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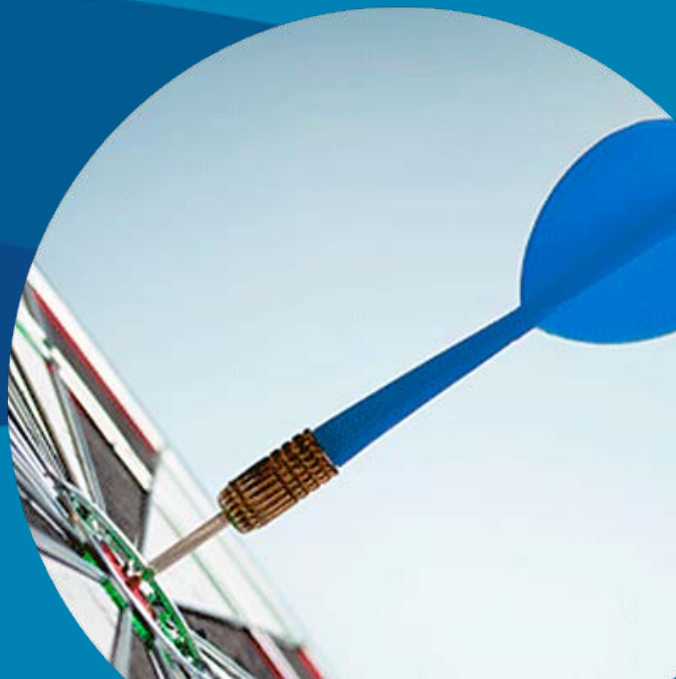
City of Dallas Employees' Retirement Fund

December 31, 2017

Preliminary Valuation Results



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Key Issues and Changes

- ERF was above the investment target of 7.75% on both a market value and actuarial value basis in 2017
  - Return on market value was 12.33%
  - Actuarial gain on assets of $20 million
- ERF had positive liability experience in 2017
  - Primarily due to lower than expected salary increases and cost of living adjustment
  - More retiree deaths than expected
  - Fewer retirements than expected
- Increase in covered payroll almost entirely due to membership growth
- Current Total Obligation Rate continues to exceed 36% of pay cap
  - CATOR is 36.00%
  - City contribution rate is 22.68%
  - Member rate is 13.32%
- First group of employees under new Tier of benefits
  - Approximately 13% of active members are Group B
  - Decreased average NC% from 20.75% last year to 20.04%

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Membership

- The number of active members increased from 7,619 to 7,838, a 2.9% increase
- Payroll for active members increased from $409.4 million to $421.3 million, a 2.9% increase
- The number of members in payment status increased by a net 139, from 6,903 to 7,042, a 2.0% increase
- There are 1.1 active members for each retiree compared to 1.5 in 2008

