

▶ TENNESSEE CONSOLIDATED RETIREMENT SYSTEM

Actuarial Funding Valuation – Hybrid Pension Plans
Valuation Date: June 30, 2018

March 29, 2019

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► Valuation Purpose

- Determine the Actuarially Determined Contribution rates (ADC) and the total employer contribution rates for the defined benefit component of the Hybrid Plans (TCA Section 8-36, Part 9)
 - Valuation Date: 6/30/2018
 - New Employer Rates Effective: 7/1/2019
- Examine financial health of plan
- Separate process and reporting for GASB 67/68

► Valuation Background

- Experience Study
 - Mandated by statute
 - Most recent study reviewed 2012 – 2016 period
 - New assumptions adopted (effective 6/30/2017)
 - Performed every 4 years
 - Next study will review 2016 – 2020 period
- Actuarial Audit
 - Commonly done for public plans
 - Last audit performed in 2010
 - Endorsed methodology and results
 - Performed every 10 years

► System Overview

- These results apply only to the Hybrid Pension Plans with Cost Controls for State Employees and Teachers
- Hybrid Plan began 7/1/2014 with new employees only
- Employees hired before 7/1/2014 remain in Legacy Plan
- Hybrid Plan employer contribution rates updated as of 6/30/2018 (eff. 7/1/2019)
 - Four years of plan experience now available
 - Future actuarial valuations will adjust employer contribution rates as necessary to reflect actual plan experience
 - Some variance in the ADC is likely as the plan population grows
 - Total employer contribution rates likely to remain stable

