



Montana Teachers' Retirement System Valuation Results July 1, 2018

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Benefit Financing



- Basic Retirement Funding Equation

$$C + I = B + E$$

C = Contributions

I = Investment Income

B = Benefits Paid

E = Expenses (administration)



Participation in TRS



- Teachers, administrators, specialists and others employed in a teaching or educational services capacity by a public school district, state agency, county, community college, Montana University System or educational cooperative are covered by TRS.

– Active members	19,267
– Inactive members	15,739
– Retirees and Beneficiaries	15,933
– Employers	365



Comments on Valuation



- Asset returns
 - Market asset return 8.82% vs. 7.75% expected (1.07% greater than expected).
 - Actuarial asset return 6.85% vs. 7.75% expected (0.90% less than expected).
- Market value of assets are \$53,931,676 more than the actuarial value of assets. This unrecognized investment gain will be recognized over the next three years
 - An investment loss followed by two investment gains
- Funded Ratio
 - Funding decreased from 70.49% to 68.19%
- Amortization Period
 - Amortization period increased from 22 to 31 years



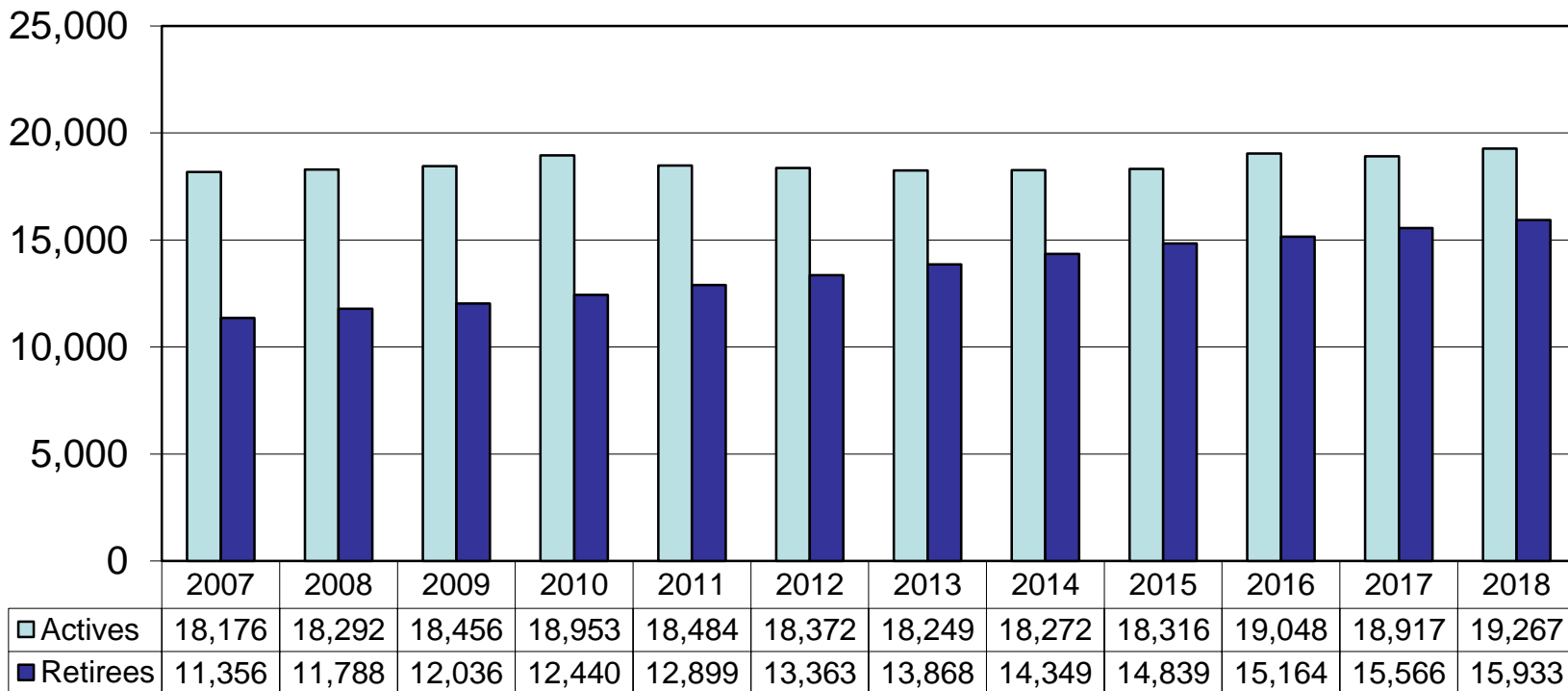
Changes Since the Previous Valuation



- Experience study for the five year period ended July 1, 2017 first recognized in the July 1, 2018 valuation
- The following assumptions and methods were updated
 - Price Inflation was reduced from 3.25% to 2.50%
 - Investment return was reduced from 7.75% to 7.50%
 - Wage growth was reduced from 4.00% to 3.25%
 - Updated pre and post retirement mortality rates
 - Updated termination rates, retirement rates and rates of salary increase
 - Payroll growth assumption was reduced from 4.00% to 3.25%
- Increased amortization period from 22 to 31 years
- Increased unfunded actuarial accrued liability by \$206.3 million



Active and Retired Membership



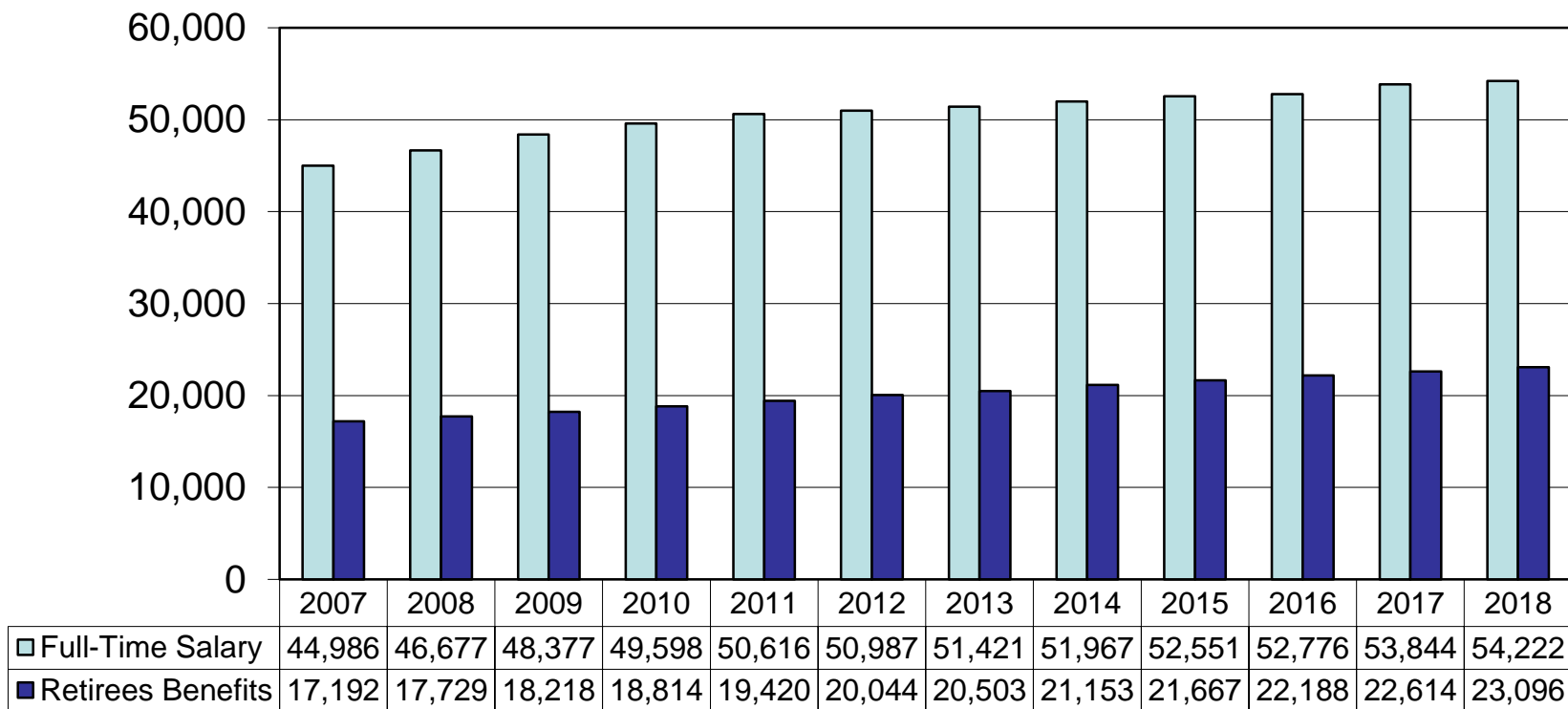
0.5% annual increase for active members since 2007; 1.9% increase for 2018.