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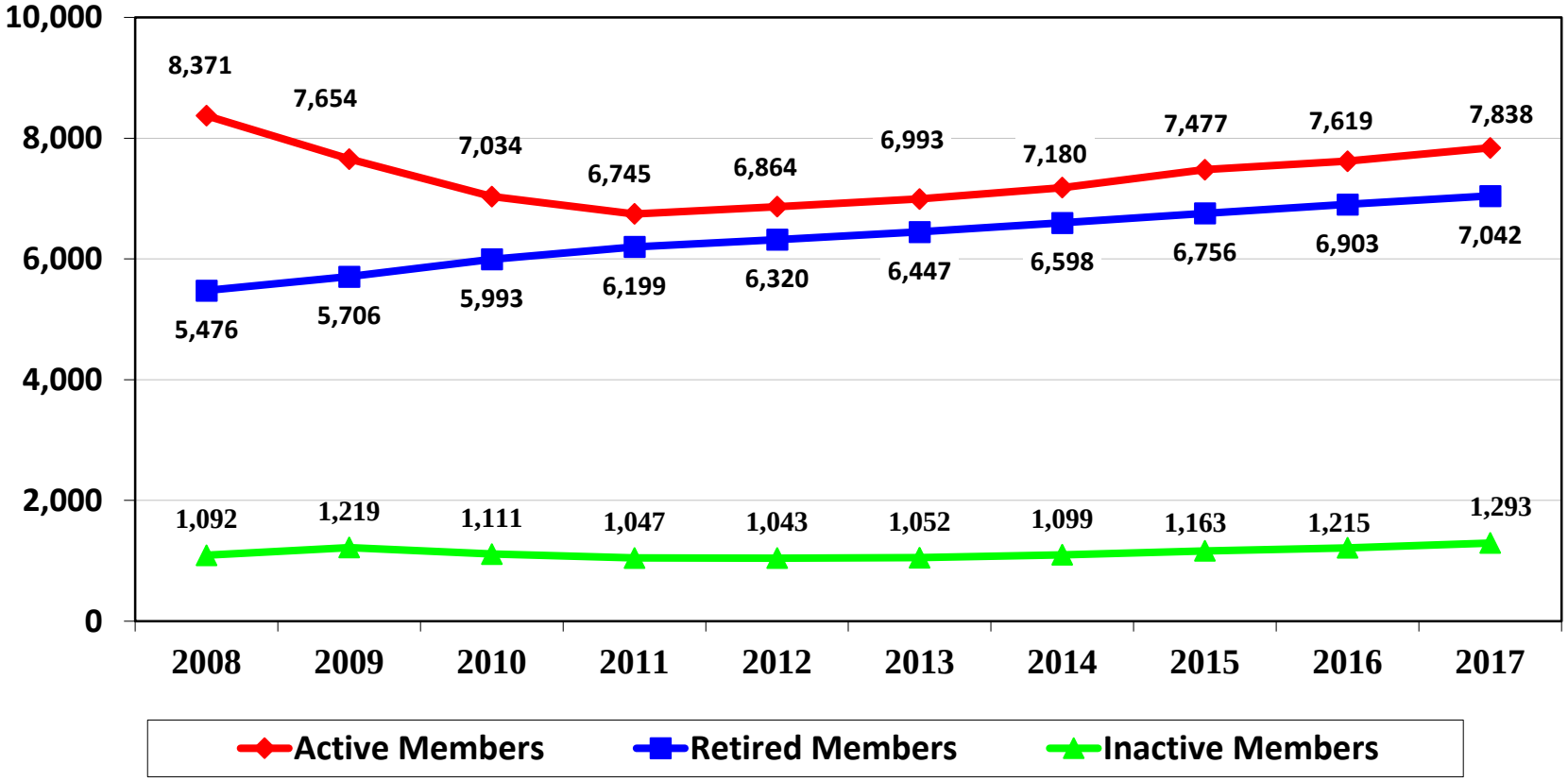
Active Members and Retired Members



Note: active membership increased 2.9% over last year

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Assets

- Fair market value (unaudited) increased from $ 3.328 billion to $3.606 billion
- Return on market value of assets was approximately 12.33% in 2017
- Actuarial value is now $3.584 billion, compared to $3.451 billion last year
- Actuarial rate of return was 8.34% in 2017
  - More than 7.75% assumed rate of return
- Actuarial value is 99.4% of fair market value
- Net deferred investment gain of $21.6 million still to be recognized in actuarial value of assets