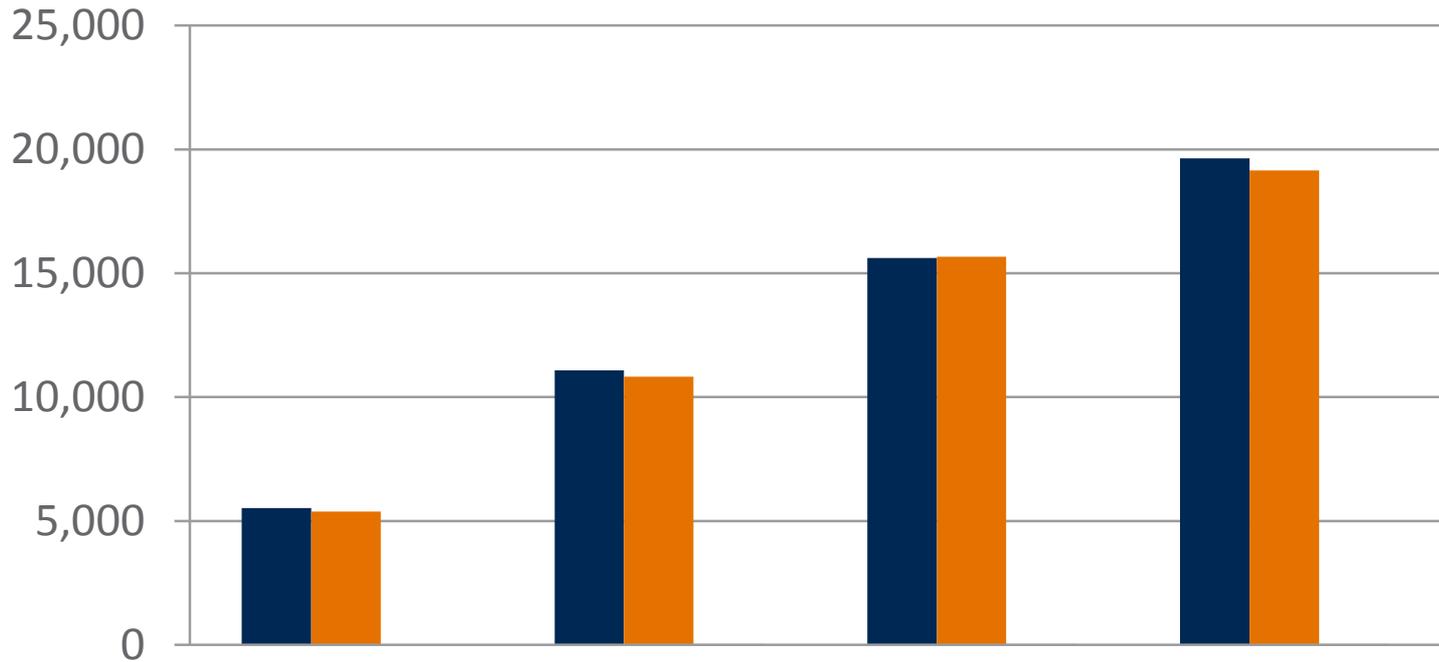
► System Overview – Plan Design

| | <u>Legacy Plan</u> | <u>Hybrid Plan*</u> |
|--------------------------------|--------------------|------------------------------------|
| Benefit Multiplier | 1.575% | 1.0% |
| Full Retirement | Age 60/30 YOS | Age 65/Rule of 90 |
| Early Retirement | Age 55/25 YOS | Age 60/Rule of 80 |
| Employee Contributions | State-0%;TCH-5% | State-5%;TCH-5% |
| Cost of Living Adjustment | CPI (Max 3%) | CPI (Max 3%) |
| Defined Contribution Component | None | 5% From Employer |
| Stabilization Reserve | None | Yes |
| Cost Controls | None | 9% Employer Target |
| Unfunded Liability Controls | None | Limit: 12.5% of State Indebtedness |

**PSO eligible for additional bridge benefit and enhanced eligibility.*

**State Judges eligible for 1.6% multiplier and enhanced eligibility.*

▶ Active Membership by Number (Hybrid Plans)



| | 6/30/2015 | 6/30/2016 | 6/30/2017 | 6/30/2018 |
|--------------|-----------|-----------|-----------|-----------|
| Teachers | 5,524 | 11,079 | 15,607 | 19,634 |
| State | 5,373 | 10,824 | 15,670 | 19,152 |
| State Judges | 29 | 38 | 36 | 42 |

**As of 6/30/2018 there are 3 retired Teachers and 7 retired State employees.*

► Valuation Asset Method

- Use “smoothing” device to limit contribution volatility
- Phase-in excess or deficit earnings compared to the earnings assumption ratably over ten-year period
- Utilize 80%/120% corridor
- Resulting value is “Actuarial Value of Assets”
- Actuarial Value of Assets is only used to determine contribution rates pursuant to the TCRS funding policy (Market Value of Assets used for GASB reporting)

► Valuation Asset Gains and Losses (Hybrid Plans)

- Market Value of Assets (MVA)
- Excluding Stabilization Reserve

| | <u>6/30/2016</u> | <u>6/30/2017</u> | <u>6/30/2018</u> |
|-----------------------------|------------------|------------------|------------------|
| State (Including Judges) | \$28,484,525 | \$63,125,793 | \$112,725,365 |
| Teachers | \$48,306,321 | \$97,099,520 | \$161,979,325 |

- 2017/2018 investment return: 8.2% (7.25% assumed)
- 2016/2017 investment return: 11.4% (7.50% assumed)
- 2015/2016 investment return: 2.8% (7.50% assumed)
- 2014/2015 investment return: 3.3% (7.50% assumed)

► Valuation Asset Gains and Losses (Hybrid Plans)

- Actuarial Value of Assets (AVA)
- Excluding Stabilization Reserve

| | <u>6/30/2016</u> | <u>6/30/2017</u> | <u>6/30/2018</u> |
|-----------------------------|------------------|------------------|------------------|
| State (Including Judges) | \$29,425,688 | \$62,481,707 | \$111,303,536 |
| Teachers | \$49,902,420 | \$96,108,792 | \$159,936,245 |

- Deferred Gain = 90% of 2018 gain, 80% of 2017 gain
- Deferred (Loss) = 70% of 2016 loss, 60% of 2015 loss
- Total Deferred Gain/(Loss) = \$3,464,909
- Ratio of AVA to MVA = 98.74%

► Stabilization Reserve (Hybrid Plans)

- Stabilization Reserve

| | <u>6/30/2016</u> | <u>6/30/2017</u> | <u>6/30/2018</u> |
|-----------------------------|------------------|------------------|------------------|
| State (Including Judges) | \$7,663,971 | \$23,438,297 | \$44,951,773 |
| Teachers | \$9,991,123 | \$27,700,444 | \$51,563,464 |

- Accumulation of additional employer contributions in excess of the Actuarially Determined Contribution Rate (ADC) since 7/1/2014
- Excluded from the actuarial valuation for ADC purposes
- Included in the TCRS trust and invested consistently with other TCRS assets

