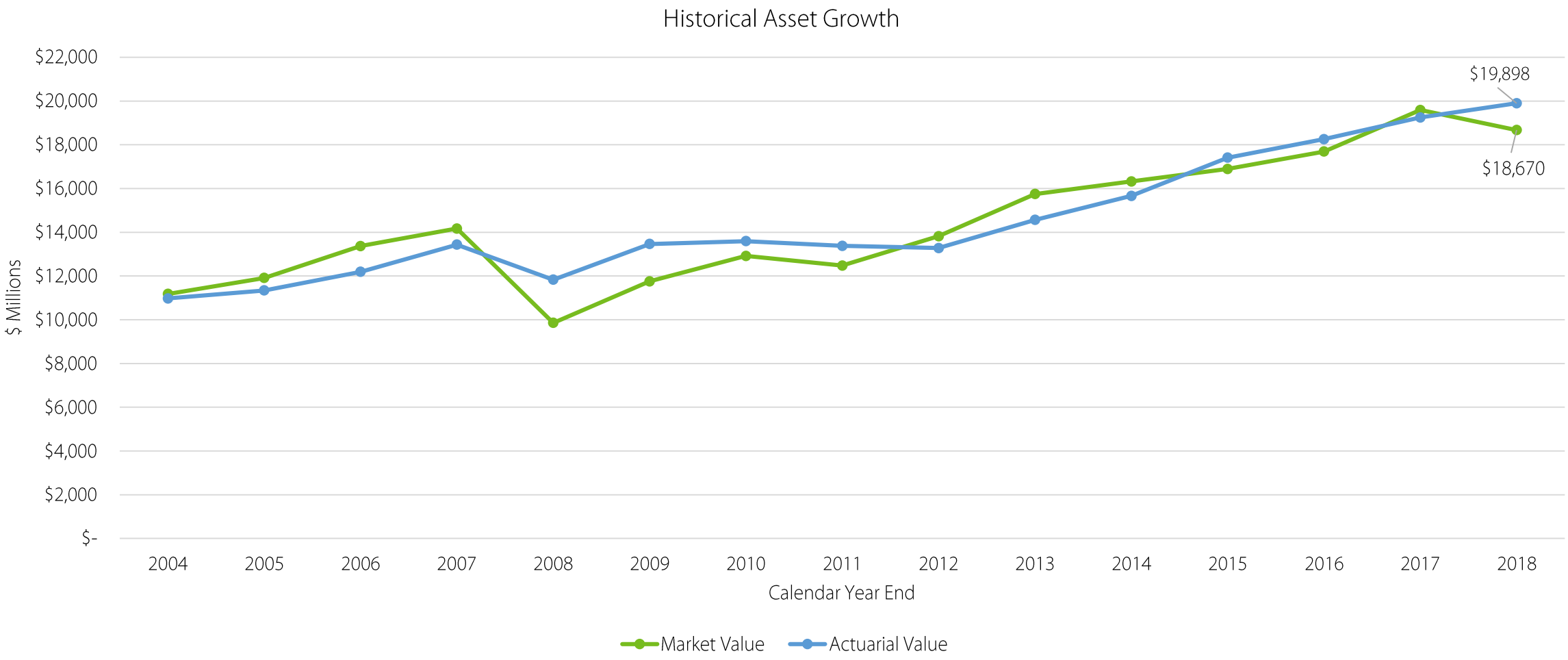
Market Value of Asset vs. Actuarial Value of Assets

- Market value of assets is not used directly in valuation

- Asset valuation method is used to smooth the effect of market fluctuations
  - Smoothed value is called actuarial value of assets
  - Goal is to provide more stability in contribution rates

- Actuarial value recognizes the difference in actual investment return compared to expected return (7.75%) evenly over 5 years.