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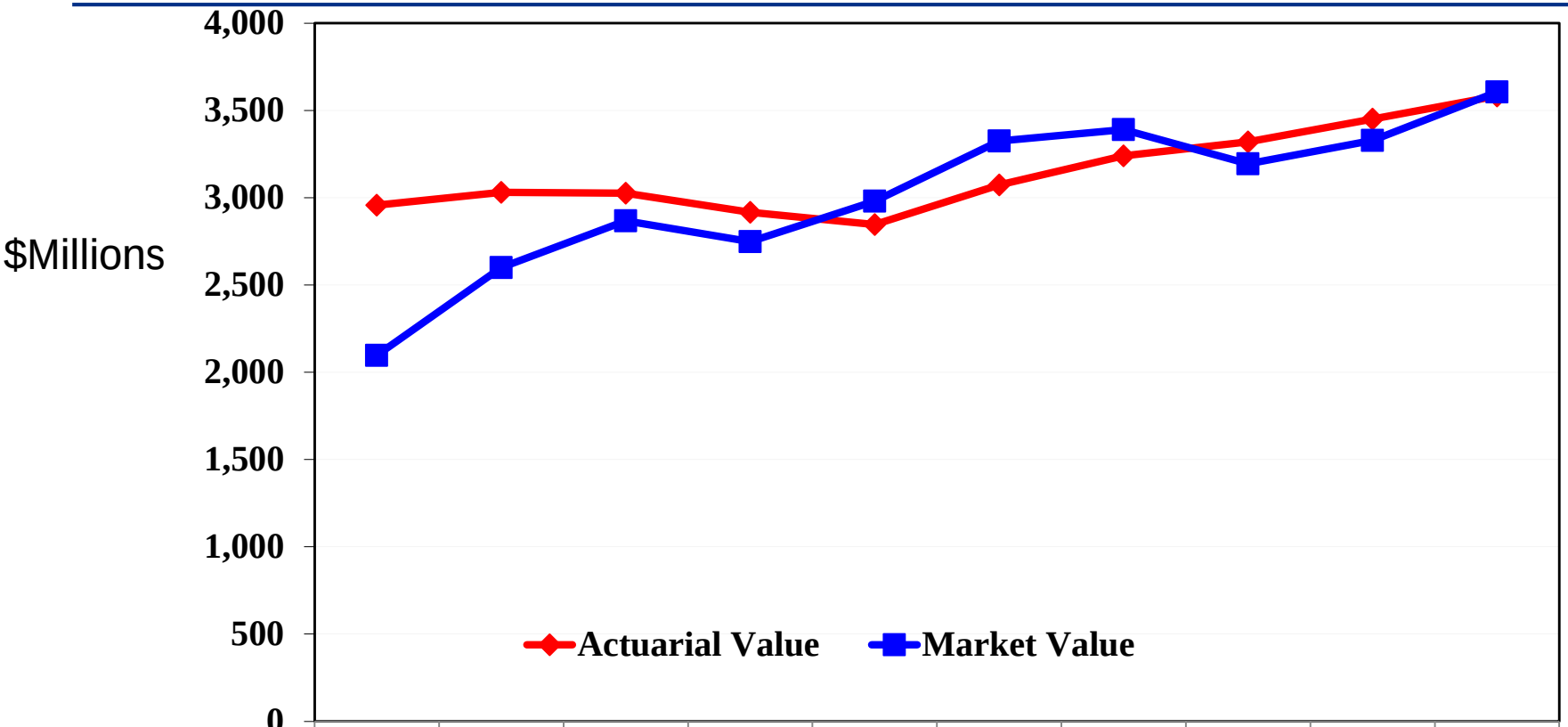
Historical Asset Values



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Actuarial Value	2,958	3,032	3,027	2,917	2,846	3,074	3,241	3,320	3,451	3,584
Market Value	2,097	2,600	2,868	2,748	2,980	3,325	3,391	3,195	3,328	3,606

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Actuarial Results

- Actuarial Present Value (APV) of benefits is now $4.933 billion
- Unfunded Actuarial Accrued Liability (UAAL) decreased from $840 million to $794 million
  - Reflects $20 million gain on actuarial value of assets
  - Reflects $20 million gain and $13 million gain due to less-than-expected salary increases and cost of living adjustment for retirees, respectively
- UAAL increased $31 million due to difference between calculated contribution rate and actual contribution rate

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Actuarial Results

- Funded ratio (actuarial assets divided by actuarial accrued liability) increased from 80.4% in 2016 to 81.9% in 2017
- Funded ratio using market value is 82.4%
  - Was 77.5% last year
- Total 30-year contribution rate is 33.50%
  - Does not include POB debt service payments
  - 35.18 % last year