3.1% annual increase for retired members since 2007; 2.4% increase for 2018.

0.6 retirees per active 11 years ago; 0.8 retirees per active now.



Average Salary and Benefits

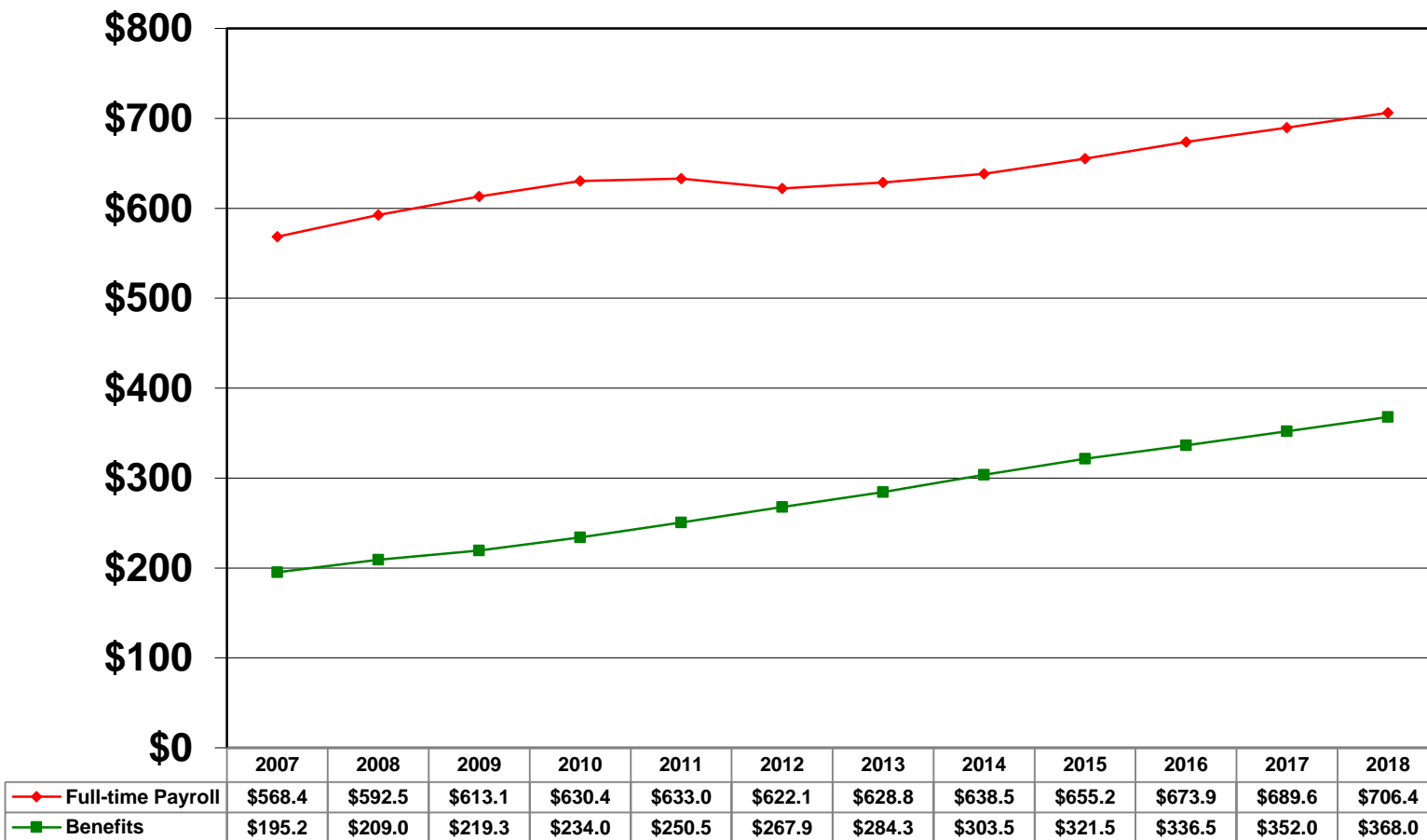


1.7% annual increase for average salary since 2007; 0.7% increase for 2018.

