



Cavanaugh Macdonald
CONSULTING, LLC

The experience and dedication you deserve



Retirement Systems of Alabama September 30, 2014 Actuarial Valuation

October 5, 2015

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Principal and Consulting Actuary





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About CMC-Our Firm



- Cavanaugh Macdonald Consulting is a wholly independent, privately held firm
- Currently owned by 9 Principals
- 100% of our revenue is derived from public sector actuarial consulting
- Staffed by seasoned consultants who specialize in actuarial work for public plans
- Recognized as a leader in the industry and frequent speakers at national forums
- Provide impartial advice and maintain our independence
- All of our work is prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board
- Our work for RSA is periodically peer reviewed by an independent actuarial firm



About CMC-Our Clients and Staff



- Serving as retained actuary for the Retirement Systems of Alabama (RSA) for the last 10 years
- Senior staff of CMC average 25 years experience serving public sector plans – the expertise and knowledge of our staff regarding public sector actuarial consulting is as great if not greater than any of our competitors
- In addition to RSA, currently serve as the retained pension actuary for statewide retirement systems in Colorado, Connecticut, Georgia, Iowa, Kansas, Kentucky, Minnesota, Mississippi, Montana, Nebraska, New Mexico, Ohio, Oklahoma and Virginia.
- In addition to RSA, currently serve as the retained health actuary for statewide health plans in Colorado, Connecticut, Georgia, Kentucky, Mississippi, North Carolina, Ohio, South Carolina and Virginia.



About CMC-Our Strengths

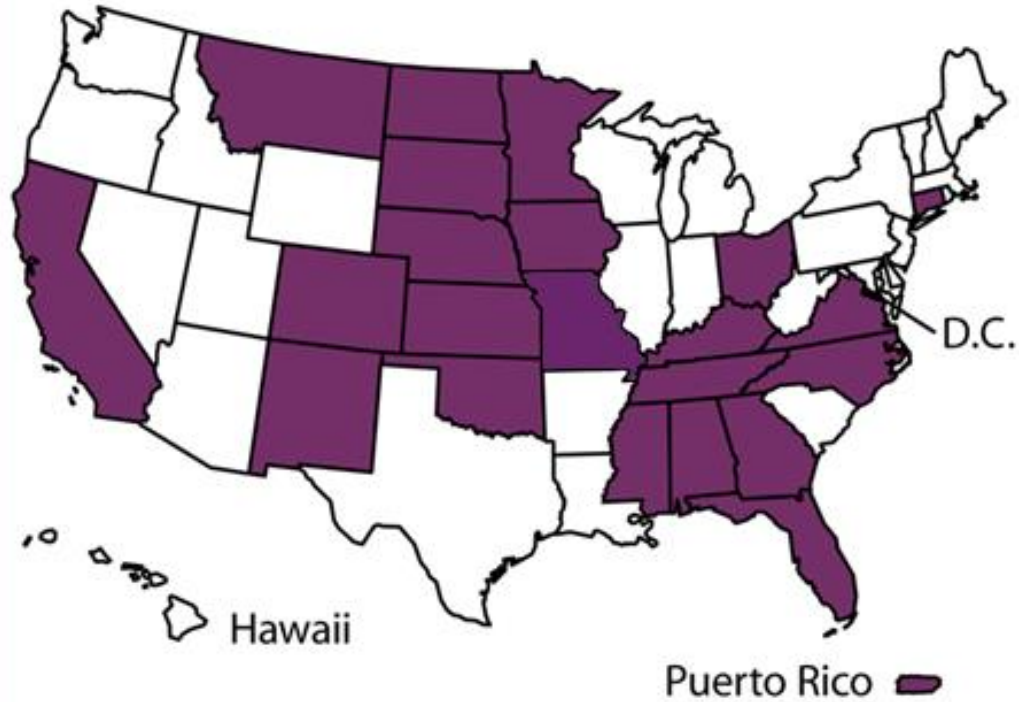


- A dedicated staff and an organizational structure that allows flexibility to meet client needs and to provide a high level of client/staff interaction.
- Centralized production of technical work allowing for greater efficiency and cost-effectiveness in service delivery.
- All staff have significant experience in the public sector with many staff dedicating their careers to serving public sector benefit plans.
- Strong ability to effectively communicate actuarial matters to Boards, staff and others.



About CMC-Our Clients

State and Local Government Pension Clients





General Observations



TRS:

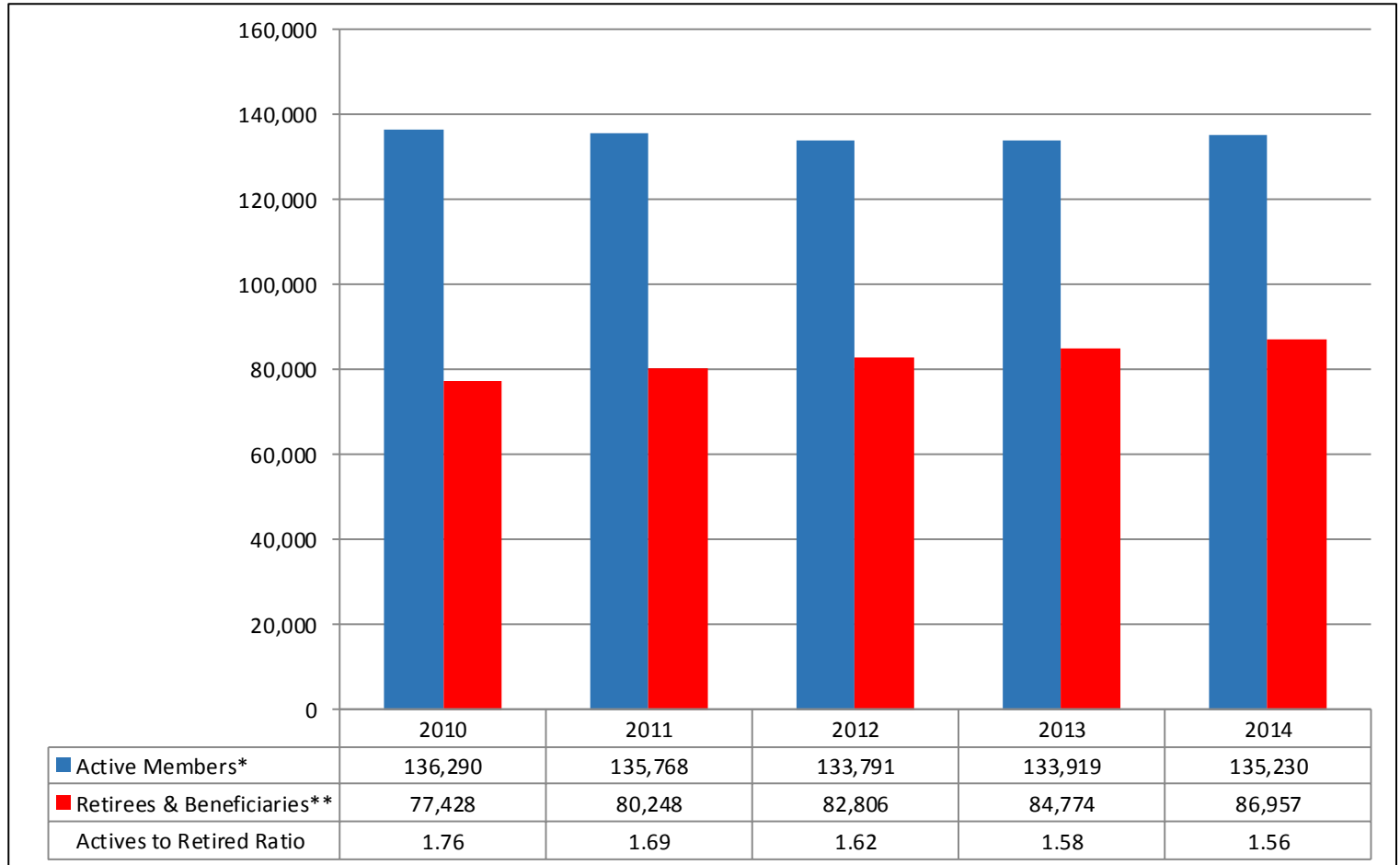
- Market value investment returns of **14.93%** for 2013 and **12.13%** for 2014, average of 13.52%.
- Slight decrease in Unfunded Actuarial Accrued Liability (UAAL) and increase in funded ratio.
- Increase of approximately 1.0% in active membership.

ERS:

- Market value investment returns of **14.60%** for 2013 and **12.02%** for 2014, average of 13.30%.
- Slight increase in Unfunded Actuarial Accrued Liability (UAAL) and increase in funded ratio.
- Slight Increase in active membership.



