State of Minnesota \ LEGISLATIVE COMMISSION ON PENSIONS AND RETIREMENT

2017 Proposed Actuarial Assumption Changes
to Take Effect July 1, 2017
MSRS, PERA, TRA, and SPTRFA plans

Combined Service Annuity Load Factors									
	MSRS-General	MSRS-Correctional	State Patrol	Legis-lators	PERA-General	PERA-Correctional	PERA-P&F	TRA	SPTRFA
Active members									
Current	1.2%	0%	0%	0%	0.8%	0%	0%	1.4%	7% pre-89 2% post-89
Proposed	0%	0%	0%	0%	0.0%	0%	0%	0%	0% (one rate)
Vested terminated members									
Current	40%	30%	30%	30%	60%	30%	30%	4%	30%
Proposed	4%	17%	13%	0%	15%	35%	33%	7%	20%
Non-vested terminated members									
Current	40%	30%	30%	30%	60%	30%	30%	4%	30%
Proposed	5%	6%	0%	0%	3%	1%	2%	9%	9%

Note: A load factor is the percentage adjustment to be applied to the liability determined by the actuary for each member status to reflect the cumulative impact of the CSA provisions.

2017 Proposed Actuarial Assumption Changes

Economic Assumptions		
Merit and Seniority Increase		
	MSRS-Correctional	**State Patrol**	**PERA-P&F**

	MSRS-Correctional	State Patrol	PERA-P&F
Current	Service-based scale, sample rates: Year 1 = 2.25% Year 5 = 1.65% Year 10 = .90% Year 15 = .40% Year 20 = 0% Years 25+ = 0%	Service-based scale, sample rates: Year 1 = 4.25% Year 5 = 2.75% Year 10 = 1.80% Year 15 = 1.05% Year 20 = .30% Years 25+ = .25%	Service-based scale, sample rates: Year 1 = 9.25% Year 5 = 2.75% Year 10 = 1.55% Year 15 = 1.05% Year 20 = 1.05% Years 25+ = .75%
Proposed	Service-based scale, sample rates: Year 1 = 9% Year 5 = 1.75% Year 10 = 1.5% Year 15 = .75% Year 20 = .50% Years 25+ = 0%	Service-based scale, sample rates: Year 1 = 12% Year 5 = 3.5% Year 10 = 2% Year 15 = 1% Year 20 = .5% Years 25+ = 0%	Service-based scale, sample rates: Year 1 = 9% Year 5 = 3% Year 10 = 1.25% Year 15 = .6% Year 20 = .5% Years 25+ = 0%

2017 Proposed Actuarial Assumption Changes

Demographic Assumptions								

Normal Retirement Rates

	MSRS Correctional		State Patrol		Judges		PERA-P&F	
Age	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
55	55%	45%	65%	65%	--	--	30%	25%
56	12%	20%	50%	50%	--	--	20%	22.5%
57	12%	15%	30%	30%	--	--	20%	22.5%
58	10%	15%	20%	20%	--	--	20%	22.5%
59	10%	15%	20%	30%	--	--	20%	20%
60	10%	15%	*	100%	--	--	25%	22.5%
61	10%	15%		--	--	--	25%	25%
62	30%	25%		--	--	--	35%	30%
63	30%	25%		--	--	--	35%	30%
64	30%	25%		--	--	--	35%	30%
65	50%	30%		--	25%	20%	50%	50%
66	50%	30%		--	20%	23%	50%	50%
67	50%	25%		--	10%	23%	50%	50%
68	50%	25%		--	30%	20%	50%	50%
69	50%	40%		--	10%	20%	50%	50%
70+	*	100%		--	*	100%	*	100%

Early Retirement Rates

Age	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
50	5%	5%	7%	5%	--	--	13%	10%
51	3%	3%	6%	5%	--	--	10%	7%
52	3%	3%	6%	5%	--	--	10%	7%
53	3%	3%	6%	5%	--	--	10%	10%
54	5%	5%	3%	5%	--	--	13%	10%
55	--	--	--	--	--	--	--	--
60	--	--	--	--	0%	0%	--	--
61	--	--	--	--	0%	0%	--	--
62	--	--	--	--	8%	8%	--	--
63	--	--	--	--	5%	8%	--	--
64	--	--	--	--	8%	5%	--	--

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* LCPR's Actuarial Standards require the plans' actuaries to assume that members attaining the highest assumed retirement age will retire one year from the valuation date.