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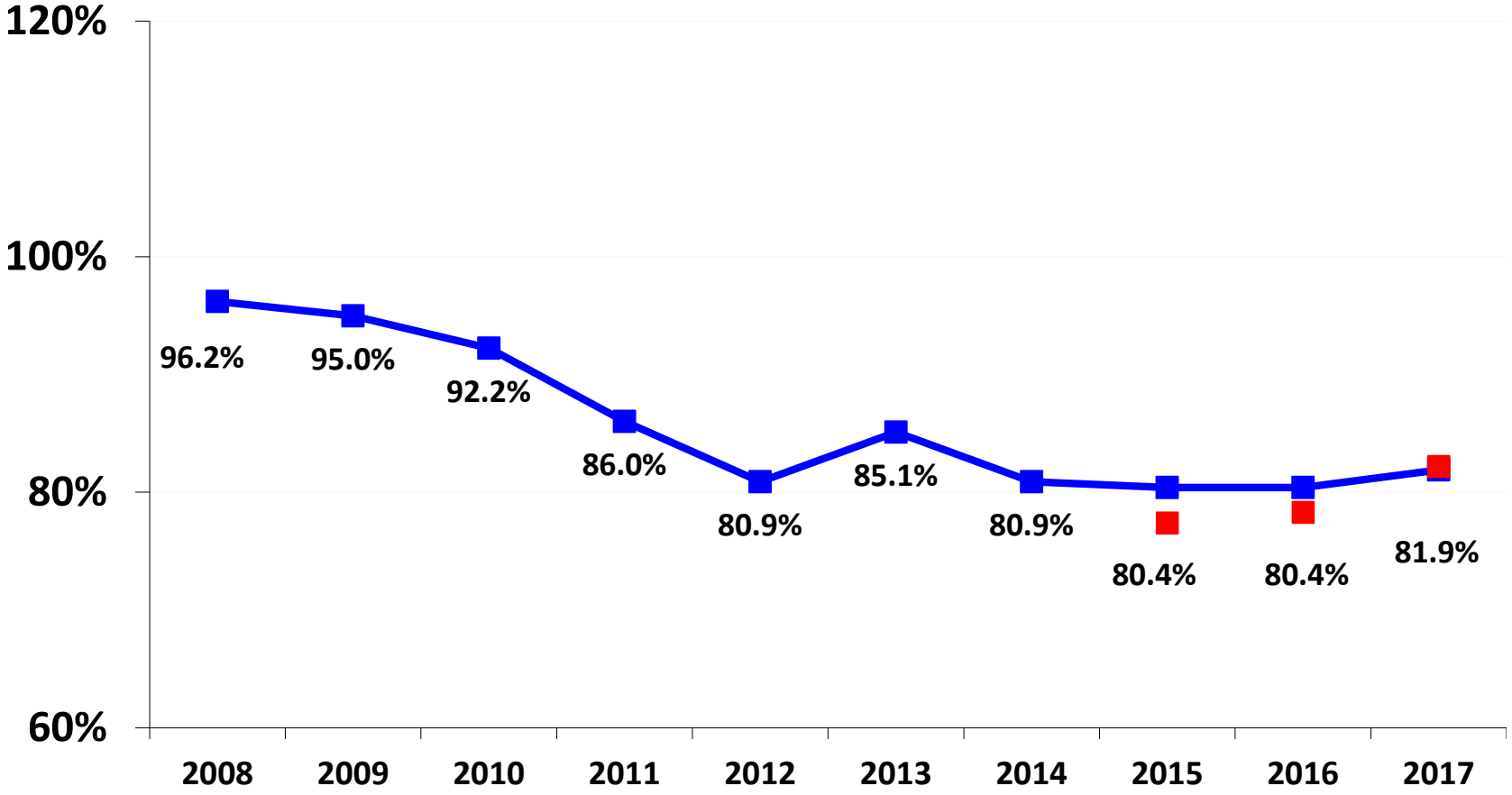
Historical Funded Ratios



Funded ratio using market value of assets as of December 31, 2015 is 77.4%.
Funded ratio using market value of assets as of December 31, 2016 is 77.5%.
Funded ratio using market value of assets as of December 31, 2017 is 82.4%.

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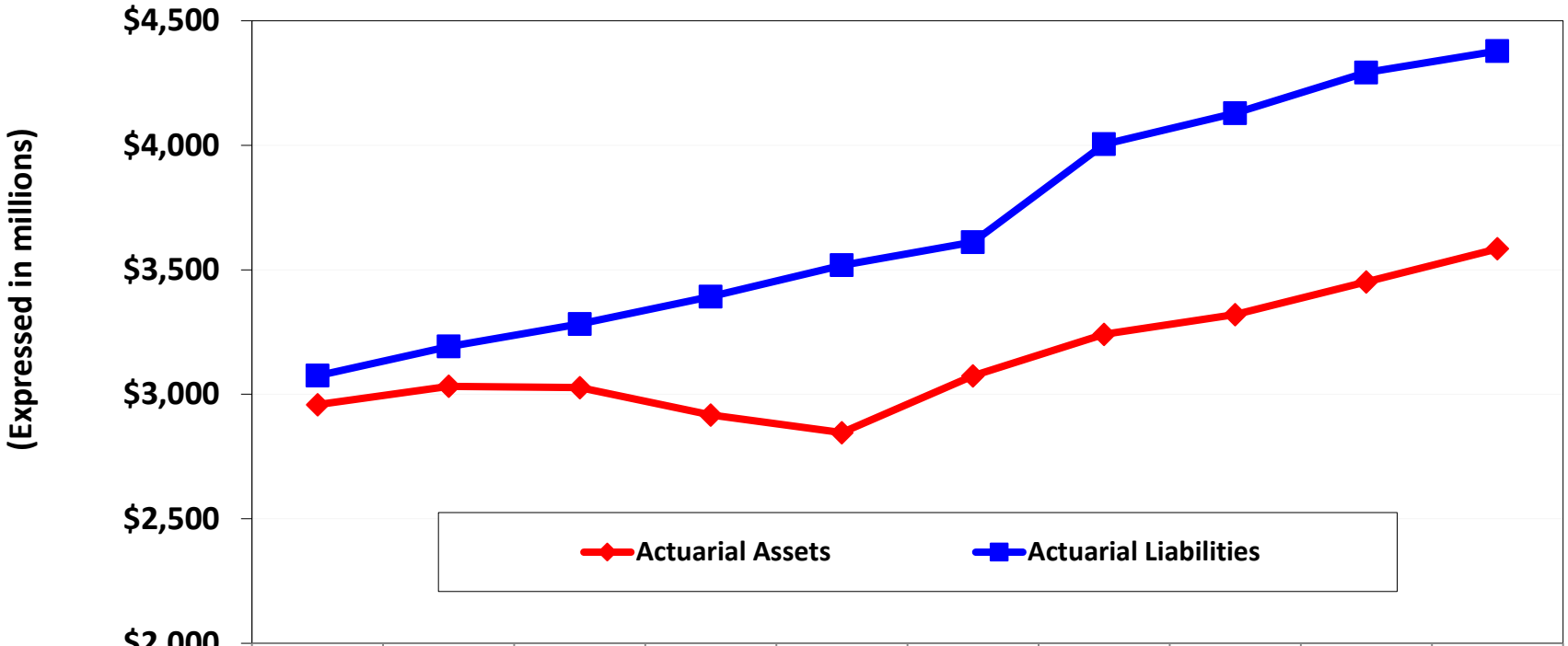
Liabilities vs. Assets