2.7% annual increase for average benefits since 2007; 2.1% increase for 2018.

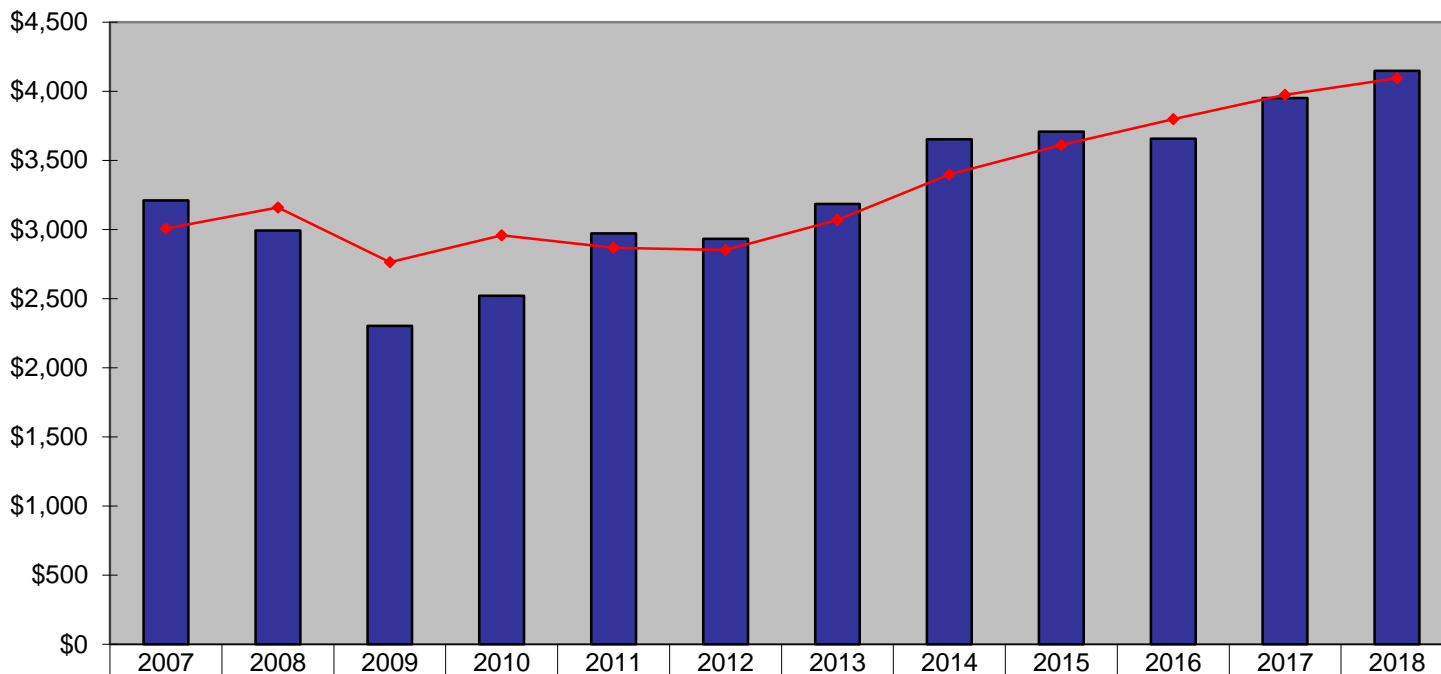


Payroll & Benefits (Millions)





Assets (\$ Millions)

