



## Actuarial Section



## Actuary's Certification Letter



# Cavanaugh Macdonald

CONSULTING, LLC

*The experience and dedication you deserve*

October 13, 2020

The Board of Trustees  
Missouri State Employees' Retirement System  
907 Wildwood Drive  
Jefferson City, Missouri 65109

Dear Members of the Board:

At your request, we have performed an actuarial valuation of the Missouri State Employees' Retirement System (MOSERS) as of June 30, 2020, for the purpose of determining contribution rates for fiscal year 2022. Actuarial valuations are prepared annually for the Missouri State Employees' Plan (MSEP) and the Judicial Retirement Plan. The funding policy for both plans includes the Entry Age Normal actuarial cost method and the level percent of payroll methodology for the unfunded actuarial accrued liability (UAAL), which are set statutorily. The Board of Trustees is responsible for selecting the asset valuation method, amortization period and methodology for both plans. The selection of the amortization period reflects the Board's desire to reach full funding within thirty years. The major findings of the valuations are contained in this section, which reflects the plan provisions in place on June 30, 2020, as amended by any legislation passed by the 2020 legislature.

In July 2018, after extensive analysis, the MOSERS Board adopted a plan to phase in a change in the full set of economic assumptions over a three year period (2018 through 2020 valuations). The scheduled changes to the economic assumptions were implemented in the 2020 valuation, including decreases in the following: inflation assumption from 2.35% to 2.25%, investment return assumption from 7.10% to 6.95%, cost of living adjustment (COLA) assumption from 1.88% to 1.80%, general wage growth assumption from 2.60% to 2.50% and the payroll growth assumption from 2.35% to 2.25%. For more detail, see the valuation report.

In preparing our report, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, statutory provisions, member data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete, our results may be different and our calculations may need to be revised.

We further certify that all costs, liabilities, and other factors for the plans have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the plans and reasonable expectations); meet applicable Actuarial Standards of Practice (ASOPs); and which, in combination, offer our best estimate of anticipated experience affecting the plans. Nevertheless, the emerging costs of the plans will vary from those presented herein to the extent actual experience differs from that projected by the actuarial assumptions. The Board of Trustees has the final decision regarding the appropriateness of the assumptions and adopted them, as indicated in Appendix D of our *MSEP Actuarial Valuation Report* and Appendix C of our *Judges Actuarial Valuation Report*.

3906 Raynor Pkwy, Suite 106, Bellevue, NE 68123  
Phone (402) 905-4461 • Fax (402) 905-4464  
[www.CavMacConsulting.com](http://www.CavMacConsulting.com)  
Offices in Englewood, CO • Kennesaw, GA • Bellevue, NE



Future actuarial measurements may differ significantly from the current measurements presented in the June 30, 2020 valuation reports due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Actuarial computations presented in this section are for purposes of determining the recommended and statutory funding amounts for the plans. The calculations have been made on a basis consistent with our understanding of the plans' funding requirements and goals. Determinations for purposes other than meeting these requirements may be significantly different from the results shown in the June 30, 2020 valuation reports. Accordingly, additional determinations may be needed for other purposes.

Based upon the June 30, 2020 valuation results, annual projection forecasting and the presumption that future contributions will be made at the full actuarial contribution rate, it is our opinion that the current funding policy will systematically accumulate assets sufficient to fund all future benefits of both the Missouri State Employees' Plan (MSEP) and the Judicial Retirement Plan, if all actuarial assumptions are met.

We provided the information used by staff to prepare the following schedules in the *Actuarial Section: Schedules of Funding Progress, Active Members by Attained Age and Years of Service, Schedules of Active Member Valuation Data, Short-Term Solvency Test, and Analysis of Financial Experience*. We also provided the information used by staff to prepare the following schedules in the *Financial Section: Schedule of Employers' Net Pension Liability, Sensitivity of Net Pension Liability to Changes in the Discount Rate, Schedule of Changes in Employers' Net Pension Liability* and the *Schedule of Employer Contributions*.

Actuarial computations, based on the actuarial valuations performed as of June 30, 2020, were also prepared as of June 30, 2020, for purposes of fulfilling financial accounting requirements for the plans under Governmental Accounting Standard Number 67 (GASB 67). The MSEP is a cost-sharing multiple employer plan and the Judicial Retirement Plan is a single employer plan. The assumptions used in the funding valuation were also used for GASB 67 calculations including the 6.95% assumed rate of return used in the funding valuation. In addition, the entry age normal actuarial cost method, which is required to be used under GASB 67, is also used in the funding valuations. The actuarial assumptions and methods meet the parameters set by ASOPs, as issued by the Actuarial Standards Board, and generally accepted accounting principles (GAAP) applicable in the United States of America as promulgated by the Governmental Accounting Standards Board (GASB). Additional information related to GASB 67 can be found in the Financial Section of this report.

The consultants who worked on this assignment are pension actuaries. Cavanaugh Macdonald Consulting, LLC's advice is not intended to be a substitute for qualified legal or accounting counsel.

We certify that, to the best of our knowledge and belief, the June 30, 2020 actuarial valuation reports are complete and accurate and have been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Sincerely,

A handwritten signature in cursive script that reads 'Patrice Beckham'.

Patrice A. Beckham, FSA, EA, FCA, MAAA  
Principal and Consulting Actuary

A handwritten signature in cursive script that reads 'Bryan K. Hoge'.

Bryan K. Hoge, FSA, EA, FCA, MAAA  
Consulting Actuary

## Summary of Actuarial Assumptions

### Actuarial Methods

#### Calculation of Normal Cost and Actuarial Accrued Liability

The funding method used to determine the normal cost and actuarial accrued liability was the entry age actuarial cost method described below.

- **Entry age actuarial cost method** – Under the entry age normal cost method, the actuarial present value of each member’s projected benefit is allocated on a level basis over the member’s compensation between the entry age of the member and their assumed exit age. The portion of the actuarial present value allocated to the valuation year is called the normal cost. The actuarial present value of benefits allocated to prior years of service is called the actuarial accrued liability. The unfunded actuarial accrued liability represents the difference between the actuarial accrued liability and the actuarial value of assets as of the valuation date. The unfunded actuarial accrued liability is calculated each year and reflects experience gains/losses.
- **Calculation of the actuarial value of assets (AVA)** – The Board adopted the current asset smoothing method effective with the June 30, 2018 valuation. Under the current method, the difference between the actual and assumed investment return on the fair value of assets is recognized evenly over a five-year period. No corridor is used with this method. In addition, the total unrecognized investment experience as of June 30, 2017, will be recognized evenly over a seven-year period beginning June 30, 2018.
- **Amortization of the unfunded actuarial accrued liability (UAAL)** – Beginning with the June 30, 2018, valuation, the UAAL is amortized using a “layered” approach. Under this method, the “Legacy UAAL”, as determined in the June 30, 2018 valuation, is amortized over a closed 30-year period. Subsequent changes in the UAAL due to actuarial gains/losses or assumption changes are separately financed by establishing amortization bases and payments, as a level percentage of payroll, over closed 30-year periods. Any change in the System's benefit structure shall be amortized over a closed period of 20 years, as set out in state statutes. The total UAAL amortization payment is the sum of the payments for each of the amortization bases.

#### Changes in Methods and Assumptions Since the Prior Year

An experience study which analyzed the System’s economic assumptions was performed in 2018 and the results were presented to the Board. Below is a summary of the changes to methods and assumptions since the prior year:

- **Investment return** – The assumption was lowered from 7.10% to 6.95%.
- **Price inflation** – The assumption was lowered from 2.35% to 2.25%.
- **General wage growth** – The assumption was lowered from 2.60% to 2.50%.
- **Payroll growth** – The assumption was lowered from 2.35% to 2.25%.
- **Cost-of-living adjustment (COLA)** – The assumption was lowered from 1.88% to 1.80%.

### Actuarial Assumptions

#### Economic Assumptions

- **Investment return** – 6.95%, compounded annually, net of investment expenses. (7.10% as of the June 30, 2019 valuation)
- **Inflation** – 2.25% per year
- **Payroll growth** – 2.25% per year
- **Cost-of-living adjustment (COLA)** – 4.00% on a compounded basis when a minimum COLA of 4.00% is in effect; 1.80% on a compounded basis when no minimum COLA is in effect
- **Interest on member contributions** – 1.50% per year

**Demographic Assumptions**

- **Mortality** – The mortality assumption includes an appropriate level of conservatism that reflects expected future mortality improvement

**MSEP/MSEP 2000/MSEP 2011**

- **Post-retirement** – RP-2014 Healthy Annuitant mortality table, projected from 2006 to 2026 with Scale MP-2015 and scaled by 120%
- **Pre-retirement** – RP-2014 Employee mortality table, projected from 2006 to 2026 with Scale MP-2015 and scaled by 95% for males and 90% for females
- **Long-term disability** – RP-2014 Disabled mortality table, projected from 2006 to 2026 with Scale MP-2015 and scaled by 95% for males and 90% for females

**Judicial Plan**

- **Post-retirement** – RP-2014 Healthy Annuitant mortality table, projected from 2006 to 2026 with Scale MP-2015 and scaled by 98%
- **Pre-retirement** – RP-2014 Employee mortality table, projected from 2006 to 2026 with Scale MP-2015
- **Long-term disability** – RP-2014 Disabled mortality table, projected from 2006 to 2026 with Scale MP-2015

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (MAAA). Assumptions were adopted based on the June 30, 2016 experience study and the June 30, 2018 Report on Economic Assumptions.

