Segal

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February 15, 2022

Via Email

Ms. Beth Pearce
Vermont Retirement Systems
Office of the State Treasurer
109 State Street
Montpelier, Vermont 05609

Re: Impact of Creating New VSERS "Group G" Based on Employees Identified in Universes 1 and 2 – UPDATE #3

Dear Beth:

As requested, we have calculated the impact of moving certain Vermont State Employees' Retirement System (VSERS) Group F active members, as outlined in "Universes 1 and 2" (described in detail below), to a newly created "Group G" benefit and eligibility structure. Using these Universes, we modeled the various costs associated with different retirement eligibility provisions and benefit multipliers as outlined below. The results of the June 30, 2021, actuarial valuation, projected forward on an open group basis, are used as a baseline.

This analysis updates a prior analysis dated February 4, 2022, where not all current members of each Universe would move from Group F to Group G. In this update, we have not "grandfathered" unreduced retirement eligibility of Group F for current members in each Universe. In this case, current members of Universes 1 and 2 that would yield a decrease in actuarial accrued liability under the Group G structure relative to Group F are assumed to remain in Group F. Additionally, the maximum retirement benefit for all Group G new hires in each Universe, respectively, was set to 50% of Average Final Compensation (AFC). For comparative purposes, we projected Group G new hires using two different approaches: excluding the "grandfathered" unreduced retirement eligibility of Group F and including the "grandfathered" unreduced retirement eligibility of Group F.

We have calculated the impact that these changes would have on current active members (as defined in Universe 1 and Universe 2) as of the June 30, 2021, valuation date, as well as all expected new hires in each Universe, respectively.

Universes of Members – The following Universes of active members define two possible cohorts that would make up Group G:

Universe	Description of Members Included
Uni-1	All Department of Corrections (only) active members in Group F who are currently covered by the provision allowing unreduced retirement at age 55 with 20 years of service.
Uni-2	All Department of Corrections active members plus other active members mentioned in 3 V.S.A. § 459(c)(2)(A) in Group F who are currently covered by the provision allowing unreduced retirement at age 55 with 20 years of service. This includes "*Group F members who have 20 years of service as facility employees of the Department of Corrections, as Department of Corrections employees who provide direct security and treatment services to offenders under supervision in the community, or as Woodside facility employees, or as Vermont State Hospital employees, or as employees of its successor in interest, who provide direct patient care*".

Universe data and assumptions:

- **Identification of members in each universe**
  - The "Retirement DOC DHM employees early retirement" data file provided by the Vermont Office of the State Treasurer on October 28, 2021 was used to identify all members to include in each Universe, respectively.
  - This file identified 674 members in Uni-1 and an additional 122 members to include in Uni-2 (for a total of 796 in Uni-2).
- **Additional assumptions**
  - Only current Group F members in Universes 1 and 2 that would yield an increase in actuarial accrued liability would be reclassified from Group F to Group G plan provisions.
  - All new entrants replacing members of Universes 1 and 2 that terminate employment in the projection model would be valued with Group G plan provisions going forward.

Group G Plan Provisions – The following plan provisions are assumed to apply to members that would comprise Group G. In some instances, multiple provisions are under consideration. If unspecified below, provisions would remain the same as under current Group F[1].

- **Eligibility for unreduced retirement benefits[2]:** Either age 55 with 20 years of service or age 57 with 20 years of service.
- **Definition of AFC:** Average annual compensation during the highest three consecutive years.
- **Benefit multiplier:** Either 1.80%, 2.00%, 2.20%, or 2.50% of AFC times service.
- **Maximum benefit for new hires:** A maximum benefit amount of 50% of AFC for all new hires in Group G.

[1] Including a 60% (or 50%, if hired prior to July 1, 2008) of AFC maximum benefit.

[2] For comparative purposes, Group G new entrants were also projected by adding either age 55 with 20 years of service or age 57 with 20 years of service to the "Grandfathered" eligibility requirements for unreduced retirement benefits of age 65 or age plus service greater than or equal to 87.

Group G assumptions:

- Existing Universe 1 and Universe 2 members that are assumed to be covered by Group G will accrue service under the Group G benefit multiplier beginning July 1, 2022[3]. Service earned through June 30, 2022, will be applied at the Group F multiplier of 1.67%.
- Members identified in Universes 1 and 2 are valued using Group F actuarial assumptions related to termination of employment from active status and post-retirement mortality, with the exception of the retirement assumption. For retirement from active status, Group G-specific retirement rates were developed based on professional judgement to reflect anticipated changes in retirement patterns resulting from the change in eligibility for unreduced retirement benefits and increased benefit multiplier. A schedule of retirement rates is included as an appendix.
- No changes in member contribution rates were modeled in this analysis. Any increase in member contribution rate results in a small, offsetting increase in actuarial liability due to the increased value related to refunds of contributions.
- Group G payroll is assumed to grow at the VSERS payroll growth assumption of 3.5%.

