

**Appendix  
to the Standards for Actuarial Work**

**ACTUARIAL ASSUMPTIONS**

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Effective Date  
July 1, 2018

## Minnesota State Retirement System (MSRS) Plans

### MSRS General Employees Retirement Plan

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Inflation	2.5% per year
Payroll growth	3.25% per year
Salary increases Merit & seniority pay increases	Reported salary at valuation date increased according to the rate table, to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for members with less than one year of service.

Year	Salary Increase	Merit & Seniority Pay Increase
1	13.75%	10.50%
2	11.25	8.00
3	6.00	2.75
4	5.25	2.00
5	5.00	1.75
6	4.90	1.65
7	4.75	1.50
8	4.50	1.25
9	4.25	1.00
10	4.00	0.75
11	3.95	0.70
12	3.90	0.65
13	3.85	0.60
14	3.80	0.55
15	3.75	0.50
16	3.70	0.45
17	3.65	0.40
18	3.60	0.35
19	3.55	0.30
20	3.50	0.25
21	3.45	0.20
22	3.40	0.15
23	3.35	0.10
24	3.30	0.05
25	3.25	0.00
26+	3.25	0.00

Mortality rates	
Active <i>healthy pre-retirement</i>	Males: RP-2014 White Collar Male Employee Generational Mortality Table, set forward 1 year, MP-2015 improvement scale from a base year of 2014. Females: RP-2014 White Collar Female Employee Generational Mortality Table, MP-2015 improvement scale from a base year of 2014.
Retiree <i>healthy post-retirement</i>	Males: RP-2014 White Collar Male Healthy Annuitant Generational Mortality Table, set forward 2 years, MP-2015 improvement scale from a base year of 2014. Females: RP-2014 White Collar Female Healthy Annuitant Generational Mortality Table, MP-2015 improvement scale from a base year of 2014.
Disabled	Males: RP-2014 Disabled Mortality Table, set forward 2 years, MP-2015 improvement scale from a base year of 2014. Females: RP-2014 Disabled Mortality Table, set forward 4 years, MP-2015 improvement scale from a base year of 2014.

## Minnesota State Retirement System (MSRS) Plans

### MSRS Correctional State Employees Retirement Plan

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Inflation	2.5% per year
Payroll growth	3.25% per year
Salary increases Merit & seniority pay increases	Reported salary at valuation date increased according to the rate table, to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for members with less than one year of service.

Year	Salary Increase	Merit & Seniority Pay Increases
1	12.25%	9.00%
2	8.75	5.50
3	5.75	2.50
4	5.25	2.00
5	5.00	1.75
6	4.75	1.50
7	4.75	1.50
8	4.75	1.50
9	4.75	1.50
10	4.75	1.50
11	4.75	1.50
12	4.50	1.25
13	4.25	1.00
14	4.25	1.00
15	4.00	0.75
16	4.00	0.75
17	4.00	0.75
18	3.75	0.50
19	3.75	0.50
20	3.75	0.50
21	3.50	0.25
22	3.50	0.25
23	3.50	0.25
24	3.25	0.00
25+	3.25	0.00

#### Mortality rates

Active <i>healthy pre-retirement</i>	RP-2014 employee generational mortality table projected with mortality improvement Scale MP-2015 from a base year of 2006, white collar adjustment.
Retiree <i>healthy post-retirement</i>	RP-2014 annuitant generational mortality table projected with mortality improvement Scale MP-2015 from a base year of 2006, white collar adjustment, set forward two years for males and set forward one year for females.
Disabled	RP-2014 disabled mortality table projected with mortality improvement Scale MP-2015 from a base year of 2006.

## **Minnesota State Retirement System (MSRS) Plans**

### MSRS Legislators Retirement Plan

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Inflation	2.5% per year
Payroll growth	N/A
Salary increases	5% per year
Merit & seniority pay increases	N/A
Mortality rates	
Active <i>healthy pre-retirement</i>	<p>Males: RP-2014 White Collar Male Employee Generational Mortality Table, set forward 1 year, MP-2015 improvement scale from a base year of 2014.</p> <p>Females: RP-2014 White Collar Female Employee Generational Mortality Table, MP-2015 improvement scale from a base year of 2014.</p>
Retiree <i>healthy post-retirement</i>	<p>Males: RP-2014 White Collar Male Healthy Annuitant Generational Mortality Table, set forward 2 years, MP-2015 improvement scale from a base year of 2014.</p> <p>Females: RP-2014 White Collar Female Healthy Annuitant Generational Mortality Table, MP-2015 improvement scale from a base year of 2014.</p>

### MSRS Judges Retirement Plan

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Inflation	2.5% per year
Payroll growth	2.5% per year
Salary increases	2.5% per year
Merit & seniority pay increases	None
Mortality rates	
Active <i>healthy pre-retirement</i>	RP-2014 employee generational mortality table projected with mortality improvement Scale MP-2015 from a base year of 2006, white collar adjustment.
Retiree <i>healthy post-retirement</i>	RP-2014 annuitant generational mortality table projected with mortality improvement Scale MP-2015 from a base year of 2006, white collar adjustment.
Disabled	RP-2014 annuitant generational mortality table projected with mortality improvement Scale MP-2015 from a base year of 2006, white collar adjustment.