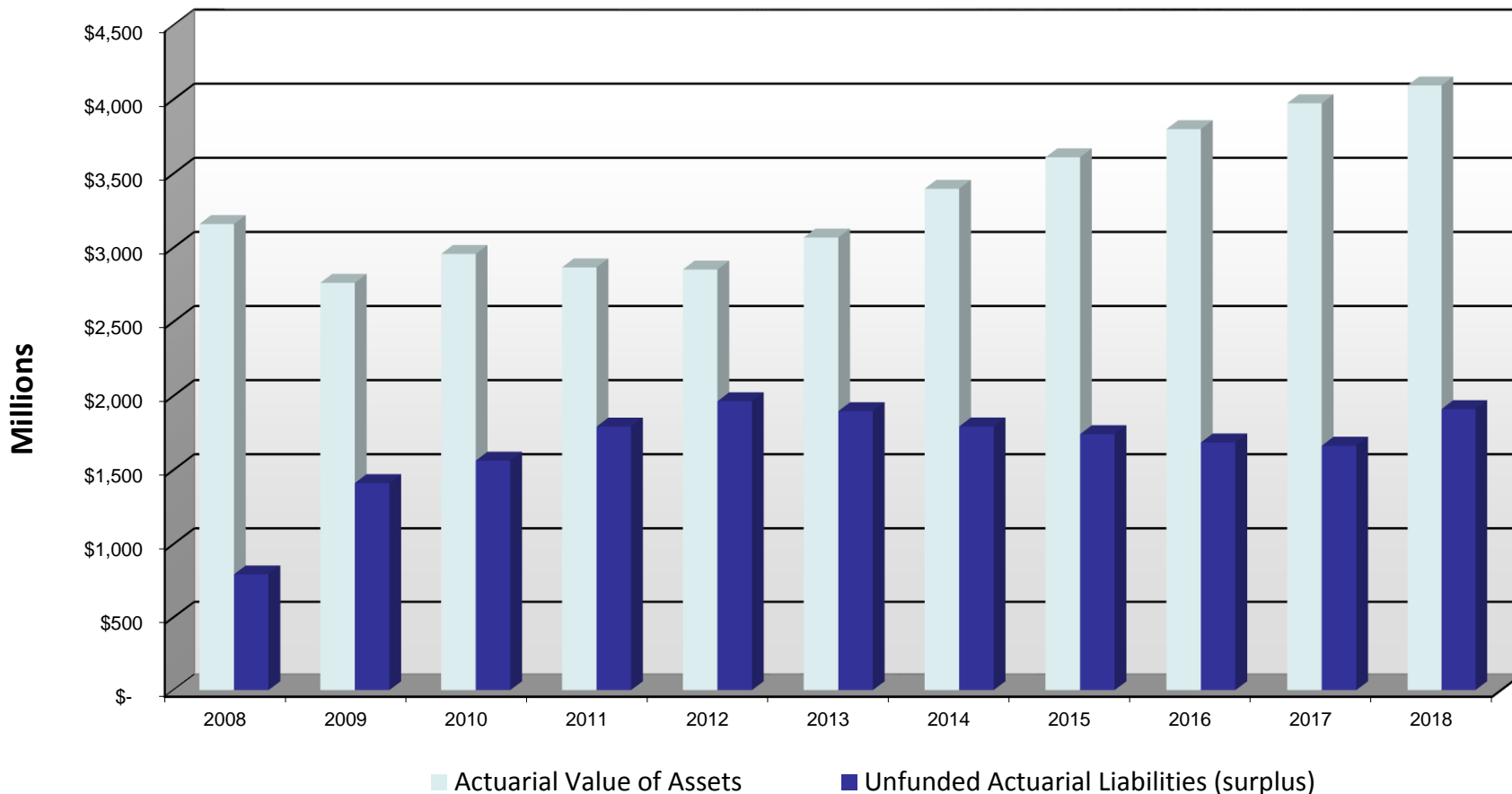


Market Value	\$3,209	\$2,993	\$2,302	\$2,521	\$2,972	\$2,932	\$3,185	\$3,652	\$3,708	\$3,657	\$3,951	\$4,148
Actuarial Value	\$3,006	\$3,159	\$2,762	\$2,957	\$2,867	\$2,852	\$3,068	\$3,397	\$3,610	\$3,799	\$3,974	\$4,094

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Market Return	17.6%	(4.9)%	(20.8)%	12.9%	21.7%	2.2%	12.9%	17.1%	4.6%	2.1%	11.9%	8.8%
Actuarial Return	10.2%	7.2%	(10.3)%	9.8%	(0.1)%	3.2%	12.0%	13.2%	9.6%	8.8%	8.2%	6.9%