Historical Membership Data TRS

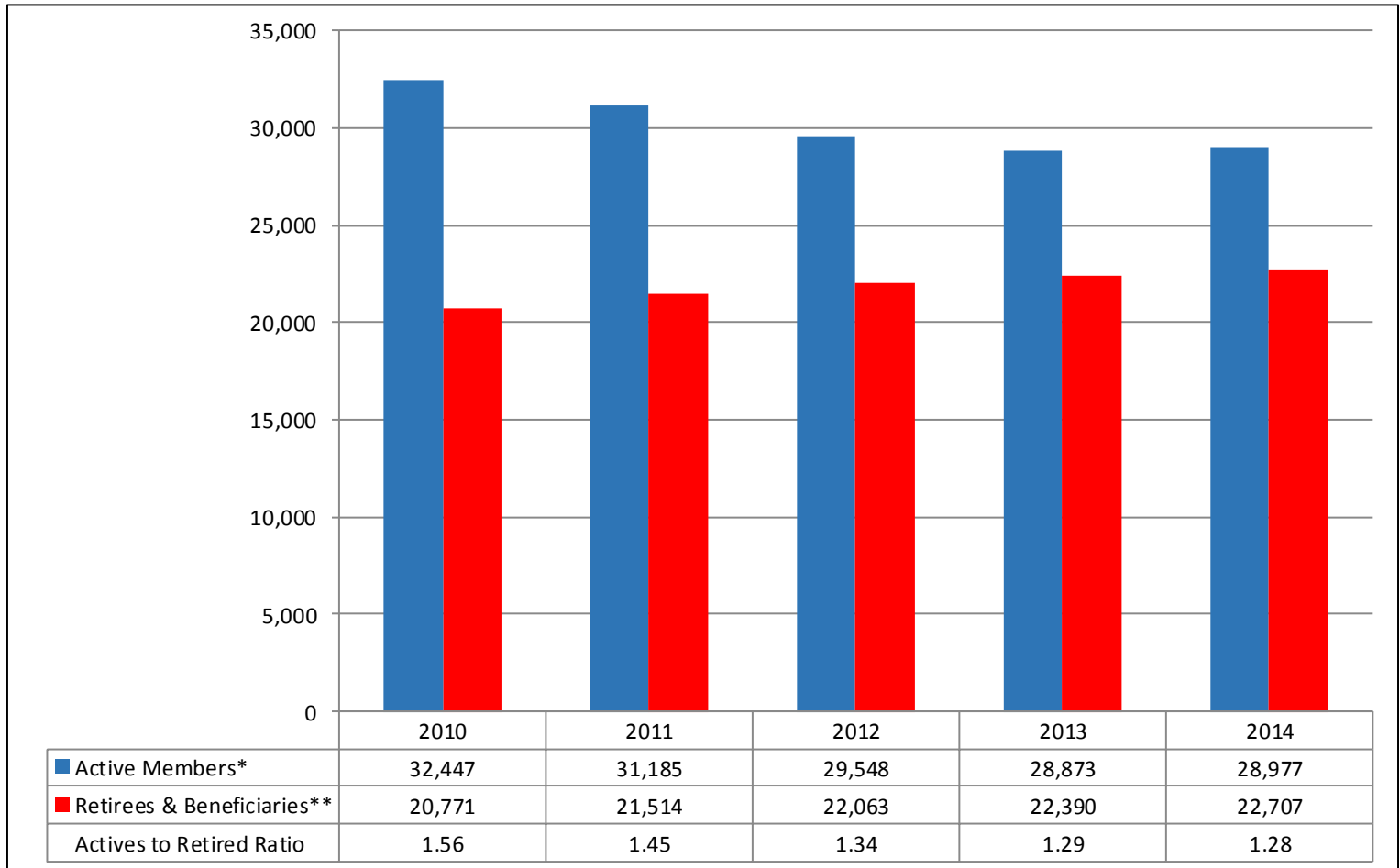


*Does not include DROP members

**Includes DROP members



Historical Membership Data ERS-State Employees

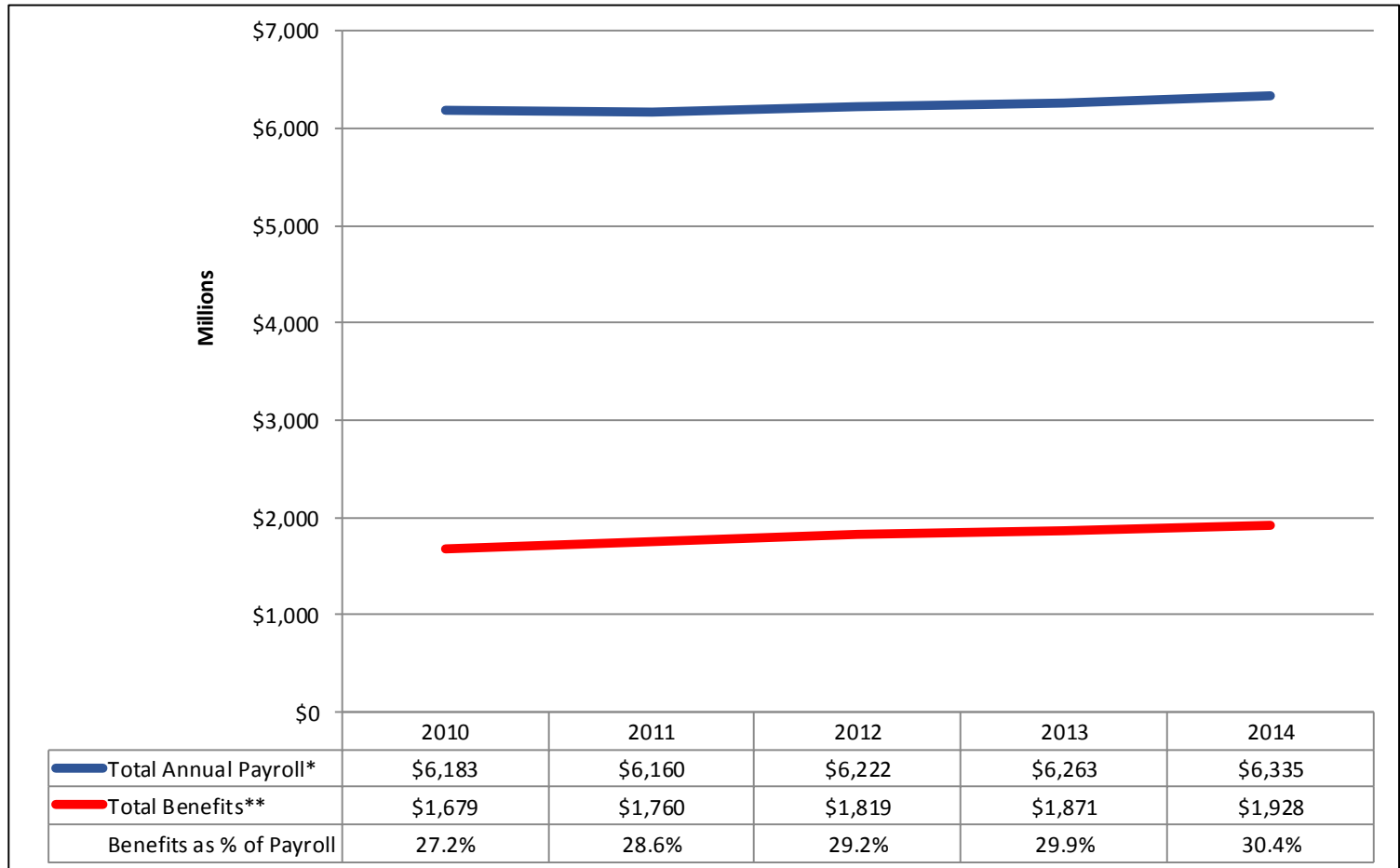


*Does not include DROP members

**Includes DROP members



Historical Payroll vs Benefits TRS

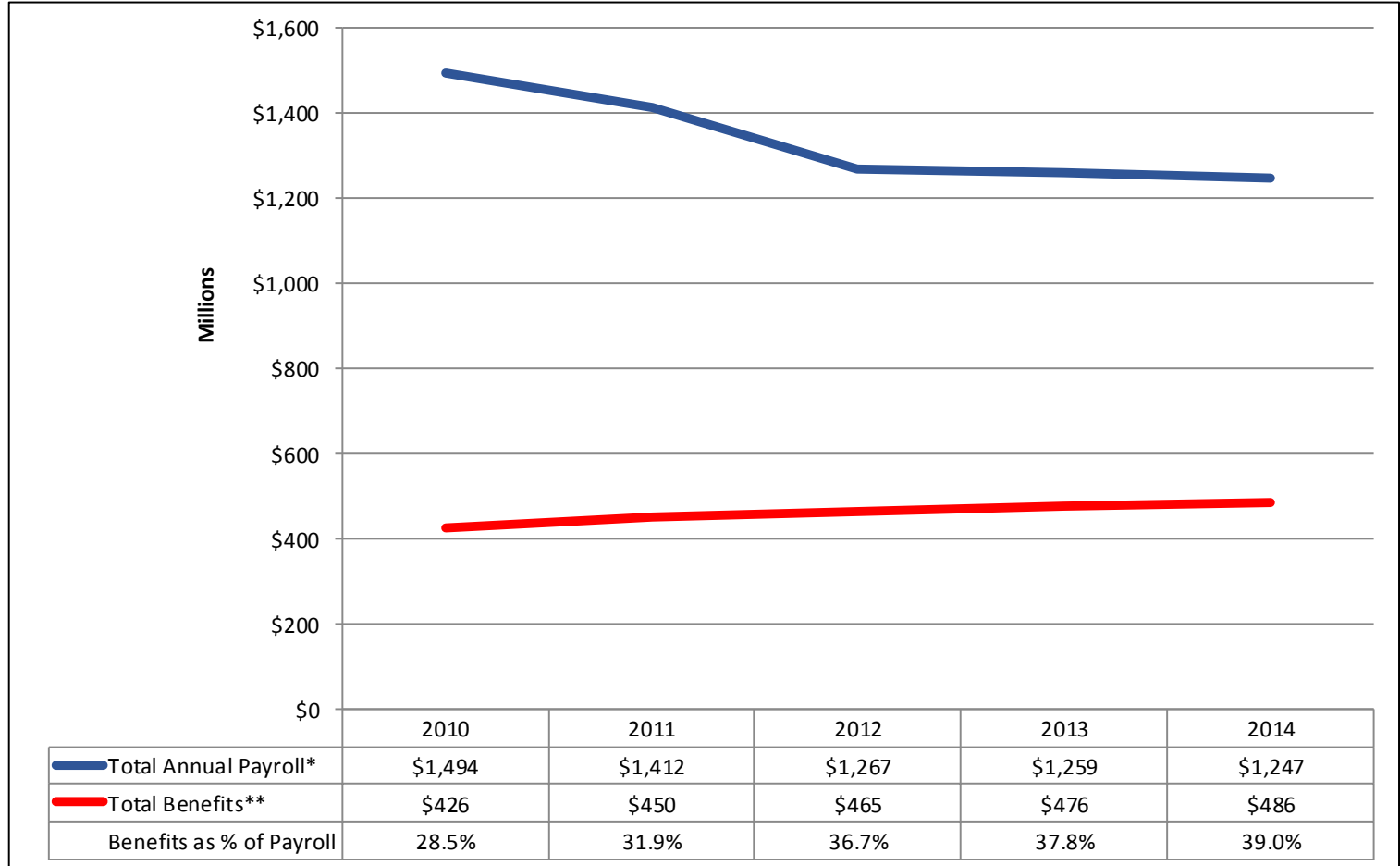


*Does not include DROP members

**Includes DROP members



Historical Payroll vs Benefits ERS-State Employees

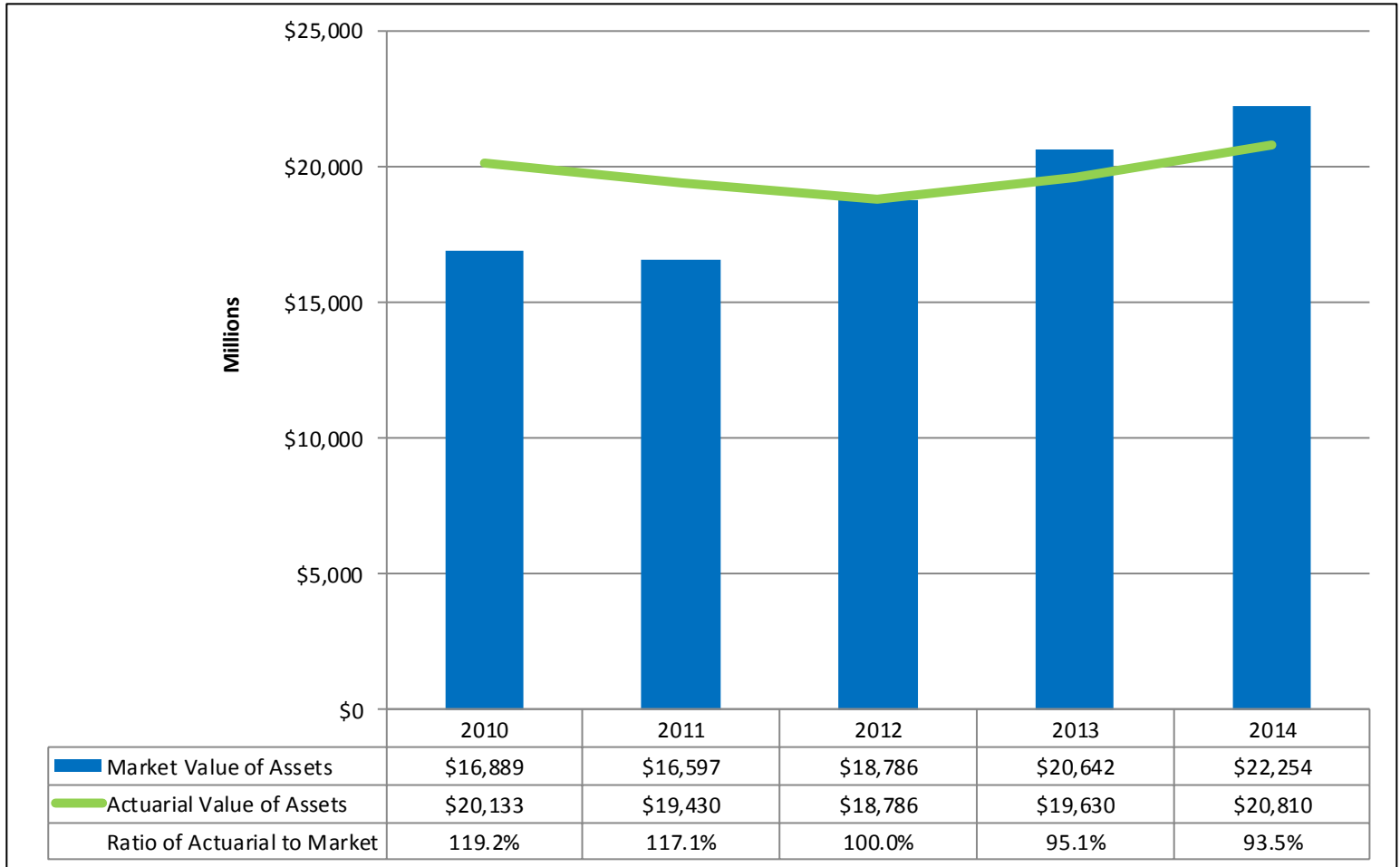


*Does not include DROP members

**Includes DROP members

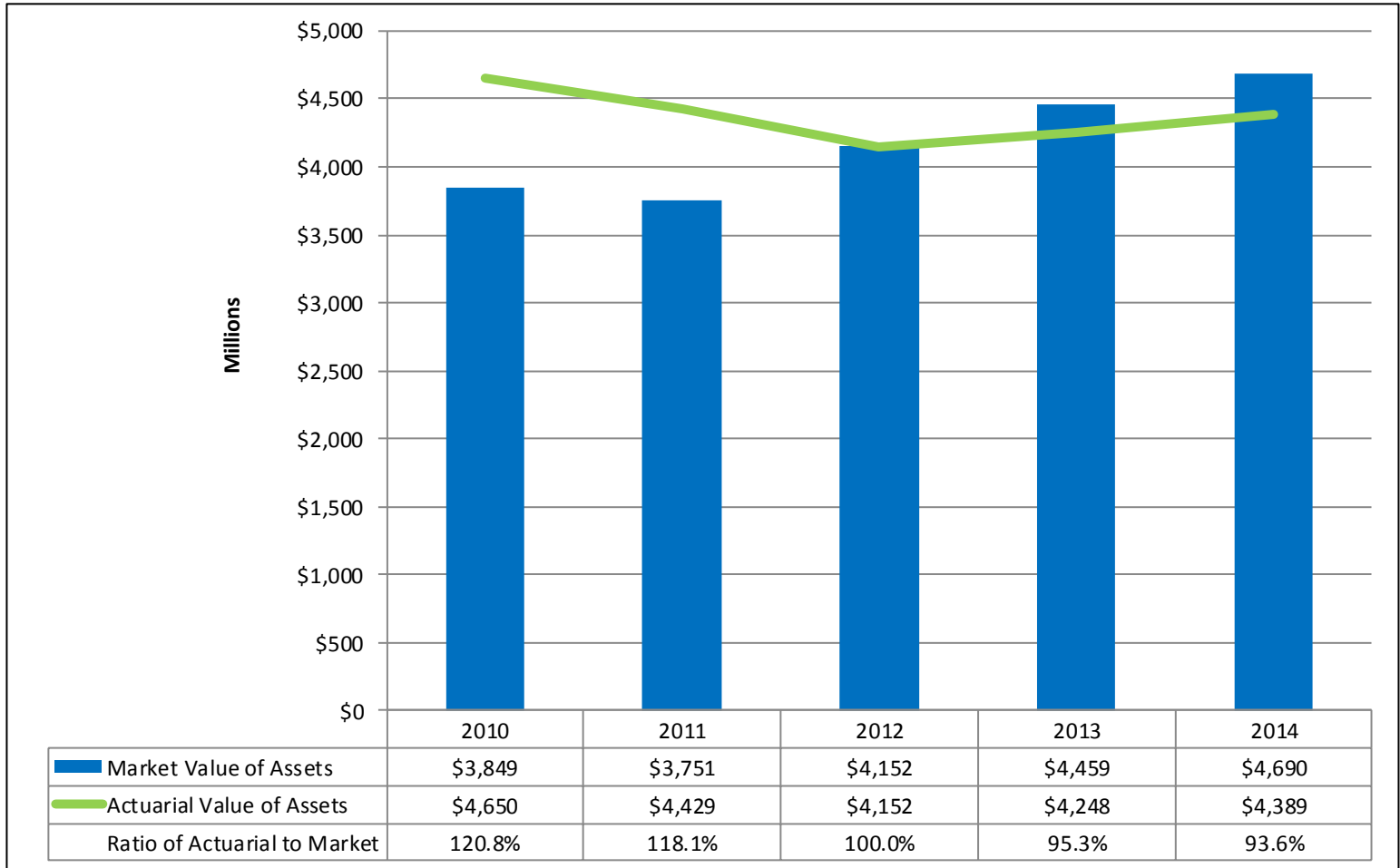


Market and Actuarial Asset Values TRS





Market and Actuarial Asset Values ERS-State Employees





Actuarial Funding Definitions



- **Actuarial Accrued Liability** – The liability for the portion of member’s benefits allocated to service performed up to the valuation. The Actuarial Accrued Liability is the amount already owed by the plan and does not diminish if the plan design is changed for new employees.
- **Normal Cost** – Annual cost of active member’s benefits allocated to the upcoming year of service.
- **Actuarial Value of Assets** – Assets determined using a five-year smoothing method to dampen the effect that market value fluctuations have on the funding requirements. The market value of assets may be more or less than the Actuarial Value of Assets.
- **Unfunded Actuarial Accrued Liability (UAAL)** – The difference between the Actuarial Accrued Liability and the Actuarial Value of Assets. The UAAL is also referred to in layman’s terms as the Unfunded Liability.
- **Funded Ratio** – The ratio of the Actuarial Value of Assets to the Actuarial Accrued Liability.
- **Funding Period** – The number of years to fully amortize the UAAL.



