



2018 INPRS Review

State Budget Committee

December 3, 2018

Steve Russo

Executive Director

About INPRS

With approximately \$34B in assets, INPRS serves the retirement needs of approximately 470,000 members and more than 1,200 public employers

- **Eight Defined Benefit Retirement Funds**
 - ❑ Public Employees' Defined Benefit Account (PERF DB)
 - ❑ Teachers' Pre-1996 Defined Benefit Account (TRF Pre-'96 DB)
 - ❑ Teachers' 1996 Defined Benefit Account (TRF '96 DB)
 - ❑ 1977 Police Officers' and Firefighters' Retirement Fund ('77 Fund)
 - ❑ Judges Retirement System (JRS)
 - ❑ Excise, Gaming and Conservation Officers' Retirement Fund (EG&C)
 - ❑ Prosecuting Attorneys' Retirement Fund (PARF)
 - ❑ Legislators' Defined Benefit Fund (LE DB)
- **Three Defined Contribution Retirement Funds**
 - ❑ Public Employees' Defined Contribution Account (PERF DC)
 - ❑ Teachers' Defined Contribution Account (TRF DC)
 - ❑ Legislators' Defined Contribution Fund (LE DC)
- **Two Non-Retirement Funds**
 - ❑ Local Public Safety Pension Relief Fund
 - ❑ Special Death Benefit Fund (SDBF)

INPRS – FY18 in Review

INPRS' managed pension plans remain well funded with no increase in PERF, TRF '96 & '77 DB Fund employer contribution rates through at least 2020

- Estimated aggregate funded status of the pre-funded **defined benefit** plans increased from 84.3% to 88.3%
- COLA assumption changes driven by SEA373 and more than assumed employer contributions outpaced less than assumed 5 year investment return
- PERF and TRF Annuity Savings Account (ASA) assets became separate DC Funds
- Teacher Pre-'96 Pay-Go plan remains stable
- Continued progress towards exemplary customer service and operational excellence

FY2018 Actual Change In Net Position

INPRS' Net Assets increased 7% from July 1, 2017 to June 30, 2018

Net Assets – June 30, 2017 **\$31.8B**

Contributions + **\$2.5B**

Investment Income + **\$2.8B**

Payments - **\$2.9B**

Net Assets – June 30, 2018 **\$34.2B**

Funded Status as of June 30, 2018

\$ in Millions

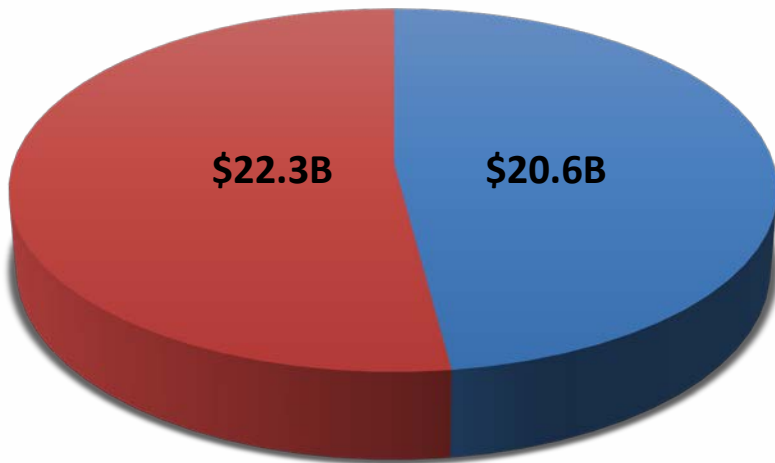
Defined Benefit Retirement Plans	Actuarial Value of Assets Funded Status as of June 30, 2018 ¹					Actuarial Value of Assets Funded Status as of June 30, 2017 ²				
	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Status		Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability	Funded Status	
PERF	\$ 16,091.4	\$ 12,823.9	\$ 3,267.5	79.7%		\$ 16,335.2	\$ 12,327.9	\$ 4,007.3	75.5%	
TRF '96	5,563.3	5,478.5	84.8	98.5%		5,536.1	5,036.0	500.1	91.0%	
'77 Fund	5,839.7	5,954.0	(114.3)	102.0%		5,385.8	5,587.6	(201.8)	103.7%	
JRS	547.6	516.7	30.9	94.4%		523.7	492.0	31.7	93.9%	
EG&C	140.0	132.4	7.6	94.6%		142.6	124.5	18.1	87.3%	
PARF	103.3	61.7	41.6	59.7%		96.7	58.0	38.7	60.0%	
LE DB	3.5	3.1	0.4	87.5%		3.8	3.1	0.7	81.9%	
Aggregate Pre-Funded Plans	\$ 28,288.8	\$ 24,970.3	\$ 3,318.5	88.3%		\$ 28,023.9	\$ 23,629.1	\$ 4,394.8	84.3%	
TRF Pre-'96 (Pay-As-You-Go)	14,583.2	3,721.3	10,861.9	25.5%		15,494.5	3,708.9	11,785.6	23.9%	
Aggregate All INPRS Plans	\$ 42,872.0	\$ 28,691.6	\$ 14,180.4	66.9%		\$ 43,518.4	\$ 27,338.0	\$ 16,180.4	62.8%	

¹ Results reflect defined benefit liabilities and assets only.

² PERF and TRF results do not include defined contribution balances.

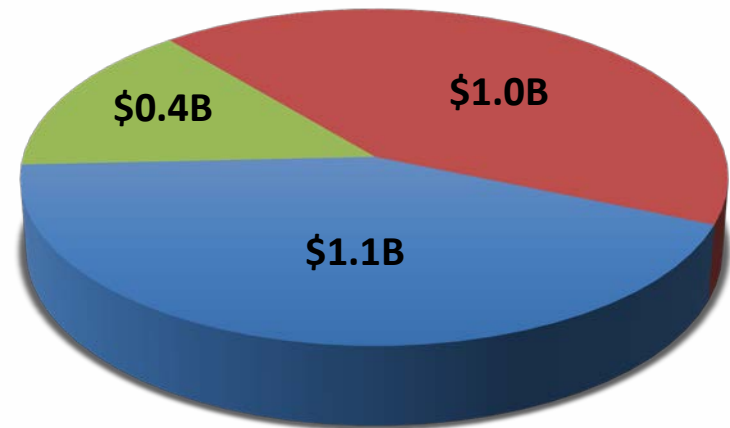
INPRS Actuarial Accrued Liability and Pension Contributions

Actuarial Accrued Liability
as of June 30, 2018



■ State ■ Local Units

FY18 Pension Contributions



■ State - Appropriation ■ State - Other ■ Local Units

Unfunded Liabilities

A Year in Review

- In FY18 the COLA assumption changed from 1.0% beginning January 1, 2020 to 0.4% beginning January 1, 2022, 0.5% beginning January 1, 2034, and 0.6% beginning January 1, 2039. There are no changes in plan provisions.

\$ In Millions

INPRS Unfunded Liability- 6/30/2017	\$16,180.5
Actuarial Expected Change	(222.2)
Expected Unfunded Liability (6/30/2018)	15,958.3
Investment Return	187.6
Change in Actuarial Assumptions - 2018 SEA 373	(1,693.7)
Contribution Experience	(104.6)
Demographics / Other¹	(167.2)
INPRS Unfunded Liability- 6/30/2018	\$14,180.4

¹ Includes demographic gains/losses, gains due to 13th check vs. assumed COLA, and changes in method.

Pension Funding Sources

FY2018 – FY2021

(dollars in millions)

Fund	FY2018 Actual		FY2019 Forecast ¹		FY2020 Forecast ¹		FY2021 Forecast ¹	
	General Fund Appropriation	Other ²	General Fund Appropriation	Other ²	General Fund Appropriation	Other ²	General Fund Appropriation	Other ²
PERF DB		\$ 566.6		\$ 572.4		\$ 581.3		\$ 590.2
- 13th Check ³	\$ 4.8		\$ 4.8					
TRF Pre-'96 DB	866.2	34.2	892.2	33.7	\$ 919.0	33.3	\$ 946.6	33.0
- 13th Check ³	21.7		21.7					
TRF '96 DB		235.8		249.4		259.3		269.5
- 13th Check ³								
'77 Fund		195.9		200.8		205.8		211.0
JRS	8.0	10.6	8.9	10.4	11.0	10.4	11.5	10.4
EG&C		7.2		7.4		7.6		7.8
- 13th Check ³	0.1		0.1					
PARF	3.0	1.3	3.2	1.3	4.2	1.3	4.4	1.3
LE DB	0.2		0.3		0.2		0.2	
- 13th Check ³								
Total DB	904.0	1,051.6	931.2	1,075.4	934.4	1,099.0	962.7	1,123.1
PERF DC		171.2		173.9		176.5		179.1
TRF DC		123.0		124.4		126.2		128.3
LE DC		1.7		1.7		1.7		1.7
Total DC	-	295.9	-	300.0	-	304.4	-	309.1
Special Death Pension Relief	150.0	56.4	145.0	56.4	145.0	56.4	145.0	56.4
Total	\$ 1,054.0	\$ 1,404.4	\$ 1,076.2	\$ 1,432.2	\$ 1,079.4	\$ 1,460.3	\$ 1,107.7	\$ 1,489.1

¹ Based on the June 30, 2018 actuarial valuation. Forecast could change.

² Other includes member and employer contributions, lottery proceeds, docket and court fees, cigarette and alcohol taxes, and actual service purchases.

³ The General Fund Appropriation represents pre-funding for a 13th check.

SEA373 - Supplemental Reserve Accounts (SRAs)