**MSEP**

**Percent of Eligible Active Members Retiring Within the Next Year**

Retirement Age	Normal Retirement			Early Retirement		
	MSEP/MSEP 2000			MSEP 2011	MSEP/MSEP 2000	MSEP 2011
	Percent Retiring			Percent Retiring	Percent Retiring	Percent Retiring
	1st Year	2nd Year	3rd Year			
48	20%					
49	20	10%				
50	20	10	21%			
51	20	10	21			
52	20	10	21			
53	20	10	21			
54	20	10	21			
55	20	10	21	45%		
56	20	10	21	45		
57	20	10	21	35	2.4%	
58	20	10	21	35	3.1	
59	20	10	21	30	3.0	
60	20	10	21	35	5.1	
61	19	10	21	25	6.0	
62	18	22	29	40	6.0	10%
63	16	18	24	30	6.0	10
64	15	17	17	20	6.0	10
65	19	19	27	30		50
66	24	25	28	25		50
67	10	25	23	20		
68	20	25	23	20		
69	20	25	23	20		
70	20	25	23	20		
71	20	25	23	20		
72	20	25	23	20		
73	20	25	23	20		
74	20	25	23	20		
75	50	50	23	50		
76	50	50	23	50		
77	75	75	23	75		
78	100	100	100	100		

**Judicial Plan**

**Percent of Eligible Active Members Retiring Within the Next Year**

Retirement Age	Normal Retirement				Early Retirement	
	Judicial Plan		Judicial Plan 2011		Judicial Plan	
	Percent Retiring		Percent Retiring		Percent Retiring	
	Male	Female	Male	Female	Male	Female
55	20%	3%				
56	16	3				
57	13	3				
58	9	3				
59	5	3				
60	8	8				
61	5	8				
62	8	8	30%	35%	6%	3%
63	10	8	20	20	6	3
64	12	8	15	20	6	3
65	12	15	30	50	6	3
66	20	15	25	25	6	3
67	20	15	20	25	6	3
68	30	15	20	25	6	3
69	30	15	30	50	6	3
70	100	100	100	100	100	100

**Elected Officials and Legislators**

**Percent of Active Members Terminating Within the Next Year**

Years of Service	Percent Terminating	
	Male	Female
0-1	8%	8%
1-2	8	8
2-3	8	8
3-4	8	8
4-5	12	12
5-6	12	12
6-7	12	12
7+	35	35



MSEP

Separations From Active Employment Before Service Retirement Assumptions

Sample Ages	Years of Service	Termination*		Death**		Disability	
		Male	Female	Male	Female	Male	Female
	0	24.0%	27.5%				
	1	19.0	21.5				
	2	15.5	16.3				
	3	13.3	13.5				
	4	11.2	11.3				
25	5+	13.5	14.0	0.03%	0.01%	0.10%	0.10%
30		10.6	11.0	0.03	0.02	0.10	0.10
35		8.2	8.5	0.04	0.03	0.10	0.10
40		5.8	6.0	0.05	0.03	0.36	0.36
45		4.3	4.5	0.07	0.05	0.41	0.41
50		2.9	3.0	0.13	0.08	0.57	0.57
55		2.9	3.0	0.22	0.14	0.77	0.77
60		2.9	3.0	0.40	0.20	1.02	1.02
65		2.9	3.0	0.70	0.30	1.23	1.23
70		2.9	3.0	1.17	0.50	1.23	1.23

\* Does not apply to elected officials and legislators.

\*\* 2% of the deaths in active service are assumed to be duty-related.

MSEP

Pay Increase Assumptions

Years of Service	Rates by Service*			
	Inflation	Productivity	Merit	Total
1	2.25%	0.25%	5.75%	8.25%
2	2.25	0.25	2.50	5.00
3	2.25	0.25	1.50	4.00
4	2.25	0.25	1.25	3.75
5	2.25	0.25	1.00	3.50
9	2.25	0.25	0.75	3.25
10	2.25	0.25	0.50	3.00
21+	2.25	0.25	0.25	2.75

\* General assembly members have a flat 2.5% assumption.



**Judicial Plan**  
**Separations From Active Employment Before Service Retirement**  
**Due to Death and Disability Assumptions**

Sample Ages	Death		Disability	
	Male	Female	Male	Female
25	0.03%	0.01%	0.01%	0.01%
30	0.03	0.02	0.02	0.01
35	0.04	0.03	0.03	0.02
40	0.05	0.04	0.04	0.03
45	0.07	0.05	0.05	0.04
50	0.13	0.09	0.08	0.07
55	0.24	0.16	0.13	0.12
60	0.42	0.23	0.20	0.19
65	0.74	0.33	0.20	0.19
70	1.23	0.55	0.20	0.19

**Judicial Plan**  
**Separations From Active Employment Before Service Retirement**  
**Due to Terminations Assumptions**

Service Index	Male	Female
1	0.040%	0.040%
2	0.010	0.023
3	0.013	0.023
4	0.013	0.023
5	0.013	0.023
6-10	0.013	0.023
11-15	0.017	0.023
16+	0.010	0.010

**Judicial Plan**  
**Pay Increase Assumptions**

Sample Ages	Inflation	Productivity	Merit	Increase Next Year
25	2.25%	0.25%	2.20%	4.70%
30	2.25	0.25	2.20	4.70
35	2.25	0.25	1.48	3.98
40	2.25	0.25	0.76	3.26
45	2.25	0.25	0.60	3.10
50	2.25	0.25	0.54	3.04
55	2.25	0.25	0.44	2.94
60	2.25	0.25	0.00	2.50
65	2.25	0.25	0.00	2.50
70	2.25	0.25	0.00	2.50

Other Assumptions | June 30, 2020

- **Form of payment**

*MSEP*

- 50% joint and survivor

*MSEP 2000/MSEP 2011*

- Straight life annuity

*Judicial Plan*

- **First employed before January 1, 2011** – 50% joint and survivor
- **First employed on or after January 1, 2011** – Straight life annuity

- **Marital status**

*MSEP/MSEP 2000/MSEP 2011*

- **Percent married** – 70% married at retirement, 60% of those dying in active service are married
- **Spouse’s age** – Females assumed to be three years younger than males

*Judicial Plan*

- **Percent married** – 100% married
- **Spouse’s age** – Females assumed to be four years younger than males

- **Pay increase timing** – Pay increases are assumed to occur at the beginning of the fiscal year.
- **Decrement timing** – Decrements of all types are assumed to occur mid-year.
- **Eligibility testing** – Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
- **Benefit service** – Exact fractional service is used to determine the amount of the benefit payable.
- **Decrement relativity** – Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
- **Decrement operation** – Disability and withdrawal do not operate during normal retirement eligibility.
- **Other liability adjustments**

*MSEP/MSEP 2000/MSEP 2011*

- Pre-retirement survivor benefits for spouse of an inactive-vested member. These factors are used to estimate the cost of immediate unreduced survivor annuities upon the death of a vested member.

Age	Male	Female
<30	1.57	1.31
30-39	1.24	1.13
40-49	1.09	1.05
>50	1.02	1.01

- **Incidence of contributions** – Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.
  - **Retirement election**
- MSEP 2000*
- All regular state employees first employed on or before June 30, 2000, are assumed to elect MSEP 2000 prior to age 62 and MSEP on or after age 62.
  - Elected officials, general assembly, and uniformed water patrol members first employed before July 1, 2000, are assumed to elect MSEP at retirement.

- **Service adjustment**

*MSEP/MSEP 2000/MSEP 2011*

- It is assumed that each member will be granted eight months of service credit; four months for unused leave upon retirement and four months for military service purchases. For members first employed on or after January 1, 2011, it is assumed that each member will be granted five months for unused leave.

- **Forfeitures**

*MSEP 2011*

- For those first employed on or after January 1, 2011, 50% of state employees terminating at first vesting eligibility are assumed to take a refund and forfeit their deferred pension. This percentage decreases to 0% at first retirement eligibility.

*Judicial Plan*

- No vested members are assumed to take a refund of employee contributions.

- **Salary and benefit limits** – For purposes of the valuation, no limits were applied to member compensation or benefits.

- **Commencement age for deferred vested benefit** – normal retirement date

- **Data Adjustments**

*MSEP/MSEP 2000/MSEP 2011*

Active and retired member data was reported as of May 31, 2020. It was brought forward to June 30, 2020, by adding one month of service for all active members, one month of contributions and interest for MSEP 2011 members, and the June COLA for certain retired members. Financial information continues to be reported annually as of June 30. This procedure was instituted to provide sufficient time for the Board of Trustees to certify the appropriate contribution rate prior to the October 1 statutory deadline.

Active members reported with less than a \$100 annualized salary were assumed to receive the average active member pay.

When the option of choosing plans is available, inactive-vested members are reported with two records, one with benefits under the MSEP and one with benefits under the MSEP 2000. Because it is unknown what the member will elect at retirement, both records are valued and the plan that produces the higher present value of future benefits is used for valuation purposes.

For any retired member who has elected a joint and survivor benefit, yet has no beneficiary date of birth provided, it was assumed that the beneficiary is three years younger for male retirees and three years older for female retirees.

For members reported with no gender, the member is assumed to be male.

Due to limitations in our valuation program, members who are not eligible for normal retirement prior to age 85 had their date of birth adjusted.

*Judicial Plan*

Active and retired member data was reported as of May 31, 2020. It was brought forward to June 30, 2020, by adding one month of service for all active members, one month of contributions and interest for Judicial Plan 2011 members, and the June COLA for certain retired members. Financial information continues to be reported annually as of June 30. This procedure was instituted to provide sufficient time for the Board of Trustees to certify the appropriate contribution rate prior to the statutory deadline.

Active members reported with no annualized salary were assumed to receive the average active member pay.

**Other Technical Valuation Procedures**

Salary increases are assumed to apply to annual amounts.

Decrements are assumed to occur mid-year, except that immediate retirement is assumed for those who are at or older than the age at which retirement rates are 100%. Standard adjustments are made for multiple decrements.