**TEACHERS' RETIREMENT SYSTEM OF ALABAMA
REPORT OF THE ACTUARY ON THE ANNUAL VALUATION
PREPARED AS OF SEPTEMBER 30, 2014**

SECTION I - SUMMARY OF PRINCIPAL RESULTS

1. For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results are summarized below:

VALUATION DATE	September 30, 2014	September 30, 2013
Active members		
Number	135,230	133,919
Annual compensation	\$ 6,214,949,700	\$ 6,065,042,345
Retired members and beneficiaries		
Number	85,209	81,745
Annual allowances	\$ 1,865,549,629	\$ 1,767,433,849
DROP participants		
Number	1,748	3,029
Annual compensation	\$ 120,210,805	\$ 198,322,151
Annual allowances	62,162,236	104,007,504
Assets		
Actuarial value	\$ 20,809,871,128	\$ 19,629,815,869
Market value	22,253,817,957	20,641,739,259
Unfunded actuarial accrued liability	\$ 10,027,958,472	\$ 10,036,026,524
Funded Ratio	67.5%	66.2%
CONTRIBUTIONS FOR FISCAL YEAR ENDING	September 30, 2017	September 30, 2016
<u>Tier I</u> (first hired prior to January 1, 2013)		
Employer contribution rate		
Normal	2.00%	1.84%
Unfunded actuarial accrued liability	9.65	9.74
Death benefit	0.02	0.02
Term life	0.01	0.01
Administration	<u>0.33</u>	<u>0.33</u>
Total	12.01%	11.94%
<u>Tier II</u> (first hired on or after January 1, 2013)		
Employer contribution rate		
Normal	0.81%	0.74%
Unfunded actuarial accrued liability	9.65	9.74
Death benefit	0.02	0.02
Term life	0.01	0.01
Administration	<u>0.33</u>	<u>0.33</u>
Total	10.82%	10.84%
Blended Amortization period	29.8 years	29.9 years



**REPORT ON THE ACTUARIAL VALUATION OF
THE EMPLOYEES' RETIREMENT SYSTEM OF ALABAMA
PREPARED AS OF SEPTEMBER 30, 2014**

SECTION I - SUMMARY OF PRINCIPAL RESULTS

1. For convenience of reference, the principal results of the valuation and a comparison with the preceding year's results for State Employees, Local Employees and State Policemen are summarized below:

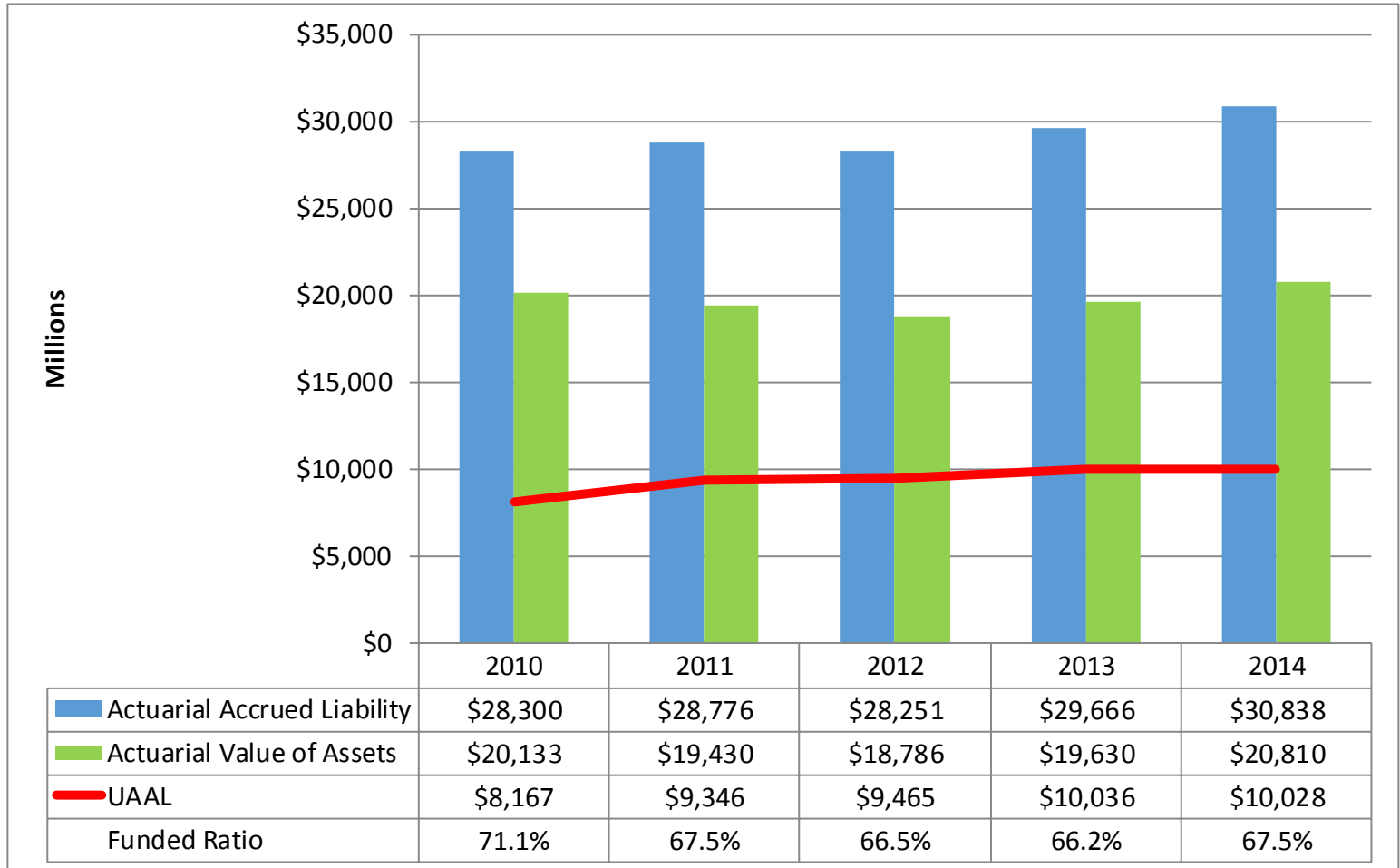
SUMMARY OF PRINCIPAL RESULTS FOR STATE EMPLOYEES

VALUATION DATE	September 30, 2014	September 30, 2013
Number of active members	28,977	28,873
Annual compensation	\$ 1,209,550,191	\$ 1,195,934,558
Number of retired members and beneficiaries	22,118	21,368
Annual retirement allowances	\$ 466,198,651	\$ 441,992,587
Number of DROP participants	589	1,022
Annual compensation	\$ 37,350,488	\$ 62,927,875
Annual allowances	19,957,619	33,590,995
Assets:		
Actuarial value	\$ 4,388,745,993	\$ 4,248,068,397
Market value	4,689,941,510	4,459,495,968
Unfunded actuarial accrued liability	\$ 2,560,498,896	\$ 2,560,097,142
Funded Ratio	63.2%	62.4%
CONTRIBUTIONS FOR FISCAL YEAR ENDING	September 30, 2017	September 30, 2016
<u>Tier I (first hired prior to January 1, 2013)</u>		
Employer contribution rate		
Normal	1.01%	0.81%
Accrued liability	12.51	12.36
Death benefit	0.02	0.02
Administration	<u>0.35</u>	<u>0.35</u>
Subtotal	13.89%	13.54%
Act 2014-429*	N/A	1.03
Total	13.89%	14.57%
<u>Tier II (first hired on or after January 1, 2013)</u>		
Employer contribution rate		
Normal	0.37%	0.33%
Accrued liability	12.51	12.36
Death benefit	0.02	0.02
Administration	<u>0.35</u>	<u>0.35</u>
Subtotal	13.25%	13.06%
Act 2014-429*	N/A	1.03
Total	13.25%	14.09%
Blended Amortization period	29.8 years	30 years

*Rate required for September 30, 2016 fiscal year to fund the one-time lump sum payment provided for by Act 2014-429.

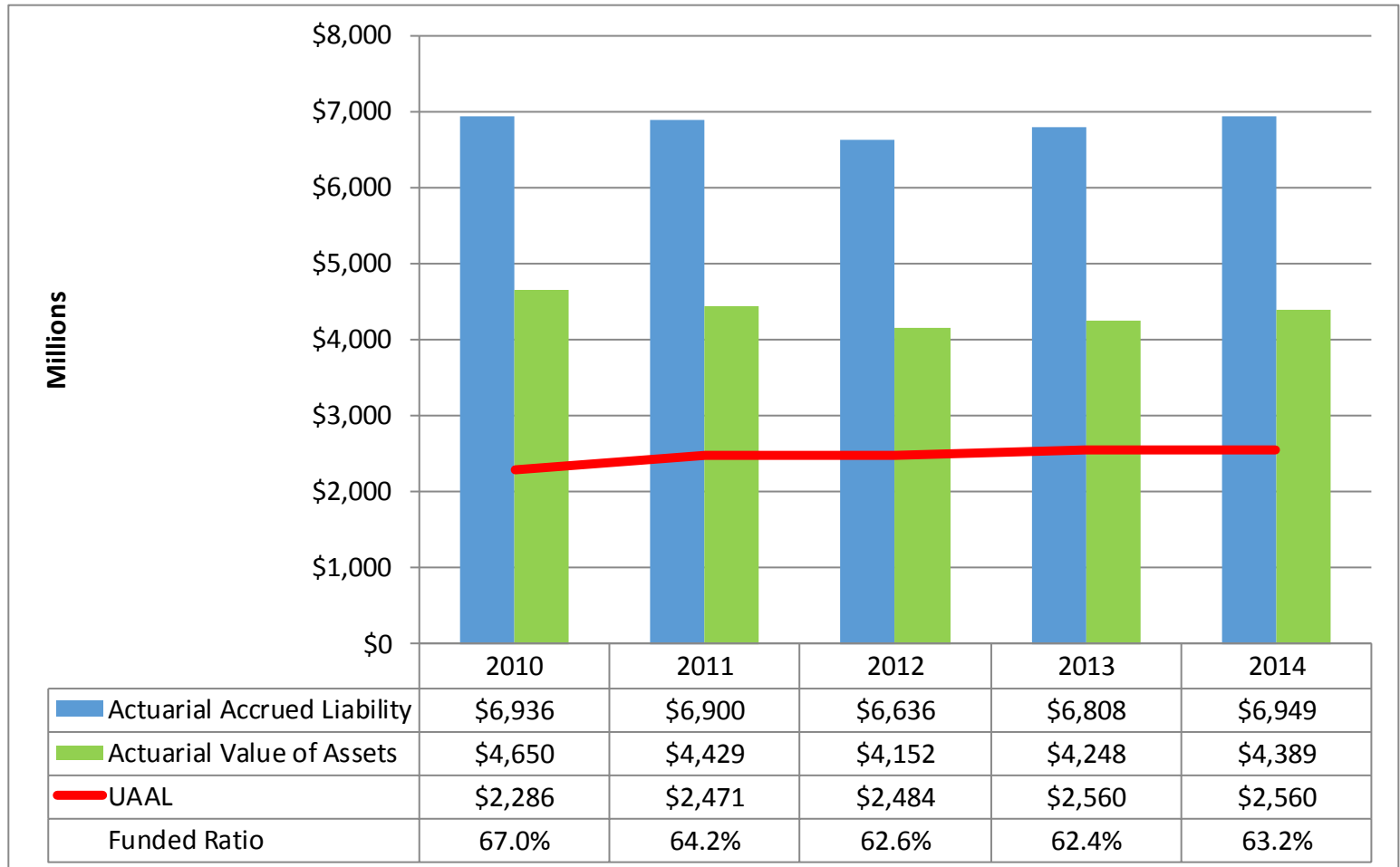


Valuation Results TRS





Valuation Results ERS-State Employees

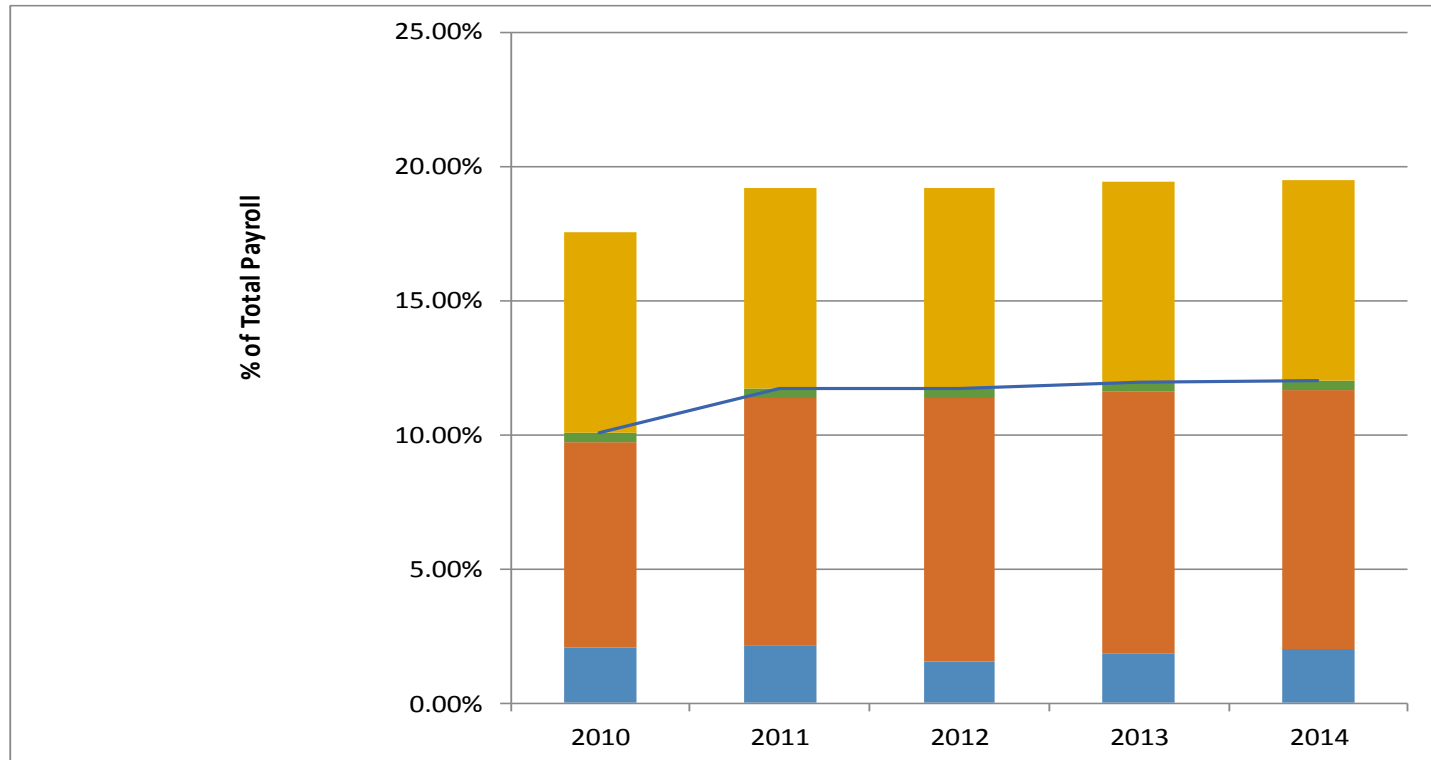




Contribution Rates

TRS (cont.)