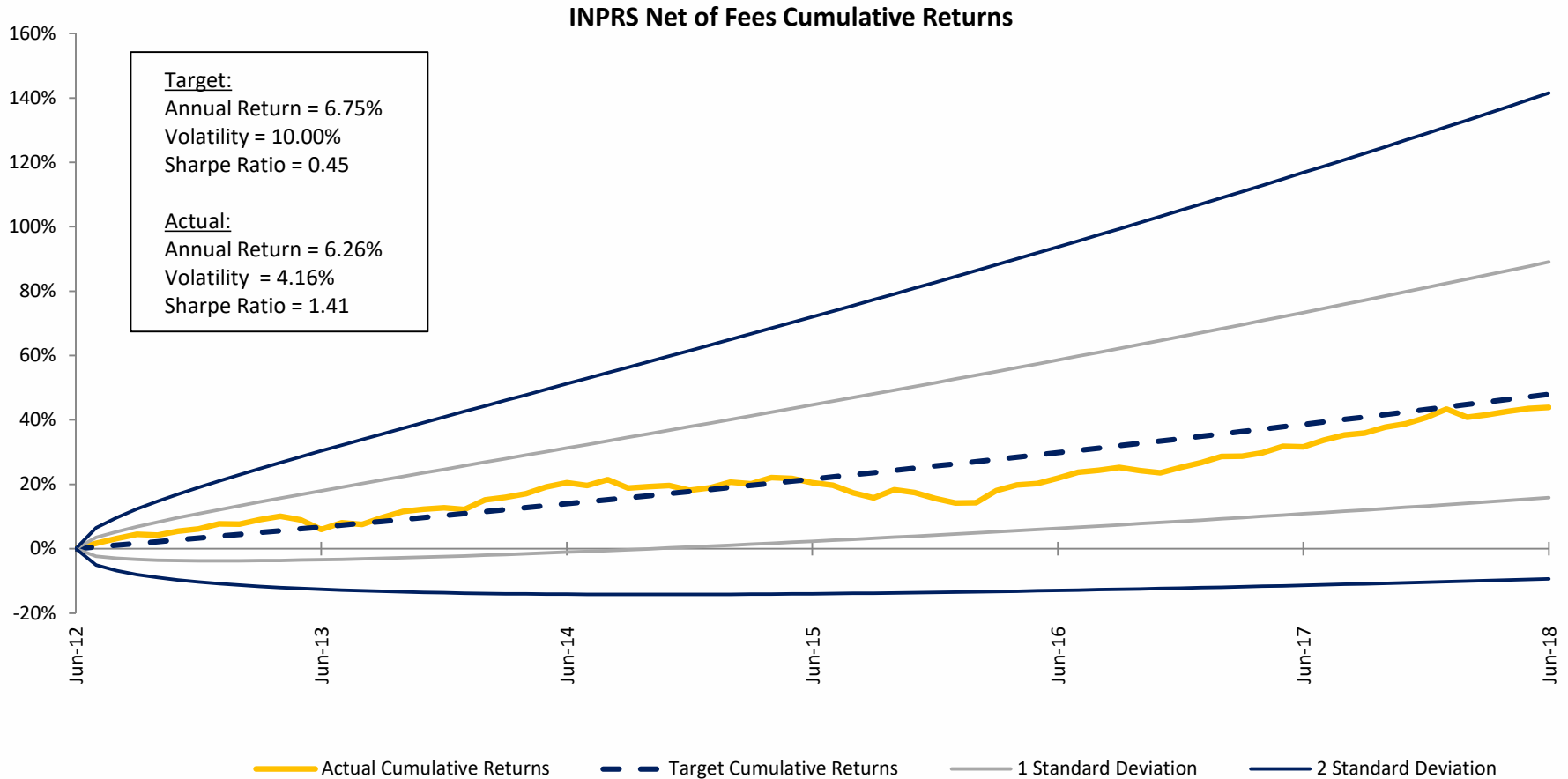
Background

- As of June 30th, 2018 any post retirement benefit increases (including a 13th Check and/or COLA) granted by the General Assembly must be pre-funded through available funds in segregated supplemental allowance reserve accounts (SRAs) for PERF, TRF Pre-'96, TRF '96, EG&C and LE DB.
- Previously:
 - Postretirement benefit increases (PBI) were granted by the General Assembly on an ad hoc basis.
 - Increases were paid out of plan assets.
 - No income sources were segregated for the sole purpose of PBI

Investments - A Year in Review

- INPRS' total *market value of assets* = \$34.2 billion as of June 30, 2018.
- INPRS' defined benefit plan returned 9.3% for fiscal year 2018.
- The *actuarial value of assets* is used in calculating the funded ratio and actuarial required contributions. Investment returns are smoothed over five years. INPRS' five year return is 6.3% annualized.
- INPRS continues to target a 6.75% **long-term** rate of return assumption; a more realistic return assumption among state plans.
- Synergies of the combined PERF/TRF assets continue to reduce fees: Net Present Value Savings = \$408.1M
- Cumulatively since 2012, the internal INPRS investment team has delivered \$780M of incremental net investment returns thru asset allocation and manager selection decisions

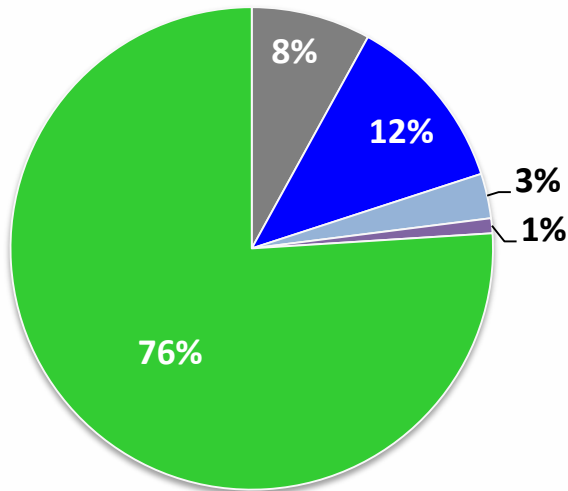
Defined Benefit Performance vs. 6.75% Objective



Defined Contribution (DC) Fund Allocation

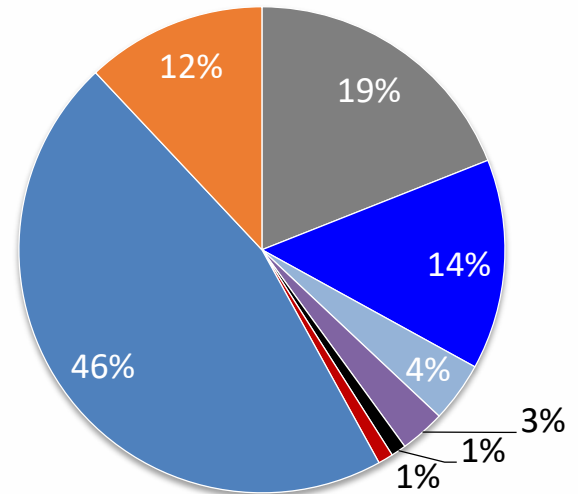
2007

- Large Cap Equity Index Fund
- Small/Mid Cap Equity Fund
- International Equity Fund
- Fixed Income Fund
- Guaranteed Fund



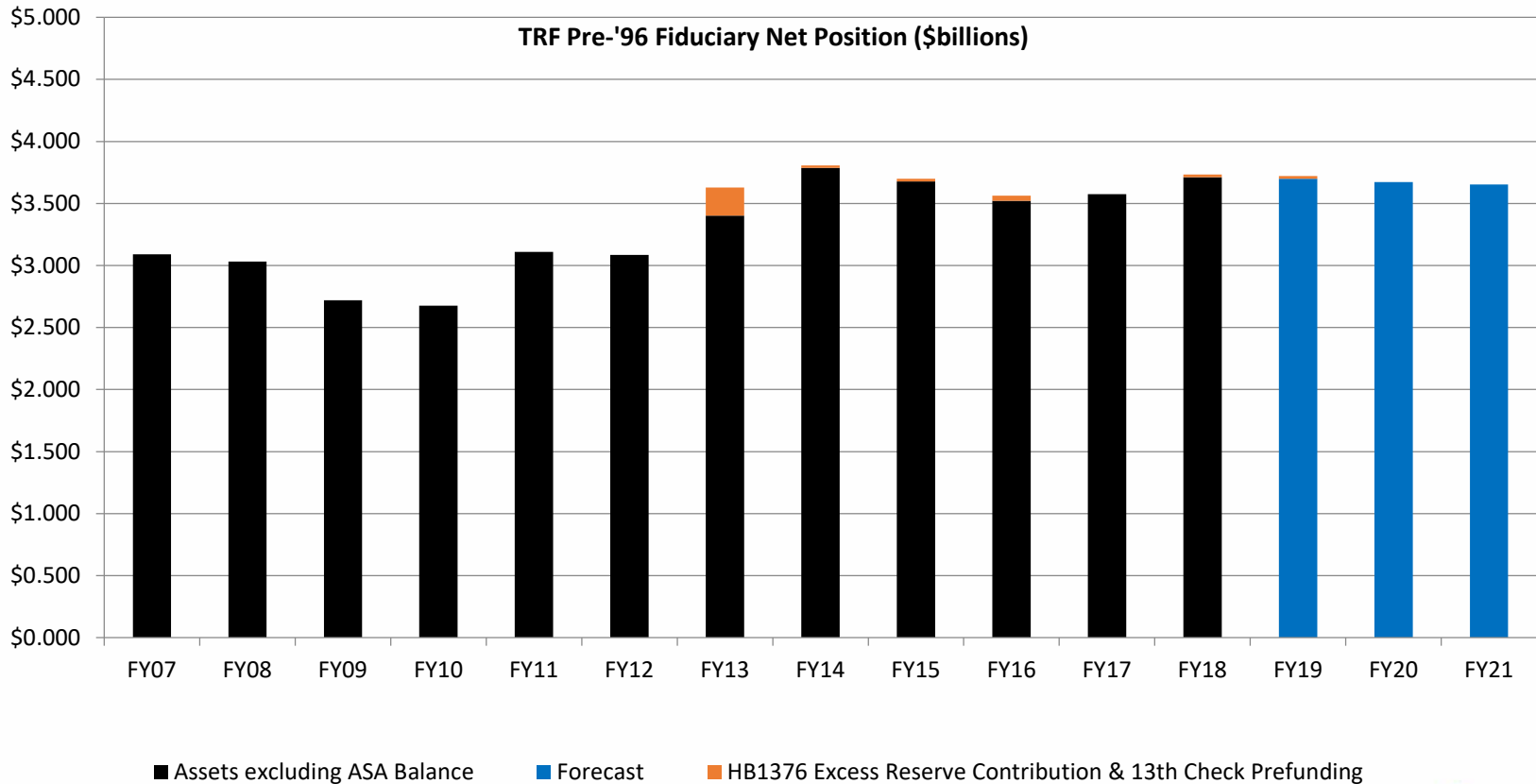
2018

- Large Cap Equity Index Fund
- Small/Mid Cap Equity Fund
- International Equity Fund
- Fixed Income Fund
- Inflation-Linked Fixed Income Fund
- Money Market Fund
- Stable Value
- Target Date Funds



Teachers' Pre-1996 Defined Benefit Fiduciary Net Position

Balance as of June 30, 2018 = \$3.7B



Teachers' Pre-1996 Defined Benefit Account Update

- 3% year-over-year appropriations growth for FY2019 – FY2021

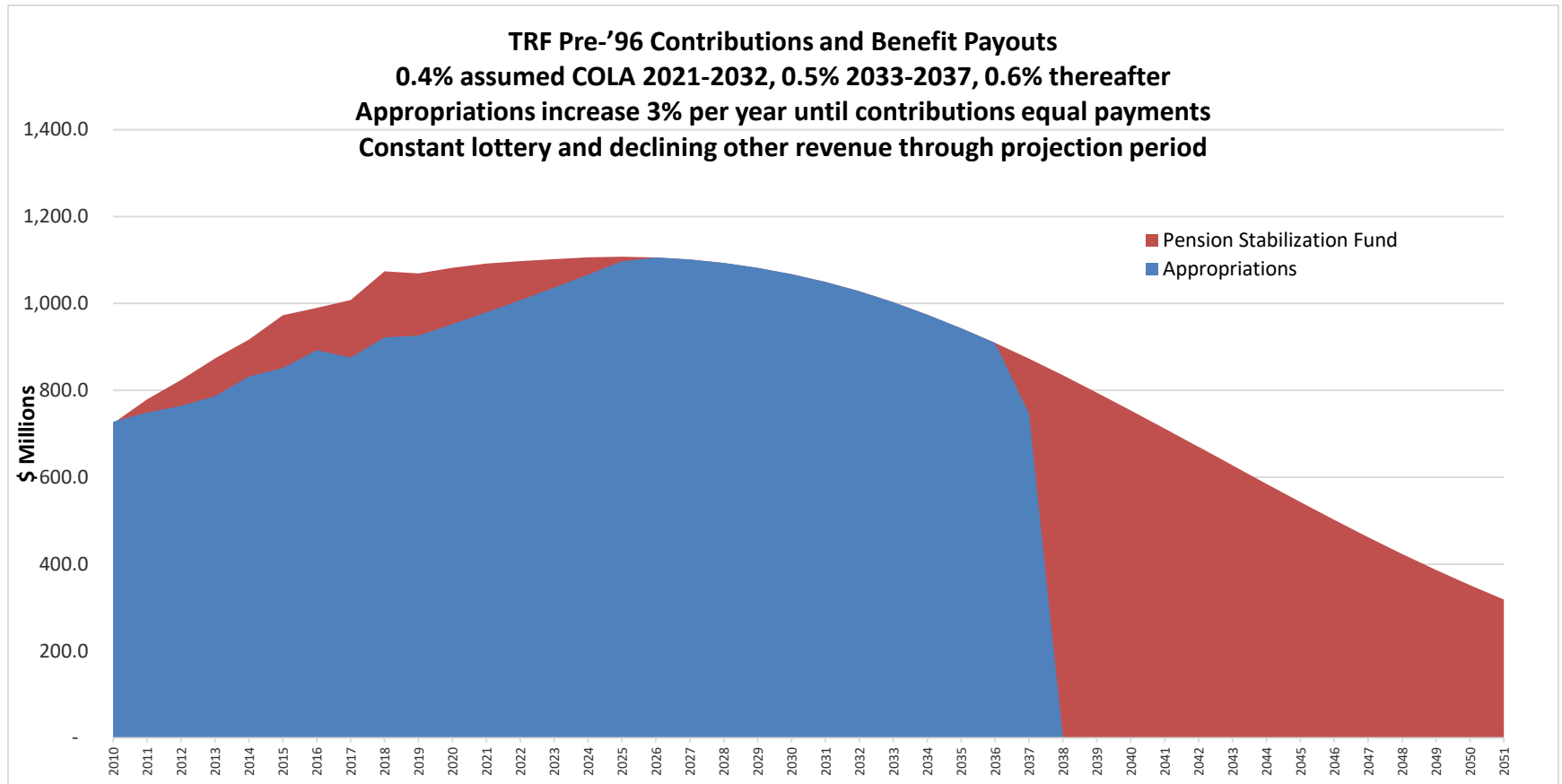
<i>\$ Millions</i>	<u>Actual FY15</u>	<u>Actual FY16</u>	<u>Actual FY17</u>	<u>Actual FY18</u>	<u>Forecast ¹ FY19</u>	<u>Forecast ¹ FY20</u>	<u>Forecast ¹ FY21</u>
Total:							
Benefit Payments	\$ (1,100.4)	\$ (1,118.1)	\$ (1,135.7)	\$ (1,153.4)	\$ (1,206.4)	\$ (1,218.6)	\$ (1,227.2)
General Fund Appropriations	792.8	816.5	841.0	866.2	892.2	919.0	946.6
Amount Withdrawn	\$ (307.6)	\$ (301.6)	\$ (294.7)	\$ (287.2)	\$ (314.2)	\$ (299.6)	\$ (280.6)
Lottery Transfer	\$ 32.5	\$ 30.0	\$ 30.0	\$ 30.0	\$ 30.0	\$ 30.0	\$ 30.0
Investment Gains / (Losses)	1.0	40.8	288.9	354.9	241.8	240.2	238.8
13th Check Prefunding ²	20.3	41.0	-	21.7	21.7	-	-
Other Income / (Expenses)	145.8	33.7	28.8	16.5	-	-	-
Net Position ³	\$ 3,678.5	\$ 3,522.4	\$ 3,575.4	\$ 3,711.3	\$ 3,690.6	\$ 3,661.2	\$ 3,649.4