No actuarial liability is included for participants who terminated without being vested prior to the valuation date, except those due a refund of contributions.

## Pension Trust Funds

## Employer Schedule of Funding Progress

## Last Ten Fiscal Years

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

## MSEP

Actuarial Valuation Date as of June 30	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Percent Funded (a/b)	Annual Covered Payroll (c)	UAAL Percentage of Covered Payroll [(b-a)/c]
2020	\$ 8,711,224,151	\$ 14,258,408,888	\$ 5,547,184,737	61.1%	\$ 1,980,910,473	280.0%
2019	8,782,383,977	13,957,626,309	5,175,242,332	62.9	1,930,764,635	268.0
2018	8,830,410,210	13,612,763,961	4,782,353,751	64.9	1,915,143,002	249.7
2017	8,872,381,848	13,152,273,895	4,279,892,047	67.5	1,941,969,786	220.4
2016	8,878,057,191	12,751,162,753	3,873,105,562	69.6	1,921,528,936	201.6
2015	8,792,485,658	11,727,618,410	2,935,132,752	75.0	1,918,527,768	153.0
2014	8,637,758,955	11,494,571,835	2,856,812,880	75.1	1,902,719,928	150.1
2013	8,096,436,929	11,134,637,484	3,038,200,555	72.7	1,880,212,950	161.6
2012	7,897,167,203	10,793,651,577	2,896,484,374	73.2	1,864,069,493	155.4
2011	8,022,481,408	10,123,544,043	2,101,062,635	79.2	1,875,569,816	112.0

## Judicial Plan

Actuarial Valuation Date as of June 30	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b-a)	Percent Funded (a/b)	Annual Covered Payroll (c)	UAAL Percentage of Covered Payroll [(b-a)/c]
2020	\$ 180,713,310	\$ 624,847,011	\$ 444,133,701	28.9%	\$ 61,450,808	722.7%
2019	172,224,529	617,482,705	445,258,176	27.9	60,380,734	737.4
2018	162,135,045	593,788,592	431,653,547	27.3	59,551,874	724.8
2017	151,828,631	564,417,925	412,589,294	26.9	58,150,935	709.5
2016	143,468,860	547,621,617	404,152,757	26.2	57,421,016	703.8
2015	134,349,908	482,969,311	348,619,403	27.8	55,656,457	626.4
2014	124,269,105	462,336,255	338,067,150	26.9	49,587,936	681.8
2013	111,140,339	435,378,358	324,238,019	25.5	48,697,726	665.8
2012	102,266,706	413,332,538	311,065,832	24.7	45,835,501	678.7
2011	98,398,628	393,484,589	295,085,961	25.0	45,888,020	643.1

See *Schedule of Employer Contributions* on page 60.

Pension Trust Funds

Summary of Member Data Included in Valuations

June 30, 2020

Active Members

Valuation Group	Number	Annual Covered Payroll	Group Averages		
			Annual Salary	Age (Yrs)	Service (Yrs)
<b>MSEP</b>					
Regular state employees	43,661	\$ 1,845,831,503	\$ 42,276	45.3	10.5
Elected officials	6	659,976	109,996	47.7	3.3
Legislative clerks	7	292,357	41,765	67.1	21.6
Legislators	193	6,943,847	35,978	53.2	4.8
Uniformed water patrol	10	755,115	75,512	44.0	18.6
Conservation department	1,323	61,857,763	46,756	44.8	14.5
School-term salaried employees	783	62,661,147	80,027	58.4	22.4
Administrative law judges	16	1,908,765	119,298	62.0	25.6
Total MSEP group	45,999	\$ 1,980,910,473	43,064	45.5	10.8
<b>Judicial Plan</b>	418	\$ 61,450,808	\$ 147,012	55.7	10.8

Retired Members and Beneficiaries

Type of Benefit Payment	Number	Annual Benefits	Group Averages	
			Benefit	Age (Yrs.)
<b>MSEP</b>				
Retirement	45,176	\$ 738,747,900	\$ 16,353	70.7
Disability	1	2,316	2,316	64.0
Survivor of active member	1,728	19,459,464	11,261	63.7
Survivor of retired member	3,952	52,328,328	13,241	76.1
Total MSEP group	50,857	\$ 810,538,008	15,938	70.8
<b>Judicial Plan</b>	590	\$ 40,112,028	\$ 67,986	76.6

Other Members

Plans	Number Inactive-Vested	Number Inactive-Nonvested	Number Leave of Absence	Number Long-Term Disability
MSEP	16,300	21,735	247	651
Judicial Plan	35	0	0	0

## Active Members by Attained Age and Years of Service

June 30, 2020

## MSEP

Attained Age	Years of Service to Valuation Date								Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	No.	Valuation Payroll
< 24	2,348	13							2,361	\$ 76,937,066
25-29	3,501	603	2						4,106	150,141,161
30-34	2,690	1,624	349	7					4,670	186,351,402
35-39	2,013	1,344	1,170	404	17				4,948	210,697,939
40-44	1,575	1,066	1,001	1,118	451	20			5,231	230,055,094
45-49	1,462	957	879	1,002	1,323	432	24		6,079	274,202,269
50-54	1,296	892	816	871	1,180	944	316	21	6,336	288,793,496
55-59	1,283	951	862	964	1,067	609	432	106	6,274	283,203,301
60-64	783	670	652	676	664	361	249	180	4,235	193,594,165
65+	258	323	266	281	238	145	116	132	1,759	86,934,580
Totals	17,209	8,443	5,997	5,323	4,940	2,511	1,137	439	45,999	\$ 1,980,910,473

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

**Group Averages:** Age – 45.5 years • Service – 10.8 years • Annual pay – \$43,064

## Judicial Plan

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30+	No.	Valuation Payroll
< 39	19	4						23	\$ 3,187,680
40-44	24	12						36	5,228,470
45-49	27	14	9					50	7,065,291
50-54	23	18	11	12	2			66	9,707,244
55-59	20	34	13	11	9	2		89	13,228,243
60-64	11	19	16	9	20	11	3	89	13,203,039
65+	2	10	13	9	8	13	10	65	9,830,841
Totals	126	111	62	41	39	26	13	418	\$ 61,450,808

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

**Group Averages:** Age – 55.7 years • Service – 10.8 years • Annual pay – \$147,012

## Schedules of Active Member Valuation Data

Last Ten Fiscal Years

## MSEP

## Schedule of Active Member Valuation Data

Valuation Date as of June 30	Participating Employers	Number	Annual Payroll	Average Annual Pay	% Increase in Average Pay
2020	17	45,999	\$ 1,980,910,473	\$ 43,064	4.53%
2019	17	46,864	1,930,764,635	41,199	2.84
2018	18	47,806	1,915,143,002	40,061	0.90
2017	18	48,910	1,941,969,786	39,705	2.21
2016	18	49,464	1,921,528,936	38,847	1.20
2015	18	49,980	1,918,527,768	38,386	2.12
2014	18	50,621	1,902,719,928	37,588	1.62
2013	18	50,833	1,880,212,950	36,988	1.86
2012	18	51,332	1,864,069,493	36,314	0.02
2011	17	51,660	1,875,569,816	36,306	(0.18)

## Judicial Plan

## Schedule of Active Member Valuation Data

Valuation Date as of June 30	Participating Employers	Number	Annual Payroll	Average Annual Pay	% Increase in Average Pay
2020	1	418	\$ 61,450,808	\$ 147,012	0.80%
2019	1	414	60,380,734	145,847	1.64
2018	1	415	59,551,874	143,498	1.17
2017	1	410	58,150,935	141,832	0.78
2016	1	408	57,421,016	140,738	2.41
2015	1	405	55,656,457	137,423	12.24
2014	1	405	49,587,936	122,439	0.57
2013	1	400	48,697,726	121,744	5.71
2012	1	398	45,835,501	115,165	0.14
2011	1	399	45,888,020	115,008	0.26



## Retirees and Beneficiaries Added and Removed - MSEP

Last Ten Fiscal Years

Benefit Type	Fiscal Year Ended June 30		Added to Rolls		Removed from Rolls		Rolls at End of Year		Percentage Increase/(Decrease)	
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	Average Annual Allowances	Annual Allowances	Average Annual Allowances	
<b>2020</b>										
Retirees	2,393	\$ 47,592,468	1,347	\$ 21,088,044	45,723	\$ 741,506,764	\$ 16,217	3.71%	1.33%	
Beneficiaries	506	7,538,112	358	3,849,576	5,720	72,199,103	12,622	5.38	2.66	
<b>2019</b>										
Retirees	2,510	49,663,164	1,247	20,068,656	44,677	715,002,340	16,004	4.32	1.37	
Beneficiaries	513	7,606,344	321	3,395,964	5,572	68,510,567	12,296	6.55	2.88	
<b>2018</b>										
Retirees	2,875	51,096,000	1,295	17,429,136	43,414	685,407,832	15,788	5.17	1.34	
Beneficiaries	480	6,373,080	334	3,124,044	5,380	64,300,187	11,952	5.32	2.46	
<b>2017</b>										
Retirees	2,810	44,397,240	1,282	17,552,484	41,834	651,740,968	15,579	4.30	0.49	
Beneficiaries	473	5,953,224	276	2,599,608	5,234	61,051,151	11,664	5.81	1.83	
<b>2016</b>										
Retirees	2,829	41,259,384	1,165	15,963,864	40,306	624,896,212	15,504	4.22	(0.08)	
Beneficiaries	475	5,779,596	283	2,563,344	5,037	57,697,535	11,455	5.90	1.87	
<b>2015</b>										
Retirees	2,885	43,895,520	1,066	14,075,772	38,642	599,600,692	15,517	5.23	0.28	
Beneficiaries	465	5,649,900	246	2,203,788	4,845	54,481,283	11,245	6.75	1.93	
<b>2014</b>										
Retirees	2,631	37,702,375	956	12,406,774	36,823	569,780,944	15,474	4.65	(0.11)	
Beneficiaries	421	5,141,385	197	1,842,199	4,626	51,035,171	11,032	6.91	1.73	
<b>2013</b>										
Retirees	2,676	41,153,143	1,001	13,305,438	35,148	544,485,343	15,491	5.39	0.37	
Beneficiaries	431	5,418,267	221	1,876,266	4,402	47,735,985	10,844	8.01	2.86	
<b>2012</b>										
Retirees	2,655	39,865,026	908	11,424,712	33,473	516,637,638	15,434	5.83	0.30	
Beneficiaries	371	4,966,813	195	1,666,285	4,192	44,193,984	10,542	8.07	3.53	
<b>2011</b>										
Retirees	2,896	42,018,907	903	10,857,843	31,726	488,197,324	15,388	6.82	0.11	
Beneficiaries	368	4,057,521	226	1,996,457	4,016	40,893,456	10,183	5.31	1.58	