Market Value of Assets vs. Actuarial Value of Assets



Market Value of Assets vs. Actuarial Value of Assets

- Investment return on market value basis in CY 2018 (net) was -2.9%.
- Due to asset smoothing method, return on actuarial assets was +5.3%.
- Deferred experience yet to be recognized:
  - Net deferred loss of $1.2 billion this year vs. $388 million net deferred gain in last year's valuation.
  - Deferred loss will flow through smoothing method over the next four years.
  - Expected to increase the unfunded actuarial liability and funded ratio, unless there is favorable experience in future years.
- Actuarial value of assets on 12/31/2018 totaled $19.9 billion

Development of the Unfunded Actuarial Liability

Actuarial Liabilities – Actuarial Assets = Unfunded Actuarial Liability (UAL)

$29.1 billion in liabilities – $19.9 billion in assets = $9.2 billion UAL on 12/31/2018

Valuation Results

12/31/2018 Unfunded Actuarial Liability (UAL) by group:

	Actuarial Liability (in millions)	Actuarial Assets (in millions)	Unfunded Actuarial Liability (in millions)	Funded Ratio
State	$ 4,527	$ 3,593	$ 935	79%
School	15,431	9,610	5,822	62%
State/School*	19,959	13,202	6,756	66%
Local	5,493	3,991	1,502	73%
KP&F	3,457	2,524	933	73%
Judges	192	181	11	94%
Total*	$ 29,100	$ 19,898	$ 9,202	68%

*Amounts may not add due to rounding.

Factors affecting the Unfunded Actuarial Liability (UAL)

System Unfunded Actuarial Liability: 12/31/2017	**$**	**8,907M**
Statutory contribution cap/time lag*		64M
Amortization method		(171)M
Experience		
– Investment		476M
– Demographics (i.e. fewer retirements than expected, lower wage growth)		(69)M
Additional Contributions (Legislative Action)		(143.2)M
System Unfunded Actuarial Liability: 12/31/ 2017		**$9,202M**

Note: Amounts may not add due to rounding

*Time lag is the period from the valuation date (12/31/2018) to the date the new contribution rate takes effect – (e.g., 7/1/2021 for State and School Groups, 1/1/2021 for Local Group) as provided by law.

Funding the Unfunded Actuarial Liability

- The System has a funding plan to fully fund the System.

- The Legislature set a 40-year, closed amortization period in 1993 with a level percent of pay amortization schedule.

- "Level percent of pay" amortization methodology results in:
  - Lower payments in the early years that ramp up over time.
  - 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.

- The 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 the Unfunded Actuarial Liability

- The Board of Trustees approved a layered amortization approach as part of the 2016 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.

State/School Group Amortization Layers

Amortization Base	Original Amount (in millions)	Remaining Payments	Current Balance* (in millions)	Annual Payment** (in millions)
Legacy Unfunded Actuarial Liability	$6,489	14	$6,242	$610
Assumption Changes (2016)	$451	23	$457	$33
Actuarial Experience (2016)	$(99)	18	$(98)	$(8)
Actuarial Experience (2017)	$(430)	19	$(429)	$(34)
Actuarial Experience (2018)	$173	20	$173	$13
Total			$6,345	$614

*Current balance is projected forward to June 30, 2021, when the corresponding payments begin.

**Dollar amount of future payments increases 3% per year, consistent with the payroll growth assumptions.

Employer Contributions

- Rates effective for years beginning in 2021 (FY 2022 for State/School; CY 2021 for Local).

- State/School combined statutory rate in FY 2022 is equal to the actuarial required contribution rate 14.09%, for the second consecutive year.
  - The State/School statutory employer contribution rate reached the actuarial required contribution rate for the first time in the 12/31/2017 valuation (FY 2021), the first time the rates were the same in 24 years.

- Employer contribution rates for State and Local continue to be at the full actuarial rate.
  - State actuarial rate went from 9.22% to 9.97%
  - Local actuarial rate went from 8.61% to 8.87%

- School only actuarial rate totals 15.15%, higher than the statutory rate of 14.09% for FY 2021.

