ECONOMIC ASSUMPTIONS:

Rate of Inflation (effective June 30, 2017)

2.60% per annum

Rate of Crediting Interest on Contribution Balances (effective June 30, 2017)

3.50% per annum, compounded annually

Rate of Investment Return (effective June 30, 2017)

7.00% per annum, compounded annually, net of expenses.

Wage Growth Assumption (effective June 30, 2017)

3.25% per annum based on 2.60% inflation assumption and .65% real wage inflation.

Payroll Increase Assumption (effective June 30, 2017)

3.25% per year

Cost of Living Adjustments Assumption (effective June 30, 2017)

2.60% for members who retired before July 1, 1990. No cost-of-living adjustments are assumed to be granted to future retirees.

DEMOGRAPHIC ASSUMPTIONS:

Rates of Mortality

Pre-Retirement (effective June 30, 2018)

State	
Male	RP-2014 Employee Table, Generational using MP-2017, set back 4 years
Female	RP-2014 Employee Table, Generational using MP-2017, set back 4 years
School	
Male	RP-2014 Employee Table, Generational using MP-2017, set back 4 years
Female	RP-2014 Employee Table, Generational using MP-2017, set back 8 years
Other	
Male	RP-2014 Employee Table, Generational using MP-2017, set back 3 years
Female	RP-2014 Employee Table, Generational using MP-2017, set back 4 years
Sheriffs/Deputies and Protection Occupation	
Male	RP-2014 Employee Table, Generational using MP-2017, set back 3 years
Female	RP-2014 Employee Table, Generational using MP-2017, set back 4 years

5% of active deaths are assumed to be service related for non-regular members.

Post-Retirement (effective June 30, 2018)

State	RP-2014 Healthy Annuitant, Generational using MP-2017
Male	8.5% increase in rates above age 75
Female	No age adjustment
School	RP-2014 Healthy Annuitant, Generational using MP-2017
Male	2 Year setback, 10% decrease in rates below age 75, 20% increase above age 75
Female	2 Year setback, 25% decrease below age 75, 10% increase above age 75
Other	RP-2014 Healthy Annuitant, Generational using MP-2017
Male	1 Year set forward, 10% decrease below age 75, 8% increase above age 75
Female	1 Year setback, 10% decrease below age 75, 5% increase above age 75
Sheriffs/Deputies and Protection Occupation	RP-2014 Healthy Annuitant, Generational using MP-2017
Male	1 Year set forward, 10% increase above age 75
Female	No age adjustment
Beneficiaries	Same as members
Disabled Members	RP-2014 Disabled Mortality, Generational using MP-2017
Male	3 Year age set forward
Female	5 Year age set forward

Retirement Rates (effective June 30, 2018)

Upon meeting the requirements for early retirement, the following rates apply to Regular Members:

	Assumed Retirement Rates – Early		
Age	State	School	Other
55	5.0%	6.0%	4.0%
56	5.0%	6.0%	4.0%
57	5.0%	6.0%	4.0%
58	5.0%	7.0%	4.0%
59	5.0%	8.0%	5.0%
60	5.0%	10.0%	5.0%
61	15.0%	15.0%	10.0%
62	15.0%	15.0%	15.0%
63	15.0%	15.0%	15.0%
64	15.0%	15.0%	15.0%

Upon reaching the requirements for normal retirement (unreduced benefits), the following rates apply:

Assumed Retirement Rates – Select Unreduced

Age	State	School	Other
55	20.0%	25.0%	20.0%
56	15.0%	25.0%	20.0%
57	15.0%	25.0%	17.0%
58	15.0%	25.0%	20.0%
59	15.0%	25.0%	20.0%
60	15.0%	25.0%	17.0%
61	20.0%	33.0%	20.0%
62	40.0%	40.0%	30.0%
63	35.0%	30.0%	25.0%
64	30.0%	30.0%	30.0%
65	30.0%	30.0%	30.0%