## Retirees and Beneficiaries Added and Removed - Judicial Plan

Last Ten Fiscal Years

Benefit Type	Fiscal Year Ended June 30		Added to Rolls		Removed from Rolls		Rolls at End of Year		Percentage Increase/(Decrease)	
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	Annual Allowances	Average Annual Allowances
<b>2020</b>										
Retirees	21	\$ 2,245,320	9	\$ 753,144	447	\$ 34,113,254	\$ 76,316	4.57%	1.77%	
Beneficiaries	7	397,068	11	449,532	151	5,914,245	39,167	(0.88)	1.75	
<b>2019</b>										
Retirees	39	3,749,292	17	1,357,068	435	32,621,078	74,991	7.91	2.46	
Beneficiaries	12	643,452	15	555,528	155	5,966,709	38,495	1.50	3.46	
<b>2018</b>										
Retirees	23	2,642,868	15	1,074,540	413	30,228,854	73,193	5.47	3.43	
Beneficiaries	9	470,700	8	322,200	158	5,878,785	37,208	2.59	1.94	
<b>2017</b>										
Retirees	21	2,128,128	16	1,239,612	405	28,660,526	70,767	3.20	1.93	
Beneficiaries	12	507,360	2	87,936	157	5,730,285	36,499	7.90	1.03	
<b>2016</b>										
Retirees	16	1,671,084	14	1,078,356	400	27,772,010	69,430	2.18	1.67	
Beneficiaries	8	383,940	11	397,176	147	5,310,861	36,128	(0.25)	1.79	
<b>2015</b>										
Retirees	39	3,599,880	21	1,395,888	398	27,179,282	68,290	8.82	3.90	
Beneficiaries	18	739,788	5	198,348	150	5,324,097	35,494	11.32	1.67	
<b>2014</b>										
Retirees	18	1,671,667	8	443,807	380	24,975,290	65,724	5.17	2.40	
Beneficiaries	7	320,389	7	216,813	137	4,782,657	34,910	2.21	2.21	
<b>2013</b>										
Retirees	27	2,233,387	13	851,802	370	23,747,430	64,182	6.18	2.16	
Beneficiaries	8	383,692	11	322,758	137	4,679,081	34,154	1.32	3.54	
<b>2012</b>										
Retirees	18	1,490,554	14	1,074,572	356	22,365,845	62,825	1.90	0.75	
Beneficiaries	8	394,339	6	218,310	140	4,618,147	32,987	3.96	2.48	
<b>2011</b>										
Retirees	36	2,501,248	9	563,214	352	21,949,863	62,358	9.68	1.27	
Beneficiaries	4	182,428	10	242,257	138	4,442,118	32,189	(1.33)	2.96	

## Short-Term Solvency Test

Last Ten Fiscal Years

## MSEP

## Actuarial Accrued Liabilities for

Fiscal Year	Member Contributions (1)	Current Retirees and Beneficiaries (2)	Active and Inactive Members, Employer Financed Portion (3)	Actuarial Value of Assets Available for Benefits	Percentage of Actuarial Liabilities Covered by Actuarial Value of Assets Available for		
					(1)	(2)	(3)
2020	\$ 157,133,312	\$ 8,701,290,590	\$ 5,399,984,986	\$ 8,711,224,151	100.0%	98.3%	0.0%
2019	128,255,311	8,430,014,973	5,399,356,055	8,782,383,977	100.0	100.0	4.2
2018	103,784,514	8,073,692,664	5,435,286,783	8,830,410,210	100.0	100.0	12.0
2017	78,979,370	7,559,623,100	5,513,671,425	8,872,381,848	100.0	100.0	22.4
2016	60,618,379	7,305,895,284	5,384,649,090	8,878,057,191	100.0	100.0	28.1
2015	42,731,658	6,695,631,737	4,989,255,015	8,792,485,658	100.0	100.0	41.2
2014	27,111,467	6,347,728,717	5,119,731,651	8,637,758,955	100.0	100.0	44.2
2013	14,507,994	6,062,654,441	5,057,475,049	8,096,436,929	100.0	100.0	39.9
2012	5,431,451	5,749,411,068	5,038,809,058	7,897,167,203	100.0	100.0	42.5
2011	599,761	5,357,794,617	4,765,149,665	8,022,481,408	100.0	100.0	55.9

## Judicial Plan

## Actuarial Accrued Liabilities for

Fiscal Year	Member Contributions (1)	Current Retirees and Beneficiaries (2)	Active and Inactive Members, Employer Financed Portion (3)	Actuarial Value of Assets Available for Benefits	Percentage of Actuarial Liabilities Covered by Actuarial Value of Assets Available for		
					(1)	(2)	(3)
2020	\$ 5,991,360	\$ 436,014,583	\$ 182,841,068	\$ 180,713,310	100.0%	40.1%	0.0%
2019	4,421,019	434,204,353	178,857,333	172,224,529	100.0	38.6	0.0
2018	3,124,482	401,725,610	188,938,500	162,135,045	100.0	39.6	0.0
2017	2,232,405	377,099,534	185,085,986	151,828,631	100.0	39.7	0.0
2016	1,855,955	354,715,048	191,050,614	143,468,860	100.0	39.9	0.0
2015	1,204,757	316,042,514	165,722,040	134,349,908	100.0	42.1	0.0
2014	716,564	285,124,436	176,469,255	124,269,105	100.0	43.3	0.0
2013	421,753	274,911,416	160,045,189	111,140,339	100.0	40.3	0.0
2012	209,817	258,642,149	154,450,572	102,266,706	100.0	39.5	0.0
2011	59,958	251,532,354	141,892,277	98,398,628	100.0	39.1	0.0

## Analysis of Financial Experience

Year Ended June 30, 2020

Actual experience will never coincide exactly with assumed experience (except by coincidence). Gains and losses may offset each other over a period of years, but sizable year-to-year variations from assumed experience are common. Detail on the analysis of the financial experience is shown below.

<b>MSEP</b>		<b>Valuation Date June 30</b>	<b>Actuarial Gain (Loss) as a % of Beginning Accrued Liabilities</b>
Unfunded actuarial accrued liability (UAAL) at beginning of year	\$ 5,175,242,332	2020	(2.3)%
Normal cost from last valuation	148,981,819	2019	(1.8)
Actual employer and member contributions	(472,037,613)	2018	(0.9)
Administrative expenses	8,398,164	2017	(1.6)
Interest accrual	361,842,933	2016	(3.2)
Expected UAAL before changes	5,222,427,635	2015	(0.9)
Change from any changes in benefits, assumptions, or methods	124,766,739	2014	2.1
Refinement of COLA programming	(121,303,254)	2013	(2.8)
Expected UAAL after changes	5,225,891,120	2012	(4.7)
Less: Actual UAAL at end of year	(5,547,184,737)	2011	(2.4)
Gain (loss) during year from experience	\$ (321,293,617)		
Gain (loss) as a percent of actuarial accrued liabilities at start of year (\$14,208,067,714)	(2.3)%		

<b>Judicial</b>		<b>Valuation Date June 30</b>	<b>Actuarial Gain (Loss) as a % of Beginning Accrued Liabilities</b>
Unfunded actuarial accrued liability (UAAL) at beginning of year	\$ 445,258,176	2020	(0.2)%
Normal cost from last valuation	12,249,903	2019	(0.8)
Actual employer and member contributions	(40,489,085)	2018	(0.3)
Administrative expenses	74,450	2017	(0.3)
Interest accrual	31,072,955	2016	0.1
Expected UAAL before changes	448,166,399	2015	(1.5)
Change from any changes in benefits, assumptions, or methods	6,341,771	2014	1.5
Refinement of COLA programming	(11,806,199)	2013	(2.6)
Expected UAAL after changes	442,701,971	2012	(0.6)
Less: Actual UAAL at end of year	(444,133,701)	2011	(0.4)
Gain (loss) during year from experience	\$ (1,431,730)		
Gain (loss) as a percent of actuarial accrued liabilities at start of year (\$633,438,883)	(0.2)%		