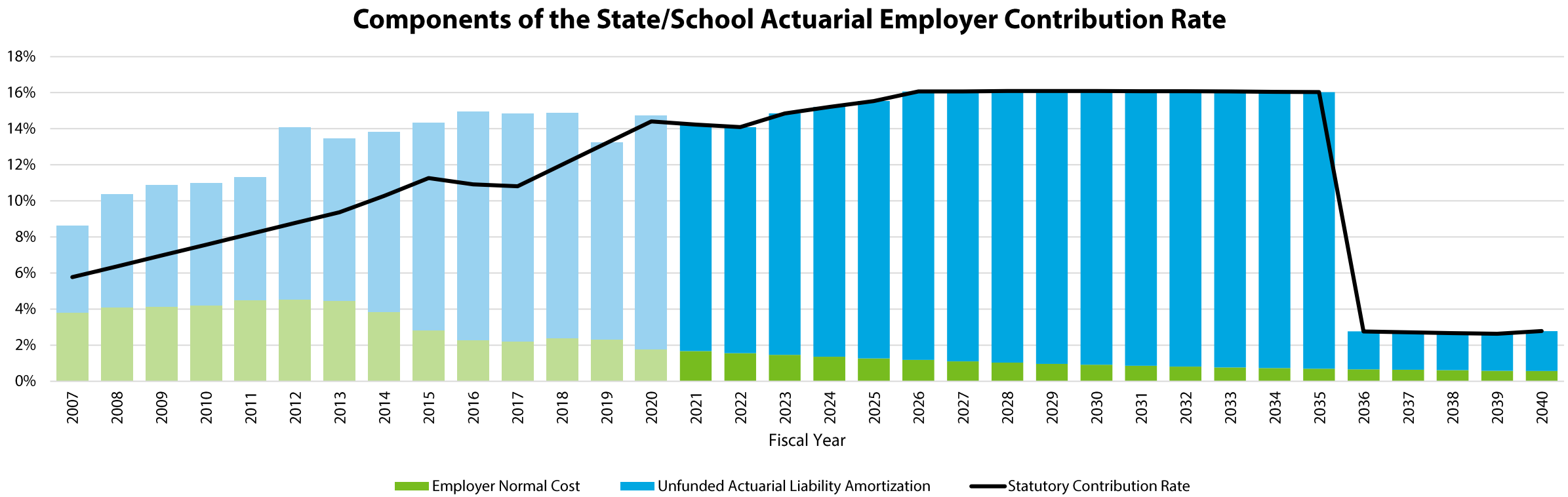
Employer Contributions

	December 31, 2018		
	Actuarial	Statutory	Shortfall
State	9.97%	14.09%	(4.12%)*
School	15.15%	14.09%	1.06%
State/School	14.09%	14.09%	0.00%
Local	8.87%	8.87%	0.00%
KP&F	22.80%	22.80%	0.00%
Judges	18.40%	18.40%	0.00%

*As provided in statute, the contribution above the State Actuarial Required Contribution (ARC) rate is applied to fund the School Group.

- The State/School statutory employer contribution rate continues to be at the full actuarial required contribution rate for FY 2022, the second consecutive year the statutory and actuarial rates have been equal.