Tier I Rates



Employer UAAL Rate	7.65%	9.22%	9.82%	9.74%	9.65%
Employer Normal Cost Rate	2.07%	2.13%	1.53%	1.84%	2.00%
Other*	0.35%	0.35%	0.35%	0.36%	0.36%
Total Employer Rate	10.07%	11.70%	11.70%	11.94%	12.01%
Member Contribution Rate	7.50%	7.50%	7.50%	7.50%	7.50%

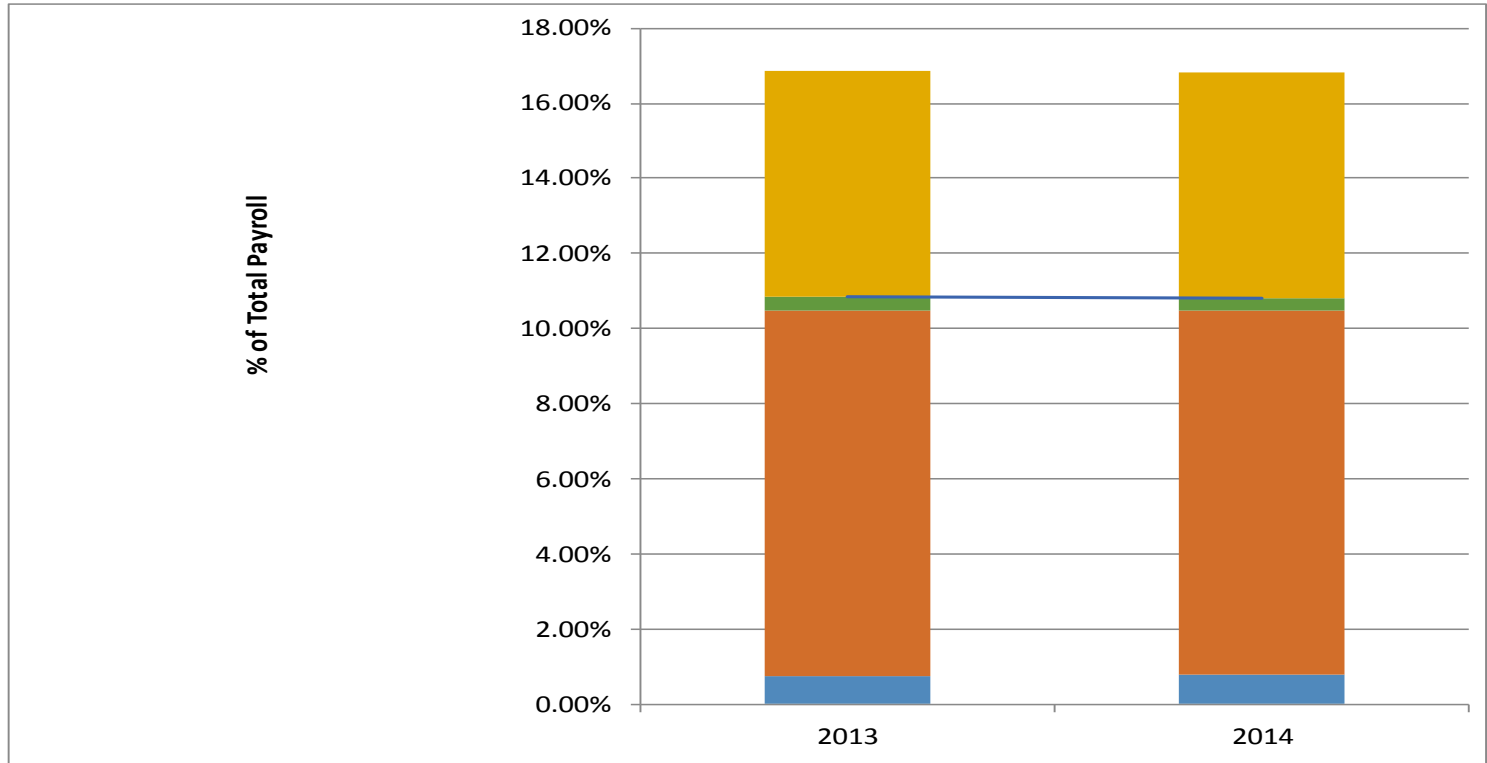
*Administration, death benefit, and term life rates



Contribution Rates

TRS (cont.)

Tier II Rates



Employer UAAL Rate	9.74%	9.65%
Employer Normal Cost Rate	0.74%	0.81%
Other*	0.36%	0.36%
Total Employer Rate	10.84%	10.82%
Member Contribution Rate	6.00%	6.00%

*Administration, death benefit, and term life rates



Contribution Rates

ERS-State Employees (cont.)

Tier I Rates



Employer UAAL Rate	8.71%	10.62%	12.48%	12.36%	12.51%
Employer Normal Cost Rate	1.06%	1.05%	0.62%	0.81%	1.01%
Other*	0.35%	0.35%	0.35%	0.37%	0.37%
Total Employer Rate	10.12%	12.02%	13.45%	13.54%	13.89%
Member Contribution Rate**	7.64%	7.64%	7.64%	7.64%	7.64%

*Administration and death benefit rates

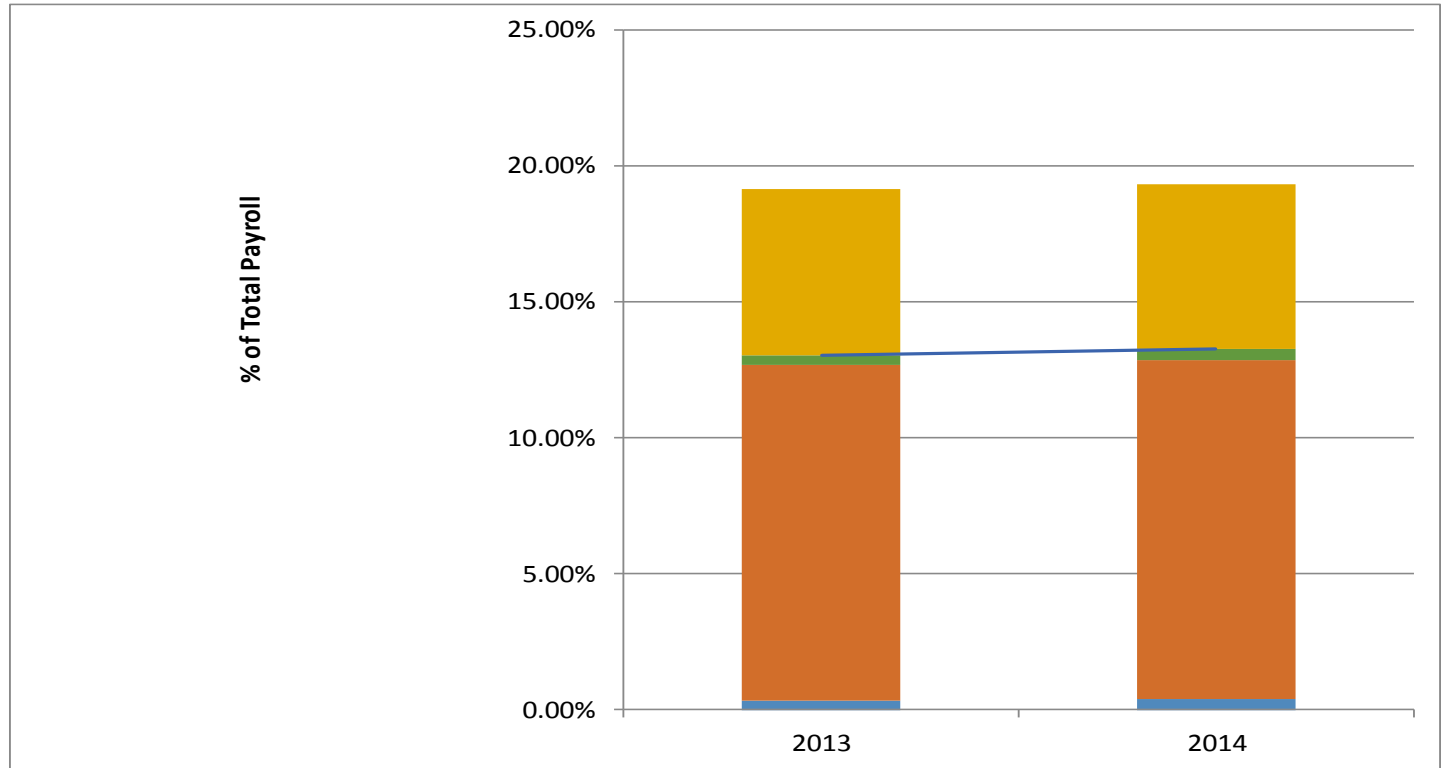
**Represents blended rate comprised of 8.5% of payroll for FLC employees and 7.5% of payroll for non-FLC employees.



Contribution Rates

ERS-State Employees (cont.)

Tier II Rates



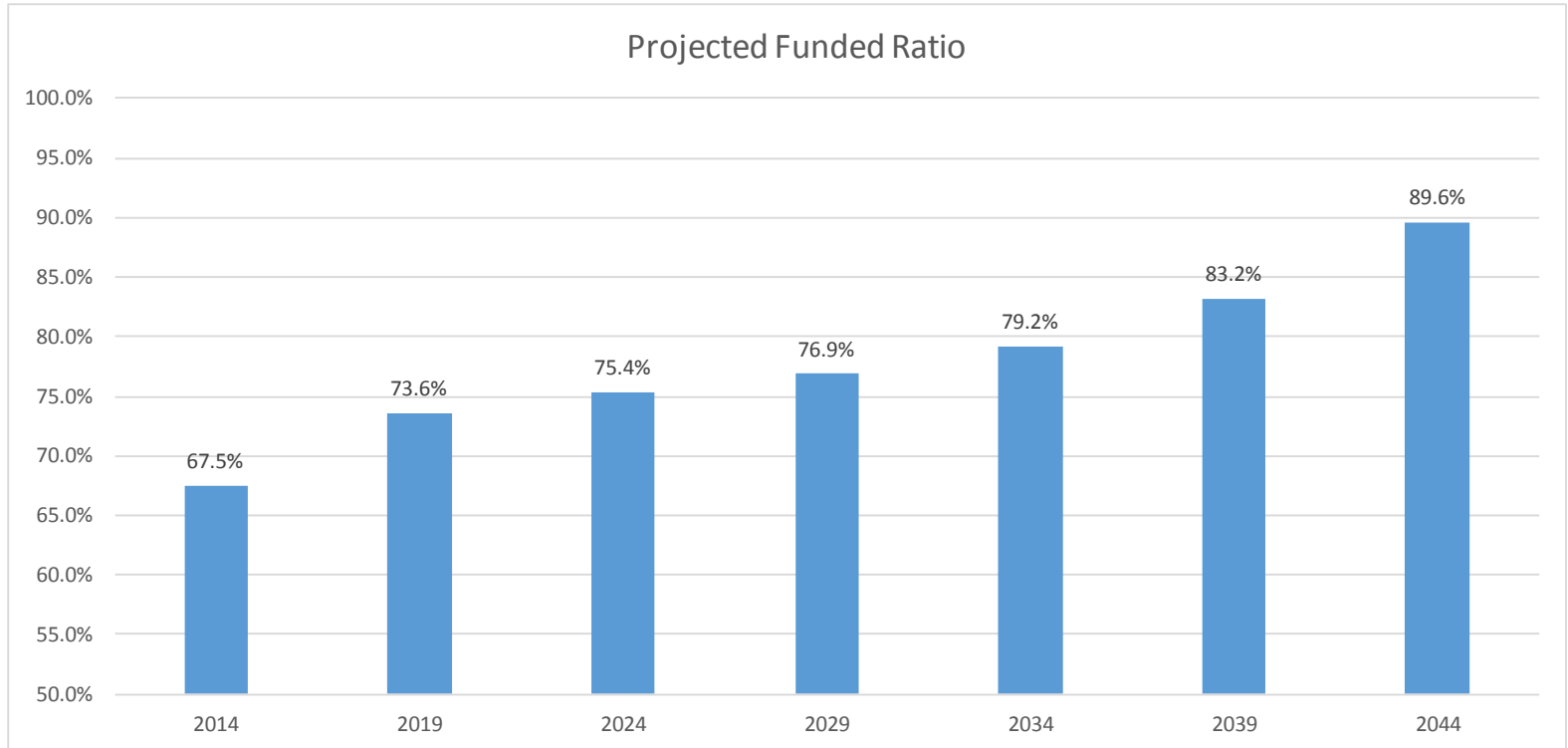
Employer UAAL Rate	12.36%	12.51%
Employer Normal Cost Rate	0.33%	0.37%
Other*	0.37%	0.37%
Total Employer Rate	13.06%	13.25%
Member Contribution Rate**	6.07%	6.10%

*Administration and death benefit rates

**Represents blended rate comprised of 7.0% of payroll for FLC employees and 6.0% of payroll for non-FLC employees.



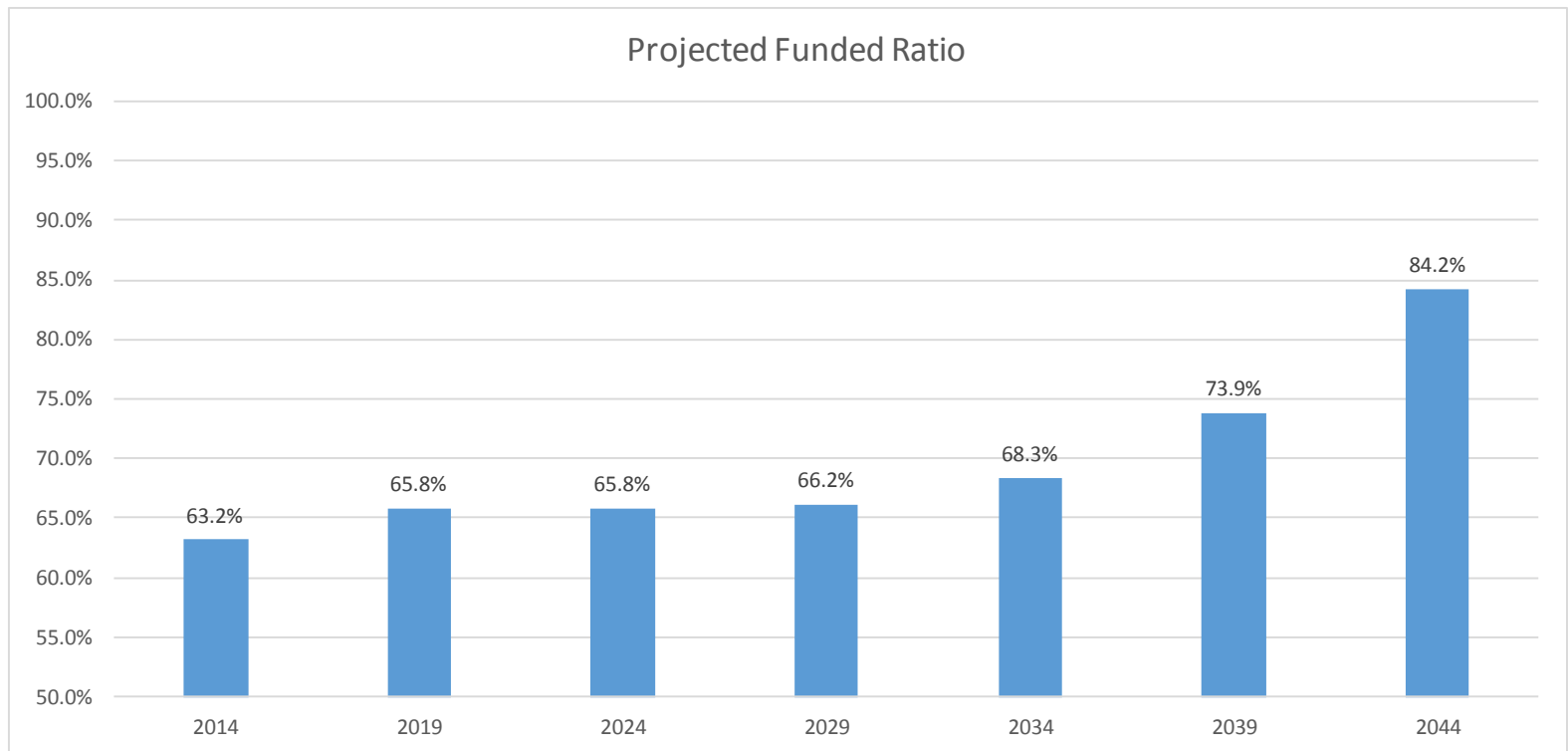
Projection of Funded Ratio TRS (cont.)