## Comparison of Plans for General State Employees

June 30, 2020

Benefit Provisions	MSEP (Closed Plan)	MSEP 2000
<b>Membership</b> <i>Eligible members employed in permanent positions, which normally requires at least 1,040 hours of work per year</i>	<ul style="list-style-type: none"> <li>Employed prior to July 1, 2000 and vested in the MSEP</li> </ul>	<ul style="list-style-type: none"> <li>First employed on or after July 1, 2000, but prior to January 1, 2011</li> <li>Left state employment prior to becoming vested and returned to employment on or after July 1, 2000</li> </ul>
<b>Member Contributions</b>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Vesting</b> <i>Eligible for future pension</i>	<ul style="list-style-type: none"> <li>5 years</li> </ul>	<ul style="list-style-type: none"> <li>5 years</li> </ul>
<b>Service Purchases</b>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>
<b>Service Transfers</b>	<ul style="list-style-type: none"> <li>May transfer state service to other positions covered by MOSERS under 104.800</li> </ul>	<ul style="list-style-type: none"> <li>May transfer service under 104.1090 from other systems with written agreements to transfer required funds</li> </ul>
<b>Death Prior to Retirement</b>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of average compensation. <i>Payable the month following the member's death</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of average compensation. <i>Payable the month following the member's death</i></li> </ul>
<b>Early Retirement</b> <i>Eligible for reduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Age 55 + 10 years of service <i>Base benefit reduced 1/2 of 1% (.005) for each month age is younger than normal retirement</i></li> </ul>	<ul style="list-style-type: none"> <li>Age 57 + 5 years of service <i>Base benefit reduced 1/2 of 1% (.005) for each month age is younger than normal retirement</i></li> </ul>
<b>Normal Retirement</b> <i>Eligible for unreduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Age 65 + 5 years of service</li> <li>Age 60 + 15 years of service</li> <li>Rule of 80 – (at least age 48) Age + years of service = 80 or more <i>Age 50 if first became eligible prior to Aug. 28, 2003</i></li> </ul>	<ul style="list-style-type: none"> <li>Age 62 + 5 years of service</li> <li>Rule of 80 – (at least age 48) Age + years of service = 80 or more <i>Age 50 if first became eligible prior to Aug. 28, 2003</i> <i>Inactive-vested members ineligible for Rule of 80</i></li> </ul>
<b>Base Benefit</b> <i>Payable for life</i>	<ul style="list-style-type: none"> <li>.016 x FAP x Service <i>Future formula increases, if any, may be passed along to retirees</i></li> </ul>	<ul style="list-style-type: none"> <li>.017 x FAP x Service <i>Future formula increases, if any, will not be passed along to retirees</i></li> </ul>
<b>Temporary Benefit</b> <i>Stops at age 62</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>.008 x FAP x Service <i>Available to members retiring under Rule of 80</i></li> </ul>
<b>BackDROP</b> <i>Lump-sum payment at retirement in addition to reduced monthly pension</i>	<ul style="list-style-type: none"> <li>Must work at least 2 years beyond normal retirement eligibility to be eligible; elect BackDROP at retirement (if applicable)</li> </ul>	<ul style="list-style-type: none"> <li>Must work at least 2 year beyond normal retirement eligibility to be eligible; elect BackDROP at retirement (if applicable)</li> </ul>
<b>Benefit Payment Options</b> <i>Determines whether or not a benefit will be paid to anyone after member's death</i>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Unreduced Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 60 Guaranteed Payments</li> <li>Life Income with 120 Guaranteed Payments</li> </ul>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 120 Guaranteed Payments</li> <li>Life Income with 180 Guaranteed Payments</li> </ul>
<b>Cost-of-Living Adjustment (COLA)</b> <i>Helps offset effects of inflation increasing the cost of goods and services</i>	<ul style="list-style-type: none"> <li><b>Employed before Aug. 28, 1997</b> Receive 4-5% each year until reaching 65% COLA cap. After reaching cap, the rate is based on 80% of the percentage increase in the average CPI (0-5%)</li> <li><b>Employed on/after Aug. 28, 1997</b> Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>	<ul style="list-style-type: none"> <li>Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>
<b>In-Service COLA</b> <i>Service beyond age 65</i>	<ul style="list-style-type: none"> <li>Applicable COLA rate (if eligible)</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>

## Comparison of Plans for General State Employees (continued)

June 30, 2020

Benefit Provisions	MSEP 2011
<b>Membership</b> <i>Eligible members employed in permanent positions, which normally requires at least 1,040 hours of work per year</i>	<ul style="list-style-type: none"> <li>• First employed on or after January 1, 2011, or</li> <li>• Returned to employment after electing the buyout option in fiscal year 2018</li> </ul>
<b>Member Contributions</b>	<ul style="list-style-type: none"> <li>• 4% of pay</li> </ul>
<b>Vesting</b> <i>Eligible for future pension</i>	<ul style="list-style-type: none"> <li>• 5 years</li> </ul>
<b>Service Purchases</b>	<ul style="list-style-type: none"> <li>• May purchase qualifying public sector service at full actuarial cost</li> </ul>
<b>Service Transfers</b>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>
<b>Death Prior to Retirement</b>	<ul style="list-style-type: none"> <li>• <b>Nonduty-related death</b> (<i>vested members</i>)  Survivor benefit paid using joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children. <i>Payable the month following the member's death; for inactive-vested, payable when member would have reached normal retirement eligibility</i></li> <li>• <b>Duty-related death</b> (<i>no min. service requirement</i>)  Survivor benefit to eligible spouse or children no less than 50% of average compensation. <i>Payable the month following the member's death</i></li> </ul>
<b>Early Retirement</b> <i>Eligible to receive reduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>• Age 62 + 5 years of service at time of termination  <i>Base benefit reduced 1/2 of 1% (.005) for each month age is younger than normal retirement</i>  <i>Inactive-vested members ineligible</i></li> </ul>
<b>Normal Retirement</b> <i>Eligible to receive unreduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>• Age 67 + 5 years of service</li> <li>• Rule of 90 – (at least age 55)  Age + years of service = 90 or more at time of termination  <i>Inactive-vested members ineligible for Rule of 90</i></li> </ul>
<b>Base Benefit</b> <i>Payable for life</i>	<ul style="list-style-type: none"> <li>• .017 x FAP x Service  <i>Future formula increases, if any, will not be passed along to retirees</i></li> </ul>
<b>Temporary Benefit</b> <i>Stops at age 62</i>	<ul style="list-style-type: none"> <li>• .008 x FAP x Service  <i>Available to members retiring under Rule of 90</i></li> </ul>
<b>BackDROP</b> <i>Lump-sum payment at retirement in addition to reduced monthly pension</i>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>
<b>Benefit Payment Options</b> <i>Determines whether or not a benefit will be paid to anyone after member's death</i>	<ul style="list-style-type: none"> <li>• Life Income Annuity</li> <li>• Joint &amp; 50% Survivor</li> <li>• Joint &amp; 100% Survivor</li> <li>• Life Income with 120 Guaranteed Payments</li> <li>• Life Income with 180 Guaranteed Payments</li> </ul>
<b>Cost-of-Living Adjustment (COLA)</b> <i>Helps offset effects of inflation increasing the cost of goods and services</i>	<ul style="list-style-type: none"> <li>• Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>
<b>In-Service COLA</b> <i>Service beyond age 65</i>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>

## Comparison of Plans for Legislators

June 30, 2020

Benefit Provisions	MSEP (Closed Plan)	MSEP 2000
<b>Membership</b> <i>Elected Members of the General Assembly</i>	<ul style="list-style-type: none"> <li>Employed prior to July 1, 2000 and vested in the MSEP</li> </ul>	<ul style="list-style-type: none"> <li>first employed on or after July 1, 2000, but prior to January 1, 2011</li> <li>Left state employment prior to becoming vested and returned to employment on or after July 1, 2000</li> </ul>
<b>Member Contributions</b>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Vesting</b> <i>Eligible for future pension</i>	<ul style="list-style-type: none"> <li>3 biennial assemblies (6 years)</li> </ul>	<ul style="list-style-type: none"> <li>3 biennial assemblies (6 years)</li> </ul>
<b>Service Purchases</b>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>
<b>Service Transfers</b>	<ul style="list-style-type: none"> <li>May transfer state service to other positions covered by MOSERS under 104.800</li> </ul>	<ul style="list-style-type: none"> <li>May transfer service under 104.1090 from other systems with written agreements to transfer required funds</li> </ul>
<b>Death Prior to Retirement</b>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of rate of compensation. <i>Payable the month following the member's death</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of rate of compensation. <i>Payable the month following the member's death</i></li> </ul>
<b>Early Retirement</b> <i>Eligible for reduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>
<b>Normal Retirement</b> <i>Eligible for unreduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Age 55 + 3 full-biennial assemblies or</li> <li>Rule of 80 – (at least age 48) Age + years of service = 80 or more</li> </ul>	<ul style="list-style-type: none"> <li>Age 55 + 3 full-biennial assemblies or</li> <li>Rule of 80 – (at least age 50) Age + years of service = 80 or more <i>Inactive-vested members ineligible for Rule of 80</i></li> </ul>
<b>Base Benefit</b> <i>Payable for life</i>	<ul style="list-style-type: none"> <li>Biennial Assemblies x \$150</li> <li><i>Future formula increases, if any, may be passed along to retirees</i></li> </ul>	<ul style="list-style-type: none"> <li>(Active Pay ÷ 24) x Service</li> <li><i>Capped at 100% of pay; future formula increases, if any, will not be passed along to retirees.</i></li> </ul>
<b>Temporary Benefit</b> <i>Stops at age 62</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>
<b>BackDROP</b> <i>Lump-sum payment at retirement in addition to reduced monthly pension</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>
<b>Benefit Payment Options</b> <i>Determines whether or not a benefit will be paid to anyone after member's death</i>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Unreduced Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 60 Guaranteed Payments</li> <li>Life Income with 120 Guaranteed Payments</li> </ul>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 120 Guaranteed Payments</li> <li>Life Income with 180 Guaranteed Payments</li> </ul>
<b>Cost-of-Living Adjustment (COLA)</b> <i>Helps offset effects of inflation increasing the cost of goods and services</i>	<ul style="list-style-type: none"> <li><b>Sworn in before Aug. 28, 1997</b> Receive 4-5% each year until reaching 65% COLA cap. After reaching cap, the rate is based on 80% of the percentage increase in the average CPI (0-5%)</li> <li><b>Sworn in on/after Aug. 28, 1997</b> Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>	<ul style="list-style-type: none"> <li>Benefit adjustment based on increase in pay for an active member</li> </ul>
<b>In-Service COLA</b> <i>Service beyond age 65</i>	<ul style="list-style-type: none"> <li>Applicable COLA rate (if eligible)</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>