2017 Proposed Actuarial Assumption Changes

Demographic Assumptions		
Withdrawal from Employment (termination)		
	MSRS Correctional	**State Patrol**	**PERA-P&F**

	MSRS Correctional	State Patrol	PERA-P&F
Current	Select rates, first 3 years: <u>Males</u> <u>Females</u> 1st year 20% 20% 2nd year 15% 15% 3rd year 8% 8% Ultimate rates: Based on age, beginning at 6.2% (males)/7.6% (females) at age 25, gradually declining to 0% at age 50.	Select rates, first 3 years: <u>Males & Females</u> 1st year 5% 2nd year 2% 3rd year 2% Ultimate rates: Based on age, beginning at 0.94% at age 25, gradually declining to 0% at age 50.	Select rates, first 3 years: <u>Males & Females</u> 1st year 8% 2nd year 5% 3rd year 3.5% Ultimate rates: Based on age, beginning at 4 % under age 25, gradually declining to 0% at age 50.
Proposed	Select rates, first 3 years: <u>Males</u> <u>Females</u> 1st year 10% 12% 2nd year 10% 12% 3rd year 10% 12% Ultimate rates: Based on age, beginning at 7.2% (males)/10% (females) at age 25, gradually declining to 0% at age 50.	Select rates, first 3 years: <u>Males & Females</u> 1st year 2.5% 2nd year 2% 3rd year 1.5% Ultimate rates: No changes proposed	Select rates, first 3 years: <u>Males & Females</u> 1st year 3% 2nd year 3% 3rd year 3% Ultimate rates: Based on age, beginning at 3.0 % under age 25, gradually declining to 0% at age 50.

2017 Proposed Actuarial Assumption Changes

Demographic Assumptions

Disability rates

	MSRS Correctional	State Patrol	Judges Plan
Current	Age-based table, sample rates: Age 20-24 = .06% Age 25-29 = .09% Age 30-34 = .12% Age 35-39 = .18% Age 40-44 = .29% Age 45-49 = .49% Age 50-54 = .86%	Age-based table, sample rates: Age 20-24 = .04% Age 25-29 = .06% Age 30-34 = .07% Age 35-39 = .11% Age 40-44 = .18% Age 45-49 = .30% Age 50-54 = .52%	Age-based table, sample rates: Age <35 = .00% Age 35-39 = .01% Age 40-44 = .02% Age 45-49 = .04% Age 50-54 = .09% Age 55-59 = .22% Age 60-64 = .55%
Proposed	Age-based table, sample rates: Age 20-24 = .06% Age 25-29 = .09% Age 30-34 = .12% Age 35-39 = .18% Age 40-44 = .26% Age 45-49 = .42% Age 50-54 = .69%	Age-based table, sample rates: Age 20-24 = .04% Age 25-29 = .06% Age 30-34 = .07% Age 35-39 = .14% Age 40-44 = .23% Age 45-49 = .38% Age 50-54 = .54%	Age-based table, sample rates: Age <35 = .00% Age 35-39 = .01% Age 40-44 = .02% Age 45-49 = .04% Age 50-54 = .07% Age 55-59 = .19% Age 60-64 = .45%