See Pension Committee Notebook, TRS 30 Year Projections, Funding-20.



Projection of Funded Ratio ERS-State Employees (cont)



See Pension Committee Notebook, ERS 30 Year Projections, Funding-19.



ALABAMA TEACHERS RETIREMENT SYSTEM
RESULTS COMPARING TIER II MEMBERS UNDER CURRENT BENEFIT STRUCTURE
WITH THOSE UNDER A CASH BALANCE PLAN SIMILAR TO THE KENTUCKY RETIREMENT SYSTEM
4% EMPLOYER CONTRIBUTION/5% EMPLOYEE CONTRIBUTION

Valuation Year 9/30/YYYY	Fiscal Year Ending 9/30/YYYY	Current Plan Normal Rate		Cash Balance Plan Normal Rate		Admin. Rates	Unfunded Accrued Liab Rate	Current Plan			Cash Balance Plan			Impact of Cash Balance Plan	
		Tier I Group	Tier II Group	Tier I Group	Tier II Group			Total Employer Rate			Total Employer Rate			Change in Employer Rate	\$ Cost (Savings) for Fiscal Year (in \$1,000's)
								Tier I Group	Tier II Group	Blended Rate	Tier I Group	Tier II Group	Blended Rate		
						A			B			B - A			
2014	2017	2.00%	0.81%	2.00%	2.47%	0.36%	9.65%	12.01%	10.82%	11.70%	12.01%	12.48%	12.13%	0.43%	30,100
2015	2018	2.13%	1.07%	2.13%	2.55%	0.36%	9.55%	12.04%	10.98%	11.71%	12.04%	12.46%	12.17%	0.46%	32,732
2016	2019	2.25%	1.22%	2.25%	2.61%	0.36%	9.37%	11.98%	10.95%	11.61%	11.98%	12.34%	12.11%	0.50%	36,365
2017	2020	2.38%	1.35%	2.38%	2.68%	0.36%	9.14%	11.88%	10.85%	11.47%	11.88%	12.18%	12.00%	0.53%	40,282
2018	2021	2.31%	1.32%	2.31%	2.63%	0.36%	8.63%	11.30%	10.31%	10.86%	11.30%	11.62%	11.44%	0.58%	45,232
2019	2022	2.15%	1.22%	2.15%	2.55%	0.36%	8.14%	10.65%	9.72%	10.20%	10.65%	11.05%	10.84%	0.64%	51,793
2020	2023	2.10%	1.21%	2.10%	2.53%	0.36%	7.98%	10.44%	9.55%	9.97%	10.44%	10.87%	10.67%	0.70%	57,443
2021	2024	2.09%	1.21%	2.09%	2.52%	0.36%	7.93%	10.38%	9.50%	9.89%	10.38%	10.81%	10.62%	0.73%	63,128
2022	2025	2.07%	1.22%	2.07%	2.52%	0.36%	7.89%	10.32%	9.47%	9.81%	10.32%	10.77%	10.59%	0.78%	68,892
2023	2026	2.05%	1.22%	2.05%	2.52%	0.36%	7.86%	10.27%	9.44%	9.74%	10.27%	10.74%	10.57%	0.83%	75,174
2024	2027	2.03%	1.22%	2.03%	2.52%	0.36%	7.84%	10.23%	9.42%	9.69%	10.23%	10.72%	10.56%	0.87%	81,527
2025	2028	2.01%	1.22%	2.01%	2.52%	0.36%	7.82%	10.19%	9.40%	9.64%	10.19%	10.70%	10.55%	0.91%	88,046
2026	2029	2.00%	1.21%	2.00%	2.52%	0.36%	7.83%	10.19%	9.40%	9.61%	10.19%	10.71%	10.57%	0.96%	95,300
2027	2030	1.98%	1.21%	1.98%	2.52%	0.36%	7.84%	10.18%	9.41%	9.60%	10.18%	10.72%	10.59%	0.99%	102,134
2028	2031	1.96%	1.20%	1.96%	2.52%	0.36%	7.86%	10.18%	9.42%	9.58%	10.18%	10.74%	10.62%	1.04%	110,000
2029	2032	1.95%	1.19%	1.95%	2.52%	0.36%	7.88%	10.19%	9.43%	9.57%	10.19%	10.76%	10.65%	1.08%	118,133
2030	2033	1.94%	1.18%	1.94%	2.52%	0.36%	7.91%	10.21%	9.45%	9.57%	10.21%	10.79%	10.70%	1.13%	126,493
2031	2034	1.93%	1.17%	1.93%	2.52%	0.36%	7.93%	10.22%	9.46%	9.56%	10.22%	10.81%	10.73%	1.17%	135,018
2032	2035	1.92%	1.16%	1.92%	2.52%	0.36%	7.95%	10.23%	9.47%	9.56%	10.23%	10.83%	10.76%	1.20%	143,726
2033	2036	1.91%	1.15%	1.91%	2.51%	0.36%	7.97%	10.24%	9.48%	9.55%	10.24%	10.84%	10.78%	1.23%	151,496
2034	2037	1.91%	1.14%	1.91%	2.51%	0.36%	7.99%	10.26%	9.49%	9.55%	10.26%	10.86%	10.81%	1.26%	160,559
2035	2038	1.90%	1.13%	1.90%	2.51%	0.36%	8.01%	10.27%	9.50%	9.55%	10.27%	10.88%	10.84%	1.29%	169,861
2036	2039	1.89%	1.12%	1.89%	2.51%	0.36%	8.02%	10.27%	9.50%	9.54%	10.27%	10.89%	10.86%	1.32%	179,108
2037	2040	1.88%	1.10%	1.88%	2.51%	0.36%	8.03%	10.27%	9.49%	9.52%	10.27%	10.90%	10.88%	1.36%	189,770
2038	2041	1.87%	1.09%	1.87%	2.51%	0.36%	8.04%	10.27%	9.49%	9.51%	10.27%	10.91%	10.89%	1.38%	199,102
2039	2042	1.86%	1.08%	1.86%	2.51%	0.36%	8.04%	10.26%	9.48%	9.50%	10.26%	10.91%	10.90%	1.40%	208,576
2040	2043	1.85%	1.06%	1.85%	2.51%	0.36%	8.03%	10.24%	9.45%	9.46%	10.24%	10.90%	10.89%	1.43%	219,727
2041	2044	1.84%	1.05%	1.84%	2.51%	0.36%	8.03%	10.23%	9.44%	9.45%	10.23%	10.90%	10.89%	1.44%	229,614
2042	2045	1.84%	1.04%	1.84%	2.51%	0.36%	7.35%	9.55%	8.75%	8.76%	9.55%	10.22%	10.21%	1.45%	239,646
2043	2046	1.83%	1.02%	1.83%	2.51%	0.36%	6.23%	8.42%	7.61%	7.62%	8.42%	9.10%	9.10%	1.48%	251,553
2044	2047	1.82%	1.01%	1.82%	2.51%	0.36%	5.73%	7.91%	7.10%	7.10%	7.91%	8.60%	8.60%	1.50%	262,041

\$ 3,962,569

Cash Balance Plan - NOTES

5% member contributions

4% employer credit to member account

Interest credited to both based on 4% plus 75% of the difference between (i) the geometric average net investment return over the previous five years and (ii) 4%

5-year vesting on employer account balances

ALABAMA EMPLOYEES RETIREMENT SYSTEM
RESULTS COMPARING TIER II MEMBERS UNDER CURRENT BENEFIT STRUCTURE
WITH THOSE UNDER A CASH BALANCE PLAN SIMILAR TO THE KENTUCKY RETIREMENT SYSTEM
4% EMPLOYER CONTRIBUTION/5% EMPLOYEE CONTRIBUTION



Valuation Year 9/30/YYYY	Fiscal Year Ending 9/30/YYYY	Current Plan Normal Rate		Cash Balance Plan Normal Rate		Unfunded Accrued Liab Rate	Admin. Rates	Current Plan Total Employer Rate			Cash Balance Plan Total Employer Rate			Impact of Cash Balance Plan	
		Tier I Group	Tier II Group	Tier I Group	Tier II Group			Tier I Group	Tier II Group	Blended Rate	Tier I Group	Tier II Group	Blended Rate	Change in Employer Rate	\$ Cost (Savings) for Fiscal Year
2014	2017	1.01%	0.37%	1.01%	2.64%	12.51%	0.37%	13.89%	13.25%	13.70%	13.89%	15.52%	14.38%	0.68%	9,021
2015	2018	1.09%	0.64%	1.09%	2.71%	12.55%	0.37%	14.01%	13.56%	13.85%	14.01%	15.63%	14.59%	0.74%	9,982
2016	2019	1.18%	0.79%	1.18%	2.78%	12.53%	0.37%	14.08%	13.69%	13.92%	14.08%	15.68%	14.73%	0.81%	11,281
2017	2020	1.29%	0.91%	1.29%	2.86%	12.34%	0.37%	14.00%	13.62%	13.83%	14.00%	15.57%	14.72%	0.89%	12,697
2018	2021	1.34%	0.98%	1.34%	2.90%	12.25%	0.37%	13.96%	13.60%	13.78%	13.96%	15.52%	14.74%	0.96%	14,127
2019	2022	1.22%	0.90%	1.22%	2.82%	11.77%	0.37%	13.36%	13.04%	13.19%	13.36%	14.96%	14.23%	1.04%	15,762
2020	2023	1.19%	0.89%	1.19%	2.80%	11.61%	0.37%	13.17%	12.87%	12.99%	13.17%	14.78%	14.11%	1.12%	17,322
2021	2024	1.17%	0.90%	1.17%	2.80%	11.57%	0.37%	13.11%	12.84%	12.94%	13.11%	14.74%	14.12%	1.18%	18,888
2022	2025	1.16%	0.90%	1.16%	2.80%	11.54%	0.37%	13.07%	12.81%	12.90%	13.07%	14.71%	14.15%	1.25%	20,570
2023	2026	1.15%	0.91%	1.15%	2.80%	11.52%	0.37%	13.04%	12.80%	12.87%	13.04%	14.69%	14.18%	1.31%	22,136
2024	2027	1.14%	0.92%	1.14%	2.80%	11.49%	0.37%	13.00%	12.78%	12.84%	13.00%	14.66%	14.20%	1.36%	23,713
2025	2028	1.12%	0.92%	1.12%	2.80%	11.48%	0.37%	12.97%	12.77%	12.82%	12.97%	14.65%	14.23%	1.41%	25,415
2026	2029	1.11%	0.92%	1.11%	2.81%	11.47%	0.37%	12.95%	12.76%	12.80%	12.95%	14.65%	14.27%	1.47%	27,273
2027	2030	1.10%	0.91%	1.10%	2.81%	11.47%	0.37%	12.94%	12.75%	12.79%	12.94%	14.65%	14.32%	1.53%	29,157
2028	2031	1.09%	0.91%	1.09%	2.81%	11.45%	0.37%	12.91%	12.73%	12.76%	12.91%	14.63%	14.34%	1.58%	30,929
2029	2032	1.06%	0.90%	1.06%	2.81%	11.41%	0.37%	12.84%	12.68%	12.70%	12.84%	14.59%	14.33%	1.63%	32,917
2030	2033	1.05%	0.89%	1.05%	2.81%	11.43%	0.37%	12.85%	12.69%	12.71%	12.85%	14.61%	14.39%	1.68%	34,948
2031	2034	1.05%	0.89%	1.05%	2.81%	11.45%	0.37%	12.87%	12.71%	12.73%	12.87%	14.63%	14.44%	1.71%	36,821
2032	2035	1.03%	0.88%	1.03%	2.81%	11.46%	0.37%	12.86%	12.71%	12.72%	12.86%	14.64%	14.48%	1.76%	38,914
2033	2036	1.02%	0.88%	1.02%	2.81%	11.47%	0.37%	12.86%	12.72%	12.73%	12.86%	14.65%	14.51%	1.78%	40,827
2034	2037	1.01%	0.87%	1.01%	2.81%	11.47%	0.37%	12.85%	12.71%	12.72%	12.85%	14.65%	14.54%	1.82%	42,971
2035	2038	1.00%	0.86%	1.00%	2.81%	11.48%	0.37%	12.85%	12.71%	12.72%	12.85%	14.66%	14.57%	1.85%	45,149
2036	2039	0.98%	0.85%	0.98%	2.81%	11.48%	0.37%	12.83%	12.70%	12.71%	12.83%	14.66%	14.58%	1.87%	47,347
2037	2040	0.97%	0.84%	0.97%	2.81%	11.48%	0.37%	12.82%	12.69%	12.69%	12.82%	14.66%	14.60%	1.91%	49,575
2038	2041	0.96%	0.84%	0.96%	2.81%	11.47%	0.37%	12.80%	12.68%	12.68%	12.80%	14.65%	14.60%	1.92%	51,556
2039	2042	0.95%	0.83%	0.95%	2.81%	11.46%	0.37%	12.78%	12.66%	12.66%	12.78%	14.64%	14.60%	1.94%	53,833
2040	2043	0.93%	0.82%	0.93%	2.81%	11.45%	0.37%	12.75%	12.64%	12.64%	12.75%	14.63%	14.60%	1.96%	56,155
2041	2044	0.93%	0.81%	0.93%	2.81%	11.43%	0.37%	12.73%	12.61%	12.61%	12.73%	14.61%	14.59%	1.98%	58,524
2042	2045	0.91%	0.80%	0.91%	2.81%	10.45%	0.37%	11.73%	11.62%	11.62%	11.73%	13.63%	13.61%	1.99%	60,897
2043	2046	0.90%	0.80%	0.90%	2.81%	9.28%	0.37%	10.55%	10.45%	10.45%	10.55%	12.46%	12.45%	2.00%	63,011
2044	2047	0.90%	0.79%	0.90%	2.81%	8.56%	0.37%	9.83%	9.72%	9.72%	9.83%	11.74%	11.73%	2.01%	65,493

ERS \$ 1,067,209
 TRS 3,962,569
 Total \$ 5,029,778

Cash Balance Plan - NOTES

- 5% member contributions
- 4% employer credit to member account
- Interest credited to both based on 4% plus 75% of the difference between (i) the geometric average net investment return over the previous five years and (ii) 4%
- 5-year vesting on employer account balances
- KRS Hazardous Members have higher contribution amounts not reflected in this projection that would increase costs.