¹ Based on the 6/30/2018 Actuarial Valuation. FY19, FY20 and FY21 forecast benefit payments could change.

² 13th Check Prefunding: Received 13th Check Prefunding for FY16 & FY17 (\$41M) in FY16. 2017 Budget Bill prefunded 13th Check for FY19 (\$21.7M).

³ Includes ASA balances annuitized prior to January 1, 2018 (approximately \$1.2B).

Teachers' Retirement Fund (TRF) Pre-1996 Account Forecast



*Based on the 6/30/2017 Valuation; Only includes Pension Benefit Payout and PSF Assets, excludes ASA Annuities

Pension Relief

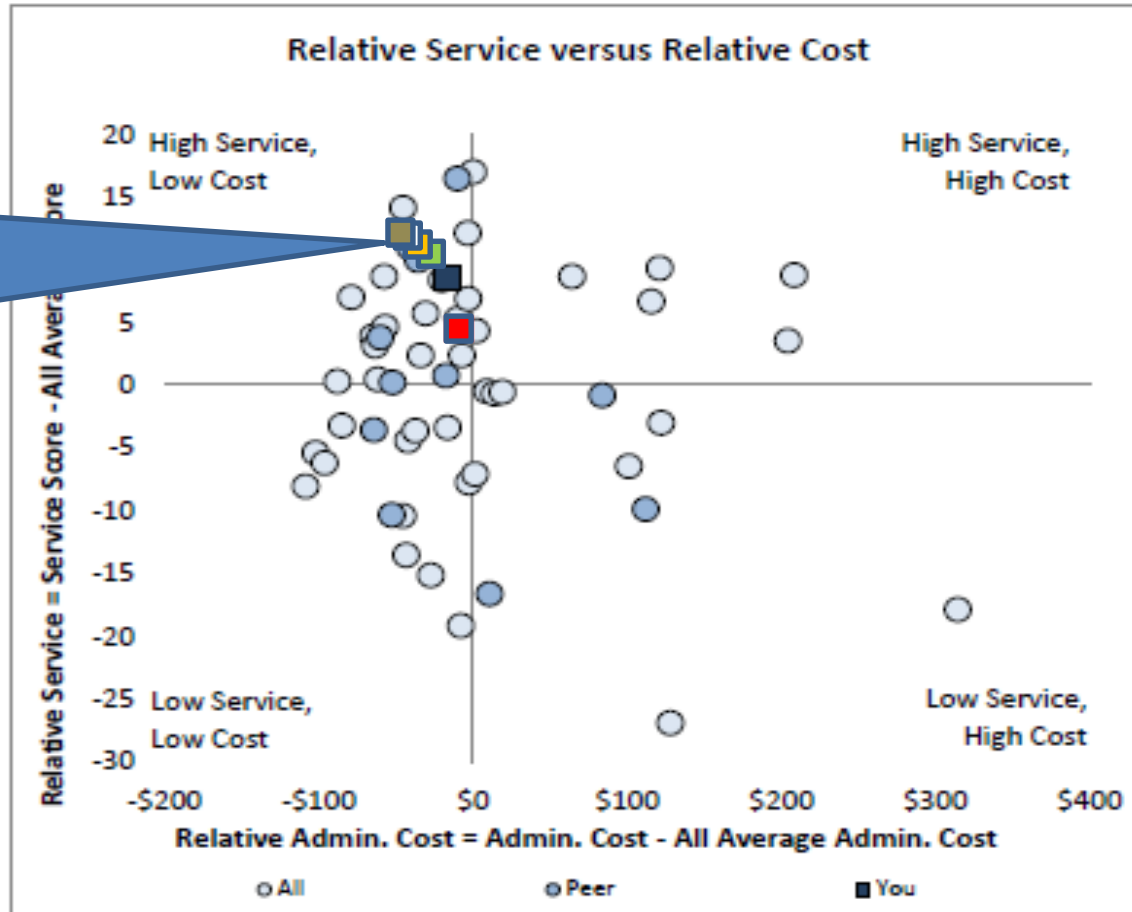
Established in 1977 to help cities and towns with the costs of legacy police and firefighter retirement plans

\$ in millions

	FY2014 Actual	FY2015 Actual	FY2016 Actual	FY2017 Actual	FY2018 Actual	FY2019 Forecast	FY2020 Forecast	FY2021 Forecast
Additions								
General Fund Appropriation (State)		\$ 175.0	\$ 155.0	\$ 160.0	\$ 150.0	\$ 145.0	\$ 145.0	\$ 145.0
Lottery (State)		32.5	30.0	30.0	30.0	30.0	30.0	30.0
Cigarette Tax (State)		23.4	23.6	23.1	22.3	22.3	22.3	22.3
Alcohol Tax (State)		3.6	3.7	3.9	4.1	4.1	4.1	4.1
Public Deposit Insurance Fund (PDIF)		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investment Income		0.1	0.3	0.7	1.4	1.4	1.4	1.4
Total Additions		\$ 234.6	\$ 212.6	\$ 217.7	\$ 207.8	\$ 202.8	\$ 202.8	\$ 202.8
Deductions								
Pension Relief Distributions		\$ 217.7	\$ 215.8	\$ 213.3	\$ 212.6	\$ 209.2	\$ 207.1	\$ 204.5
Death Benefits		0.6	0.0	0.3	0.0	0.0	0.0	0.0
Other (Local Unit Withdrawals & Admin. Expenses)		0.5	0.0	0.0	0.0	0.0	0.0	0.0
Total Deductions		\$ 218.8	\$ 215.8	\$ 213.6	\$ 212.7	\$ 209.2	\$ 207.1	\$ 204.6
Pension Relief Fund Balance	\$ 17.2	\$ 33.0	\$ 29.8	\$ 33.9	\$ 29.0	\$ 22.6	\$ 18.2	\$ 16.4
Memo: Local Unit Balances	\$ 2.1	\$ 1.6	\$ 1.7	\$ 1.7	\$ 1.7	\$ 1.7	\$ 1.7	\$ 1.7

INPRS Is Higher In Service & Lower In Cost Relative To Our Peer Group

Within our peer group, INPRS has reached the 2nd highest service level



National Trends

- Despite one of the longest bull markets in history, aggregate funding levels are still declining
 - Reductions in assumed rates of return (FY18 public pension plan median = 7.45%)
 - Recognition of mortality improvements
 - Movement from open to closed amortization periods and towards shorter amortization periods
- Following years of slow growth, major sources of state and local tax revenue are trending higher while rates of public sector employment and wage growth have been declining
 - Contributes to slower rates of public pension liability growth
 - Can increase the cost of a plan as a percentage of payroll
- More employers are funding their ADCs
- More sophisticated stress testing
- Increased reviews of post retirement employment provisions

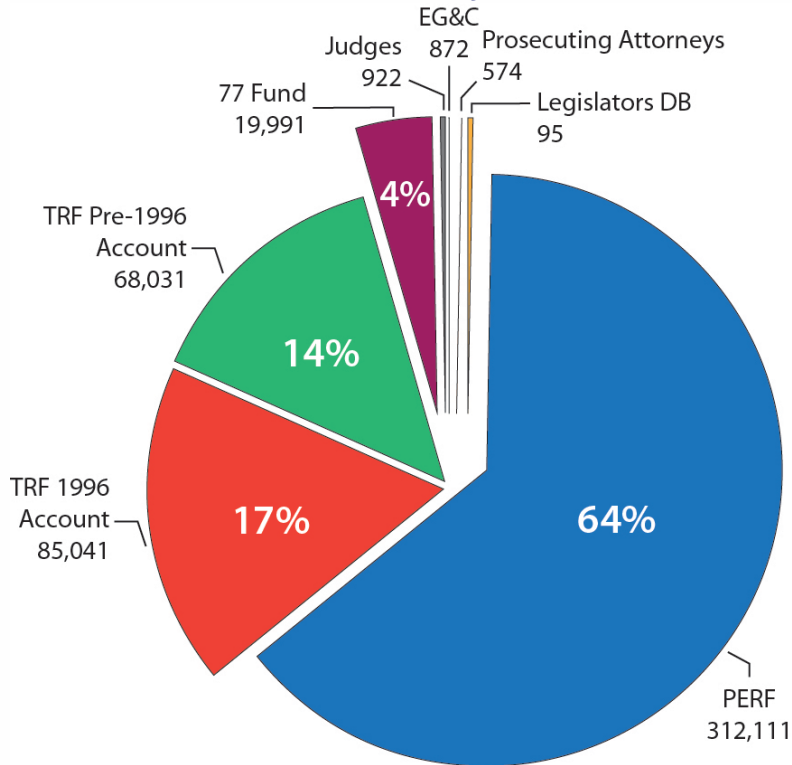
APPENDIX

Overview – Member Demographics

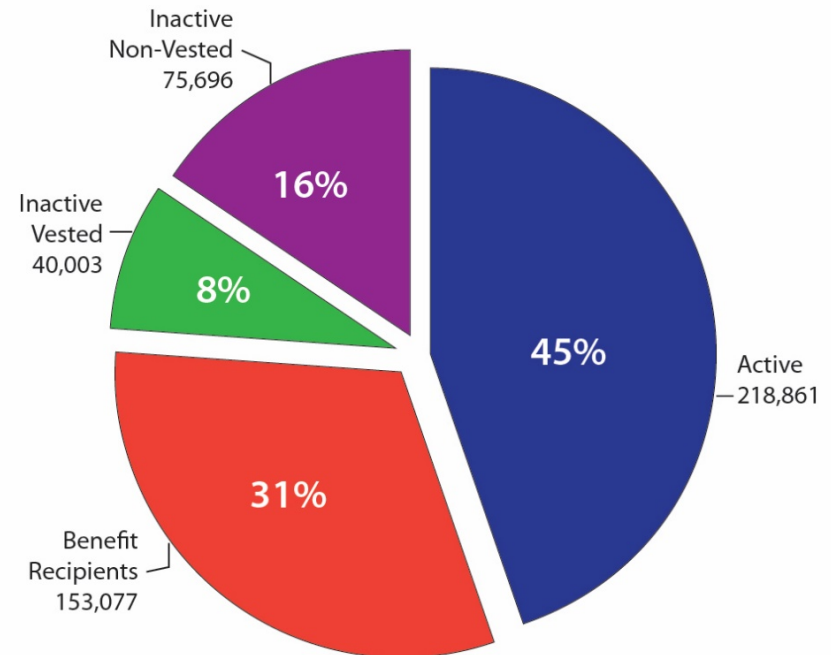
(Census Data as of June 30, 2017)