2017 Proposed Actuarial Assumption Changes

Demographic Assumptions			
Mortality			
	MSRS-Correctional	**State Patrol**	**Judges**	**Legislators**
Retiree mortality (Healthy post-retirement)			
Current	RP-2000 annuitant generational mortality table, projected with mortality improvement scale AA, white collar adjustment, set forward one year for males and set back one year for females.	RP-2000 annuitant generational mortality table, projected with mortality improvement scale AA, white collar adjustment, set back two years for males and set forward one year for females.	RP-2000 annuitant generational mortality table projected with mortality improvement scale AA, white collar adjustment, set back one year for males and set back two years for females.	RP-2000 annuitant generational mortality table projected with mortality improvement scale AA, white collar adjustment.
Proposed: Males	RP-2014 Male Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015. Male rates set forward two years.	RP-2014 Male Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015.	RP-2014 Male Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015.	RP-2014 annuitant generational mortality table projected with mortality improvement Scale MP-2015 from a base year of 2014, white collar adjustment, set forward two years.
Proposed: Females	RP-2014 Female Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015. Female rates set forward one year.	RP-2014 Female Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015.	RP-2014 Female Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015.	RP-2014 annuitant generational mortality table projected with mortality improvement Scale MP-2015 from a base year of 2014, white collar adjustment, no age adjustment.

2017 Proposed Actuarial Assumption Changes

Demographic Assumptions				
Mortality				
	MSRS-Correctional	**State Patrol**	**Judges**	**Legislators**
Disabled mortality				
Current	RP-2000 disabled mortality table.	RP-2000 annuitant generational mortality table, projected with mortality improvement scale AA, white collar adjustment, set back two years for males and set forward one year for females.	RP-2000 annuitant generational mortality table projected with mortality improvement scale AA, white collar adjustment, set back one year for males and set back two years for females	N/A
Proposed: Males	RP-2014 Male Disabled Mortality Table, adjusted for mortality improvements using projection scale MP-2015.	RP-2014 Male Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015.	RP-2014 Male Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015.	RP-2014 disabled mortality table projected with mortality improvement Scale MP-2015 from a base year of 2014, set forward two years.
Proposed: Females	RP-2014 Female Disabled Mortality Table, adjusted for mortality improvements using projection scale MP-2015.	RP-2014 Female Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015.	RP-2014 Female Healthy Annuitant Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015.	RP-2014 disabled mortality table projected with mortality improvement Scale MP-2015 from a base year of 2014, set forward four years.

2017 Proposed Actuarial Assumption Changes

Demographic Assumptions				
Mortality				
	MSRS-Correctional	**State Patrol**	**Judges**	**Legislators**
Active member mortality (Healthy pre-retirement)				
Current	RP-2000 employee generational mortality table, projected with mortality improvement scale AA, white collar adjustment.	RP-2000 employee generational mortality table, projected with mortality improvement scale AA, white collar adjustment.	RP-2000 employee generational mortality table projected using mortality improvement scale AA, white collar adjustment.	RP-2000 employee generational mortality table projected with mortality improvement scale AA, white collar adjustment, set forward three years for males and set back one year for females.
Proposed: Males	RP-2014 Male Employee Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015.	RP-2014 Male Employee Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015.	RP-2014 Male Employee Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015.	RP-2014 employee generational mortality table projected with mortality improvement Scale MP-2015 from a base year of 2014, white collar adjustment, set forward one year.
Proposed: Females	RP-2014 Female Employee Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015.	RP-2014 Female Employee Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015.	RP-2014 Female Employee Mortality Table, adjusted for white collar and mortality improvements using projection scale MP-2015.	RP-2014 employee generational mortality table projected with mortality improvement Scale MP-2015 from a base year of 2014, white collar adjustment, no age adjustment.

