



Essex Regional Retirement System



January 1, 2016 Actuarial Valuation
Advisory Board Meeting
September 30, 2016

Overview



- Current funding schedule based on 1/1/2014 valuation
- 1/1/2016 results for Fiscal 2018
- Preliminary results
 - Actuarial asset loss
 - \$25.0M loss in calendar 2015
 - \$2.4M gain in calendar 2014
 - Interest rate assumption change
 - PERAC went to 7.75% in 2015, 7.50% in 2016
 - Last valuation used 8.0% interest rate
- Reflected Essex Aggie: \$4.2 million

Asset Valuation Methodology



- Asset Smoothing
 - 5 year smoothing of gains and losses
 - Actuarial Value of Assets of \$382.6M
 - Unrecognized losses of \$8.4M
 - Gains/losses are recognized in funding schedule
 - AVA return of 9.1%

- Market Value of Assets is \$374.2M
 - MVA return of 5.0%
 - Increase of \$29.2 million or 8.5%
 - Cash flow not return

Assumptions



- Generational Mortality, Scale BB
- Select and ultimate salary assumption
 - 3.75% Ultimate Rate
 - 7.50% Year 1, 6.50% Year 2, 6.00% Year 3, 5.50% Year 4, 5.00% Year 5
- 7.75% Interest Rate
 - Increased AAL by \$18.6M; 2.6%
 - Increased Net NC by \$831k; 20.3%
 - Increased PVFB by \$27.5M; 3.3%

Fiscal 2016 Contribution



- Current contribution based on prior valuation
 - 18 year schedule with 7% increases for four years, 4% increases afterward
 - Fiscal 2018 \$32,537,151
 - Fiscal 2017 \$30,408,552
 - Payments made semiannually (adjusted if earlier)
- Choices
 - Assumptions
 - Length of schedule
 - Contribution increase

Fiscal 2018 Contribution

(Generational Mortality, 7.75% Discount Rate)

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Length	Contrib. Increase %	Contrib.	Change Over Planned	% and \$ over FY17
18	7.1% for five years, 4% thereafter	\$32.568M	\$30k	7.10% / \$2.159M
18	7.75% for four years, 4% thereafter	\$32.765M	\$228k	7.75% / \$2.357M
18 (With \$14k COLA Base)	7.5% for five years, 4% thereafter	\$32.689M	\$152k	7.50% / \$2.281M

Alternate Interest Rate Assumption

- Alternative interest rate: 7.50%
 - Compared to 8% interest rate
 - Increased AAL by \$37.9M; 5.2%
 - Increased Net NC by \$1.7M; 42.0%
 - Increased PVFB by \$56.6M; 6.8%

Fiscal 2018 Contribution

(Generational Mortality, 7.50% Discount Rate)

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Length	Contrib. Increase %	Contrib.	Change Over current	% and \$ over FY17	Page
20	7% for five years, 4% thereafter	\$32.537M	\$0	7.00% / \$2.129M	17
19	Six years of 7.2% increases, 4% thereafter	\$32.598M	\$61k	7.20% / \$2.189M	18
18	Six years of 7.9% increases, 4% thereafter	\$32.811M	\$274k	7.90% / \$2.402M	19