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Actuarial Assets	2,958	3,032	3,027	2,917	2,846	3,074	3,241	3,320	3,451	3,584
Actuarial Liabilities	3,075	3,192	3,282	3,392	3,518	3,611	4,004	4,129	4,292	4,378

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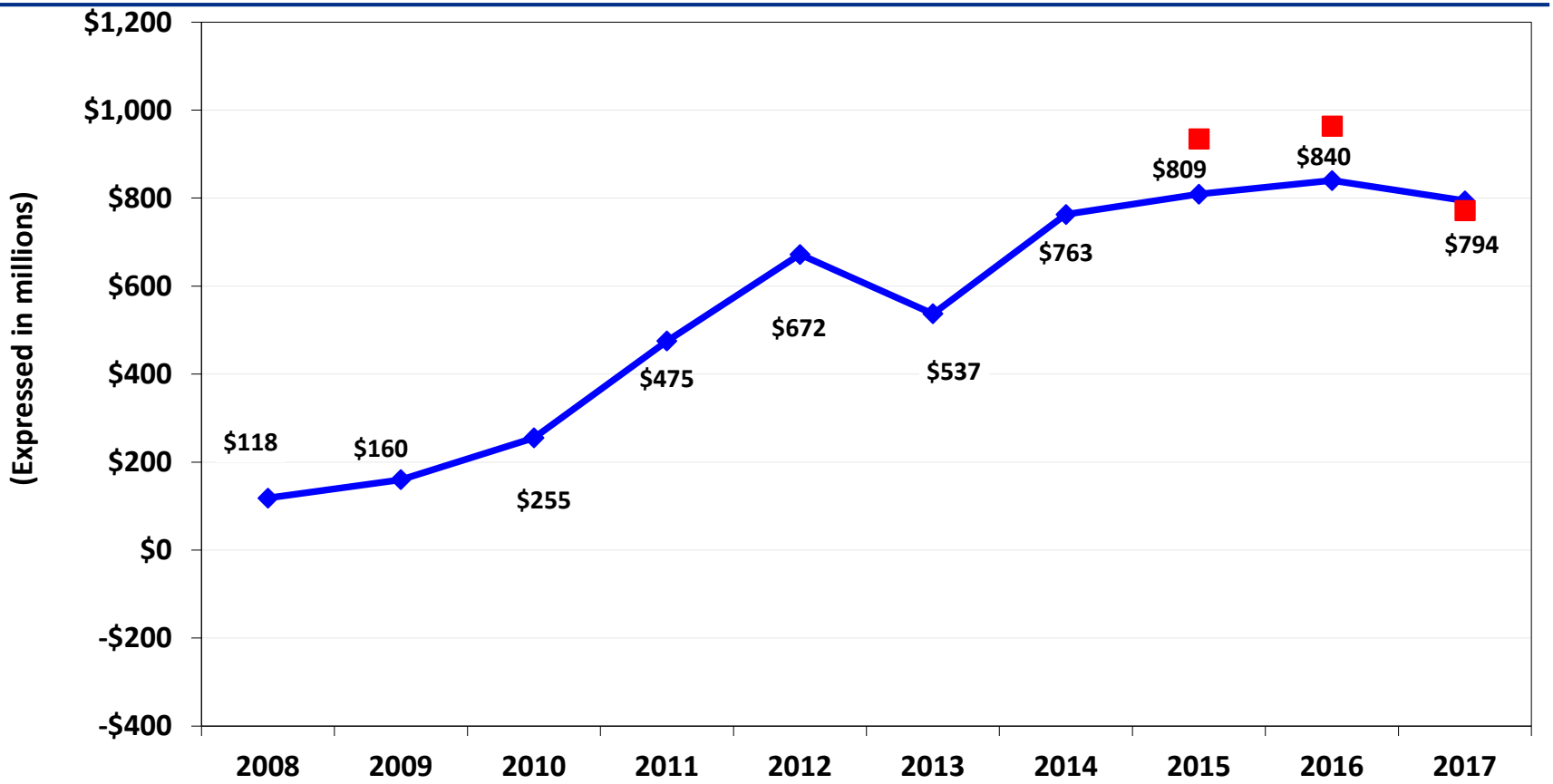
Unfunded Actuarial Accrued Liability (UAAL)