Employer Contributions

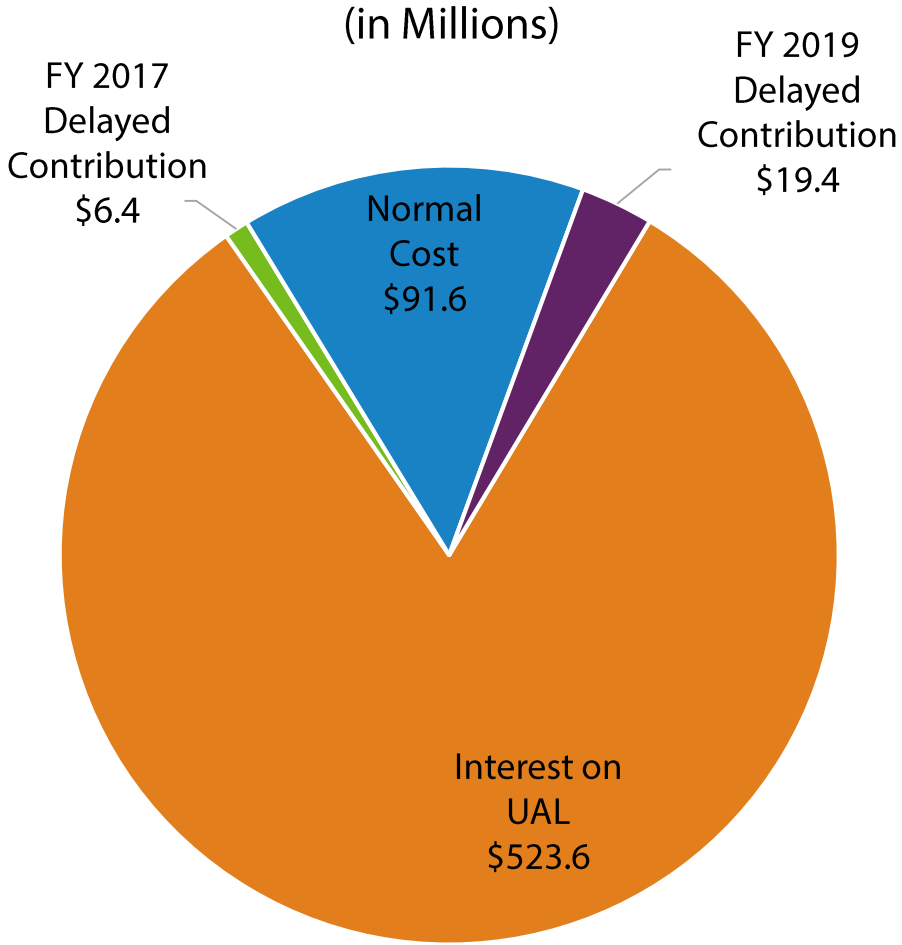


- The 2015 Legislature reset the FY 2016 and FY 2017 State/School employer contribution rate as part of the bill authorizing the sale of $1.0 billion in bonds for deposit in the Trust Fund.

- The legacy unfunded actuarial liability is fully funded during FY 2035. The residual unfunded actuarial liability projected past that is due to the remaining amortization layers.

Employer Contributions

FY 2020 "Steady State" Contribution
(in Millions)



Total State/School employer contributions needed to maintain "steady state"
$641.0 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

12/31/2018 State/School unfunded actuarial liability	X	KPERS Investment Return Assumption	=	Interest on 12/31/2017 State/School unfunded actuarial liability
$6.756 billion	X	7.75%	=	**$523.6 million**

Actuarial payroll projection for FY 2021	X	Employer Normal Cost Rate	=	FY 2020 normal cost
$4.694 billion	X	1.95%	=	**$91.6 million**

Impact of Legislative Actions

- Over the past two sessions the Legislature has made additional payments to KPERS.

- The 2018 Legislature appropriated $194 million in additional contributions to KPERS.
  - $56 million in June 2018 (contingent on State General Fund revenues exceeding estimates)
  - $82 million in July 2018
  - $56 million in June 2019 (later adjusted by the 2019 Legislature)

- The 2019 Legislature added $115 million in contributions in SB 9 and changed the second $56 million contingent payment to a direct appropriation of $51 million.

Additions by the 2018 Legislature

- The additional $194 million passed by the 2018 Legislature was included in the funding projections in the 12/31/2017, which was completed in July 2018.

- The additional contributions were appropriated for the KPERS School group, but impact the combined State/School employer contribution rate.

- As a result of the three additional contributions, the State/School actuarial required contribution rate was lower by 0.36% (14.23% vs. 14.59%).

Additions by the 2019 Legislature

- The 2019 Legislature passed SB 9 which appropriated $115 million to the KPERS School group.
  - The $115 million was the approximate amount needed to repay contributions that were delayed in FY 2017 ($97 million) plus interest.

- The additional contribution, received in April 2019, lowered the State/School actuarial required contribution rate in the 12/31/2018 valuation by 0.29% (14.09% vs. 14.38%).

- Due to the additional employer contributions, the State/School group is the only group that experienced a reduction in the employer contribution rate from FY 2021 to FY 2022.

Additions by the 2019 Legislature

- The 2019 Legislature also changed the second $56 million contingent payment passed by the 2018 Legislature to a direct appropriation of $51 million.

- This funding was already included in the funding projections since it was initially passed in 2018, so there was no additional impact on the employer contribution rates in the 12/31/2018 valuation.

- The $5 million difference between the original amount and final appropriation is immaterial in the overall valuation results.

Contribution Rates and Contribution Dollars

- KPERS received $197 million in additional contributions during FY 2019.
  - $82 million passed by the 2018 Legislature received in July 2018.
  - $115 million passed by the 2019 Legislature received in April 2019.

- The statutory State/School employer contribution rate in FY 2019 was below the actuarial required contribution rate, but the rate does not reflect the additional appropriations.
  - With the additional appropriations the State/School group contributed more than full actuarial required **contributions** in FY 2019, which is the first time that has occurred since FY 1997.