470,000+ Members

Members by Fund



Members by Status

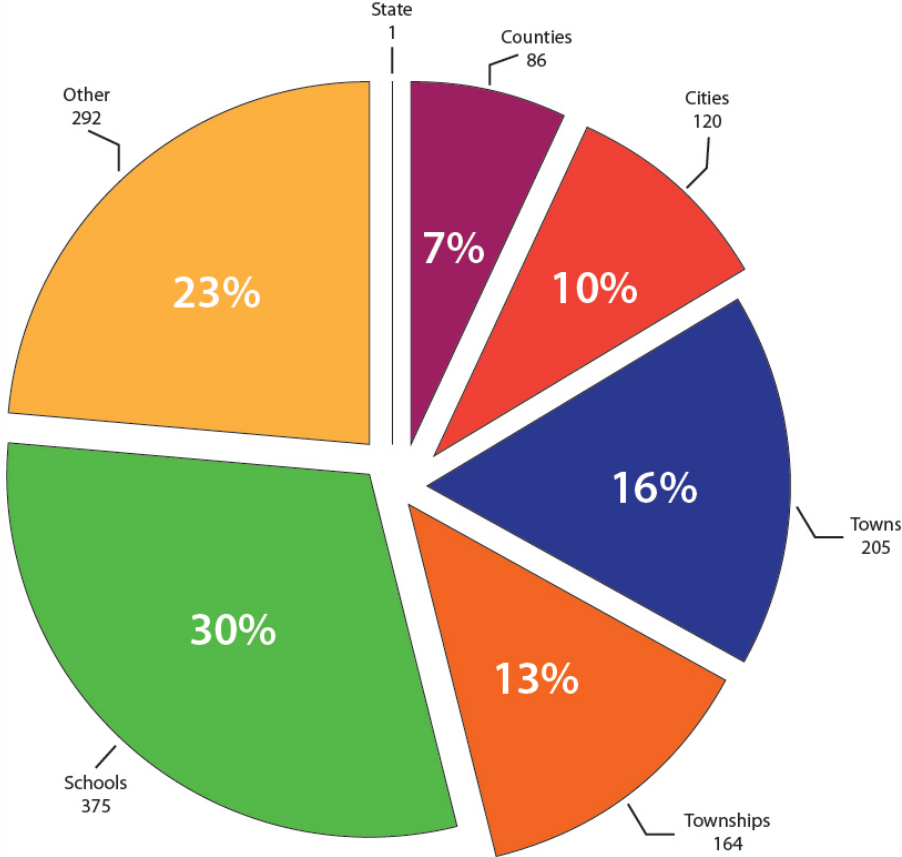


*Does not include PERF My Choice: Retirement Savings Plan members.

Overview – Employer Demographics

(as of June 30, 2018)

1,200+ Employers



Contributions - A Year in Review

- **INPRS' Funding Policy establishes adequate contribution rates that seek appropriate levels of stability**
 - At least the amount of the Actuarial Determined Contribution (ADC)
 - Not less than the prior year's rate until 105% funded
- **Collected \$2.458B in pension plan contributions**
 - \$1,054M General Fund Appropriations
 - \$960M Employer contributions paid as a % of actual payroll
 - \$349M Member Contributions
 - \$95M Other
- **Employers paid 109.8% of the Actuarial Determined Contribution (ADC)**

FY18 INPRS Actuarial Determined Contributions (ADC)

\$ in Thousands

Defined Benefit Retirement Plans	FY2018 (Actual Payroll Based Adj)			FY2017 (Actual Payroll Based Adj)		
	Actuarial Determined Contribution (ADC) Adj for Actual Payroll	GF Appropriation/ Employer/ Other Contributions ¹	Percentage Contributed	Actuarial Determined Contribution (ADC) Adj for Actual Payroll	GF Appropriation/ Employer/ Other Contributions ¹	Percentage Contributed
PERF	\$ 502,206	\$ 571,099	113.7 %	\$ 496,867	\$ 558,659	112.4 %
TRF 1996 Account	210,586	235,675	111.9	198,444	227,207	114.5
1977 Fund	74,491	147,074	197.4	91,258	150,698	165.1
Judges	14,853	15,117	101.8	14,335	16,824	117.4
EG&C Plan	4,393	6,175	140.5	4,033	5,691	141.1
PARF	2,533	3,014	119.0	2,148	1,486	69.2
LEDB	237	237	100.0	170	135	79.4
Aggregate Pre-Funded Plans	809,299	978,391	120.9	807,255	960,700	119.0
TRF Pre-1996 Account (Pay-As-You-Go)	922,068 ²	922,068	100.0	875,525 ²	875,525	100.0
Aggregate All INPRS Plans	\$ 1,731,367	\$ 1,900,459	109.8 %	\$ 1,682,780	\$ 1,836,225	109.1 %

¹ Excludes member DC contributions.

² TRF Pre-1996 Appropriation is determined by State Statute and is therefore shown in lieu of ADC.

FY2019 Board Approved Contribution Rates vs. the Actuarial Determined Contribution

(\$ in thousands)

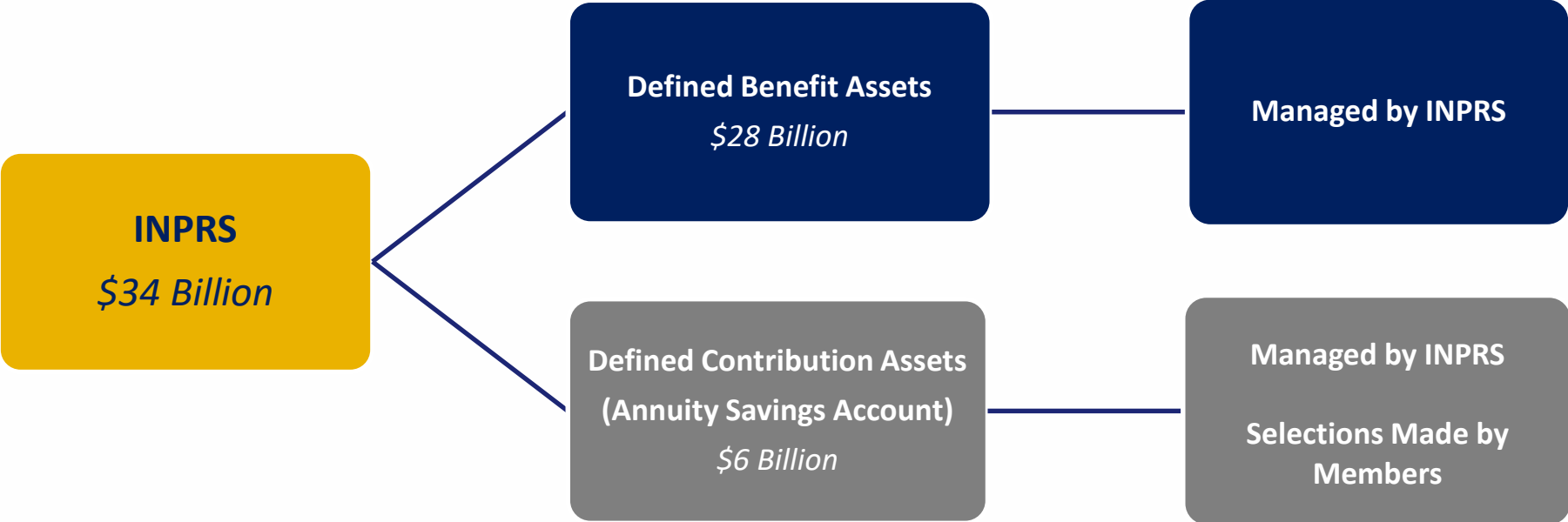
Defined Benefit Retirement Fund	Actuarially Determined	Board Approved
Contribution Rate		
PERF DB	10.26 %	11.20 %
TRF '96 DB	6.94	7.50
'77 Fund	8.86	17.50
EG&C	13.33	20.75

INPRS' Defined Benefit Investment Imperatives

- Achieve a 6.75% return over the long term.
- Achieve the return as efficiently & effectively as possible.
- Always have enough cash on hand to pay benefits.