The UAAL based on the market value of assets as of December 31, 2015 is $935 million.
The UAAL based on the market value of assets as of December 31, 2016 is $964 million.
The UAAL based on the market value of assets as of December 31, 2017 is $772 million.

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Actuarial Required Contribution Rate

($ amounts in thousands)

	Dec. 31, 2016		Dec. 31, 2017	
	Dollar	% of Pay	Dollar	% of Pay
1) Amortization %[1]	$ 55,237	13.13%	$ 51,942	12.00%
2) Normal Cost	83,387	20.75%	82,871	20.04%
3) Expense	5,490	1.30%	6,305	1.46%
Total	$144,114	35.18%	$141,118	33.50%

[1]UAAL is amortized over 30 years as a level percentage of payroll

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City Ordinance 25695
Fiscal Year Beginning October 1, 2018

1.	Prior Adjusted Total Obligation Rate		36.00%
2.	Actuarially Required Contribution Rate		33.50%
3.	Debt Service		
	a. Scheduled Debt Service Payment	$ 35,879,400	
	b. Projected Payroll	$432,853,607	
	c. Pension Obligation Bond Credit (a/b)	8.29%	
4.	Current Total Obligation Rate (2+3c)		41.79%
5.	Current Adjusted Total Obligation Rate		36.00%
6.	Allocation of Contribution Rates for Fiscal Year Beginning October 1, 2016		
	a. Employee (5 x .37)		13.32%
	b. City (5 x .63)		22.68%
7.	City Contribution to Fund (6.b. – 3.c)		14.39%

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Determination of Current Adjusted Total Obligation Rate

1. Prior Adjusted Total Obligation Rate (PATOR) 36.00%
2. Current Total Obligation Rate (CTOR) 41.79%
3. If (-3.00% < PATOR – CTOR < 3.00%) Then

   Current Adjusted Total Obligation Rate (CATOR) = PATOR (36.00%)

   Else Go to Step 4
4. CATOR = Lowest of (a), (b), & (c) where:
   a. PATOR + [0.5 * (CTOR – PATOR)] = 38.90%
   b. 110% * PATOR = 39.60%
   c. 36.00% Maximum limit = 36.00%
   d. Lowest of (a), (b), and (c) is: = 36.00%

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Valuation Summary

- The Actuarially Required Contribution to the Fund decreased from 35.18% to 33.50%
  - The total contribution rate including the debt service decreased from 43.46% to 41.79%
- $22 million in deferred investment gains to be recognized
  - Will not be recognized evenly
  - 2 large losses ($32M & $23M) the next two years followed by 2 large gains ($39M & $36M)
  - Recommend change to asset method reflected in this valuation

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Valuation Summary

- Calculated contribution rate is expected to decline each year
  - Impact of shortfall in contributions because of 36.00% maximum rate being somewhat offset by 30-year rolling amortization period
  - Decrease in average normal cost due to new tier of benefits
- Actual contribution rate will remain at 36% cap for foreseeable future