- The statutory State/School employer contribution rate is still below the actuarial required rate in FY 2020, but the additional $51 million payment received in July 2019 is projected to be enough to full fund the actuarial required contributions for FY 2020.

- The statutory State/School employer contribution rate is scheduled to reach the actuarial required rate in FY 2021.

Funding Projections

- Not precise predictions but general estimates

- 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

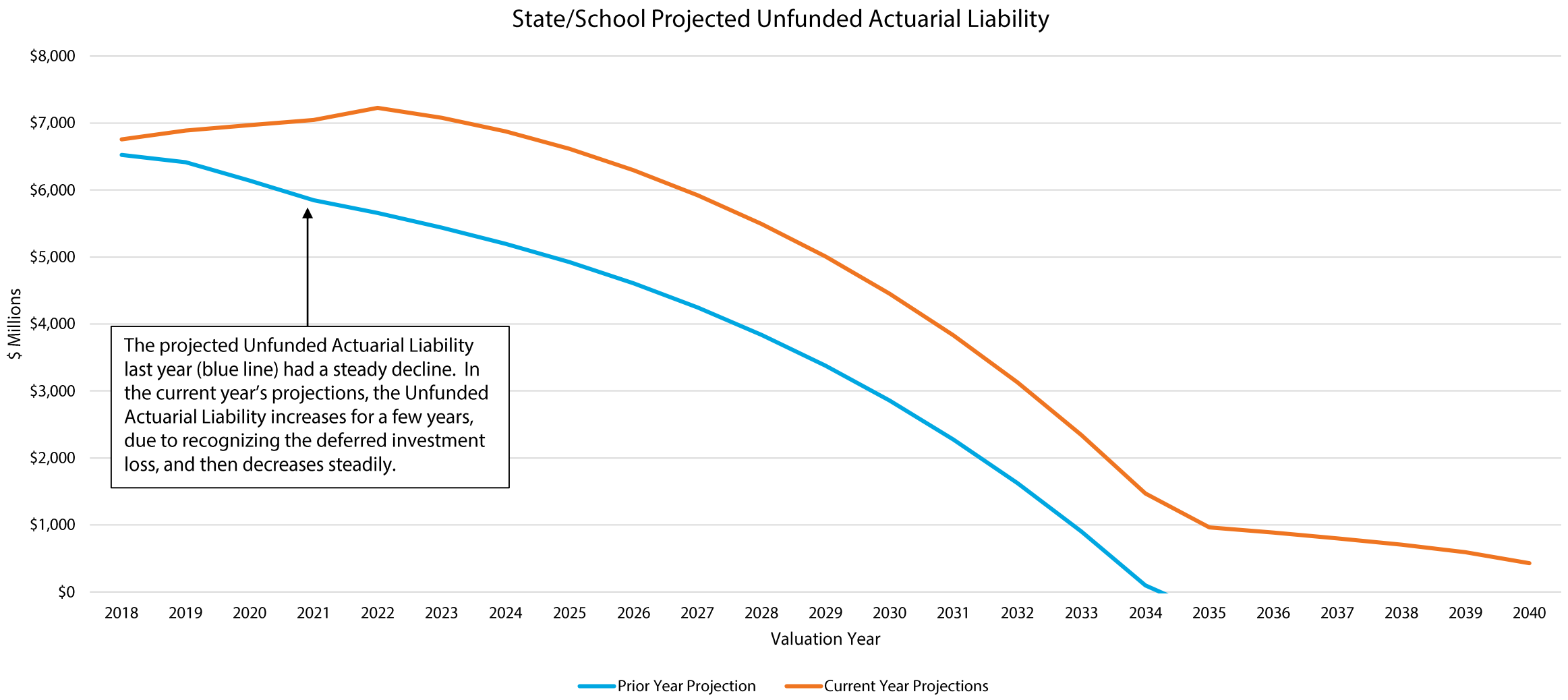
- December 31, 2018 Valuation
  - Funded Ratio: 66.1%
  - Actuarial required rate: 14.09%
  - Statutory rate: 14.09%

- Actuarial Required Contribution (ARC) Date/Rate (actuarial and statutory contribution rates are equal) occurred in 12/31/2017 valuation at 14.23% for FY 2021.