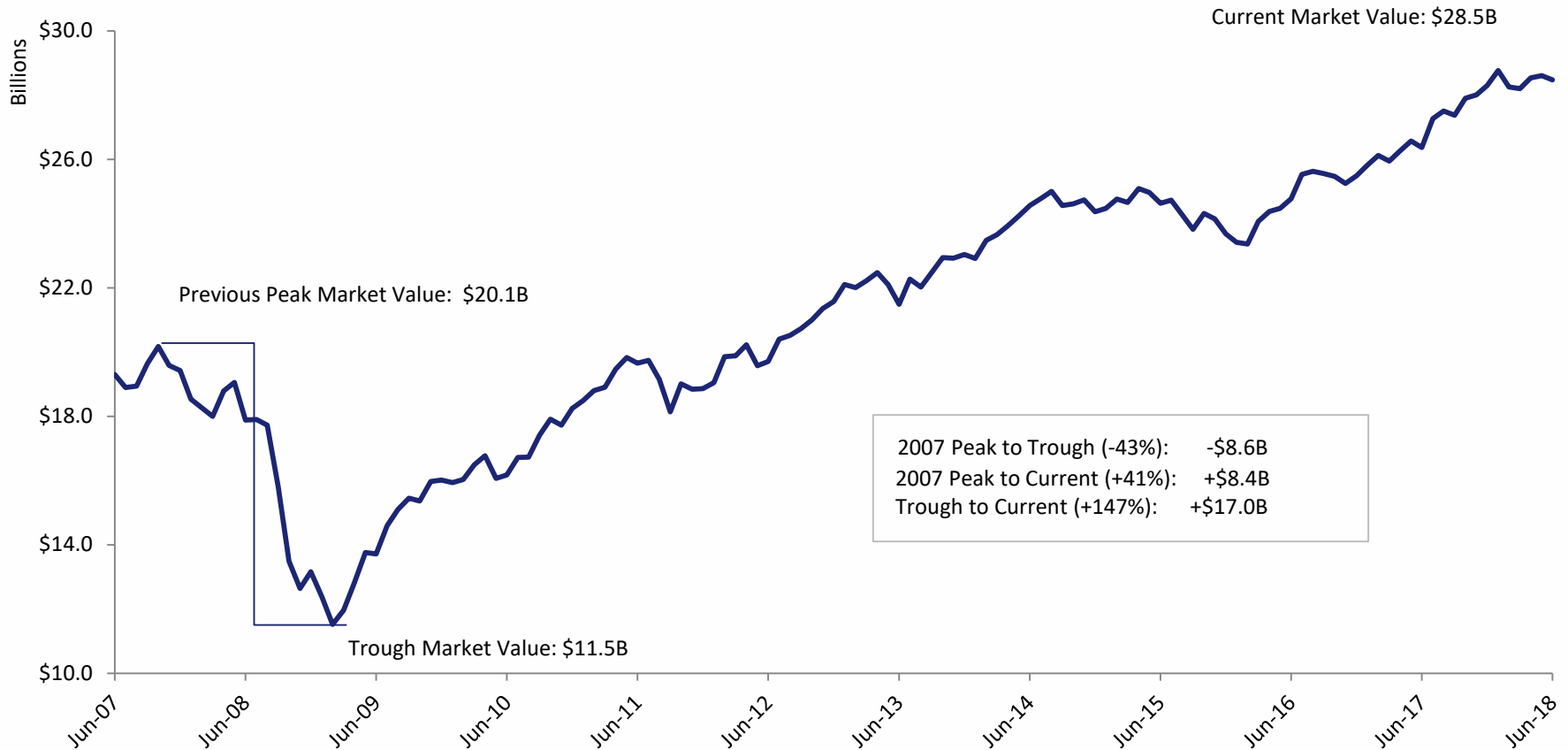
INPRS Assets

INPRS assets are a mix of Defined Benefit and Defined Contribution monies



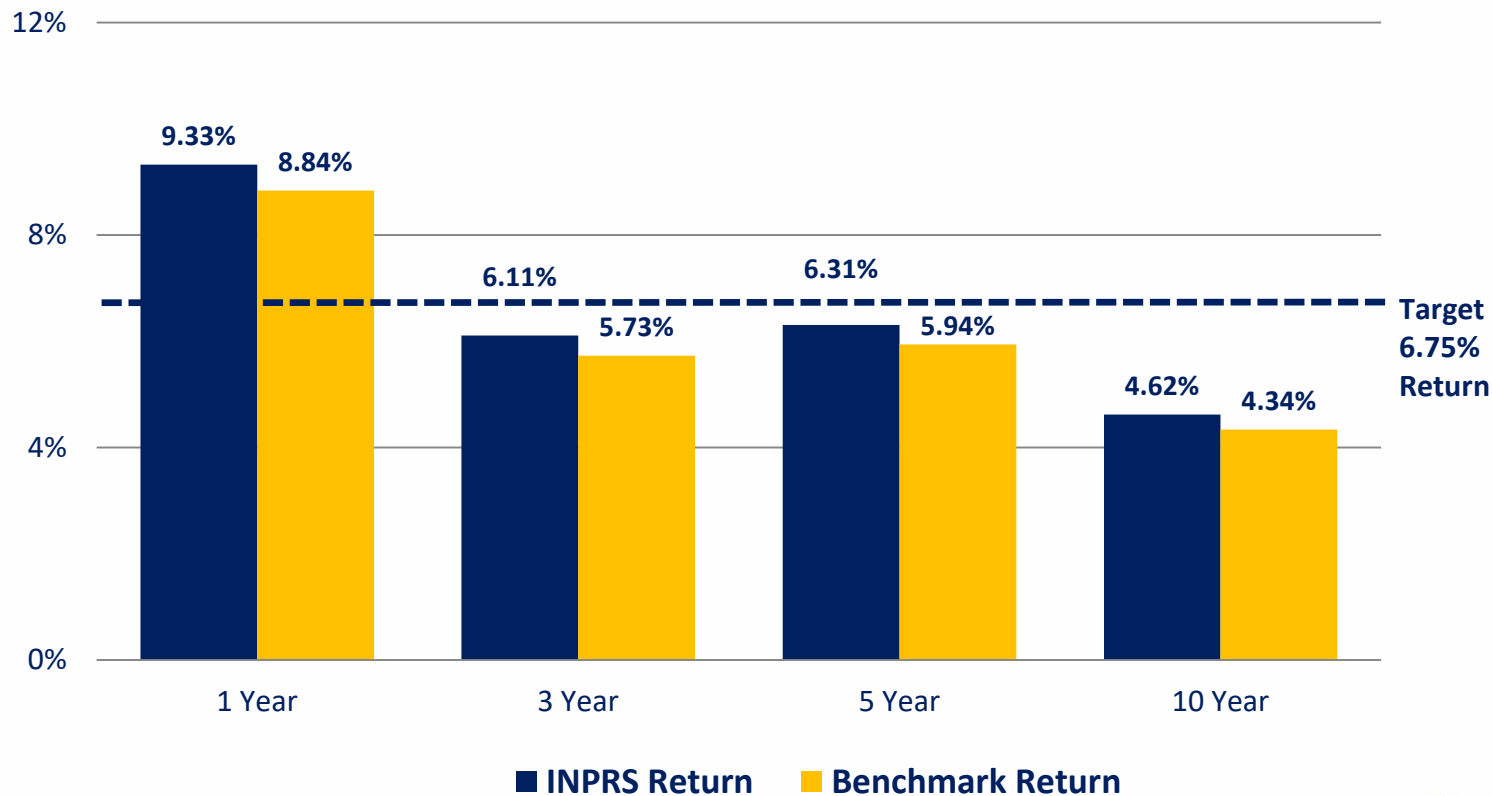
Defined Benefit Balance Through Time

INPRS DB Market Value (As of 6/30/2018)



Defined Benefit Performance vs. Benchmarks

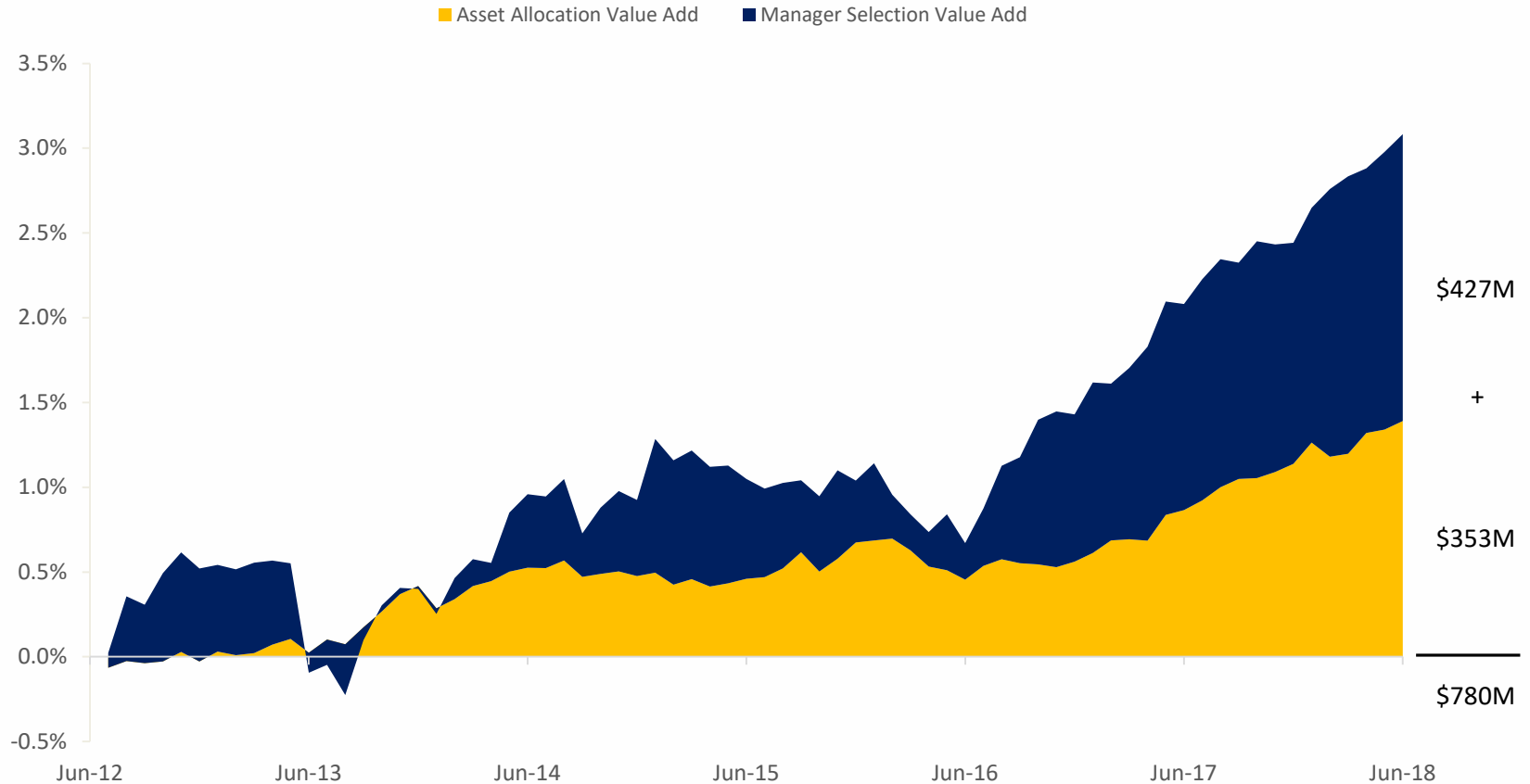
Annualized Net of Fee Returns as of 6/30/18



INPRS DB “Value Add”

July 2012 – June 2018

Cumulative Excess Returns over the Target Allocation (Net of Fees)



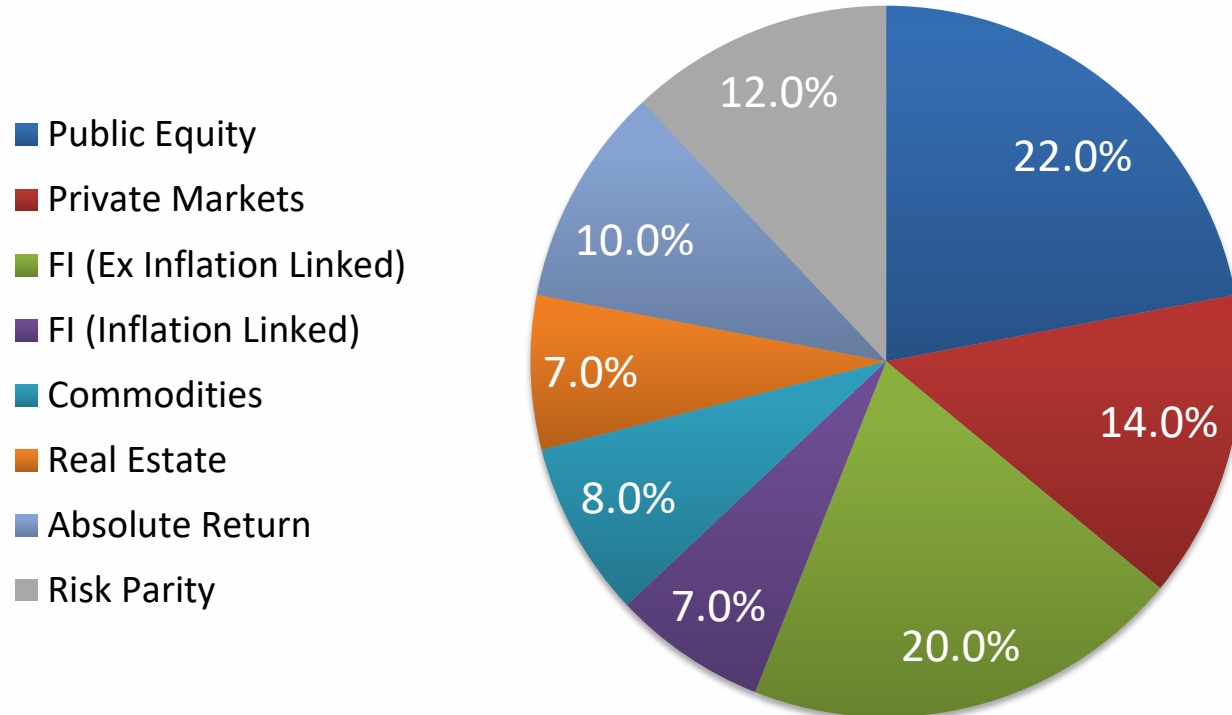
INPRS' Asset Allocation Process

“The board shall invest its assets with the care, skill, prudence, and diligence that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character with like aims. The board also shall diversify investments in accordance with prudent investment standards”

- 1) Understand liabilities, cash flows & profile of employers
- 2) Understand stakeholders' risk tolerance
- 3) Analyze various asset allocations vs. INPRS' objectives
 - Mean Variance Optimization based on established principles of Modern Portfolio Theory
 - Run as many historical scenarios & stress tests as possible
 - Seek input from the best asset allocators across the globe
- 4) Select target asset allocation & ranges for asset classes
- 5) Avoid “knee-jerk” portfolio changes (*volatility & scary headlines are normal*)

Diversification means you're always saying “sorry” for something.