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Recommended Asset Method

- Current asset method can produce systemic volatility
  - Significant gains and losses when market value and actuarial value of assets are fairly close and returns are consistent with assumption
- Recommended method eliminates this volatility while still providing significant smoothing
  - Gains and losses recognized over maximum period of 5 years (possibly faster)
  - Gain and losses are immediately offset against each other
  - Cleanest approach to new method would be to set actuarial value of assets equal to market value of assets as of 12-31-2017 with new method reflected at 12-31-2018
- Chart on next page compares the current and proposed method (if proposed method had started in 2012)

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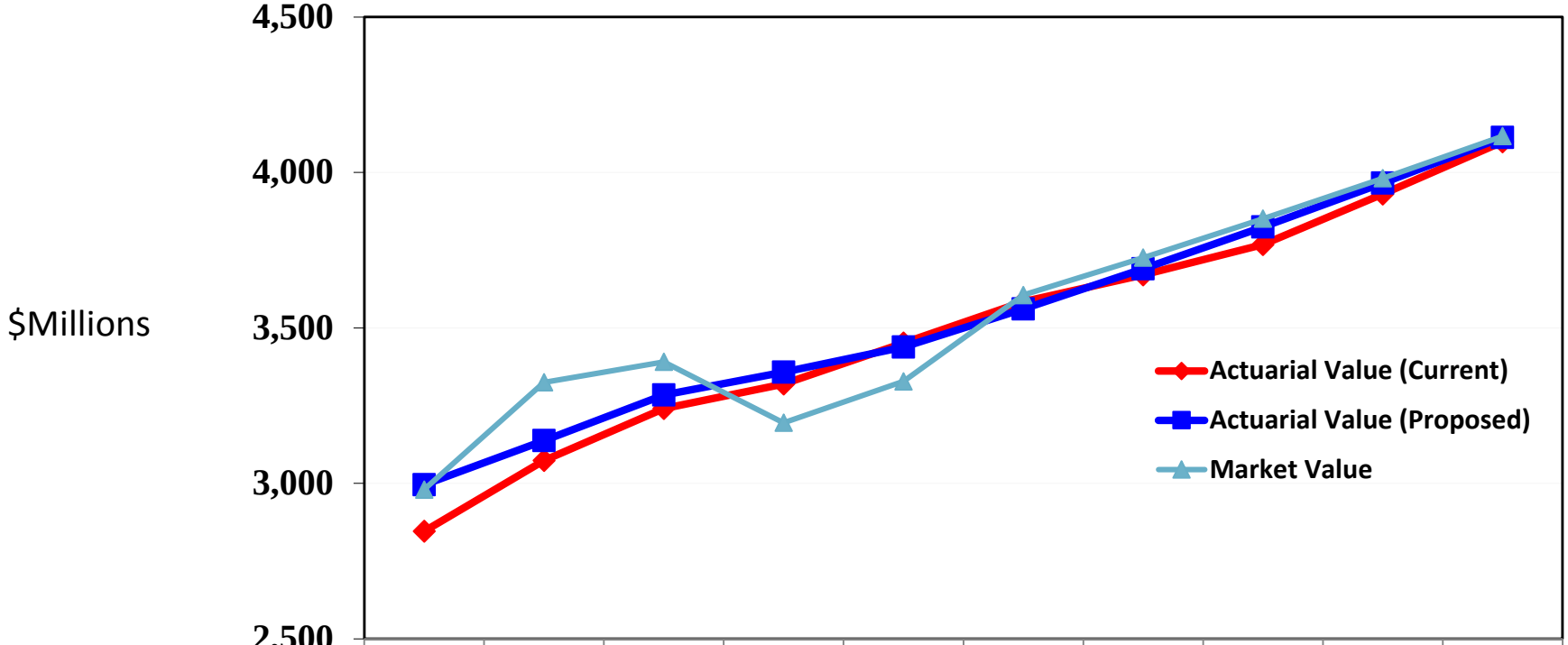
Comparison of Asset Methods



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Actuarial Value (Current)	2,846	3,074	3,241	3,320	3,451	3,584	3,670	3,768	3,931	4,098
Actuarial Value (Proposed)	2,995	3,138	3,284	3,358	3,438	3,561	3,690	3,825	3,966	4,113
Market Value	2,980	3,325	3,391	3,195	3,328	3,606	3,726	3,851	3,981	4,117