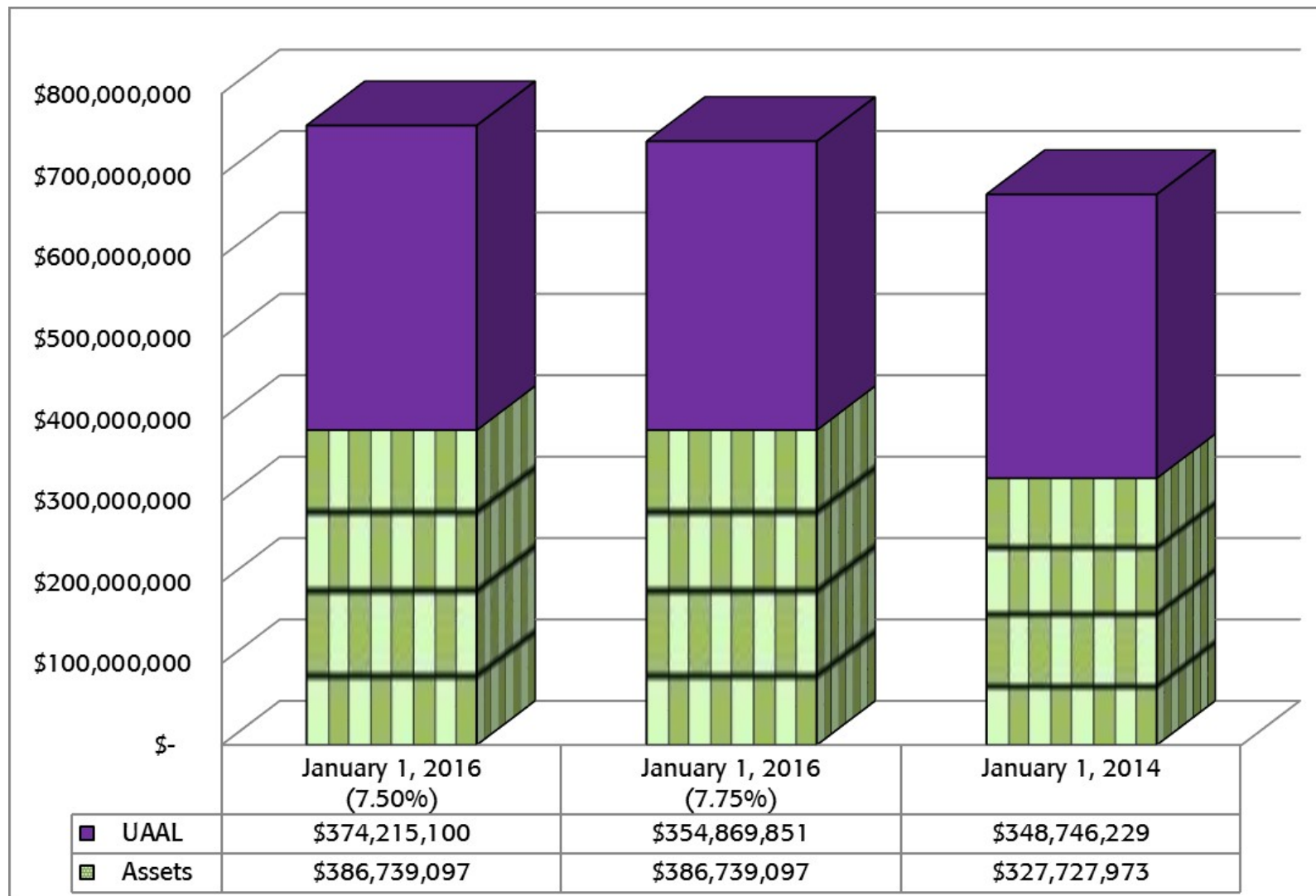
Valuation Highlights

- Funding ratio
 - Assets divided by Accrued Liability
 - 2016 (7.75%): 52.1% AVA ; 51.0% MVA
 - 2016 (7.50%): 50.8% AVA ; 49.7% MVA
 - 2014: 48.4% AVA ; 51.0% MVA
- System estimated to be near the median of Chapter 32 retirement systems
- Normal Cost (as % of Payroll) [7.75%]
 - Gross Normal Cost: 13.0%
 - Employee Contribution: 9.2%
 - Net Normal Cost: 3.9%
 - Administrative Expense: 0.9%
 - Usually 0.6% to 1.8%