## Comparison of Plans for Legislators (continued)

June 30, 2020

Benefit Provisions	MSEP 2011
<b>Membership</b> <i>Elected Members of the General Assembly</i>	<ul style="list-style-type: none"> <li>• First employed on or after January 1, 2011, or</li> <li>• Returned to employment after electing the buyout option in fiscal year 2018</li> </ul>
<b>Member Contributions</b>	<ul style="list-style-type: none"> <li>• 4% of pay</li> </ul>
<b>Vesting</b> <i>Eligible for future pension</i>	<ul style="list-style-type: none"> <li>• 3 biennial assemblies (6 years)</li> </ul>
<b>Service Purchases</b>	<ul style="list-style-type: none"> <li>• May purchase qualifying public sector service at full actuarial cost</li> </ul>
<b>Service Transfers</b>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>
<b>Death Prior to Retirement</b>	<ul style="list-style-type: none"> <li>• <b>Nonduty-related death</b> (<i>vested members</i>)                      Survivor benefit paid using joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.  <i>Payable the month following the member's death; for inactive-vested, payable when member would have reached normal retirement eligibility</i></li> <li>• <b>Duty-related death</b> (<i>no min. service requirement</i>)                      Survivor benefit to eligible spouse or children no less than 50% of rate of compensation.  <i>Payable the month following the member's death</i></li> </ul>
<b>Early Retirement</b> <i>Eligible to receive reduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>
<b>Normal Retirement</b> <i>Eligible to receive unreduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>• Age 62 + 3 full-biennial assemblies or</li> <li>• Rule of 90 – (at least age 55)                      Age + years of service = 90 or more at time of termination  <i>Inactive-vested members ineligible for Rule of 90</i></li> </ul>
<b>Base Benefit</b> <i>Payable for life</i>	<ul style="list-style-type: none"> <li>• <math>(\text{Active Pay} \div 24) \times \text{Service}</math>  <i>Capped at 100% of pay; future formula increases, if any, will not be passed along to retirees</i></li> </ul>
<b>Temporary Benefit</b> <i>Stops at age 62</i>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>
<b>BackDROP</b> <i>Lump-sum payment at retirement in addition to reduced monthly pension</i>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>
<b>Benefit Payment Options</b> <i>Determines whether or not a benefit will be paid to anyone after member's death</i>	<ul style="list-style-type: none"> <li>• Life Income Annuity</li> <li>• Joint &amp; 50% Survivor</li> <li>• Joint &amp; 100% Survivor</li> <li>• Life Income with 120 Guaranteed Payments</li> <li>• Life Income with 180 Guaranteed Payments</li> </ul>
<b>Cost-of-Living Adjustment (COLA)</b> <i>Helps offset effects of inflation increasing the cost of goods and services</i>	<ul style="list-style-type: none"> <li>• Benefit adjustment based on increase in pay for an active member</li> </ul>
<b>In-Service COLA</b> <i>Service beyond age 65</i>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>

## Comparison of Plans for Statewide Elected Officials

June 30, 2020

Benefit Provisions	MSEP (Closed Plan)	MSEP 2000
<b>Membership</b> <i>Members elected to state office</i>	<ul style="list-style-type: none"> <li>Employed prior to July 1, 2000 and vested in the MSEP</li> </ul>	<ul style="list-style-type: none"> <li>First employed on or after July 1, 2000, but prior to January 1, 2011</li> <li>Left state employment prior to becoming vested and returned to employment on or after July 1, 2000</li> </ul>
<b>Member Contributions</b>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Vesting</b> <i>Eligible for future pension</i>	<ul style="list-style-type: none"> <li>4 years (1 term)</li> </ul>	<ul style="list-style-type: none"> <li>4 years (1 term)</li> </ul>
<b>Service Purchases</b>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>
<b>Service Transfers</b>	<ul style="list-style-type: none"> <li>May transfer state service to other positions covered by MOSERS under 104.800</li> </ul>	<ul style="list-style-type: none"> <li>May transfer service under 104.1090 from other systems with written agreements to transfer required funds</li> </ul>
<b>Death Prior to Retirement</b>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of rate of compensation. <i>Payable the month following the member's death</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of rate of compensation. <i>Payable the month following the member's death</i></li> </ul>
<b>Early Retirement</b> <i>Eligible for reduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Age 55 + 10 years of service <i>Base benefit reduced ½ of 1% (.005) for each month age is younger than normal retirement</i></li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>
<b>Normal Retirement</b> <i>Eligible for unreduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Age 65 + 4 years of service or</li> <li>Age 60 + 15 years of service or</li> <li>Rule of 80 – (at least age 50) Age + years of service = 80 or more</li> </ul>	<ul style="list-style-type: none"> <li>Age 55 + 4 years of service or</li> <li>Rule of 80 – (at least age 50) Age + years of service = 80 or more <i>Inactive-vested members ineligible for Rule of 80</i></li> </ul>
<b>Base Benefit</b> <i>Payable for life</i>	<ul style="list-style-type: none"> <li>Less than 12 years of service FAP x .016 x Service</li> <li>12+ years of service Monthly Statutory Comp. x .50 <i>Future formula increases, if any, may be passed along to retirees</i></li> </ul>	<ul style="list-style-type: none"> <li>(Active Pay ÷ 24) x Service <i>Capped at 12 years of service or 50% of pay; future formula increases, if any, will not be passed along to retirees.</i></li> </ul>
<b>Temporary Benefit</b> <i>Stops at age 62</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>
<b>BackDROP</b> <i>Lump-sum payment at retirement in addition to reduced monthly pension</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>
<b>Benefit Payment Options</b> <i>Determines whether or not a benefit will be paid to anyone after member's death</i>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Unreduced Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 60 Guaranteed Payments</li> <li>Life Income with 120 Guaranteed Payments</li> </ul>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 120 Guaranteed Payments</li> <li>Life Income with 180 Guaranteed Payments</li> </ul>
<b>Cost-of-Living Adjustment (COLA)</b> <i>Helps offset effects of inflation increasing the cost of goods and services</i>	<ul style="list-style-type: none"> <li><b>Sworn in before Aug. 28, 1997</b> Receive 4-5% each year until reaching 65% COLA cap. After reaching cap, the rate is based on 80% of the percentage increase in the average CPI (0-5%)</li> <li><b>Sworn in on/after Aug. 28, 1997</b> Based on 80% of the percentage increase in the average CPI (0-5%)</li> <li><b>12+ years of service</b> In addition to applicable COLA above, benefit will be recalculated for increases in statutory compensation for highest position held.</li> </ul>	<ul style="list-style-type: none"> <li>Benefit adjustment based on increase in pay for an active member</li> </ul>
<b>In-Service COLA</b> <i>Service beyond age 65</i>	<ul style="list-style-type: none"> <li>Applicable COLA rate (if eligible)</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>

## Comparison of Plans for Statewide Elected Officials (continued)

June 30, 2020

Benefit Provisions	MSEP 2011
<b>Membership</b> <i>Members elected to state office</i>	<ul style="list-style-type: none"> <li>• First employed on or after January 1, 2011, or</li> <li>• Returned to employment after electing the buyout option in fiscal year 2018</li> </ul>
<b>Member Contributions</b>	<ul style="list-style-type: none"> <li>• 4% of pay</li> </ul>
<b>Vesting</b> <i>Eligible for future pension</i>	<ul style="list-style-type: none"> <li>• 4 years (1 term)</li> </ul>
<b>Service Purchases</b>	<ul style="list-style-type: none"> <li>• May purchase qualifying public sector service at full actuarial cost</li> </ul>
<b>Service Transfers</b>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>
<b>Death Prior to Retirement</b>	<ul style="list-style-type: none"> <li>• <b>Nonduty-related death</b> (<i>vested members</i>)                      Survivor benefit paid using joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.  <i>Payable the month following the member's death; for inactive-vested, payable when member would have reached normal retirement eligibility</i></li> <li>• <b>Duty-related death</b> (<i>no min. service requirement</i>)                      Survivor benefit to eligible spouse or children no less than 50% of current pay.  <i>Payable the month following the member's death</i></li> </ul>
<b>Early Retirement</b> <i>Eligible to receive reduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>
<b>Normal Retirement</b> <i>Eligible to receive unreduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>• Age 62 + 4 years of service or</li> <li>• Rule of 90 – (at least age 55)                      Age + years of service = 90 or more at time of termination  <i>Inactive-vested members ineligible for Rule of 90</i></li> </ul>
<b>Base Benefit</b> <i>Payable for life</i>	<ul style="list-style-type: none"> <li>• <math>(\text{Active Pay} \div 24) \times \text{Service}</math>  <i>Capped at 12 years of service or 50% of pay; future formula increases, if any, will not be passed along to retirees</i></li> </ul>
<b>Temporary Benefit</b> <i>Stops at age 62</i>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>
<b>BackDROP</b> <i>Lump-sum payment at retirement in addition to reduced monthly pension</i>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>
<b>Benefit Payment Options</b> <i>Determines whether or not a benefit will be paid to anyone after member's death</i>	<ul style="list-style-type: none"> <li>• Life Income Annuity</li> <li>• Joint &amp; 50% Survivor</li> <li>• Joint &amp; 100% Survivor</li> <li>• Life Income with 120 Guaranteed Payments</li> <li>• Life Income with 180 Guaranteed Payments</li> </ul>
<b>Cost-of-Living Adjustment (COLA)</b> <i>Helps offset effects of inflation increasing the cost of goods and services</i>	<ul style="list-style-type: none"> <li>• Benefit adjustment based on increase in pay for an active member</li> </ul>
<b>In-Service COLA</b> <i>Service beyond age 65</i>	<ul style="list-style-type: none"> <li>• Not available</li> </ul>