Assumes 7.75% return on market value of assets in future years

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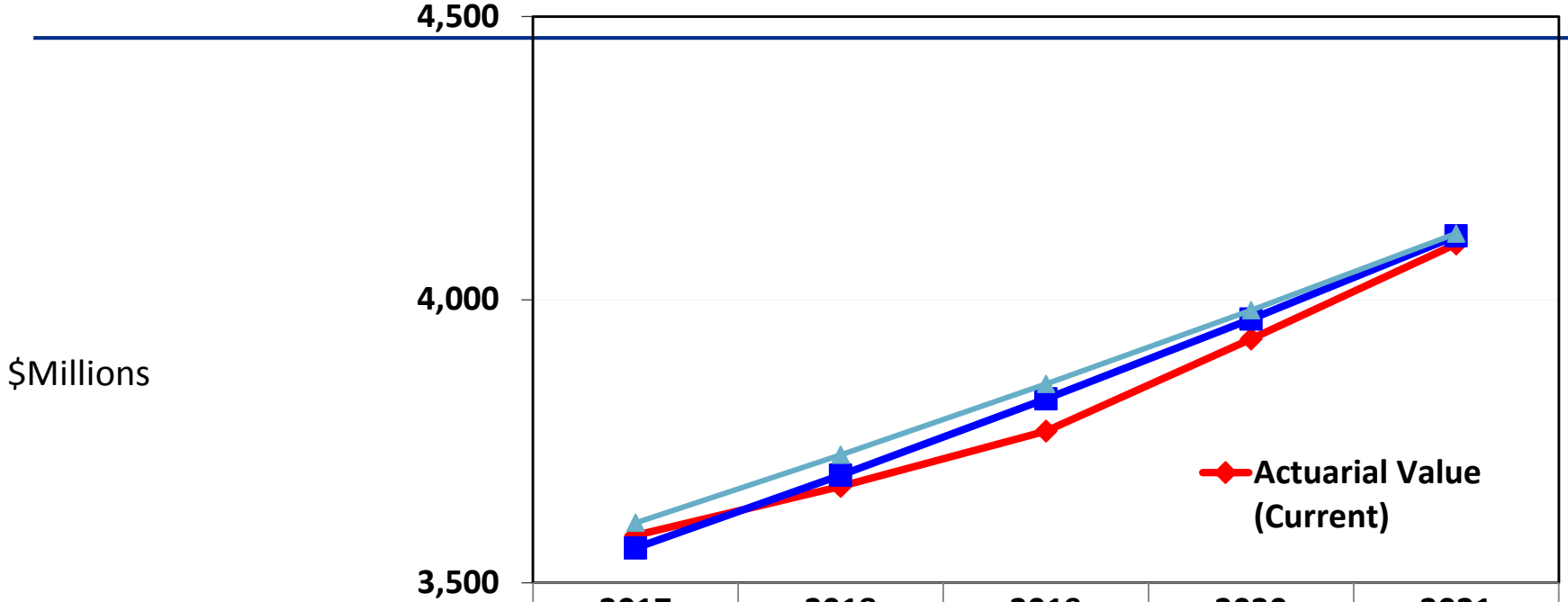
Comparison of Asset Methods



	2017	2018	2019	2020	2021
Actuarial Value (Current)	**3,584**	**3,670**	**3,768**	**3,931**	**4,098**
Actuarial Value (Proposed)	**3,561**	**3,690**	**3,825**	**3,966**	**4,113**
Market Value	**3,606**	**3,726**	**3,851**	**3,981**	**4,117**

Assumes 7.75% return on market value of assets in future years
If actuarial asset method is fresh started as of December 31, 2017 then projected Actuarial Value of becomes projected Market Value

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Alternative Results

- The gain on salary increases is primarily due to timing of City of Dallas pay raise
  - Occurred in early January
  - Prior across the board pay raise was in December 2016
- Reflecting a 3% pay increase in this valuation:
  - Increases the UAAL by $38M (to $832M)
  - Increases CTOR by 0.16% of pay (to 41.95%)
  - Funded ratio would be 81.2% (versus 81.9%)

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Alternative Results

- We have also prepared two additional sets of results using a 7.5% investment return rate
- 7.5% rate by decreasing inflation 25 basis points
  - Increases the UAAL by $39M (to $833M)
  - Increases CTOR by 0.52% of pay (to 42.31%)
  - Funded ratio would be 81.1% (versus 81.9%)
- 7.5% rate by decreasing real return 25 basis points
  - Increases the UAAL by $120M (to $914M)
  - Increases CTOR by 2.54% of pay (to 44.33%)
  - Funded ratio would be 79.7% (versus 81.9%)

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Disclaimers

- This presentation is intended to be used in conjunction with the actuarial valuation report issued on May 8, 2018. This presentation should not be relied on for any purpose other than the purpose described in the valuation report.
- This presentation shall not be construed to provide tax advice, legal advice or investment advice.

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