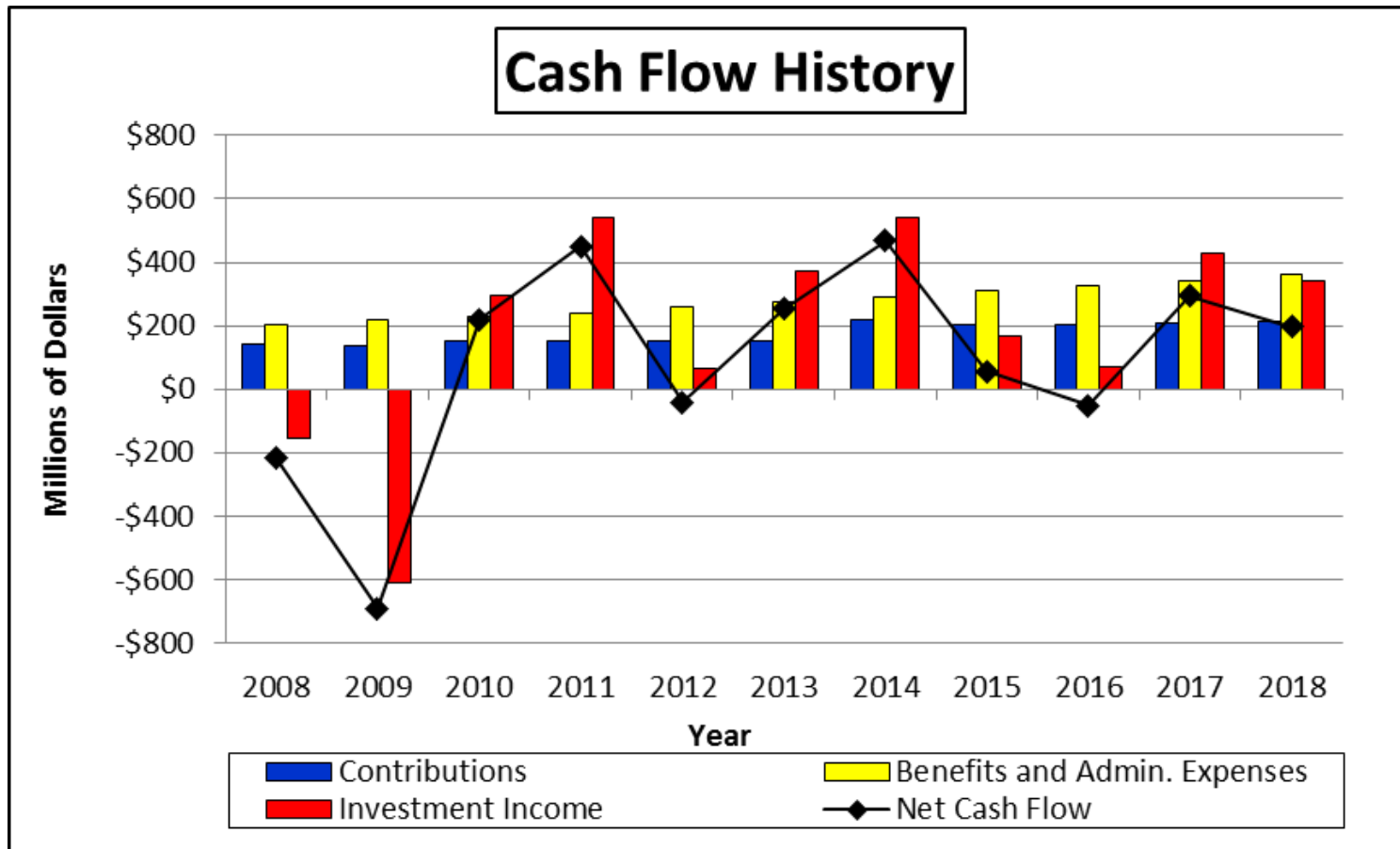


Actuarial Assets vs. UAAL





Historical Cash Flow (in Millions)