## Comparison of Plans for Judges

June 30, 2020

Benefit Provisions	Judicial Plan (Closed Plan)	Judicial Plan 2011
<b>Membership</b>	<ul style="list-style-type: none"> <li>Must be a judge or commissioner of the supreme court or the court of appeals; a judge of any circuit court, probate court, magistrate court, court of common pleas, court of criminal corrections; a justice of the peace, or a commissioner or deputy commissioner of the probate division of the circuit court appointed after February 29, 1972, in a first class county having a charter form of government in a city not withing a county; a commissioner of the juvenile division of the circuit court appointed pursuant to Section 211.023, RSMo; a commissioner of the drug court; or a commissioner of any family court.</li> </ul>	<ul style="list-style-type: none"> <li>Must be a judge or commissioner of the supreme court or court of appeals, judge of any circuit, probate, or magistrate court, court of common pleas, court of criminal corrections, justice of the peace, or commissioner or deputy commissioner of the circuit court; commissioner of the juvenile division of the circuit court appointed pursuant to Section 211.023, RSMo; a commissioner of the drug court; or commissioner of any family court appointed or elected as a judge and employed in a benefit-eligible position as a judge for the first time on or after January 1, 2011</li> </ul>
<b>Member Contributions</b>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>4% of pay</li> </ul>
<b>Vesting</b> <i>Eligible for future pension</i>	<ul style="list-style-type: none"> <li>Automatic the day you become a member</li> </ul>	<ul style="list-style-type: none"> <li>Automatic the day you become a member</li> </ul>
<b>Service Purchases</b>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>	<ul style="list-style-type: none"> <li>May purchase qualifying public sector service at full actuarial cost</li> </ul>
<b>Service Transfers</b>	<ul style="list-style-type: none"> <li>May transfer state service to other positions covered by MOSERS under 104.800</li> </ul>	<ul style="list-style-type: none"> <li>May transfer state service to other positions covered by MOSERS under 104.800</li> </ul>
<b>Death Prior to Retirement</b>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> Survivor benefit paid to eligible spouse equal to 50% of benefit the member would have received based on service to age 70. <i>Payable the month following the member's death</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> Survivor benefit paid to eligible spouse equal to 50% of benefit the member would have received based on service to age 70. <i>Payable the month following the member's death</i></li> </ul>
<b>Early Retirement</b> <i>Eligible for reduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li><b>Less than 12 years of service</b> <i>Age 62</i></li> <li><b>Less than 15 years of service</b> <i>Age 60</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Less than 12 years of service</b> <i>Age 67</i></li> <li><b>Less than 20 years of service</b> <i>Age 62</i></li> </ul>
<b>Normal Retirement</b> <i>Eligible for unreduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Age 62 + 12 years of service</li> <li>Age 60 + 15 years of service</li> <li>Age 55 + 20 years of service</li> </ul>	<ul style="list-style-type: none"> <li>Age 67 + 12 years of service</li> <li>Age 62 + 20 years of service</li> </ul>
<b>Base Benefit</b> <i>Payable for life</i>	<ul style="list-style-type: none"> <li><math>Monthly\ pay \times .50 = Monthly\ Base\ Benefit</math></li> </ul>	<ul style="list-style-type: none"> <li><math>Monthly\ pay \times .50 = Monthly\ Base\ Benefit</math></li> </ul>
<b>Temporary Benefit</b> <i>Stops at age 62</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>
<b>BackDROP</b> <i>Lump-sum payment at retirement in addition to reduced monthly pension</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>
<b>Benefit Payment Options</b> <i>Determines whether or not a benefit will be paid to anyone after member's death</i>	<ul style="list-style-type: none"> <li>Life Income Annuity (if unmarried)</li> <li>Automatic Unreduced Joint &amp; 50% Survivor</li> </ul>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 120 Guaranteed Payments</li> <li>Life Income with 180 Guaranteed Payments</li> </ul>
<b>Cost-of-Living Adjustment (COLA)</b> <i>Helps offset effects of inflation increasing the cost of goods and services</i>	<ul style="list-style-type: none"> <li><b>Sworn in before Aug. 28, 1997</b> Receive 4-5% each year until reaching 65% COLA cap. After reaching cap, the rate is based on 80% of the percentage increase in the average CPI (0-5%)</li> <li><b>Sworn in on/after Aug. 28, 1997</b> Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>	<ul style="list-style-type: none"> <li>Based on 80% of the percentage increase in the CPI (0-5%)</li> </ul>
<b>In-Service COLA</b> <i>Service beyond age 60</i>	<ul style="list-style-type: none"> <li>Judges who work beyond normal retirement have increased benefits upon retirement.</li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>

## Comparison of Plans for Uniformed Members of the Water Patrol\*

June 30, 2020

Benefit Provisions	MSEP (Closed Plan)	MSEP 2000
<b>Membership</b> <i>Eligible members hired in permanent positions which normally requires at least 1,040 hours of work per year</i>	<ul style="list-style-type: none"> <li>Employed prior to July 1, 2000 and vested in the MSEP</li> </ul>	<ul style="list-style-type: none"> <li>Employed for the first time on or after July 1, 2000, but prior to January 1, 2011</li> <li>Left state employment prior to becoming vested and returned to employment on or after July 1, 2000</li> </ul>
<b>Member Contributions</b>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
<b>Vesting</b> <i>Eligible for future pension</i>	<ul style="list-style-type: none"> <li>5 years</li> </ul>	<ul style="list-style-type: none"> <li>5 years</li> </ul>
<b>Service Purchases</b>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>	<ul style="list-style-type: none"> <li>May purchase up to 4 years of active-duty military service or qualifying public sector service at subsidized rate; may also purchase public sector service at full actuarial cost</li> </ul>
<b>Service Transfers</b>	<ul style="list-style-type: none"> <li>May transfer state service to other positions covered by MOSERS under 104.800</li> </ul>	<ul style="list-style-type: none"> <li>May transfer state service to other positions covered by MOSERS under 104.1090</li> </ul>
<b>Death Prior to Retirement</b>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of average compensation. <i>Payable the month following the member's death</i></li> </ul>	<ul style="list-style-type: none"> <li><b>Nonduty-related death</b> (<i>vested members</i>) Survivor benefit paid using joint &amp; 100% survivor option to eligible spouse or 80% of life income annuity paid to eligible children.</li> <li><b>Duty-related death</b> (<i>no min. service requirement</i>) Survivor benefit to eligible spouse or children no less than 50% of average compensation. <i>Payable the month following the member's death</i></li> </ul>
<b>Early Retirement</b> <i>Eligible for reduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>Age 57 + 10 years of service</li> </ul>
<b>Normal Retirement</b> <i>Eligible for unreduced pension benefit once age and service requirements are met</i>	<ul style="list-style-type: none"> <li>Age 55 + 5 years of service</li> <li>Rule of 80 – (at least age 48) Age + years of service = 80 or more <i>Age 50 if first became eligible prior to Aug. 28, 2003</i></li> </ul>	<ul style="list-style-type: none"> <li>Age 62 + 5 years of service</li> <li>Rule of 80 – (at least age 48) Age + years of service = 80 or more <i>Age 50 if first became eligible prior to Aug. 28, 2003</i> <i>Inactive-vested members ineligible for Rule of 80</i></li> </ul>
<b>Base Benefit</b> <i>Payable for life</i>	<ul style="list-style-type: none"> <li>.016 x FAP x Service increased by 33% <i>Future formula increases, if any, may be passed along to retirees</i></li> </ul>	<ul style="list-style-type: none"> <li>.017 x FAP x Service <i>Future formula increases, if any, will not be passed along to retirees</i></li> </ul>
<b>Temporary Benefit</b> <i>Stops at age 62</i>	<ul style="list-style-type: none"> <li>Not available</li> </ul>	<ul style="list-style-type: none"> <li>.008 x FAP x Service <i>Available to members retiring under Rule of 80</i></li> </ul>
<b>BackDROP</b> <i>Lump-sum payment at retirement in addition to reduced monthly pension</i>	<ul style="list-style-type: none"> <li>Must work at least 2 years beyond normal retirement eligibility to be eligible; elect BackDROP at retirement (if applicable)</li> </ul>	<ul style="list-style-type: none"> <li>Must work at least 2 year beyond normal retirement eligibility to be eligible; elect BackDROP at retirement (if applicable)</li> </ul>
<b>Benefit Payment Options</b> <i>Determines whether or not a benefit will be paid to anyone after member's death</i>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Unreduced Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 60 Guaranteed Payments</li> <li>Life Income with 120 Guaranteed Payments</li> </ul>	<ul style="list-style-type: none"> <li>Life Income Annuity</li> <li>Joint &amp; 50% Survivor</li> <li>Joint &amp; 100% Survivor</li> <li>Life Income with 120 Guaranteed Payments</li> <li>Life Income with 180 Guaranteed Payments</li> </ul>
<b>Cost-of-Living Adjustment (COLA)</b> <i>Helps offset effects of inflation increasing the cost of goods and services</i>	<ul style="list-style-type: none"> <li><b>Employed before Aug. 28, 1997</b> Receive 4-5% each year until reaching 65% COLA cap. After reaching cap, the rate is based on 80% of the percentage increase in the average CPI (0-5%)</li> <li><b>Employed on/after Aug. 28, 1997</b> Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>	<ul style="list-style-type: none"> <li>Based on 80% of the percentage increase in the average CPI (0-5%)</li> </ul>
<b>In-Service COLA</b> <i>Service beyond age 65</i>	<ul style="list-style-type: none"> <li>COLA given for service beyond age 65 <i>COLA provisions determined by employment date</i></li> </ul>	<ul style="list-style-type: none"> <li>Not available</li> </ul>

\* Eligibility for membership in the MSEP and MSEP 2000 is closed for uniformed members of the water patrol. Employees hired on or after January 1, 2011, are members of the Missouri Department of Transportation and Patrol Employees' Retirement System (MPERS).