## Minnesota State Retirement System (MSRS) Plans

### MSRS State Patrol Retirement Plan

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Inflation 2.5% per year

Payroll growth 3.25% per year

Salary increases Merit & seniority pay increases Reported salary at valuation date increased according to the rate table, to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for members with less than one year of service.

Year	Salary Increase	Merit & Seniority Pay Increase
1	15.25%	12.00%
2	9.25	6.00
3	7.75	4.50
4	7.25	4.00
5	6.75	3.50
6	6.25	3.00
7	6.00	2.75
8	5.75	2.50
9	5.50	2.25
10	5.25	2.00
11	5.00	1.75
12	4.75	1.50
13	4.50	1.25
14	4.25	1.00
15	4.25	1.00
16	4.25	1.00
17	4.00	0.75
18	4.00	0.75
19	3.75	0.50
20	3.75	0.50
21	3.65	0.40
22	3.55	0.30
23	3.45	0.20
24	3.35	0.10
25+	3.25	0.00

#### Mortality rates

Active *healthy pre-retirement* RP-2014 employee generational mortality table projected with mortality improvement Scale MP-2015 from a base year of 2006, white collar adjustment.

Retiree *healthy post-retirement* RP-2014 annuitant generational mortality table projected with mortality improvement Scale MP-2015 from a base year of 2006, white collar adjustment.

Disabled RP-2014 annuitant generational mortality table projected with mortality improvement Scale MP-2015 from a base year of 2006, white collar adjustment.

## Public Employees Retirement Association (PERA) Plans

### PERA General Employees Retirement Plan

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Inflation	2.5% per year
Payroll growth	3.25% per year
Salary increases Merit & seniority pay increases	Reported salary at valuation date increased according to the rate table, to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for members with less than one year of service earned during the year.

Year	Salary Increase	Merit & Seniority Pay Increase
1	11.25%	8.00%
2	8.25	5.00
3	6.75	3.50
4	5.75	2.50
5	5.25	2.00
6	4.95	1.70
7	4.65	1.40
8	4.55	1.30
9	4.45	1.20
10	4.25	1.00
11	4.00	0.75
12	3.85	0.60
13	3.75	0.50
14	3.65	0.40
15	3.65	0.40
16	3.60	0.35
17	3.55	0.30
18	3.50	0.25
19	3.50	0.25
20	3.50	0.25
21	3.50	0.25
22	3.45	0.20
23	3.35	0.10
24	3.35	0.10
25	3.35	0.10
26+	3.25	0.00

Mortality rates	
Active <i>healthy pre-retirement</i>	RP-2014 Employee Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2017, from a base year of 2014. Rates are set forward one year for males and set back one year for females.
Retiree <i>healthy post-retirement</i>	RP-2014 Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2017, from a base year of 2014. Rates are set forward two years for males. Female rates are multiplied by a factor of 0.90.
Disabled	RP-2014 Disabled Mortality Table, adjusted for mortality improvements using projection scale MP-2017, from a base year of 2014. Rates are set forward one year for males and set forward six years for females.

## **Public Employees Retirement Association (PERA) Plans**

### PERA Public Employees Police and Fire Retirement Plan

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Inflation	2.5% per year
Payroll growth	3.25% per year
Salary increases Merit & seniority pay increases	Reported salary at valuation date increased according to the rate table, to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for members with less than one year of service earned during the year.

<u>Year</u>	<u>Salary Increase</u>	<u>Merit &amp; Seniority Pay Increase</u>
1	12.25%	9.00%
2	10.50	7.25
3	8.75	5.50
4	7.75	4.50
5	6.25	3.00
6	5.75	2.50
7	5.25	2.00
8	5.00	1.75
9	4.75	1.50
10	4.50	1.25
11	4.25	1.00
12	4.15	0.90
13	4.05	0.80
14	3.95	0.70
15	3.85	0.60
16	3.75	0.50
17	3.75	0.50
18	3.75	0.50
19	3.75	0.50
20	3.75	0.50
21	3.65	0.40
22	3.55	0.30
23	3.45	0.20
24	3.35	0.10
25+	3.25	0.00

Mortality rates	
Active <i>healthy pre- retirement</i>	RP-2014 employee generational mortality table projected with mortality improvement scale MP-2017, from a base year of 2006.
Retiree <i>healthy post- retirement</i>	RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2017 from a base year of 2006. Male rates are adjusted by a factor of 0.96.
Disabled	RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2017 from a base year of 2006. Male rates are adjusted by a factor of 0.96.