Comparison of Accrued Liabilities and Assets

2014 vs 2016

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Observations and Summary



- Actuarial Asset loss
 - Recognized in funding schedules
 - Smoothed in funding ratio
- Salary gain
 - Total compensation for 2015 \$1.5M lower than projected
 - Reduced liability by \$7.7M
- COLA Base
 - Results for increase to \$14,000 shown on following page

Increase in COLA Base to \$14,000 (7.75% Interest Rate)

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Increase in	
COLA Base	\$1,000
Actuarial Accrued Liability	\$3.97M
Net Normal Cost	\$93k
Present Value of Future Benefits	\$4.65M

ESSEX REGIONAL RETIREMENT SYSTEM

FUNDING SCHEDULE with 3(8)(C) - 18 years: Five years of 7.41% increases, 4% thereafter

Generational Mortality, Scale BB; 7.75% Discount Rate, \$14,000 COLA Base

Fiscal Year	Normal Cost	Unfunded Liability*	Funding Amortization of UAAL	Net 3(8)(c) Payments	Schedule Contribution**	Adjusted Payments	% Change
2018	6,446,958	378,731,600	24,534,864	1,081,739	32,063,561	32,661,826	7.41%
2019	6,704,836	381,646,983	26,652,895	1,081,739	34,439,471	35,082,067	7.41%
2020	6,973,030	381,381,102	28,936,667	1,081,739	36,991,435	37,681,648	7.41%
2021	7,251,951	379,758,879	31,398,811	1,081,739	39,732,501	40,473,858	7.41%
2022	7,542,029	384,883,337	34,052,911	1,081,739	42,676,679	43,472,971	7.41%
2023	7,843,710	378,019,783	35,458,297	1,081,739	44,383,746	45,211,890	4.00%
2024	8,157,459	369,110,001	36,919,899	1,081,739	46,159,096	47,020,366	4.00%
2025	8,483,757	357,934,836	38,439,964	1,081,739	48,005,460	48,901,180	4.00%
2026	8,823,107	344,255,724	40,020,832	1,081,739	49,925,678	50,857,227	4.00%
2027	9,176,031	327,813,096	41,664,935	1,081,739	51,922,705	52,891,517	4.00%
2028	9,543,073	308,324,643	43,374,802	1,081,739	53,999,614	55,007,177	4.00%
2029	9,924,796	285,483,454	45,153,064	1,081,739	56,159,598	57,207,464	4.00%
2030	10,321,787	258,955,995	47,002,456	1,081,739	58,405,982	59,495,763	4.00%
2031	10,734,659	228,379,939	48,925,824	1,081,739	60,742,221	61,875,593	4.00%
2032	11,164,045	193,361,809	50,926,126	1,081,739	63,171,910	64,350,617	4.00%
2033	11,610,607	153,474,449	53,006,441	1,081,739	65,698,787	66,924,642	4.00%
2034	12,075,031	108,254,279	55,169,968	1,081,739	68,326,738	69,601,628	4.00%
2035	12,558,033	57,198,345	57,198,345	1,081,739	70,838,117	72,159,865	3.68%
2036	13,060,354	-	-	1,081,739	14,142,093	14,405,966	-80.04%

Amortization of Unfunded Liability as of July 1, 2017

Year	Type	Original Amort. Amount	Percentage Increasing	Original # of Years	Current Amort. Amount	Years Remaining
2003	2002 ERI	4,357	4.50%	26	8,342	11
2003	2002 ERI	336,771	0.00%	17	336,396	2
2004	2003 ERI	4,229	4.50%	25	7,747	11
2004	2003 ERI	193,085	0.00%	17	192,661	3
2018	Fresh Start	N/A	N/A	18	N/A	18

*Includes recognition of the following asset gains/(losses) in Fiscal 2020 and 2022:

2020	\$1,125,028
2022	(\$9,525,364)

**Contribution is set to be the amount resulting from a 7.41% increase on the prior year's contribution, followed by four years of 7.41% increases, and 4% increases thereafter. The contribution in FY2035 increases by 3.68%.