ALABAMA TEACHERS RETIREMENT SYSTEM
RESULTS COMPARING TIER II MEMBERS UNDER CURRENT BENEFIT STRUCTURE
WITH THOSE UNDER A HYBRID DB/DC PLAN SIMILAR TO THE FEDERAL EMPLOYEES' RETIREMENT SYSTEM
ASSUMES 3.1% EMPLOYEE CONTRIBUTION TO DB PLAN (4.1% FOR FLC)
ASSUMES EMPLOYER WILL CONTRIBUTE AN ADDITIONAL 1% TO A DC PLAN



Valuation Year 9/30/YYYY	Fiscal Year Ending 9/30/YYYY	Current Plan Normal Rate		Hybrid Plan Normal Rate		Admin. Rates	Unfunded Accrued Liab Rate	Current Plan			Hybrid Plan			Estimated Impact of Hybrid Plan	
		Tier I Group	Tier II Group	Tier I Group	Tier II Group			Total Employer Rate			Total Employer Rate			Change in Employer Rate	\$ Cost (Savings) for Fiscal Year (in \$1,000's)
								Tier I Group	Tier II Group	Blended Rate	Tier I Group	Tier II Group	Blended Rate		
										A			B	B - A	
2014	2017	2.00%	0.81%	2.00%	3.24%	0.36%	9.65%	12.01%	10.82%	11.70%	12.01%	13.25%	12.33%	0.63%	44,061
2015	2018	2.13%	1.07%	2.13%	3.36%	0.36%	9.55%	12.04%	10.98%	11.71%	12.04%	13.27%	12.42%	0.71%	50,646
2016	2019	2.25%	1.22%	2.25%	3.50%	0.36%	9.37%	11.98%	10.95%	11.61%	11.98%	13.23%	12.42%	0.81%	59,649
2017	2020	2.38%	1.35%	2.38%	3.61%	0.36%	9.14%	11.88%	10.85%	11.47%	11.88%	13.11%	12.37%	0.90%	68,449
2018	2021	2.31%	1.32%	2.31%	3.59%	0.36%	8.63%	11.30%	10.31%	10.86%	11.30%	12.58%	11.87%	1.01%	78,379
2019	2022	2.15%	1.22%	2.15%	3.50%	0.36%	8.14%	10.65%	9.72%	10.20%	10.65%	12.00%	11.30%	1.10%	88,789
2020	2023	2.10%	1.21%	2.10%	3.49%	0.36%	7.98%	10.44%	9.55%	9.97%	10.44%	11.83%	11.17%	1.20%	99,220
2021	2024	2.09%	1.21%	2.09%	3.49%	0.36%	7.93%	10.38%	9.50%	9.89%	10.38%	11.78%	11.17%	1.28%	109,872
2022	2025	2.07%	1.22%	2.07%	3.50%	0.36%	7.89%	10.32%	9.47%	9.81%	10.32%	11.75%	11.18%	1.37%	120,826
2023	2026	2.05%	1.22%	2.05%	3.50%	0.36%	7.86%	10.27%	9.44%	9.74%	10.27%	11.72%	11.19%	1.45%	131,844
2024	2027	2.03%	1.22%	2.03%	3.50%	0.36%	7.84%	10.23%	9.42%	9.69%	10.23%	11.70%	11.21%	1.52%	142,986
2025	2028	2.01%	1.22%	2.01%	3.50%	0.36%	7.82%	10.19%	9.40%	9.64%	10.19%	11.68%	11.23%	1.59%	154,418
2026	2029	2.00%	1.21%	2.00%	3.50%	0.36%	7.83%	10.19%	9.40%	9.61%	10.19%	11.69%	11.29%	1.68%	166,593
2027	2030	1.98%	1.21%	1.98%	3.49%	0.36%	7.84%	10.18%	9.41%	9.60%	10.18%	11.69%	11.33%	1.73%	177,761
2028	2031	1.96%	1.20%	1.96%	3.48%	0.36%	7.86%	10.18%	9.42%	9.58%	10.18%	11.70%	11.38%	1.80%	189,999
2029	2032	1.95%	1.19%	1.95%	3.47%	0.36%	7.88%	10.19%	9.43%	9.57%	10.19%	11.71%	11.43%	1.86%	202,514
2030	2033	1.94%	1.18%	1.94%	3.46%	0.36%	7.91%	10.21%	9.45%	9.57%	10.21%	11.73%	11.49%	1.92%	215,226
2031	2034	1.93%	1.17%	1.93%	3.45%	0.36%	7.93%	10.22%	9.46%	9.56%	10.22%	11.74%	11.53%	1.97%	228,030
2032	2035	1.92%	1.16%	1.92%	3.44%	0.36%	7.95%	10.23%	9.47%	9.56%	10.23%	11.75%	11.58%	2.02%	240,952
2033	2036	1.91%	1.15%	1.91%	3.43%	0.36%	7.97%	10.24%	9.48%	9.55%	10.24%	11.76%	11.62%	2.07%	253,978
2034	2037	1.91%	1.14%	1.91%	3.42%	0.36%	7.99%	10.26%	9.49%	9.55%	10.26%	11.77%	11.65%	2.10%	267,207
2035	2038	1.90%	1.13%	1.90%	3.40%	0.36%	8.01%	10.27%	9.50%	9.55%	10.27%	11.77%	11.68%	2.13%	279,409
2036	2039	1.89%	1.12%	1.89%	3.39%	0.36%	8.02%	10.27%	9.50%	9.54%	10.27%	11.77%	11.70%	2.16%	292,500
2037	2040	1.88%	1.10%	1.88%	3.38%	0.36%	8.03%	10.27%	9.49%	9.52%	10.27%	11.77%	11.71%	2.19%	306,861
2038	2041	1.87%	1.09%	1.87%	3.37%	0.36%	8.04%	10.27%	9.49%	9.51%	10.27%	11.77%	11.73%	2.22%	319,685
2039	2042	1.86%	1.08%	1.86%	3.35%	0.36%	8.04%	10.26%	9.48%	9.50%	10.26%	11.75%	11.72%	2.22%	331,096
2040	2043	1.85%	1.06%	1.85%	3.34%	0.36%	8.03%	10.24%	9.45%	9.46%	10.24%	11.73%	11.70%	2.24%	345,502
2041	2044	1.84%	1.05%	1.84%	3.33%	0.36%	8.03%	10.23%	9.44%	9.45%	10.23%	11.72%	11.70%	2.25%	358,576
2042	2045	1.84%	1.04%	1.84%	3.32%	0.36%	7.35%	9.55%	8.75%	8.76%	9.55%	11.03%	11.02%	2.26%	371,696
2043	2046	1.83%	1.02%	1.83%	3.30%	0.36%	6.23%	8.42%	7.61%	7.62%	8.42%	9.89%	9.88%	2.26%	384,926
2044	2047	1.82%	1.01%	1.82%	3.29%	0.36%	5.73%	7.91%	7.10%	7.10%	7.91%	9.38%	9.37%	2.27%	398,302

\$ 6,479,953

Hybrid Plan - NOTES

- 1% Defined Benefit Plan (1.1% if age 62 with 20 years of service)
 (FERS has more generous hazardous duty benefits that are not reflected in this projection that would increase costs).
- 5 year vesting
- Age 62 (56 for FLC) retirement age eligibility
 (FERS has other age and service based eligibility requirements that are not reflected in this projection that would increase costs).
- Death and Disability based on regular 1% benefit accrual
 (FERS has more generous provisions that are not reflected in this projection that would increase costs).
- 1% Defined Contribution Employer Contribution
 (FERS Thrift Plan has additional employer matching contributions that are not reflected in this projection that would increase costs).

ALABAMA EMPLOYEES RETIREMENT SYSTEM

**RESULTS COMPARING TIER II MEMBERS UNDER CURRENT BENEFIT STRUCTURE
WITH THOSE UNDER A HYBRID DB/DC PLAN SIMILAR TO THE FEDERAL EMPLOYEES' RETIREMENT SYSTEM
ASSUMES 3.1% EMPLOYEE CONTRIBUTION TO DB PLAN (4.1% FOR FLC)
ASSUMES EMPLOYER WILL CONTRIBUTE AN ADDITIONAL 1% TO A DC PLAN**



Valuation Year 9/30/YYYY	Fiscal Year Ending 9/30/YYYY	Current Plan Normal Rate		Hybrid Plan Normal Rate		Unfunded Accrued Liab Rate	Admin. Rates	Current Plan Total Employer Rate			Hybrid Plan Total Employer Rate			Estimated Impact of Hybrid Plan	
		Tier I Group	Tier II Group	Tier I Group	Tier II Group			Tier I Group	Tier II Group	Blended Rate A	Tier I Group	Tier II Group	Blended Rate B	Change in Employer Rate B - A	\$ Cost (Savings) for Fiscal Year
2014	2017	1.01%	0.37%	1.01%	2.70%	12.51%	0.37%	13.89%	13.25%	13.70%	13.89%	15.58%	14.40%	0.70%	9,259
2015	2018	1.09%	0.64%	1.09%	2.82%	12.55%	0.37%	14.01%	13.56%	13.85%	14.01%	15.74%	14.62%	0.77%	10,512
2016	2019	1.18%	0.79%	1.18%	2.94%	12.53%	0.37%	14.08%	13.69%	13.92%	14.08%	15.84%	14.80%	0.88%	12,188
2017	2020	1.29%	0.91%	1.29%	3.05%	12.34%	0.37%	14.00%	13.62%	13.83%	14.00%	15.76%	14.80%	0.97%	13,934
2018	2021	1.34%	0.98%	1.34%	3.11%	12.25%	0.37%	13.96%	13.60%	13.78%	13.96%	15.73%	14.85%	1.07%	15,672
2019	2022	1.22%	0.90%	1.22%	3.04%	11.77%	0.37%	13.36%	13.04%	13.19%	13.36%	15.18%	14.35%	1.16%	17,568
2020	2023	1.19%	0.89%	1.19%	3.02%	11.61%	0.37%	13.17%	12.87%	12.99%	13.17%	15.00%	14.24%	1.25%	19,317
2021	2024	1.17%	0.90%	1.17%	3.02%	11.57%	0.37%	13.11%	12.84%	12.94%	13.11%	14.96%	14.26%	1.32%	21,075
2022	2025	1.16%	0.90%	1.16%	3.02%	11.54%	0.37%	13.07%	12.81%	12.90%	13.07%	14.93%	14.29%	1.39%	22,952
2023	2026	1.15%	0.91%	1.15%	3.02%	11.52%	0.37%	13.04%	12.80%	12.87%	13.04%	14.91%	14.33%	1.46%	24,713
2024	2027	1.14%	0.92%	1.14%	3.01%	11.49%	0.37%	13.00%	12.78%	12.84%	13.00%	14.87%	14.35%	1.51%	26,361
2025	2028	1.12%	0.92%	1.12%	3.00%	11.48%	0.37%	12.97%	12.77%	12.82%	12.97%	14.85%	14.38%	1.56%	28,119
2026	2029	1.11%	0.92%	1.11%	2.99%	11.47%	0.37%	12.95%	12.76%	12.80%	12.95%	14.83%	14.42%	1.62%	29,871
2027	2030	1.10%	0.91%	1.10%	2.98%	11.47%	0.37%	12.94%	12.75%	12.79%	12.94%	14.82%	14.45%	1.66%	31,766
2028	2031	1.09%	0.91%	1.09%	2.98%	11.45%	0.37%	12.91%	12.73%	12.76%	12.91%	14.80%	14.48%	1.72%	33,696
2029	2032	1.06%	0.90%	1.06%	2.97%	11.41%	0.37%	12.84%	12.68%	12.70%	12.84%	14.75%	14.47%	1.77%	35,674
2030	2033	1.05%	0.89%	1.05%	2.96%	11.43%	0.37%	12.85%	12.69%	12.71%	12.85%	14.76%	14.52%	1.81%	37,678
2031	2034	1.05%	0.89%	1.05%	2.95%	11.45%	0.37%	12.87%	12.71%	12.73%	12.87%	14.77%	14.56%	1.83%	39,506
2032	2035	1.03%	0.88%	1.03%	2.94%	11.46%	0.37%	12.86%	12.71%	12.72%	12.86%	14.77%	14.59%	1.87%	41,535
2033	2036	1.02%	0.88%	1.02%	2.93%	11.47%	0.37%	12.86%	12.72%	12.73%	12.86%	14.77%	14.62%	1.89%	43,365
2034	2037	1.01%	0.87%	1.01%	2.92%	11.47%	0.37%	12.85%	12.71%	12.72%	12.85%	14.76%	14.64%	1.92%	45,408
2035	2038	1.00%	0.86%	1.00%	2.91%	11.48%	0.37%	12.85%	12.71%	12.72%	12.85%	14.76%	14.66%	1.94%	47,464
2036	2039	0.98%	0.85%	0.98%	2.90%	11.48%	0.37%	12.83%	12.70%	12.71%	12.83%	14.75%	14.67%	1.96%	49,521
2037	2040	0.97%	0.84%	0.97%	2.89%	11.48%	0.37%	12.82%	12.69%	12.69%	12.82%	14.74%	14.68%	1.99%	51,588
2038	2041	0.96%	0.84%	0.96%	2.88%	11.47%	0.37%	12.80%	12.68%	12.68%	12.80%	14.72%	14.67%	1.99%	53,388
2039	2042	0.95%	0.83%	0.95%	2.87%	11.46%	0.37%	12.78%	12.66%	12.66%	12.78%	14.70%	14.66%	2.00%	55,465
2040	2043	0.93%	0.82%	0.93%	2.86%	11.45%	0.37%	12.75%	12.64%	12.64%	12.75%	14.68%	14.65%	2.01%	57,565
2041	2044	0.93%	0.81%	0.93%	2.85%	11.43%	0.37%	12.73%	12.61%	12.61%	12.73%	14.65%	14.63%	2.02%	59,694
2042	2045	0.91%	0.80%	0.91%	2.84%	10.45%	0.37%	11.73%	11.62%	11.62%	11.73%	13.66%	13.64%	2.02%	61,805
2043	2046	0.90%	0.80%	0.90%	2.83%	9.28%	0.37%	10.55%	10.45%	10.45%	10.55%	12.48%	12.47%	2.02%	63,638
2044	2047	0.90%	0.79%	0.90%	2.82%	8.56%	0.37%	9.83%	9.72%	9.72%	9.83%	11.75%	11.74%	2.02%	65,817

Hybrid Plan - NOTES

1% Defined Benefit Plan (1.1% if age 62 with 20 years of service)

(FERS has more generous hazardous duty benefits that are not reflected in this projection that would increase costs).

5 year vesting

Age 62 (56 for FLC) retirement age eligibility

(FERS has other age and service based eligibility requirements that are not reflected in this projection that would increase costs).

Death and Disability based on regular 1% benefit accrual

(FERS has more generous provisions that are not reflected in this projection that would increase costs).

1% Defined Contribution Employer Contribution

(FERS Thrift Plan has additional employer matching contributions that are not reflected in this projection that would increase costs).