Defined Benefit Target Asset Allocation



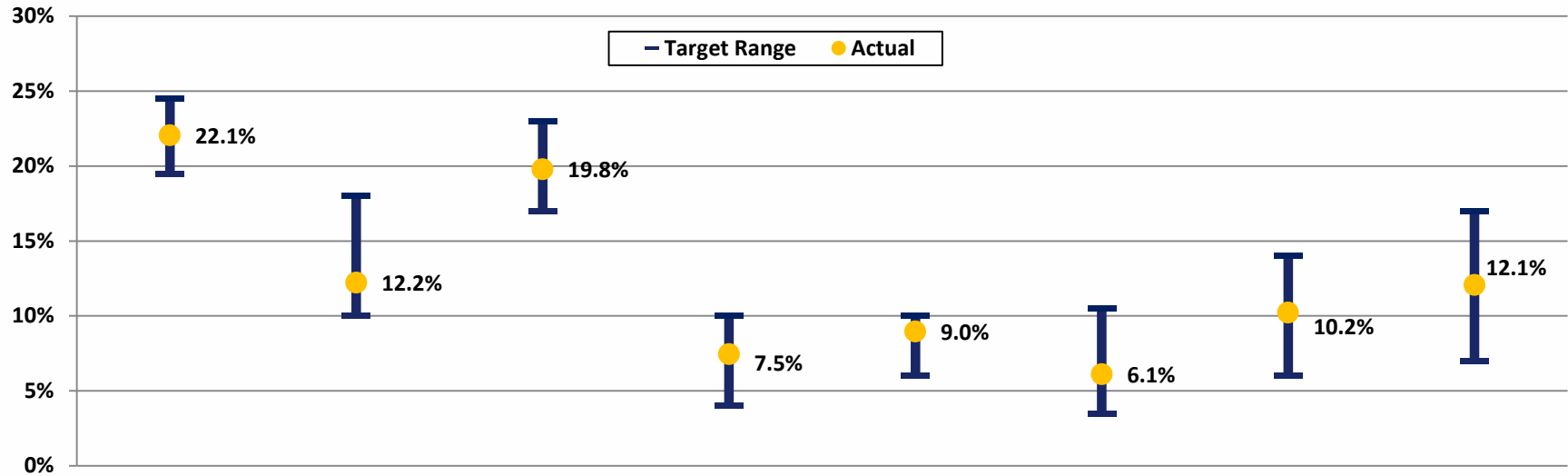
No changes from the asset-liability study in FY15

Purposes of the Asset Classes Outside of Stocks & Bonds

Private Equity	To provide risk-adjusted returns in excess of public equity markets through various strategies (e.g. operational improvements to the invested companies).
Real Estate	To provide attractive risk-adjusted returns by producing stable income and preserving capital. It also serves as a diversifier and protection against inflation in certain environments.
Absolute Return	To provide unique, diversifying return streams and reduce volatility by utilizing strategies that are less constrained.
Commodities	To provide protection when inflation is higher than expected and linked to goods / inputs.

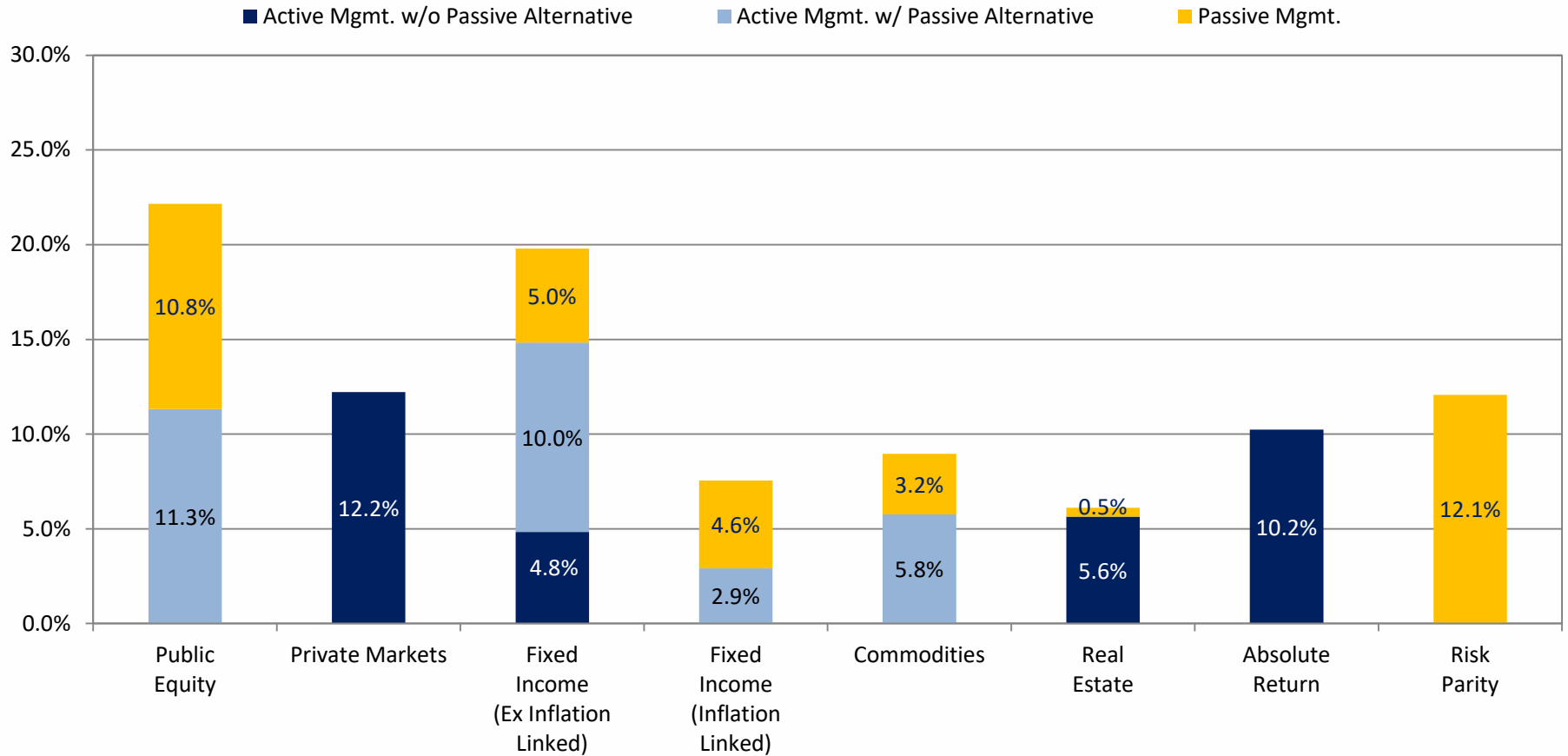
Asset Allocation & Performance

As of 6/30/18



	Public Equity	Private Markets	Fixed Income (Ex Inflation-Linked)	Fixed Income (Inflation-Linked)	Commodities	Real Estate	Absolute Return	Risk Parity
1 Year Return	11.69%	15.99%	1.18%	5.92%	21.96%	12.20%	5.46%	8.14%
3 Year Return	8.95%	11.77%	3.94%	3.65%	-2.92%	10.20%	3.36%	4.78%
5 Year Return	10.16%	13.13%	4.07%	3.23%	-6.38%	10.29%	4.80%	5.39%
10 Year Return	7.19%	9.92%	5.09%	3.93%		6.37%	3.17%	

INPRS' Split Between Active & Passive Portfolios



Actual asset allocation as of June 30, 2018. Cash excluded from the analysis.

INPRS' Return Projections

	INPRS' Target Weight ¹	Projected 10-yr Returns ² (June 30, 2018)
U.S. Inflation		2.1%
U.S. Large Cap Stock	10.3%	4.5%
U.S. Small Cap Stock	0.9%	4.4%
Int'l Developed Mkt Stock	8.4%	8.6%
Emerging Mkt Stock	2.4%	7.3%
Private Equity	10.0%	6.4%
Private Credit	4.0%	6.9%
Fixed Income	20.0%	3.7%
Inflation-Linked Bonds (TIPS)	7.0%	2.6%
Commodities	8.0%	4.3%
Real Estate	7.0%	7.0%
Hedge Funds	10.0%	4.0%
Risk Parity	12.0%	7.2%
10-yr Projected Return		5.90%
30-yr Projected Return		6.57 – 6.87%

¹Approved at the June 2015 INPRS Board meeting.

²Source: Verus. Annualized, geometric returns. Due to the historically low interest rates and slow growth across the globe, expectations remain low.

FY18 Defined Benefit

Investment Management & Performance Fees¹

0.63% of INPRS' Total DB Market Value²

\$12.8M	Passive Fees
+ \$48.2M	Active Mgmt. + Performance Fees in Public Asset Classes ³
+ <u>\$116.3M</u>	<u>Alternative Asset Class Mgmt. + Performance Fees⁴</u>
= \$177.4M	Total INPRS Investment Mgmt. + Performance Fees

CEM Benchmarking, an industry-leader in evaluating the efficiency of public pensions, analyzed INPRS' CY16 investment management fees.

- ✓ *INPRS' fees were slightly lower than peers after adjusting for asset allocation differences between plans*
- ✓ *INPRS outperformed its benchmark more than peers (net of all fees)*

¹ Unaudited estimates.

² Based on average market values of the individual portfolios throughout the year.

³ Includes performance fees for Public Equity and Fixed Income asset classes.

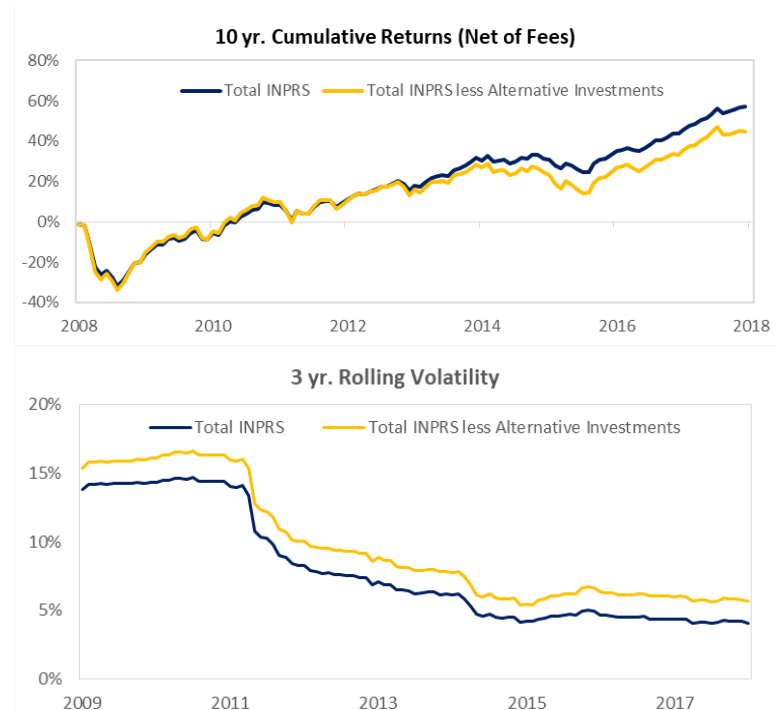
⁴ Includes performance fees for Absolute Return asset class.

Alternative Investments

Although more expensive than merely investing in public markets, alternative investments¹ have had two positive results:

INPRS' total returns have been higher than they would have been without alternative investments²...