Funding Results

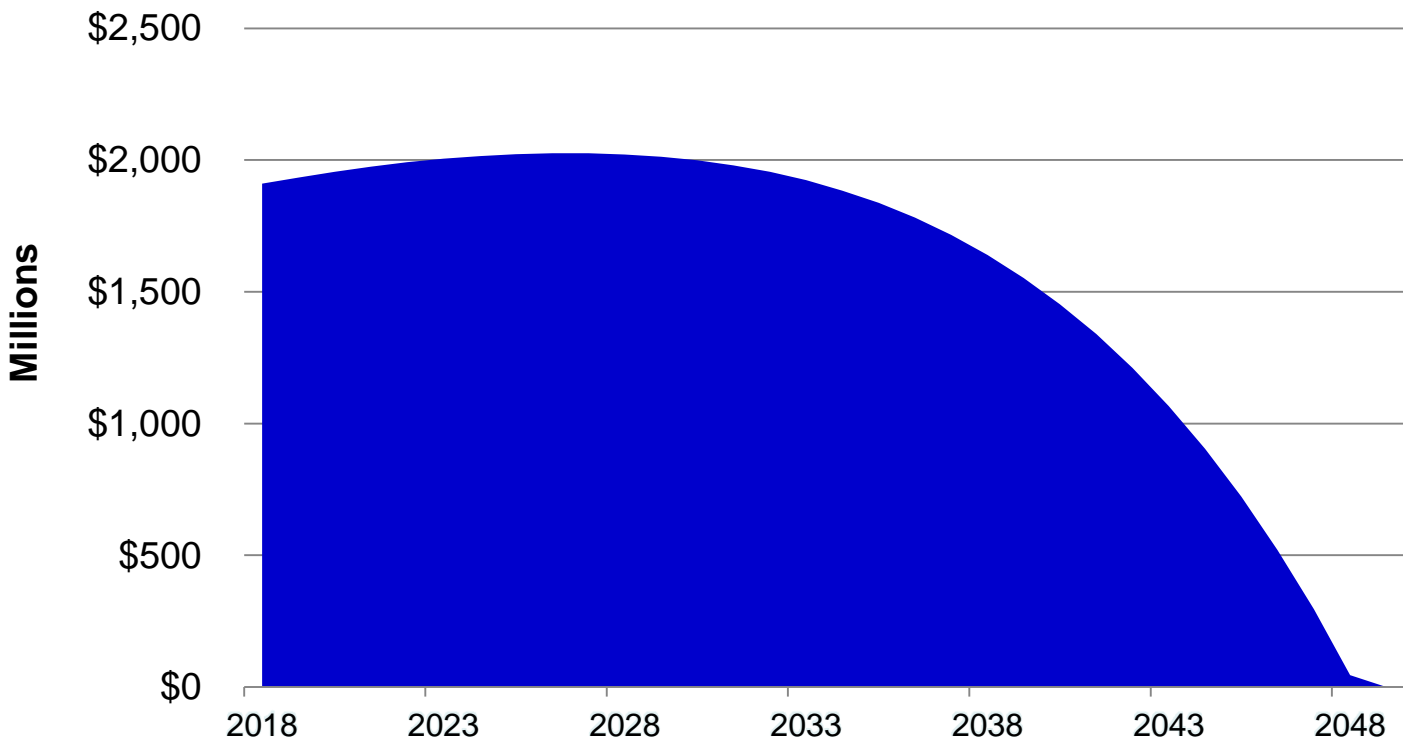


	July 1, 2017 Valuation	July 1, 2018 Valuation
Total Normal Cost Rate	9.82%	9.96%
Less Member Rate	<u>8.15%</u>	<u>8.15%</u>
Employer Normal Cost Rate	1.67%	1.81%
Administrative Expense Load	0.33%	0.36%
Rate to Amortize UAL	<u>9.36%</u>	<u>9.29%</u>
Total Employer Statutory Rate	11.36%	11.46%
Actuarial Accrued Liability	\$5,636.8 million	\$6,004.4 million
Actuarial Value of Assets	\$3,973.5 million	\$4,094.4 million
Unfunded Accrued Liability	\$1,663.3 million	\$1,910.0 million
Funded Ratio	70.49%	68.19%
Amortization Period*	22 Years	31 Years

* Reflects anticipated increase in employer supplemental contribution rate



Progress toward 100% Funding



■ Projected UAAL - Level % of Pay