ERS	\$	1,126,116
TRS		6,479,953
Total	\$	7,606,069

ALABAMA TEACHERS RETIREMENT SYSTEM
RESULTS COMPARING TIER II MEMBERS UNDER CURRENT BENEFIT STRUCTURE
WITH THOSE UNDER A HYBRID DB/DC PLAN SIMILAR TO THE FEDERAL EMPLOYEES' RETIREMENT SYSTEM
ASSUMES 3.1% EMPLOYEE CONTRIBUTION TO DB PLAN (4.1% FOR FLC)
ASSUMES EMPLOYER WILL CONTRIBUTE AN ADDITIONAL 5% TO A DC PLAN



Valuation Year 9/30/YYYY	Fiscal Year Ending 9/30/YYYY	Current Plan Normal Rate		Hybrid Plan Normal Rate		Admin. Rates	Unfunded Accrued Liab Rate	Current Plan			Hybrid Plan			Estimated Impact of Hybrid Plan	
		Tier I Group	Tier II Group	Tier I Group	Tier II Group			Total Employer Rate			Total Employer Rate			Change in Employer Rate	\$ Cost (Savings) for Fiscal Year (in \$1,000's)
								Tier I Group	Tier II Group	Blended Rate	Tier I Group	Tier II Group	Blended Rate		
						A			B			B - A			
2014	2017	2.00%	0.81%	2.00%	7.24%	0.36%	9.65%	12.01%	10.82%	11.70%	12.01%	17.25%	13.38%	1.68%	116,590
2015	2018	2.13%	1.07%	2.13%	7.36%	0.36%	9.55%	12.04%	10.98%	11.71%	12.04%	17.27%	13.66%	1.95%	139,109
2016	2019	2.25%	1.22%	2.25%	7.50%	0.36%	9.37%	11.98%	10.95%	11.61%	11.98%	17.23%	13.85%	2.24%	164,296
2017	2020	2.38%	1.35%	2.38%	7.61%	0.36%	9.14%	11.88%	10.85%	11.47%	11.88%	17.11%	13.97%	2.50%	189,599
2018	2021	2.31%	1.32%	2.31%	7.59%	0.36%	8.63%	11.30%	10.31%	10.86%	11.30%	16.58%	13.63%	2.77%	216,491
2019	2022	2.15%	1.22%	2.15%	7.50%	0.36%	8.14%	10.65%	9.72%	10.20%	10.65%	16.00%	13.23%	3.03%	244,559
2020	2023	2.10%	1.21%	2.10%	7.49%	0.36%	7.98%	10.44%	9.55%	9.97%	10.44%	15.83%	13.26%	3.29%	273,291
2021	2024	2.09%	1.21%	2.09%	7.49%	0.36%	7.93%	10.38%	9.50%	9.89%	10.38%	15.78%	13.42%	3.53%	302,629
2022	2025	2.07%	1.22%	2.07%	7.50%	0.36%	7.89%	10.32%	9.47%	9.81%	10.32%	15.75%	13.58%	3.77%	332,801
2023	2026	2.05%	1.22%	2.05%	7.50%	0.36%	7.86%	10.27%	9.44%	9.74%	10.27%	15.72%	13.73%	3.99%	363,150
2024	2027	2.03%	1.22%	2.03%	7.50%	0.36%	7.84%	10.23%	9.42%	9.69%	10.23%	15.70%	13.88%	4.19%	393,840
2025	2028	2.01%	1.22%	2.01%	7.50%	0.36%	7.82%	10.19%	9.40%	9.64%	10.19%	15.68%	14.03%	4.39%	425,328
2026	2029	2.00%	1.21%	2.00%	7.50%	0.36%	7.83%	10.19%	9.40%	9.61%	10.19%	15.69%	14.21%	4.60%	457,585
2027	2030	1.98%	1.21%	1.98%	7.49%	0.36%	7.84%	10.18%	9.41%	9.60%	10.18%	15.69%	14.37%	4.77%	489,622
2028	2031	1.96%	1.20%	1.96%	7.48%	0.36%	7.86%	10.18%	9.42%	9.58%	10.18%	15.70%	14.53%	4.95%	523,331
2029	2032	1.95%	1.19%	1.95%	7.47%	0.36%	7.88%	10.19%	9.43%	9.57%	10.19%	15.71%	14.69%	5.12%	557,801
2030	2033	1.94%	1.18%	1.94%	7.46%	0.36%	7.91%	10.21%	9.45%	9.57%	10.21%	15.73%	14.85%	5.28%	592,817
2031	2034	1.93%	1.17%	1.93%	7.45%	0.36%	7.93%	10.22%	9.46%	9.56%	10.22%	15.74%	14.99%	5.43%	628,084
2032	2035	1.92%	1.16%	1.92%	7.44%	0.36%	7.95%	10.23%	9.47%	9.56%	10.23%	15.75%	15.12%	5.56%	663,675
2033	2036	1.91%	1.15%	1.91%	7.43%	0.36%	7.97%	10.24%	9.48%	9.55%	10.24%	15.76%	15.24%	5.69%	699,553
2034	2037	1.91%	1.14%	1.91%	7.42%	0.36%	7.99%	10.26%	9.49%	9.55%	10.26%	15.77%	15.35%	5.80%	735,991
2035	2038	1.90%	1.13%	1.90%	7.40%	0.36%	8.01%	10.27%	9.50%	9.55%	10.27%	15.77%	15.44%	5.89%	771,760
2036	2039	1.89%	1.12%	1.89%	7.39%	0.36%	8.02%	10.27%	9.50%	9.54%	10.27%	15.77%	15.51%	5.97%	807,920
2037	2040	1.88%	1.10%	1.88%	7.38%	0.36%	8.03%	10.27%	9.49%	9.52%	10.27%	15.77%	15.56%	6.04%	845,215
2038	2041	1.87%	1.09%	1.87%	7.37%	0.36%	8.04%	10.27%	9.49%	9.51%	10.27%	15.77%	15.61%	6.10%	880,535
2039	2042	1.86%	1.08%	1.86%	7.35%	0.36%	8.04%	10.26%	9.48%	9.50%	10.26%	15.75%	15.62%	6.12%	914,524
2040	2043	1.85%	1.06%	1.85%	7.34%	0.36%	8.03%	10.24%	9.45%	9.46%	10.24%	15.73%	15.63%	6.17%	951,646
2041	2044	1.84%	1.05%	1.84%	7.33%	0.36%	8.03%	10.23%	9.44%	9.45%	10.23%	15.72%	15.65%	6.20%	987,655
2042	2045	1.84%	1.04%	1.84%	7.32%	0.36%	7.35%	9.55%	8.75%	8.76%	9.55%	15.03%	14.98%	6.22%	1,023,793
2043	2046	1.83%	1.02%	1.83%	7.30%	0.36%	6.23%	8.42%	7.61%	7.62%	8.42%	13.89%	13.85%	6.23%	1,060,235
2044	2047	1.82%	1.01%	1.82%	7.29%	0.36%	5.73%	7.91%	7.10%	7.10%	7.91%	13.38%	13.36%	6.26%	1,097,078

\$ 17,850,504

Hybrid Plan - NOTES

- 1% Defined Benefit Plan (1.1% if age 62 with 20 years of service)
 (FERS has more generous hazardous duty benefits that are not reflected in this projection that would increase costs).
- 5 year vesting
- Age 62 (56 for FLC) retirement age eligibility
 (FERS has other age and service based eligibility requirements that are not reflected in this projection that would increase costs).
- Death and Disability based on regular 1% benefit accrual
 (FERS has more generous provisions that are not reflected in this projection that would increase costs).
- 1% Defined Contribution employer contribution plus match of employee contributions at maximum 4% level (total 5%)

ALABAMA EMPLOYEES RETIREMENT SYSTEM
RESULTS COMPARING TIER II MEMBERS UNDER CURRENT BENEFIT STRUCTURE
WITH THOSE UNDER A HYBRID DB/DC PLAN SIMILAR TO THE FEDERAL EMPLOYEES' RETIREMENT SYSTEM
ASSUMES 3.1% EMPLOYEE CONTRIBUTION TO DB PLAN (4.1% FOR FLC)
ASSUMES EMPLOYER WILL CONTRIBUTE AN ADDITIONAL 5% TO A DC PLAN



Valuation Year 9/30/YYYY	Fiscal Year Ending 9/30/YYYY	Current Plan Normal Rate		Hybrid Plan Normal Rate		Unfunded Accrued Liab Rate	Admin. Rates	Current Plan Total Employer Rate			Hybrid Plan Total Employer Rate			Estimated Impact of Hybrid Plan	
		Tier I Group	Tier II Group	Tier I Group	Tier II Group			Tier I Group	Tier II Group	Blended Rate A	Tier I Group	Tier II Group	Blended Rate B	Change in Employer Rate B - A	\$ Cost (Savings) for Fiscal Year
2014	2017	1.01%	0.37%	1.01%	6.70%	12.51%	0.37%	13.89%	13.25%	13.70%	13.89%	19.58%	15.60%	1.90%	25,154
2015	2018	1.09%	0.64%	1.09%	6.82%	12.55%	0.37%	14.01%	13.56%	13.85%	14.01%	19.74%	16.05%	2.20%	29,801
2016	2019	1.18%	0.79%	1.18%	6.94%	12.53%	0.37%	14.08%	13.69%	13.92%	14.08%	19.84%	16.42%	2.50%	34,865
2017	2020	1.29%	0.91%	1.29%	7.05%	12.34%	0.37%	14.00%	13.62%	13.83%	14.00%	19.76%	16.62%	2.79%	39,978
2018	2021	1.34%	0.98%	1.34%	7.11%	12.25%	0.37%	13.96%	13.60%	13.78%	13.96%	19.73%	16.85%	3.07%	45,104
2019	2022	1.22%	0.90%	1.22%	7.04%	11.77%	0.37%	13.36%	13.04%	13.19%	13.36%	19.18%	16.53%	3.34%	50,406
2020	2023	1.19%	0.89%	1.19%	7.02%	11.61%	0.37%	13.17%	12.87%	12.99%	13.17%	19.00%	16.58%	3.59%	55,592
2021	2024	1.17%	0.90%	1.17%	7.02%	11.57%	0.37%	13.11%	12.84%	12.94%	13.11%	18.96%	16.75%	3.81%	60,840
2022	2025	1.16%	0.90%	1.16%	7.02%	11.54%	0.37%	13.07%	12.81%	12.90%	13.07%	18.93%	16.93%	4.03%	66,258
2023	2026	1.15%	0.91%	1.15%	7.02%	11.52%	0.37%	13.04%	12.80%	12.87%	13.04%	18.91%	17.10%	4.23%	71,561
2024	2027	1.14%	0.92%	1.14%	7.01%	11.49%	0.37%	13.00%	12.78%	12.84%	13.00%	18.87%	17.24%	4.40%	76,814
2025	2028	1.12%	0.92%	1.12%	7.00%	11.48%	0.37%	12.97%	12.77%	12.82%	12.97%	18.85%	17.39%	4.57%	82,194
2026	2029	1.11%	0.92%	1.11%	6.99%	11.47%	0.37%	12.95%	12.76%	12.80%	12.95%	18.83%	17.53%	4.73%	87,592
2027	2030	1.10%	0.91%	1.10%	6.98%	11.47%	0.37%	12.94%	12.75%	12.79%	12.94%	18.82%	17.67%	4.88%	93,150
2028	2031	1.09%	0.91%	1.09%	6.98%	11.45%	0.37%	12.91%	12.73%	12.76%	12.91%	18.80%	17.79%	5.03%	98,809
2029	2032	1.06%	0.90%	1.06%	6.97%	11.41%	0.37%	12.84%	12.68%	12.70%	12.84%	18.75%	17.87%	5.17%	104,609
2030	2033	1.05%	0.89%	1.05%	6.96%	11.43%	0.37%	12.85%	12.69%	12.71%	12.85%	18.76%	18.00%	5.29%	110,487
2031	2034	1.05%	0.89%	1.05%	6.95%	11.45%	0.37%	12.87%	12.71%	12.73%	12.87%	18.77%	18.13%	5.40%	116,215
2032	2035	1.03%	0.88%	1.03%	6.94%	11.46%	0.37%	12.86%	12.71%	12.72%	12.86%	18.77%	18.23%	5.51%	122,185
2033	2036	1.02%	0.88%	1.02%	6.93%	11.47%	0.37%	12.86%	12.72%	12.73%	12.86%	18.77%	18.32%	5.59%	127,980
2034	2037	1.01%	0.87%	1.01%	6.92%	11.47%	0.37%	12.85%	12.71%	12.72%	12.85%	18.76%	18.39%	5.67%	134,008
2035	2038	1.00%	0.86%	1.00%	6.91%	11.48%	0.37%	12.85%	12.71%	12.72%	12.85%	18.76%	18.46%	5.74%	140,077
2036	2039	0.98%	0.85%	0.98%	6.90%	11.48%	0.37%	12.83%	12.70%	12.71%	12.83%	18.75%	18.51%	5.80%	146,147
2037	2040	0.97%	0.84%	0.97%	6.89%	11.48%	0.37%	12.82%	12.69%	12.69%	12.82%	18.74%	18.54%	5.85%	152,247
2038	2041	0.96%	0.84%	0.96%	6.88%	11.47%	0.37%	12.80%	12.68%	12.68%	12.80%	18.72%	18.56%	5.88%	158,072
2039	2042	0.95%	0.83%	0.95%	6.87%	11.46%	0.37%	12.78%	12.66%	12.66%	12.78%	18.70%	18.58%	5.92%	164,219
2040	2043	0.93%	0.82%	0.93%	6.86%	11.45%	0.37%	12.75%	12.64%	12.64%	12.75%	18.68%	18.58%	5.94%	170,439
2041	2044	0.93%	0.81%	0.93%	6.85%	11.43%	0.37%	12.73%	12.61%	12.61%	12.73%	18.65%	18.58%	5.97%	176,742
2042	2045	0.91%	0.80%	0.91%	6.84%	10.45%	0.37%	11.73%	11.62%	11.62%	11.73%	17.66%	17.60%	5.98%	182,992
2043	2046	0.90%	0.80%	0.90%	6.83%	9.28%	0.37%	10.55%	10.45%	10.45%	10.55%	16.48%	16.44%	5.99%	189,034
2044	2047	0.90%	0.79%	0.90%	6.82%	8.56%	0.37%	9.83%	9.72%	9.72%	9.83%	15.75%	15.72%	6.00%	195,506

Hybrid Plan - NOTES

ERS	\$	3,309,078
TRS		17,850,504
Total	\$	21,159,582

- 1% Defined Benefit Plan (1.1% if age 62 with 20 years of service)
(FERS has more generous hazardous duty benefits that are not reflected in this projection that would increase costs).
- 5 year vesting
- Age 62 (56 for FLC) retirement age eligibility
(FERS has other age and service based eligibility requirements that are not reflected in this projection that would increase costs).
- Death and Disability based on regular 1% benefit accrual
(FERS has more generous provisions that are not reflected in this projection that would increase costs).
- 1% Defined Contribution employer contribution plus match of employee contributions at maximum 4% level (total 5%)