2017 Proposed Actuarial Assumption Changes

Demographic Assumptions		
Mortality		
	PERA-General	**PERA-P&F and PERA-Correctional**
Retiree mortality (Healthy post-retirement)		
Current	Males: RP-2014 White Collar Male Healthy Annuitant Generational Mortality Table, set forward 2 years, MP-2015 improvement scale. Females: RP-2014 White Collar Female Healthy Annuitant Generational Mortality Table, multiplied by 0.9 at all ages, MP-2015 improvement scale.	RP-2000 annuitant generational mortality table projected with mortality improvement scale AA, white collar adjustment.
Proposed	Males: RP-2014 White Collar Male Healthy Annuitant Generational Mortality Table, set forward 2 years, MP-2016 improvement scale. Females: RP-2014 White Collar Female Healthy Annuitant Generational Mortality Table, multiplied by 0.9 at all ages, MP-2016 improvement scale.	Males: RP-2014 Male Healthy Annuitant Mortality Table, adjusted for mortality improvements using projection scale MP-2016. Rates are adjusted by a factor of 0.96. Females: RP-2014 Female Healthy Annuitant Mortality Table, adjusted for mortality improvements using projection scale MP-2016.
Disabled mortality		
Current	Males: RP-2014 Male Disabled Retiree Generational Mortality Table, set forward 1 year, MP-2015 improvement scale. Females: RP-2014 Female Disabled Retiree Generational Mortality Table, set forward 6 years, MP-2015 Improvement scale.	PERA-P&F: RP-2000 healthy annuitant mortality table, white collar adjustment, set forward eight years for males and females. PERA-Correctional: RP-2000 disabled mortality table.
Proposed	Males: RP-2014 Male Disabled Retiree Generational Mortality Table, set forward 1 year, MP-2016 improvement scale. Females: RP-2014 Female Disabled Retiree Generational Mortality Table, set forward 6 years, MP-2016 Improvement scale.	Males: RP-2014 Male Healthy Annuitant Mortality Table, adjusted for mortality improvements using projection scale MP-2016. Rates adjusted by a factor of 0.96. Females: RP-2014 Female Healthy Annuitant Mortality Table, adjusted for mortality improvements using projection scale MP-2016.

2017 Proposed Actuarial Assumption Changes

Demographic Assumptions		
Mortality		
	PERA-General	**PERA-P&F and PERA-Correctional**
Active member mortality (Healthy pre-retirement)		
Current	<u>Males</u>: RP-2014 White Collar Male Employee Generational Mortality Table, set forward 1 year, MP-2015 improvement scale. <u>Females</u>: RP-2014 White Collar Female Employee Generational Mortality Table, set back 1 year, MP-2015 improvement scale.	RP-2000 employee generational mortality table projected with mortality improvement scale AA, white collar adjustment. <u>P&F</u>: set back two years for males and females.
Proposed	<u>Males</u>: RP-2014 White Collar Male Employee Generational Mortality Table, set forward 1 year, MP-2016 improvement scale. <u>Females</u>: RP-2014 White Collar Female Employee Generational Mortality Table, set back 1 year, MP-2016 improvement scale.	<u>Males</u>: RP-2014 Male Employee Mortality Table, adjusted for mortality improvements using projection scale MP-2016. <u>Females</u>: RP-2014 Female Employee Mortality Table, adjusted for mortality improvements using projection scale MP-2016.

2017 Proposed Actuarial Assumption Changes

Miscellaneous and Technical Assumptions		
MSRS-Correctional	**State Patrol**	**PERA-P&F**
Marital status		
Current		
Males 85% are married Females 85% are married	No changes proposed	Males 85% are married Females 65% are married
Proposed		
Males 75% are married Females 75% are married	--	Males 85% are married Females 60% are married
Age of Survivor		
Current		
Males are assumed to be 3 years older than females	No changes proposed	For males: wives are assumed to be three years younger For females: husbands are assumed to be four years older
Proposed		
Males are assumed to be 2 years older than females	--	Males are assumed to be 2 years older than females
Form of payment (optional annuity forms)		

Form of payment (optional annuity forms) — Current

	Males	Females		Males	Females		Males	Females
Single Life	40%	50%	Single Life	25%	40%	Single Life	15%	60%
15-yr certain & life	0%	0%	15-yr certain & life	0%	0%	15-yr certain & life	10%	5%
50% J&S	10%	10%	50% J&S	15%	25%	50% J&S	20%	15%
75% J&S	10%	10%	75% J&S	25%	30%	75% J&S	20%	5%
100% J&S	40%	30%	100% J&S	35%	5%	100% J&S	35%	15%

Form of payment (optional annuity forms) — Proposed

	Males	Females		Males	Females		Males	Females
Single Life	20%	45%	Single Life	15%	15%	Single Life	15%	30%
15-yr certain & life	0%	0%	15-yr certain & life	0%	0%	15-yr certain & life	10%	20%
50% J&S	15%	10%	50% J&S	20%	20%	50% J&S	20%	20%
75% J&S	15%	10%	75% J&S	10%	10%	75% J&S	20%	10%
100% J&S	50%	35%	100% J&S	55%	55%	100% J&S	35%	20%