Assumed Retirement Rates – Ultimate Unreduced

Age	State	School	Other
55	15.0%	20.0%	12.0%
56	15.0%	20.0%	12.0%
57	15.0%	20.0%	12.0%
58	15.0%	20.0%	12.0%
59	15.0%	21.0%	12.0%
60	15.0%	23.0%	15.0%
61	20.0%	28.0%	20.0%
62	40.0%	35.0%	30.0%
63	30.0%	30.0%	20.0%
64	30.0%	30.0%	25.0%
65	30.0%	45.0%	40.0%
66	30.0%	35.0%	30.0%
67	20.0%	25.0%	20.0%
68	20.0%	25.0%	20.0%
69	35.0%	40.0%	40.0%
70	100.0%	100.0%	100.0%

	Assumed Retirement Rates	
Age	Sheriffs/Deputies	Protection Occupation
50	17.0%	
51	15.0%	
52	15.0%	
53	15.0%	
54	15.0%	
55	15.0%	25.0%
56	15.0%	10.0%
57	15.0%	10.0%
58	15.0%	10.0%
59	15.0%	10.0%
60	15.0%	10.0%
61	15.0%	15.0%
62	30.0%	30.0%
63	30.0%	25.0%
64	30.0%	25.0%
65	100.0%	100.0%

Terminated vested members are assumed to retire at age 62 (55 for Sheriffs/Deputies and Protection Occupation groups).

For Regular membership, retired reemployed members are assumed to retire at a rate of 25% per year until age 80 when all are assumed to retire.

All retirees are assumed to elect a modified cash refund annuity (Option 2).

Rates of Disablement (effective June 30, 2018)

	Assumed Rates					
	Males			Females		
Age	State	School	Other	State	School	Other
27	0.020%	0.020%	0.020%	0.020%	0.020%	0.020%
32	0.020%	0.020%	0.020%	0.020%	0.020%	0.020%
37	0.030%	0.034%	0.030%	0.030%	0.030%	0.030%
42	0.050%	0.056%	0.050%	0.040%	0.040%	0.040%
47	0.100%	0.098%	0.110%	0.070%	0.070%	0.070%
52	0.180%	0.142%	0.260%	0.180%	0.130%	0.160%
57	0.260%	0.230%	0.500%	0.310%	0.190%	0.280%
62	0.340%	0.318%	0.720%	0.500%	0.260%	0.400%

Assumed Rates
Sheriffs/Deputies
Protection Occupations

Age	Rate
27	0.130%
32	0.130%
37	0.130%
42	0.150%
47	0.200%
52	0.240%
57	0.320%
62	0.430%

Rates of Termination of Employment (effective June 30, 2018)

Regular Membership

	Male			Female		
Years of Service	State	School	Other	State	School	Other
1	11.00%	14.20%	19.00%	11.00%	14.20%	19.99%
5	4.75%	6.60%	7.50%	4.75%	6.60%	8.35%
10	2.25%	2.70%	4.10%	2.25%	2.70%	4.93%
15	1.60%	1.70%	2.64%	1.60%	1.70%	3.36%
20	1.10%	1.20%	2.10%	1.10%	1.20%	2.66%
25	.80%	1.00%	1.60%	.80%	1.00%	1.98%
30	.80%	1.00%	1.10%	.80%	1.00%	1.30%

Sheriffs/Deputies and Protection Occupation

Years of Service	Sheriffs/Deputies	Protection Occupation
1	4.00%	10.00%
5	1.00%	6.50%
10	1.00%	3.50%
15	1.00%	2.20%
20	1.00%	1.45%
25	1.00%	1.00%
30	1.00%	1.00%

Probability of Electing a Deferred Vested Benefit (effective June 30, 2018)

	Regular Membership					
	Male			Female		
Years of Service	State	School	Other	State	School	Other
5	62.0%	74.0%	62.0%	56.0%	80.0%	70.0%
10	71.0%	79.0%	71.0%	62.0%	80.0%	73.0%
15	76.0%	84.0%	76.0%	72.0%	85.0%	80.0%
20	81.0%	89.0%	81.0%	82.0%	90.0%	85.0%
25	86.0%	94.0%	86.0%	92.0%	95.0%	90.0%
30	90.0%	95.0%	90.0%	100.0%	100.0%	90.0%

	Sheriffs/Deputies and Protection Occupation
Years of Service	Rate
5	53.0%
10	65.0%
15	85.0%
20	95.0%
25	100.0%
30	100.0%

Rates of Salary Increase* (effective June 30, 2018)