## Public Employees Retirement Association (PERA) Plans

### PERA Local Government Correctional Service Retirement Plan

Inflation	2.5% per year
Payroll growth	3.25% per year
Salary increases	Reported salary at valuation date increased according to the rate table, to current fiscal year and annually for each future year. Prior fiscal year salary is annualized for members with less than one year of service earned during the year.

Age	Salary Increase	Age	Salary Increase	Age	Salary Increase
20	8.50%	35	5.75%	50	4.50%
21	8.25%	36	5.50%	51	4.50%
22	8.00%	37	5.50%	52	4.50%
23	7.75%	38	5.50%	53	4.50%
24	7.50%	39	5.25%	54	4.50%
25	7.25%	40	5.25%	55	4.25%
26	7.00%	41	5.25%	56	4.25%
27	6.75%	42	5.00%	57	4.00%
28	6.50%	43	4.75%	58	3.75%
29	6.25%	44	4.75%	59	3.75%
30	6.25%	45	4.50%	60	3.75%
31	6.00%	46	4.50%	61	3.75%
32	6.00%	47	4.50%	62	3.75%
33	6.00%	48	4.50%	63	3.75%
34	5.75%	49	4.50%	64	3.75%
				65+	3.50%

Mortality rates	
Active <i>healthy pre-retirement</i>	RP-2014 employee generational mortality table projected with mortality improvement scale MP-2017, from a base year of 2006.
Retiree <i>healthy post-retirement</i>	RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2017 from a base year of 2006. Male rates are adjusted by a factor of 0.96.
Disabled	RP-2014 annuitant generational mortality table projected with mortality improvement scale MP-2017 from a base year of 2006. Male rates are adjusted by a factor of 0.96.



**Teachers Retirement Association (TRA)**

Inflation 2.5% per year

Payroll growth 3% per year

Salary increases Reported Salary for prior fiscal year with new hires annualized, is increased according to the salary increase table shown in the rate table for current fiscal year and annually for each future year. See table of sample rates.

Service	Select Salary Increase Before July 1, 2028	Ultimate Salary Increase After June 30, 2028
1	8.85%	9.25%
2	7.10	7.50
3	6.60	7.00
4	6.35	6.75
5	6.75	6.75
6	6.20	6.60
7	6.05	6.45
8	5.90	6.30
9	5.75	6.15
10	5.60	6.00
11	5.35	5.75
12	5.10	5.50
13	4.85	5.25
14	4.60	5.00
15	4.35	4.75
16	4.10	4.50
17	3.85	4.25
18	3.65	4.05
19	3.55	3.95
20	3.45	3.85
21	3.35	3.75
22	3.25	3.65
23	3.15	3.55
24	3.05	3.45
25	2.95	3.35
26+	2.85	3.25

Mortality rates

Active *healthy pre-retirement* Males: RP-2014 White Collar Employee Generational Mortality Table, set back 6 years. Generational projection uses the MP-2015 improvement scale.  
 Females: RP-2014 White Collar Employee Generational Mortality Table, set back 5 years. Generational projection uses the MP-2015 improvement scale.

Retiree *healthy post-retirement* Males: RP-2014 White Collar Annuitant Table, set back 3 years, with further adjustments of the rates. Generational projection uses the MP-2015 improvement scale.  
 Females: RP-2014 White Collar Annuitant Table, set back 3 years, with further adjustments of the rates. Generational projection uses the MP-2015 improvement scale.

Disabled RP-2014 Disabled Retiree Mortality, without adjustment.

**St. Paul Teachers Retirement Fund Association (SPTRFA)**

Inflation 2.5% per year

Payroll growth 3% per year

Salary increases	Year	Salary Increase	Merit & Seniority Pay Increases
Merit & seniority pay increases	1	9.00%	6.00%
	2	8.00	5.00
	3	7.00	4.00
	4	6.80	3.80
	5	6.60	3.60
	6	6.40	3.40
	7	6.20	3.20
	8	6.00	3.00
	9	5.75	2.75
	10	5.50	2.50
	11	5.25	2.25
	12	5.00	2.00
	13	4.75	1.75
	14	4.50	1.50
	15	4.25	1.25
	16	4.00	1.00
	17	3.90	0.90
	18	3.80	0.80
	19	3.70	0.70
	20	3.60	0.60
	21	3.40	0.40
	22	3.20	0.20
	23+	3.00	0.00

Mortality rates

Active *healthy pre-retirement*  
 Males: RP-2014 Male Employee Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2017 from 2006.  
 Females: RP-2014 Female Employee Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2017 from 2006.

Retiree *healthy post-retirement*  
 Males: RP-2014 Male Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2017 from 2006.  
 Females: RP-2014 Female Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2017 from 2006. Rates are set back two years.

Disabled  
 Males: RP-2014 Male Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2017 from 2006.  
 Females: RP-2014 Female Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2017 from 2006. Rates are set back two years.