## Life Insurance Plans

June 30, 2020

MOSERS administers basic and optional term life insurance plans for eligible state employees and retirees.

### Active Members\*

Plan Provision	Requirement
<ul style="list-style-type: none"> <li>• <b>Basic life insurance</b> An amount equal to one times annual salary (with a minimum of \$15,000) while actively employed.</li> </ul>	<ul style="list-style-type: none"> <li>• Actively employed in an eligible state position resulting in membership in MOSERS.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Duty-related death benefit</b> Duty-related death benefit equivalent to two times the annual salary the member was earning at the time of death in addition to the basic life insurance amount of one times annual salary.</li> </ul>	<ul style="list-style-type: none"> <li>• Actively employed in an eligible state position resulting in membership in MOSERS.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Optional life insurance</b> Additional life insurance may be purchased in a flat amount in multiples of \$10,000 not to exceed the maximum (lesser of six times annual salary or \$800,000). Spouse coverage may be purchased in multiples of \$10,000 up to a maximum of \$100,000; however, the amount of spouse coverage cannot exceed the amount of optional life insurance coverage the member has purchased. Coverage for children is available in a flat amount of \$10,000 per child.</li> </ul>	<ul style="list-style-type: none"> <li>• Actively employed in an eligible state position resulting in membership in MOSERS.</li> </ul>

\* *Terminating employees may convert coverage up to the amount they had as an active employee at individual rates. Not available to employees of the Department of Conservation or colleges and universities except Lincoln University and State Technical College of Missouri.*

### Retired Members

Plan Provision	Requirement
<ul style="list-style-type: none"> <li>• <b>Basic life insurance at retirement</b> \$5,000 basic life insurance during retirement.</li> </ul>	<ul style="list-style-type: none"> <li>• Must retire directly from active employment.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Optional life insurance at retirement (MSEP)</b> An employee may retain up to the lesser of \$60,000 or the amount of optional life insurance coverage held at the time of retirement at the group rate and may convert any remaining basic and optional life insurance at individual rates. Coverage for spouse ends at member's retirement and may be converted at individual rates.</li> </ul>	<ul style="list-style-type: none"> <li>• Must retire directly from active employment.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Optional life insurance at retirement (MSEP 2000)</b> Under "Rule of 80", an employee may retain the current amount of coverage prior to retirement until age 62 at which time coverage is reduced to \$60,000, and may convert any remaining basic and optional life insurance at individual rates. Coverage for spouse ends at member's retirement and may be converted at individual rates.</li> </ul>	<ul style="list-style-type: none"> <li>• Must retire directly from active employment.</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Optional life insurance at retirement (MSEP 2011)</b> Under "Rule of 90", an employee may retain the current amount of coverage prior to retirement until age 62 at which time coverage is reduced to \$60,000, and may convert any remaining basic and optional life insurance at individual rates. Coverage for spouse ends at member's retirement and may be converted at individual rates.</li> </ul>	<ul style="list-style-type: none"> <li>• Must retire directly from active employment.</li> </ul>

*Note: Insured employees may port their life insurance and their dependent life insurance when their coverage has been reduced or terminated if they meet certain qualifications.*



## Long-Term Disability (LTD) Insurance Plans

June 30, 2020

MOSERS administers the LTD Plan for eligible state employees who become disabled during active employment.

### Active Members

Classification	Requirement
<ul style="list-style-type: none"> <li>• <b>General state employees, legislators, and elected state officials</b> Members of MOSERS in a position normally requiring 1,040 hours of work a year are covered under the LTD plan, unless they work for a state agency which has its own LTD plan.</li> </ul>	<ul style="list-style-type: none"> <li>• Eligible participants receive 60% of their compensation minus primary Social Security, Workers' Compensation, and employer provided income. Benefits commence after 90 days of disability or when sick leave benefits are no longer payable, whichever occurs last. LTD benefits cease upon the earliest of (i) when disability ends, (ii) when the member is first eligible for normal retirement benefits or is receiving early retirement benefits, (iii) upon a member's death, (iv) the date benefits become payable under any other group long-term disability insurance plan, or (v) the date the member fails to provide proof of continued disability and entitlement to LTD benefits.</li> </ul>
<ul style="list-style-type: none"> <li>• Water patrol</li> </ul>	<ul style="list-style-type: none"> <li>• Uniformed members who are eligible for statutory occupational disability receive benefits equal to 50% of compensation with no offset for Social Security at the time of disability. For nonoccupational disabilities, eligible participants receive the same benefit as general employees.</li> </ul>
<ul style="list-style-type: none"> <li>• Judges</li> </ul>	<ul style="list-style-type: none"> <li>• In addition to the disability benefits provided to general employees, judges may receive benefits under the state constitution. Participants may receive 50% of salary until the current term expires.</li> </ul>



## Changes in Plan Provisions

The 2020 legislative session came to an end on May 15, 2020. The bills passed by the Missouri General Assembly and signed by Governor Parson that affect MOSERS include:

**House Bill 1467 & House Bill 1934** - Modifies provision regarding various pension systems. As it relates to MOSERS, the proposal:

- **Divorce After Retirement** - Allows a retired MOSERS member divorced on or after January 1, 2021, to remove their former spouse as a survivor beneficiary upon divorce and receive an adjusted annuity amount. To do so, the divorce decree must provide for the sole retention by the MOSERS member of all rights in the annuity and that the former spouse is not entitled to any survivor benefit under MOSERS. Members who divorced prior to January 1, 2021, may remove their former spouse as a survivor and receive an adjusted annuity if the parties obtain an amended or modified dissolution decree, after January 1, 2021, which provides the MOSERS member all rights in the annuity and the former spouse is immediately removed as the survivor beneficiary.
- **Judicial Buyout** - Allows an active judge to elect to receive a lump-sum payment equal to no less than sixty percent of the present value of the member's vested MSEP benefit. Any active judge who elects to take the lump-sum payment will forfeit all creditable service and future rights to receive retirement annuity benefits from MSEP and is not eligible to receive any long-term disability benefits.

**House Bill 2005** - The General Assembly authorized the appropriation of \$476.8 million to MOSERS for fiscal year 2021. This appropriation fully funds the Board certified employer contribution rate. This amount was generated from the employer contribution rates calculated in the annual actuarial valuations performed by MOSERS' retained actuarial professionals and certified by MOSERS Board of Trustees at its September 2019 Board meeting.

## Actuarial Present Values

June 30, 2020

### MSEP

Actuarial Present Value June 30, 2020	Actuarial Present Value	Portion Covered by Future Normal Cost Contributions	Actuarial Accrued Liabilities
<b>Active members</b>			
Service retirement benefits based on services rendered before and likely to be rendered after valuation date	\$ 5,340,667,720	\$ 756,900,070	\$ 4,583,767,650
Disability benefits likely to be paid to present active members who become totally and permanently disabled	163,130,395	104,867,857	58,262,538
Survivor benefits likely to be paid to widows/widowers and children of present active members who die before retiring	63,683,397	18,041,815	45,641,582
Separation benefits likely to be paid to present active members	225,729,919	164,638,374	61,091,545
<b>Active member totals</b>	<b>\$ 5,793,211,431</b>	<b>\$ 1,044,448,116</b>	4,748,763,315
<b>Members on leave of absence &amp; LTD</b>			
Service retirement benefits based on service rendered before the valuation date			89,435,430
<b>Inactive-vested members</b>			
Service retirement benefits based on service rendered before the valuation date			690,065,179
<b>Retired lives</b>			8,701,290,590
<b>Pending refunds</b>			28,854,374
<b>Total actuarial accrued liability</b>			14,258,408,888
<b>Less: actuarial value of assets</b>			8,711,224,151
<b>Unfunded actuarial accrued liability</b>			<b>\$ 5,547,184,737</b>
<b>Funded ratio</b>			61.1%

## Actuarial Present Values

June 30, 2020

### Judicial Plan

Actuarial Present Value June 30, 2020	Actuarial Present Value	Portion Covered by Future Normal Cost Contributions	Actuarial Accrued Liabilities
<b>Active members</b>			
Service retirement benefits based on services rendered before and likely to be rendered after valuation date	\$ 247,658,089	\$ 76,019,676	\$ 171,638,413
Disability benefits likely to be paid to present active members who become totally and permanently disabled	1,531,536	1,338,531	193,005
Survivor benefits likely to be paid to widows/widowers and children of present active members who die before retiring	5,300,341	3,520,374	1,779,967
Separation benefits likely to be paid to present active members	9,517,097	9,386,218	130,879
<b>Active member totals</b>	<u>\$ 264,007,063</u>	<u>\$ 90,264,799</u>	173,742,264
<b>Inactive-vested members</b>			15,090,164
<b>Retired lives</b>			436,014,583
<b>Total actuarial accrued liability</b>			624,847,011
<b>Less: actuarial value of assets</b>			180,713,310
<b>Unfunded actuarial accrued liability</b>			<u>\$ 444,133,701</u>
<b>Funded ratio</b>			28.9%