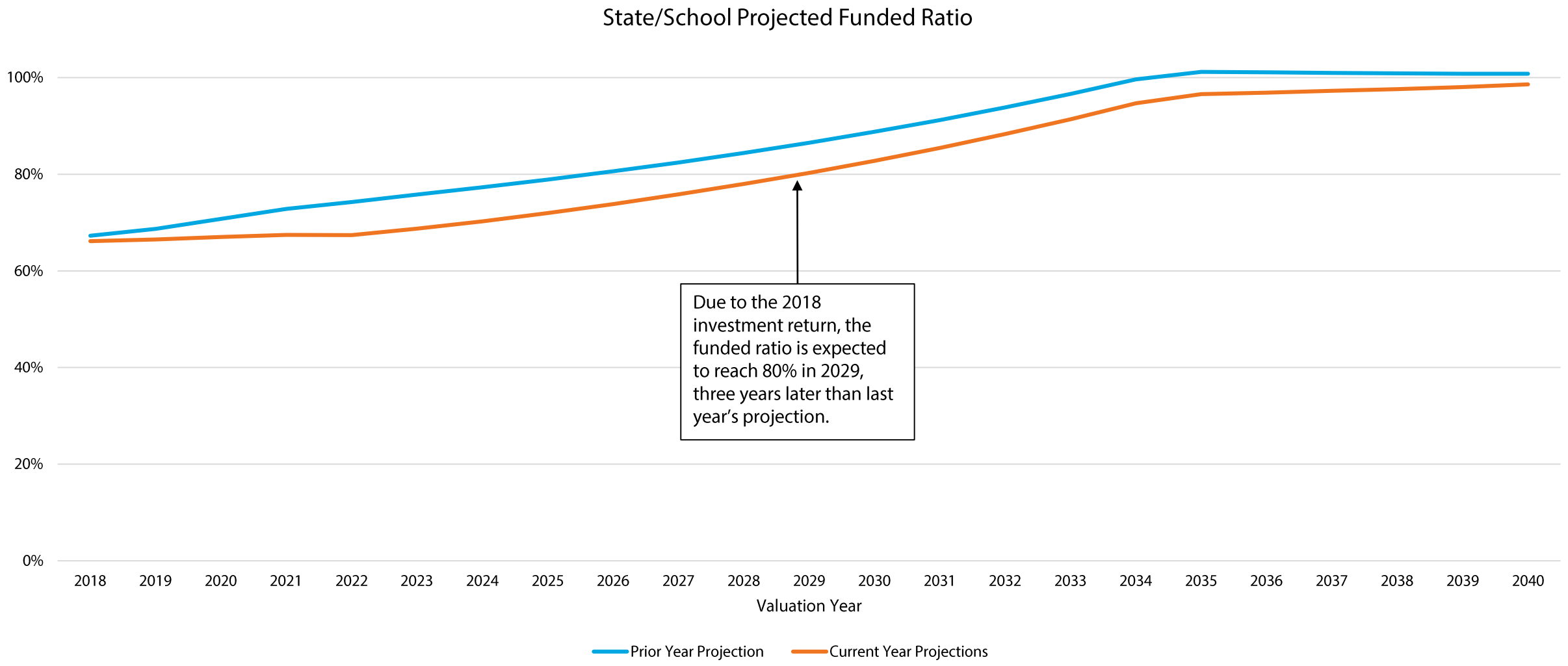
- Continues to be at full actuarial contribution rate in 12/31/18 valuation.

- Actuarial contribution rate declined to 14.09% for FY 2022, despite a -2.9% return in 2018, primarily due to additional contributions made by the 2019 Legislature.