ALABAMA TEACHERS RETIREMENT SYSTEM
RESULTS COMPARING TIER II MEMBERS UNDER CURRENT BENEFIT STRUCTURE
WITH THOSE UNDER A HYBRID DB/DC PLAN SIMILAR TO THE UTAH RETIREMENT SYSTEM



Valuation Year 9/30/YYYY	Fiscal Year Ending 9/30/YYYY	Current Plan Normal Rate		Hybrid Plan Normal Rate		Admin. Rates	Unfunded Accrued Liab Rate	Current Plan			Hybrid Plan			Estimated Impact of Hybrid Plan	
		Tier I Group	Tier II Group	Tier I Group	Tier II Group			Total Employer Rate			Total Employer Rate			Change in Employer Rate	\$ Cost (Savings) for Fiscal Year (in \$1,000's)
								Tier I Group	Tier II Group	Blended Rate	Tier I Group	Tier II Group	Blended Rate		
						A			B			B - A			
2014	2017	2.00%	0.81%	2.00%	10.00%	0.36%	9.65%	12.01%	10.82%	11.70%	12.01%	20.01%	14.11%	2.41%	166,635
2015	2018	2.13%	1.07%	2.13%	10.00%	0.36%	9.55%	12.04%	10.98%	11.71%	12.04%	19.91%	14.48%	2.77%	197,490
2016	2019	2.25%	1.22%	2.25%	10.00%	0.36%	9.37%	11.98%	10.95%	11.61%	11.98%	19.73%	14.74%	3.13%	229,700
2017	2020	2.38%	1.35%	2.38%	10.00%	0.36%	9.14%	11.88%	10.85%	11.47%	11.88%	19.50%	14.92%	3.45%	261,958
2018	2021	2.31%	1.32%	2.31%	10.00%	0.36%	8.63%	11.30%	10.31%	10.86%	11.30%	18.99%	14.69%	3.83%	299,580
2019	2022	2.15%	1.22%	2.15%	10.00%	0.36%	8.14%	10.65%	9.72%	10.20%	10.65%	18.50%	14.44%	4.24%	341,606
2020	2023	2.10%	1.21%	2.10%	10.00%	0.36%	7.98%	10.44%	9.55%	9.97%	10.44%	18.34%	14.57%	4.60%	381,894
2021	2024	2.09%	1.21%	2.09%	10.00%	0.36%	7.93%	10.38%	9.50%	9.89%	10.38%	18.29%	14.83%	4.94%	422,962
2022	2025	2.07%	1.22%	2.07%	10.00%	0.36%	7.89%	10.32%	9.47%	9.81%	10.32%	18.25%	15.07%	5.26%	464,561
2023	2026	2.05%	1.22%	2.05%	10.00%	0.36%	7.86%	10.27%	9.44%	9.74%	10.27%	18.22%	15.31%	5.57%	506,637
2024	2027	2.03%	1.22%	2.03%	10.00%	0.36%	7.84%	10.23%	9.42%	9.69%	10.23%	18.20%	15.55%	5.86%	549,283
2025	2028	2.01%	1.22%	2.01%	10.00%	0.36%	7.82%	10.19%	9.40%	9.64%	10.19%	18.18%	15.78%	6.14%	593,074
2026	2029	2.00%	1.21%	2.00%	10.00%	0.36%	7.83%	10.19%	9.40%	9.61%	10.19%	18.19%	16.03%	6.42%	637,863
2027	2030	1.98%	1.21%	1.98%	10.00%	0.36%	7.84%	10.18%	9.41%	9.60%	10.18%	18.20%	16.27%	6.67%	683,672
2028	2031	1.96%	1.20%	1.96%	10.00%	0.36%	7.86%	10.18%	9.42%	9.58%	10.18%	18.22%	16.51%	6.93%	731,634
2029	2032	1.95%	1.19%	1.95%	10.00%	0.36%	7.88%	10.19%	9.43%	9.57%	10.19%	18.24%	16.75%	7.18%	780,775
2030	2033	1.94%	1.18%	1.94%	10.00%	0.36%	7.91%	10.21%	9.45%	9.57%	10.21%	18.27%	16.99%	7.42%	830,797
2031	2034	1.93%	1.17%	1.93%	10.00%	0.36%	7.93%	10.22%	9.46%	9.56%	10.22%	18.29%	17.20%	7.64%	881,295
2032	2035	1.92%	1.16%	1.92%	10.00%	0.36%	7.95%	10.23%	9.47%	9.56%	10.23%	18.31%	17.39%	7.83%	932,356
2033	2036	1.91%	1.15%	1.91%	10.00%	0.36%	7.97%	10.24%	9.48%	9.55%	10.24%	18.33%	17.56%	8.01%	983,927
2034	2037	1.91%	1.14%	1.91%	10.00%	0.36%	7.99%	10.26%	9.49%	9.55%	10.26%	18.35%	17.73%	8.18%	1,036,388
2035	2038	1.90%	1.13%	1.90%	10.00%	0.36%	8.01%	10.27%	9.50%	9.55%	10.27%	18.37%	17.88%	8.33%	1,089,766
2036	2039	1.89%	1.12%	1.89%	10.00%	0.36%	8.02%	10.27%	9.50%	9.54%	10.27%	18.38%	17.99%	8.45%	1,142,149
2037	2040	1.88%	1.10%	1.88%	10.00%	0.36%	8.03%	10.27%	9.49%	9.52%	10.27%	18.39%	18.08%	8.56%	1,195,703
2038	2041	1.87%	1.09%	1.87%	10.00%	0.36%	8.04%	10.27%	9.49%	9.51%	10.27%	18.40%	18.16%	8.65%	1,247,108
2039	2042	1.86%	1.08%	1.86%	10.00%	0.36%	8.04%	10.26%	9.48%	9.50%	10.26%	18.40%	18.21%	8.71%	1,298,796
2040	2043	1.85%	1.06%	1.85%	10.00%	0.36%	8.03%	10.24%	9.45%	9.46%	10.24%	18.39%	18.25%	8.79%	1,352,419
2041	2044	1.84%	1.05%	1.84%	10.00%	0.36%	8.03%	10.23%	9.44%	9.45%	10.23%	18.39%	18.28%	8.83%	1,405,194
2042	2045	1.84%	1.04%	1.84%	10.00%	0.36%	7.35%	9.55%	8.75%	8.76%	9.55%	17.71%	17.63%	8.87%	1,458,246
2043	2046	1.83%	1.02%	1.83%	10.00%	0.36%	6.23%	8.42%	7.61%	7.62%	8.42%	16.59%	16.54%	8.92%	1,513,531
2044	2047	1.82%	1.01%	1.82%	10.00%	0.36%	5.73%	7.91%	7.10%	7.10%	7.91%	16.09%	16.05%	8.95%	1,567,875

\$ 25,184,875

Hybrid Plan - NOTES

1.5% Defined Benefit Plan with up to 2.5% annual COLA based on CPI
10 year vesting

Age 62 (56 for FLC) retirement age eligibility

(UTAH has other age and service based eligibility requirements that are not reflected in this projection that would increase cost of DB plan).

Death and Disability based on regular 1.5% benefit accrual

(UTAH has an LTD for disability benefits, we have assumed that RSA would pay the accrued benefit to disability retirements+B26).

Defined Contribution Employer Contribution - amount such that total employer rate to DB and DC is 10% for non-public safety members and 12% for public safety members

ALABAMA EMPLOYEES RETIREMENT SYSTEM
RESULTS COMPARING TIER II MEMBERS UNDER CURRENT BENEFIT STRUCTURE
WITH THOSE UNDER A HYBRID DB/DC PLAN SIMILAR TO THE UTAH RETIREMENT SYSTEM



Valuation Year 9/30/YYYY	Fiscal Year Ending 9/30/YYYY	Current Plan Normal Rate		Hybrid Plan Normal Rate		Unfunded Accrued Liab Rate	Admin. Rates	Current Plan Total Employer Rate			Hybrid Plan Total Employer Rate			Estimated Impact of Hybrid Plan	
		Tier I Group	Tier II Group	Tier I Group	Tier II Group			Tier I Group	Tier II Group	Blended Rate A	Tier I Group	Tier II Group	Blended Rate B	Change in Employer Rate B - A	\$ Cost (Savings) for Fiscal Year
2014	2017	1.01%	0.37%	1.01%	10.21%	12.51%	0.37%	13.89%	13.25%	13.70%	13.89%	23.09%	16.65%	2.95%	39,103
2015	2018	1.09%	0.64%	1.09%	10.21%	12.55%	0.37%	14.01%	13.56%	13.85%	14.01%	23.13%	17.25%	3.40%	46,148
2016	2019	1.18%	0.79%	1.18%	10.22%	12.53%	0.37%	14.08%	13.69%	13.92%	14.08%	23.12%	17.76%	3.84%	53,459
2017	2020	1.29%	0.91%	1.29%	10.22%	12.34%	0.37%	14.00%	13.62%	13.83%	14.00%	22.93%	18.07%	4.24%	60,619
2018	2021	1.34%	0.98%	1.34%	10.22%	12.25%	0.37%	13.96%	13.60%	13.78%	13.96%	22.84%	18.41%	4.63%	67,987
2019	2022	1.22%	0.90%	1.22%	10.22%	11.77%	0.37%	13.36%	13.04%	13.19%	13.36%	22.36%	18.26%	5.07%	76,511
2020	2023	1.19%	0.89%	1.19%	10.22%	11.61%	0.37%	13.17%	12.87%	12.99%	13.17%	22.20%	18.45%	5.46%	84,613
2021	2024	1.17%	0.90%	1.17%	10.23%	11.57%	0.37%	13.11%	12.84%	12.94%	13.11%	22.17%	18.75%	5.81%	92,751
2022	2025	1.16%	0.90%	1.16%	10.23%	11.54%	0.37%	13.07%	12.81%	12.90%	13.07%	22.14%	19.04%	6.14%	101,011
2023	2026	1.15%	0.91%	1.15%	10.23%	11.52%	0.37%	13.04%	12.80%	12.87%	13.04%	22.12%	19.32%	6.45%	109,157
2024	2027	1.14%	0.92%	1.14%	10.23%	11.49%	0.37%	13.00%	12.78%	12.84%	13.00%	22.09%	19.57%	6.73%	117,428
2025	2028	1.12%	0.92%	1.12%	10.23%	11.48%	0.37%	12.97%	12.77%	12.82%	12.97%	22.08%	19.82%	7.00%	125,860
2026	2029	1.11%	0.92%	1.11%	10.23%	11.47%	0.37%	12.95%	12.76%	12.80%	12.95%	22.07%	20.06%	7.26%	134,346
2027	2030	1.10%	0.91%	1.10%	10.23%	11.47%	0.37%	12.94%	12.75%	12.79%	12.94%	22.07%	20.29%	7.50%	143,024
2028	2031	1.09%	0.91%	1.09%	10.23%	11.45%	0.37%	12.91%	12.73%	12.76%	12.91%	22.05%	20.48%	7.72%	151,713
2029	2032	1.06%	0.90%	1.06%	10.23%	11.41%	0.37%	12.84%	12.68%	12.70%	12.84%	22.01%	20.65%	7.95%	160,792
2030	2033	1.05%	0.89%	1.05%	10.23%	11.43%	0.37%	12.85%	12.69%	12.71%	12.85%	22.03%	20.86%	8.15%	170,008
2031	2034	1.05%	0.89%	1.05%	10.23%	11.45%	0.37%	12.87%	12.71%	12.73%	12.87%	22.05%	21.05%	8.32%	179,118
2032	2035	1.03%	0.88%	1.03%	10.23%	11.46%	0.37%	12.86%	12.71%	12.72%	12.86%	22.06%	21.22%	8.50%	188,520
2033	2036	1.02%	0.88%	1.02%	10.23%	11.47%	0.37%	12.86%	12.72%	12.73%	12.86%	22.07%	21.37%	8.64%	197,787
2034	2037	1.01%	0.87%	1.01%	10.23%	11.47%	0.37%	12.85%	12.71%	12.72%	12.85%	22.07%	21.49%	8.77%	207,326
2035	2038	1.00%	0.86%	1.00%	10.24%	11.48%	0.37%	12.85%	12.71%	12.72%	12.85%	22.09%	21.62%	8.90%	217,178
2036	2039	0.98%	0.85%	0.98%	10.24%	11.48%	0.37%	12.83%	12.70%	12.71%	12.83%	22.09%	21.71%	9.00%	226,830
2037	2040	0.97%	0.84%	0.97%	10.24%	11.48%	0.37%	12.82%	12.69%	12.69%	12.82%	22.09%	21.78%	9.09%	236,550
2038	2041	0.96%	0.84%	0.96%	10.24%	11.47%	0.37%	12.80%	12.68%	12.68%	12.80%	22.08%	21.84%	9.16%	246,005
2039	2042	0.95%	0.83%	0.95%	10.24%	11.46%	0.37%	12.78%	12.66%	12.66%	12.78%	22.07%	21.88%	9.22%	255,845
2040	2043	0.93%	0.82%	0.93%	10.24%	11.45%	0.37%	12.75%	12.64%	12.64%	12.75%	22.06%	21.91%	9.27%	265,817
2041	2044	0.93%	0.81%	0.93%	10.24%	11.43%	0.37%	12.73%	12.61%	12.61%	12.73%	22.04%	21.92%	9.31%	275,940
2042	2045	0.91%	0.80%	0.91%	10.24%	10.45%	0.37%	11.73%	11.62%	11.62%	11.73%	21.06%	20.97%	9.35%	286,001
2043	2046	0.90%	0.80%	0.90%	10.24%	9.28%	0.37%	10.55%	10.45%	10.45%	10.55%	19.89%	19.82%	9.37%	295,934
2044	2047	0.90%	0.79%	0.90%	10.24%	8.56%	0.37%	9.83%	9.72%	9.72%	9.83%	19.17%	19.11%	9.39%	306,389

Hybrid Plan - NOTES

1.5% Defined Benefit Plan with up to 2.5% annual COLA based on CPI
10 year vesting

Age 62 (56 for FLC) retirement age eligibility

(UTAH has other age and service based eligibility requirements that are not reflected in this projection that would increase cost of DB plan).

Death and Disability based on regular 1.5% benefit accrual

(UTAH has an LTD for disability benefits, we have assumed that RSA would pay the accrued benefit to disability retirements+B26).

Defined Contribution Employer Contribution - amount such that total employer rate to DB and DC is 10% for non-public safety members and 12% for public safety members

ERS	\$	5,119,768
TRS		25,184,875
Total	\$	30,304,643



Alternative Plan Costs



➤ Cash Balance

TRS \$3,962,569

ERS \$1,067,209

Total \$5,029,778

➤ FERS Hybrid (High)

TRS \$17,850,504

ERS \$3,309,078

Total \$21,159,582

➤ FERS Hybrid (Low)

TRS \$6,479,953

ERS \$1,126,116

Total \$7,606,069

➤ Utah Hybrid

TRS \$25,184,875

ERS \$5,119,768

Total \$30,304,643