	Annual Increase			
Years of Service	State	School	Other	Sheriffs/Deputies and Protection Occupation
1	14.25%	16.25%	14.25%	16.25%
5	7.75%	5.75%	5.35%	5.75%
10	5.50%	4.55%	4.55%	4.55%
15	4.45%	3.75%	4.05%	4.05%
20	3.85%	3.40%	3.75%	3.75%
25	3.60%	3.25%	3.65%	3.75%
30	3.35%	3.25%	3.65%	3.25%
35+	3.25%	3.25%	3.25%	3.25

* Includes 3.25% wage growth

ACTUARIAL COST METHOD: (adopted 1996)

The actuarial cost method is a procedure for allocating the actuarial present value of pension plan benefits and expenses to time periods. The method used for the valuation is known as the entry age normal actuarial cost method. Under this method, a total contribution rate is determined which consists of two parts: (i) the normal cost rate and (ii) the unfunded actuarial liability (UAL) rate. The entry age normal cost method has the following characteristics:

(i) The annual normal costs for each individual active member are sufficient to accumulate the value of the member's pension at time of retirement.

(ii) Each annual normal cost is a constant percentage of the member's year by year projected compensation rates.

The entry age normal actuarial cost method allocates the actuarial present value of each member's projected benefits on a level basis over the member's compensation rates between the entry age of the member and the assumed exit ages.

ACTUARIAL AMORTIZATION METHOD: (adopted 2013)

The portion of the actuarial present value of benefits allocated to the valuation year is called the normal cost. The portion of the actuarial present value of benefits not provided for by the actuarial present value of future normal costs is called the actuarial liability. Deducting the actuarial value of assets from the actuarial liability determines the unfunded actuarial liability (UAL). The one-year lag between the valuation date and the date the contribution rate is effective is reflected in calculating the corresponding amortization payment. The UAL is amortized according to the Actuarial Amortization Method adopted by the Investment Board and summarized below:

1. Amortization payments will be calculated as a level percentage of payroll.
2. For the actuarial valuation prepared as of June 30, 2013, the amortization period of the UAL shall be 30-year open for all membership groups.
3. For the actuarial valuation prepared as of June 30, 2014:
    a. The UAL for each membership group shall be amortized over a 30-year closed period.
    b. This will be designated as the initial UAL base for subsequent valuations and it will be amortized over the remaining years of the 30-year closed period set on June 30, 2014.
4. For each valuation subsequent to June 30, 2014, annual net experience gains/losses for each membership group will be amortized over a new, closed 20-year period.
5. Subsequent plan amendments or changes in actuarial assumptions or methods that create a change in the UAL will be amortized over a demographically appropriate period selected by the Investment Board at the time that the change in incurred.
6. The dollar amount of the UAL payment for purposes of computing the UAL component of the actuarial and required contribution rate will be the sum of the amortization payments for each amortization schedule divided by the total projected payroll. Unless the plan has been 110 percent funded for the current and prior two years, a negative amortization payment shall be ignored.
7. If the valuation shows that the group has surplus, the prior amortization bases will be eliminated and one base equal to the amount of surplus shall be established. The amortization period of a surplus shall be a 30-year open period for all groups.

ACTUARIAL VALUE OF ASSETS SMOOTHING METHOD: (adopted 2007)

The market value of assets, representing a fair value of System assets, may not necessarily be the best measure of the System's ongoing ability to meet its obligations.

To arrive at a suitable value for the actuarial valuation, a technique for determining the actuarial value of assets is used which dampens volatility in the market value while still indirectly recognizing market value. The specific technique follows:

Step 1: Determine the expected value of plan assets at the current valuation date using the actuarial assumption for investment return applied to the prior actuarial value and the actual receipts and disbursements of the fund for the previous 12 months.

Step 2: Subtract the expected value determined in Step 1 from the total market value of the Fund at the current valuation date.

Step 3: Multiply the difference between market and expected values determined in Step 2 by 25%.

Step 4: Add the expected value of Step 1 and the product of Step 3 to determine the actuarial value of assets.

Step 5: Verify the preliminary actuarial value of assets in Step 4 is not more than 120% of the market value of assets nor less than 80% of the market value. If it is, adjust the actuarial value of assets so it falls within the 80%–120% corridor.