...and INPRS' total volatility has been lower because of them.



¹ Alternative investments includes Private Equity, Real Estate, and Absolute Return.

² Assumed that any allocation to alternative investments would have been allocated pro-rata to the remaining asset classes based on INPRS' asset allocation.

Peer Comparisons

INPRS vs InvestorForce Public DB > \$1B Net Universe

1 Year (Net of Fees)

5 Year (Net of Fees)

INPRS WBE/MBE Investments

Manager Name	Asset Class	Strategy	Market Value or Amount Committed	WBE/MBE	If Minority
Rhumblin	Public Equity	Large Cap	\$ 1,721,806,013	MBE	African American
Rhumblin	Public Equity	Small Cap Value	\$ 722,920,734	MBE	African American
Vista Equity	Private Equity	Buyout	\$ 430,000,000	MBE	African American
SAIF Partners	Private Equity	Growth Capital	\$ 90,000,000	MBE	Asian
MBK Partners	Private Equity	Buyout	\$ 50,000,000	MBE	Asian
Warwick	Private Equity	Real Assets	\$ 68,000,000	WBE	
Mar Vista Investment	Public Equity	Large Cap Growth	\$ 42,563,899	MBE	African American
Oakbrook Investments	Public Equity	Large Cap Growth	\$ 26,612,456	WBE	
Walden Group	Private Equity	Venture Capital	\$ 20,000,000	MBE	Asian
Scale	Private Equity	Venture Capital	\$ 15,000,000	WBE	
Kailai Investments (Clarity China)	Private Equity	Growth Capital	\$ 10,600,000	MBE	Asian
Total INPRS' MWBE Exposure			\$ 3,197,503,101		
Total INPRS' AUM			\$ 34,241,218,980		
MWBE As % of INPRS' AUM			9.3%		

*Rhumblin manages small cap value of \$127,862,574 for INPRS DB and 595,058,159 for INPRS ASA

** Total INPRS' AUM includes \$28,610,413,563 in DB and 5,630,805,417 in ASA

Defined Contribution (DC) Imperatives

- Provide a simple and diversified default option

Most members elect to stay invested in the default option through retirement.

- Provide a simple and diversified menu of stand-alone options

Reducing complexity & the number of investment options is believed to lead to better outcomes based on research from leading Defined Contribution experts.

- Leverage the DB asset base to provide low-cost investment options

Leverage the size of the Defined Benefit assets in an effort to lower the fees across Defined Contribution investment options.

DC Performance (Net of Fees) As of June 30, 2018

	Market Value (\$MM)	% of ASA	1 Year	3 Year	5 Year ¹
Large Cap Equity Index Fund <i>S&P 500 Index</i>	1,062	18.8	14.35 <i>14.37</i>	11.91 <i>11.93</i>	13.40 <i>13.42</i>
Small/Mid Cap Equity Fund <i>Russell Small Cap Completeness Index</i>	774	13.7	17.15 <i>16.86</i>	10.67 <i>10.50</i>	12.37 <i>12.76</i>
International Equity Fund <i>MSCI ACWI ex US</i>	250	4.4	7.56 <i>7.28</i>	6.13 <i>5.07</i>	7.14 <i>5.99</i>
Fixed Income Fund <i>Barclays Aggregate</i>	173	3.1	-0.10 <i>-0.40</i>	1.97 <i>1.72</i>	2.48 <i>2.27</i>
Inflation Linked Fixed Income Fund <i>Barclays US TIPS Index</i>	32	0.6	2.34 <i>2.11</i>	1.79 <i>1.93</i>	1.59 <i>1.68</i>
Stable Value Fund <i>3yr Constant Maturity Treasury</i>	2,578	45.7	1.96 <i>2.08</i>	1.67 <i>1.46</i>	2.02 <i>1.22</i>
Money Market Fund <i>Citi 3 Month T-Bill Index</i>	49	0.9	1.51 <i>1.33</i>	0.86 <i>0.64</i>	0.55 <i>0.39</i>
Consolidated DB Assets² <i>Combined PERF TRF BM</i>	9	0.2	9.37 <i>8.83</i>	6.10 <i>5.73</i>	6.30 <i>5.94</i>
Target Date Funds³	717	12.6			
TOTAL ASA ASSETS⁴	5,644	100.0			

¹All returns are hypothetical composite returns, with the exception of the Stable Value Fund and Consolidated DB Assets, which are actual. ²Only available in the LEDC plan. ³Returns and indices are on the Target Date Funds Performance slide. ⁴Total assets in the PERF, TRF and LEDC plans.

Target Date Funds Performance (Net of Fees) As of June 30, 2018¹

	Market Value (\$MM)	% of Target Date Funds	1 Year	3 Year	5 Year
2060 Fund <i>2060 Fund Index</i>	15	2.1	8.00 <i>7.77</i>	6.86 <i>6.38</i>	7.79 <i>7.31</i>
2055 Fund <i>2055 Fund Index</i>	101	14.1	7.98 <i>7.77</i>	6.85 <i>6.38</i>	7.77 <i>7.31</i>
2050 Fund <i>2050 Fund Index</i>	99	13.8	7.98 <i>7.77</i>	6.85 <i>6.38</i>	7.77 <i>7.31</i>
2045 Fund <i>2045 Fund Index</i>	75	10.5	7.98 <i>7.77</i>	6.85 <i>6.38</i>	7.77 <i>7.31</i>
2040 Fund <i>2040 Fund Index</i>	75	10.5	7.77 <i>7.51</i>	6.72 <i>6.23</i>	7.69 <i>7.21</i>
2035 Fund <i>2035 Fund Index</i>	85	11.9	6.69 <i>6.35</i>	5.98 <i>5.50</i>	7.18 <i>6.72</i>
2030 Fund <i>2030 Fund Index</i>	81	11.3	4.84 <i>4.48</i>	4.79 <i>4.39</i>	5.99 <i>5.59</i>
2025 Fund <i>2025 Fund Index</i>	87	12.1	3.53 <i>3.20</i>	3.85 <i>3.48</i>	4.79 <i>4.42</i>
2020 Fund <i>2020 Fund Index</i>	72	10.0	2.73 <i>2.42</i>	3.09 <i>2.71</i>	3.84 <i>3.41</i>
Retirement Fund <i>Retirement Fund Index</i>	27	3.8	2.25 <i>1.94</i>	2.58 <i>2.22</i>	2.91 <i>2.39</i>
TOTAL TARGET DATE FUNDS	717	100			

¹The assets in the PERF, TRF and LE plans were merged on 4/1/2013. Prior to 4/1/2013, all data presented is calculated from manager composite performance.

FY18 Year End Performance and Year over Year Improvement

Portfolio Performance

DB Rate of Return



DB Sharpe Ratio



Fees Below Peer Median



ASA - Rate of Return



Process

Call Center Performance



Benefits Paid on Time



Unmodified Audit Opinion



Pending Code Changes



Learning/Growth & Risk

Employee Engagement



Audit Findings



Compliance



Customer and Financial

Funded Status -- Prefunded plans



Actuarial Determined Contributions



Employer Contributions



Cost per Member



Performance to Budget



Customer Complaints



Benchmark Service Score



Dissatisfaction Red Flags



FY18 Strategic Plan Accomplishments

- 100% of our 67 annual key operational requirements (KORs) were met
- 85% of 41 strategic objectives ended the year with a status of “Completed” or “On-track”
- Major Accomplishments
 - Successful transition of DC recordkeeping and call center services to VOYA
 - Successful transition of DC annuitizations to MetLife
 - Successful launch of a guided online retirement application
 - Defined an ongoing and formal data integrity program
 - Reviewed and implemented Enterprise Risk Management best practices

FY 2019 Top Priorities

- ✓ Integrate Voice of the Customer (VOC) as a standard process to improve organizational performance and key service levels for stakeholders
- ✓ Complete an assessment of key business processes within Operations to identify potential improvements in member services, cost reduction, and/or quality
- ✓ Develop a retirement financial education strategy leading to improved member retirement readiness
- ✓ Implement an enterprise focused Data Integrity Program
- ✓ Identify and deploy the structure and governance needed to establish an excellent digital user experience for INPRS's members, employers and stakeholders
- ✓ Determine if the target rate of return and asset allocation risk level should change as a fund becomes more or less funded

PERF: My Choice Plan For Political Subdivision Employers

- 2014 HEA1466 created an optional My Choice Plan for PERF local units known as political subdivisions (PSDs)
 - The PSDs will be able to offer PERF: My Choice, PERF Hybrid or a choice between each to new hires
- The PERF: My Choice Plan provides PSDs employers more control over their contribution rates
 - The mandatory 3% contributions may be paid by the employer, employee or shared by the employer and employee (same as today)
 - Employer contribution is determined by the employer:
 - Employers can pay between 0 % and the DB normal cost (4.1%) into an employee's PERF: My Choice
 - Employer is also required to pay the supplemental rate which funds the unfunded liability in the PERF Hybrid plan (7.1%). Employers pay this amount to INPRS, not the employee's PERF: My Choice
 - New employers who have never offered the PERF Hybrid, but who choose to offer only the PERF: My Choice will not have to pay the supplemental rate
- Currently we have 23 employers who have signed up for the PERF: My Choice Plan
 - 8 employers are only offering the PERF: My Choice to new hires
 - 8 employers are offering new hires a choice between PERF: My Choice and PERF Hybrid
 - 7 employers offerings to employees differ by job classification

COLAs

	<u>Ad-Hoc</u>	<u>Auto</u>
PERF	✓	
TRF	✓	
'77 Police & Fire		✓
Judges		✓
Excise, Gaming & Conservation Officers	✓	
Prosecuting Attorneys	✓	
Legislators DB	✓	
Legislators DC		N/A

PERF / TRF COLAs & Thirteenth Checks

- COLAs are not free! (A one-time 1% PERF & TRF COLA = \$201M)
- “Thirteenth Checks” aren’t free either, but are cheaper than COLAs (\$57M)
- When the General Assembly grants a COLA / 13th Check, there is a cost to both state and local units of government, including schools
 - For all but the TRF Pre-’96 account, COLAs are funded by the employer as part of their SRA surcharge contribution rate
 - For the TRF Pre-’96 account, COLAs and thirteenth checks are funded by INPRS’ board from the allocation of lottery revenue dedicated to SRAs

Where will SRA money come from?

- For all but TRF Pre-'96 and LE DB, each plan's employers' will pay a separate surcharge not to exceed 1% of payroll as determined annually by the INPRS' board
- Funds from the Hoosier Lottery will be allocated primarily to the TRF Pre-'96 and to the other SRAs in a proportion determined annually by INPRS' board
- The intent will be to keep each bucket at the same relative level



When can money in SRAs be used?

- Once there is enough money in each bucket to provide a uniform PBI (either same % COLA or a 13th Check) one can be granted for each plan by the General Assembly.
- If one plan gets a PBI, all plans must receive one.
 - If Plan A gets an X% COLA, all other funds must get an X% COLA.



Auto COLA History

Fund	Effective July 1st										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
'77 Fund (CPI, maximum 3.0%)	3.0%	0.0%	2.4%	2.1%	2.8%	1.7%	1.4%	0.0%	1.1%	2.5%	2.2%
JRS '77 System (changes in salary of the position)	3.25%	0.0%	0.0%	1.3%	2.2%	3.1%	0.0%	2.2%	3.1%	2.0%	2.1%
'85 System (ad hoc before 2011, same as '77 System after 2010*)	2.0%	2.0%	0.0%								

* Applies to members who retire after 12/31/2009

Public Employees' Defined Benefit Account (PERF DB) Fund Overview

(dollars in millions)

as of June 30, 2018

Membership:	Full-time employees of the state and participating political subdivisions	Unfunded Actuarial Accrued Liability:	\$ 3,267.5
Type:	Hybrid Defined Benefit (DB)	Actuarial Funded Status:	79.7%

Benefits ¹			
Actual	Projected Benefit Payments ²		
FY2018	FY2019	FY2020	FY2021
\$ 861	\$ 931	\$ 971	\$ 1,014

Formula	1.1% X Avg. High 5 Year Salary X Years Service
Vesting	DB - 10 years
Full Retirement	Age 65 with 10 years service, age 60 with 15 years service, or age 55 with Rule of 85
Avg. Annual Retiree Benefit (as of 2017 with ASA)	\$ 9,110

Funding					
Contribution/Appropriation		Actual	Projected Contributions ²		
Source ³	Rate	FY2018	FY2019	FY2020	FY2021
General Fund	N/A	5	5		
State of Indiana	11.2%	189	\$ 191	\$ 193	\$ 196
Political Subdivisions	11.2%	378	381	388	394
Total		\$ 572	\$ 577	\$ 581	\$ 590

¹ Actual and projected benefit payments include ASA annuity payments.