► Employer Contribution Rate Determination

- Entry Age Normal funding method
- Normal Cost + Amortization of Unfunded Accrued Liability + Administrative Fee
- Level dollar amortization of Unfunded Accrued Liability (6/30/2018 new amortizations use 20 years)
- Amortization periods adjusted each year to manage rate changes and are within requirements of state law and pursuant to TCRS funding policy

Unfunded Accrued Liability -- UAL (Surplus)

Actuarial Value of Assets

Hybrid Plans

| | 6/30/2018 UAL | 6/30/2018 Funded Ratio |
|-------------------------|------------------|---------------------------|
| State General Employees | \$7,929,719 | 93.2% |
| State Judges | (129,206) | 104.5% |
| Total State | \$7,800,513 | 93.5% |
| Teachers | \$8,253,746 | 95.1% |

Excess assets are not used to offset the Normal Cost in the Employer Rate determination.


Unfunded Accrued Liability -- UAL (Surplus)
Market Value of Assets + Stabilization Reserve
Hybrid Plans

| | 6/30/2018 UAL | 6/30/2018 Funded Ratio |
|-------------------------|------------------|---------------------------|
| State General Employees | \$(38,405,399) | 133.0% |
| State Judges | (167,690) | 105.8% |
| Total State | \$(38,573,089) | 132.4% |
| Teachers | \$(45,352,798) | 127.0% |

This funded ratio calculation is consistent with the plan's GASB reporting.

Hybrid Plan Employer Contribution Rates

6/30/2017 Actuarial Funding Valuation

| | Actuarially Determined Contribution Rate | Total Employer Rate |
|-------------------------|---|----------------------------|
| State | | |
| General Employee | 1.66% | 3.95% |
| Public Safety Bridge | 0.85% | 0.85% |
| State Judges | 7.43% | 7.43% |
| <hr/> | | |
| Total Weighted Average* | | 4.00% |
| Teachers | 1.94% | 4.00% |

Stabilization Reserve Contribution = (Total Employer Rate – ADC Rate)

**State sub-group rates are weighted based on active payroll from the 2017 Hybrid Plan actuarial valuation.*

Hybrid Plan Employer Contribution Rates

6/30/2018 Actuarial Funding Valuation

| | Actuarially Determined Contribution Rate | Total Employer Rate |
|-------------------------|---|----------------------------|
| State | | |
| General Employee | 1.73% | 3.96% |
| Public Safety Bridge | 0.84% | 0.84% |
| State Judges | 7.31% | 7.31% |
| <hr/> | | |
| Total Weighted Average* | | 4.00% |
| Teachers | 2.03% | 4.00% |

Stabilization Reserve Contribution = (Total Employer Rate – ADC Rate)

**State sub-group rates are weighted based on active payroll from the 2018 Hybrid Plan actuarial valuation.*

► Future Considerations

- Total plan population will change materially each year
 - Year two -- new employees doubled size of the group
 - Year three -- 40%+ growth; year four -- 20%+ growth
 - Could be some variability in the actuarially determined contribution rates while the plan grows and stabilizes (but likely to stay below the 4% total contribution threshold)
- Future investment gains and losses
- Stabilization reserve accumulation
- Other cost controls are available if necessary
- These calculations utilize assumptions adopted from the 2016 TCRS Legacy Plan Experience Study (with modifications made to retirement rates for changes in retirement eligibility and use of fully projected mortality rates)

► Certification

This report has been prepared exclusively for TCRS to provide Hybrid Plan employer contribution rates. Census data, plan provisions, and actuarial assumptions and methods will be documented in the TCRS actuarial valuation funding report as of June 30, 2018. Findley is not responsible for consequences resulting from the use of any part of this report without prior authorization and approval. Determinations for other purposes may be different from the results shown in this report. This report provides actuarial advice and does not constitute legal, accounting, tax, or investment advice. This report has been prepared under the supervision of Justin C. Thacker, a member of the American Academy of Actuaries, a Fellow of the Society of Actuaries, and a consulting actuary with Findley of Brentwood, Tennessee, who has met the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions herein. To the best of our knowledge this report has been prepared in accordance with generally accepted actuarial standards, including the overall appropriateness of the analysis, assumptions, and results and conforms to appropriate Standards of Practice as promulgated from time to time by the Actuarial Standards Board, which standards form the basis for the actuarial report. We are not aware of any direct or material indirect financial interest or relationship that could create, or appear to create, a conflict of interest that would impair the objectivity of our work.



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Date