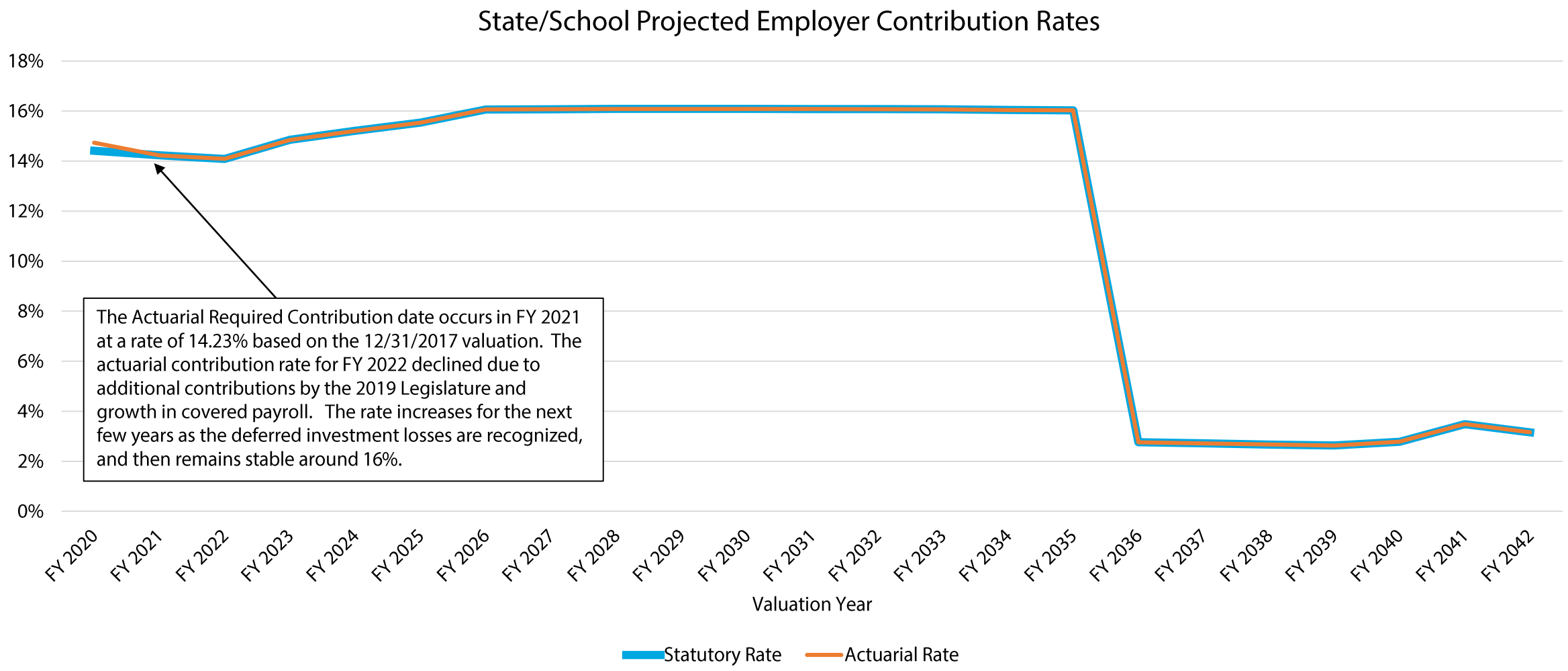
Funding Projections



Funding Projections



Funding Projections



Short Term Projections

Total System

Return in 2019*

	7.75%		0%		-7.75%	
Valuation Date (12/31)	Unfunded Actuarial Liability (in millions)	Funded Ratio	Unfunded Actuarial Liability (in millions)	Funded Ratio	Unfunded Actuarial Liability (in millions)	Funded Ratio
2019	$9,469	68%	$9,756	68%	$10,043	67%
2020	9,615	69%	10,300	67%	10,984	64%
2021	9,745	69%	10,836	66%	11,927	62%
2022	10,026	69%	11,515	65%	13,011	60%

*Assumes a 7.75% return in all years after 2018 so current deferred investment experience is reflected in future years. Also assumes reduced contributions for FY 2017 and FY 2019 are repaid as scheduled.

KPERS Funding

- The timing of a dip in investments late in CY 2018 caused funding progress to remain level at 68.4% in the 12/31/2018 valuation.
  - Investment returns have been strong in CY 2019 and assets have increased significantly.
- Funding projections show continued improvement, especially as the amortization of the legacy unfunded actuarial liability nears the end of it's amortization period (14 years remaining).
- Continued full funding of the employer contribution rate is one of the keys to keeping KPERS on a path to full, sustainable funding.
- KPERS benefits are not in jeopardy, with over $20 billion in assets today and a well diversified investment portfolio, KPERS is able to pay promised benefits for many years.

Questions?