² Based on 6/30/2018 actuarial valuation. Projected amounts could change.

³ Employer contributions have been allocated 1/3 to the State and 2/3 to the Political Subdivisions.

Teachers' Pre-1996 Defined Benefit Account (TRF Pre-'96 DB) Fund Overview

(dollars in millions)

as of June 30, 2018

Membership:	Teachers of K12 public schools and certain state universities hired prior to 7/1/1995	Unfunded Actuarial Accrued Liability:	\$ 10,861.9
Type:	Hybrid Defined Benefit (DB)	Actuarial Funded Status:	25.5%

Benefits ¹			
Actual	Projected Benefit Payments ²		
FY2018	FY2019	FY2020	FY2021
\$ 1,153	\$ 1,206	\$ 1,219	\$ 1,227

Formula	1.1% X Avg. High 5 Year Salary X Years Service
Vesting	DB - 10 years
Full Retirement	Age 65 with 10 years service, age 60 with 15 years service, or age 55 with Rule of 85
Avg. Annual Retiree Benefit (as of 2017 with ASA)	\$ 20,994

Funding					
Contribution/Appropriation		Actual	Projected Contributions ²		
Source	Rate	FY2018	FY2019	FY2020	FY2021
General Fund	N/A	866	892	919	947
General Fund - 13th Check	N/A	22	22		
Lottery	N/A	30	30	30	30
Employer	N/A	4	4	3	3
Total		\$ 922	\$ 948	\$ 952	\$ 980

¹ Actual and projected benefit payments include ASA annuity payments.

² Based on 6/30/2018 actuarial valuation. Projected amounts could change.

Teachers' 1996 Defined Benefit Account (TRF '96 DB) Fund Overview

(dollars in millions)

as of June 30, 2018

Membership:	Teachers of K12 public schools and certain state universities hired after to July 1, 1995	Unfunded Actuarial Accrued Liability:	\$ 84.8
Type:	Hybrid Defined Benefit (DB)	Actuarial Funded Status:	98.5%

Benefits ¹			
Actual	Projected Benefit Payments ²		
FY2018	FY2019	FY2020	FY2021
\$ 122	\$ 146	\$ 160	\$ 174

Formula	1.1% X Avg. High 5 Year Salary X Years Service
Vesting	DB - 10 years
Full Retirement	Age 65 with 10 years service, age 60 with 15 years service, or age 55 with Rule of 85
Avg. Annual Retiree Benefit (as of 2017 with ASA)	\$ 17,558

Funding					
Contribution/Appropriation		Actual	Projected Contributions ²		
Source	Rate	FY2018	FY2019	FY2020	FY2021
Employer	7.5%	236	\$ 249	\$ 259	\$ 269
Total		\$ 236	\$ 249	\$ 259	\$ 269

¹ Actual and projected benefit payments include ASA annuity payments.

² Based on 6/30/2018 actuarial valuation. Projected amounts could change.

1977 Police Officers' and Firefighters' Retirement Fund ('77 Fund)

Fund Overview

(dollars in millions)

as of June 30, 2018

Membership:	Local full-time police and firefighters hired after April 30, 1977	Unfunded Actuarial Accrued Liability:	\$ (114.3)
Type:	Defined Benefit	Actuarial Funded Status:	102.0%

Benefits				
Actual	Projected Benefit Payments ¹			
FY2018	FY2019	FY2020	FY2021	
\$ 173	\$ 205	\$ 238	\$ 256	

Formula	(50% X First Class Officer Salary) + (1% X each 6 months beyond 20 years); total capped at 74%
Vesting	20 years
Full Retirement	Age 52 with 20 years service
Avg. Annual Retiree Benefit (as of 2017)	\$ 27,827

Funding					
Contribution/Appropriation		Actual	Projected Contributions ¹		
Source	Rate	FY2018	FY2019	FY2020	FY2021
Member (Max 32 years)	6.0%	\$ 49	\$ 50	\$ 51	\$ 52
Employer	17.5%	147	151	155	159
Total		\$ 196	\$ 201	\$ 206	\$ 211

¹ Based on 6/30/2018 actuarial valuation. Projected amounts could change.

Judges Retirement System (JRS) Fund Overview

(dollars in millions)

as of June 30, 2018

Membership:	Judges and Magistrates of the Supreme Court of Indiana, Court of Appeals, Indiana Tax Court, Circuit Court, or County Courts	Unfunded Actuarial Accrued Liability:	\$ 30.9
Type:	Defined Benefit	Actuarial Funded Status:	94.4%

Benefits				
Actual	Projected Benefit Payments ¹			
FY2018	FY2019	FY2020	FY2021	
\$ 23.6	\$ 30.8	\$ 33.2	\$ 35.4	

Formula	Final Salary X factor established in IAC (24% to 60%) based on service
Vesting	8 years
Full Retirement	Age 65 with 8 years service or age 55 with Rule of 85
Avg. Annual Retiree Benefit (as of 2017)	\$ 62,019

Funding					
Contribution/Appropriation		Actual	Projected Contributions ¹		
Source	Rate	FY2018	FY2019	FY2020	FY2021
Member (max 22 years)	6.0%	\$ 3.4	\$ 3.2	\$ 3.2	\$ 3.2
General Fund	N/A	\$ 8.0	\$ 8.9	\$ 11.0	\$ 11.5
Docket and Court Fees	N/A	\$ 7.2	\$ 7.2	\$ 7.2	\$ 7.2
Total		\$ 18.6	\$ 19.3	\$ 21.4	\$ 21.9

¹ Based on 6/30/2018 actuarial valuation. Projected amounts could change.

Excise, Gaming and Conservation Officers' Retirement Fund (EG&C) Fund Overview

(dollars in millions)

as of June 30, 2018

Membership:	State Excise Police, Gaming Agents, Gaming Control Officers, and Conservation Enforcement Officers	Unfunded Actuarial Accrued Liability:	\$ 7.6
Type:	Defined Benefit	Actuarial Funded Status:	94.6%

Benefits				
Actual	Projected Benefit Payments ¹			
FY2018	FY2019	FY2020	FY2021	
\$ 6.9	\$ 8.0	\$ 8.2	\$ 8.2	

Formula	(25% X Avg. High 5 Year Salary) + (1.67% X Years beyond 10); capped at 75%
Vesting	15 years
Full Retirement	Mandatory at age 65, age 50 with 25 years service, or age 55 with Rule of 85
Avg. Annual Retiree Benefit (as of 2017)	\$ 26,692

Funding					
Contribution/Appropriation		Actual	Projected Contributions ¹		
Source	Rate	FY2018	FY2019	FY2020	FY2021
Member	4.0%	\$ 1.2	\$ 1.2	\$ 1.3	\$ 1.3
General Fund	N/A	\$ 0.1	\$ 0.1		
Employer	20.75%	\$ 6.0	\$ 6.2	\$ 6.3	\$ 6.5
Total		\$ 7.3	\$ 7.5	\$ 7.6	\$ 7.8

¹ Based on 6/30/2018 actuarial valuation. Projected amounts could change.

Prosecuting Attorneys' Retirement Fund (PARF) Fund Overview

(dollars in millions)

as of June 30, 2018

Membership:	Prosecutors or chief deputy prosecutors serving after 12/31/1989, Executive Director or Assistant Executive Director of the Prosecutors Council, or state paid deputy prosecuting attorney hired after June 30, 1995	Unfunded Actuarial Accrued Liability:	\$ 41.6
Type:	Defined Benefit	Actuarial Funded Status:	59.7%

Benefits				
Actual	Projected Benefit Payments ¹			
FY2018	FY2019	FY2020	FY2021	
\$ 4.0	\$ 5.2	\$ 5.6	\$ 6.0	

Formula	Highest Salary X factor established in IAC (24% to 6%) based on service
Vesting	8 years
Full Retirement	Age 62 with 8 years service or age 55 with Rule of 85
Avg. Annual Retiree Benefit (as of 2017)	\$ 25,853

Funding					
Contribution/Appropriation		Actual	Projected Contributions ¹		
Source	Rate	FY2018	FY2019	FY2020	FY2021
Member	6.0%	\$ 1.3	\$ 1.3	\$ 1.3	\$ 1.3
General Fund	N/A	\$ 3.0	\$ 3.2	\$ 4.2	\$ 4.4
Total		\$ 4.3	\$ 4.5	\$ 5.5	\$ 5.7

¹ Based on 6/30/2018 actuarial valuation. Projected amounts could change.

Legislators' Defined Benefit Fund (LE DB) Fund Overview

(dollars in millions)

as of June 30, 2018

Membership:	Members of the Indiana General Assembly on April 30, 1989 that elect to participate	Unfunded Actuarial Accrued Liability:	\$ 0.4
Type:	Defined Benefit	Actuarial Funded Status:	87.5%

Benefits			
Actual	Projected Benefit Payments ¹		
FY2018	FY2019	FY2020	FY2021
\$ 0.4	\$ 0.4	\$ 0.4	\$ 0.4

Formula	Lesser of: 480 X service before 4/30/1989 and Avg. High 3 Year Salary
Vesting	10 years
Full Retirement	Age 65 with 10 years service, age 60 with 15 years service, or age 55 with Rule of 85
Avg. Annual Retiree Benefit (as of 2017)	\$ 4,704

Funding					
Contribution/Appropriation		Actual	Projected Contributions ¹		
Source	Rate	FY2018	FY2019	FY2020	FY2021
General Fund	N/A	0.2	0.3	0.2	0.2
Total		\$ 0.2	\$ 0.3	\$ 0.2	\$ 0.2

¹ Based on 6/30/2018 actuarial valuation. Projected amounts could change.

INPRS Defined Contribution Funds Overview

(dollars in millions)

as of June 30, 2018

Public Employees' Defined Contribution Account (PERF DC)

Membership:	Full-time employees of the state and participating political subdivisions		
Type:	Defined Contribution		
Formula:	Hybrid members: 3% My Choice members: 3% + variable rate (3.4% for state, up to 4.1% for PSD)		
Funding			
Contribution/Appropriation		Actual	
Source	Rate	FY2017	FY2018
Member	see formula	\$ 168	\$ 171
Total		\$ 168	\$ 171

Teachers' Defined Contribution Account (TRF DC)

Membership:	Full-time employees of the state and participating political subdivisions		
Type:	Defined Contribution		
Formula:	3% X salary to member		
Funding			
Contribution/Appropriation		Actual	
Source	Rate	FY2017	FY2018
Member	3%	\$ 122	\$ 123
Total		\$ 122	\$ 123

INPRS Defined Contribution Funds Overview

(dollars in millions)

as of June 30, 2018

Legislators' Defined Contribution Fund (LE DC)

Membership:	Members of the Indiana General Assembly on April 30, 1989 that elect to participate		
Type:	Defined Contribution		
Formula:	State PERF contribution rate + DC contribution rate		
Funding			
Contribution/Appropriation		Actual	
Source	Rate	FY2017	FY2018
Member	14.2%	\$ 1.8	\$ 1.7
Total		\$ 1.8	\$ 1.7