Plan Change Scenarios – The following combinations of plan design elements for Group G members were prepared:

Scenario	Uni-1	Uni-2	55/20	57/20	Prospective	All Service	Multiplier
Uni-1 + PC-1	✓		✓		✓		1.8%
Uni-1 + PC-2	✓		✓		✓		2.0%
Uni-1 + PC-3	✓		✓		✓		2.2%
Uni-1 + PC-4	✓		✓		✓		2.5%
Uni-1 + PC-5	✓			✓	✓		1.8%
Uni-1 + PC-6	✓			✓	✓		2.0%
Uni-1 + PC-7	✓			✓	✓		2.2%
Uni-1 + PC-8	✓			✓	✓		2.5%
Uni-2 + PC-1		✓	✓		✓		1.8%
Uni-2 + PC-2		✓	✓		✓		2.0%
Uni-2 + PC-3		✓	✓		✓		2.2%
Uni-2 + PC-4		✓	✓		✓		2.5%
Uni-2 + PC-5		✓		✓	✓		1.8%
Uni-2 + PC-6		✓		✓	✓		2.0%
Uni-2 + PC-7		✓		✓	✓		2.2%
Uni-2 + PC-8		✓		✓	✓		2.5%
Uni-1 + PC-9	✓		✓			✓	2.5%
Uni-2 + PC-9		✓	✓			✓	2.5%

[3] Except for two scenarios modeled to illustrate the additional cost associated with all past service valued using the Group G benefit multiplier of 2.5%.

Plan Change Scenario assumptions:

- Retirement rates
  - Rates of retirement for PC-1 through PC-8 are show in the appendix. PC-9 relies on the same retirement rates as PC-4.
- Members in each universe assumed to remain in Group F structure
  - Current members in Universes 1 and 2 that would yield a decrease in actuarial accrued liability based on the parameters of this analysis are assumed to remain in Group F. The table below illustrates the number of Universe 1 and Universe 2 members assumed to remain in Group F or switch to Group G under each Plan Change Scenario:

	Universe 1			Universe 2		
Scenario	**Group F**	**Group G**	**Total**	**Group F**	**Group G**	**Total**
PC-1	111	563	674	159	637	796
PC-2	115	559	674	165	631	796
PC-3	117	557	674	166	630	796
PC-4	117	557	674	166	630	796
PC-5	122	552	674	170	626	796
PC-6	116	558	674	165	631	796
PC-7	109	565	674	157	639	796
PC-8	111	563	674	160	636	796
PC-9	102	572	674	150	646	796

Methodology

This plan change where existing active Group F members could become members of a newly created Group G benefit structure will generally increase the actuarial accrued liability, even under scenarios where an increased benefit multiplier is applied to future service only. This is a byproduct of the Entry Age Normal actuarial cost method, where a member's projected retirement benefit is discounted to their age at plan entry and spread over their expected working lifetime as a level percentage of salary. To approximate the ongoing increase in cost attributable to the value of Group G benefits relative to Group F, we have calculated the increase in the present value of benefits divided by the present value of future salary for existing Group F members moving to Group G and for Group G new entrants projected over the next 20 years[4].

[4] Present value of benefits and present value of future salary for each cohort of new entrants were discounted back to June 30, 2021, at the valuation discount rate assumption of 7.00%.

Using the above-mentioned values for the existing members assumed to move to Group G and 20 years of future new entrants, we derived a composite additional member contribution rate that can be applied to all Group G members as a proxy for separate additional rates applied to each group (i.e., existing Group F members that move to Group G and future new entrants into Group G) resulting in a similar impact to the System.

With the exception of rates of retirement, actuarial assumptions related to decrement from active status and post-retirement mortality used to model Group G are the same as those used to value Group F. Group G members are a subset of the Group F data that was used to develop actuarial assumptions for valuation purposes. If experience related to active turnover, incidence of disability, and pre/post-retirement morality for the Group G subset is materially different than the larger Group F, actual costs may be different than those illustrated in this analysis.

Disclosure

This analysis was prepared in accordance with generally accepted actuarial principles and practices at the request of the Office of the State Treasurer. Please refer to our June 30, 2021, Actuarial Valuation and Review reports for VSERS for the data, assumptions, and plan of benefits underlying these calculations.

The measurements shown in these actuarial calculations may not be applicable for other purposes. Future actuarial measurements may differ significantly from the current measurements presented in this report 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 (such as the end of an amortization period); and changes in plan provisions or applicable law.

Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Deterministic cost projections are based on a proprietary forecasting model. Our Actuarial Technology and Systems unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and user control. The client team programs the assumptions and the plan provisions, validates the models, and reviews test lives and results, under the supervision of the responsible actuary.

The actuarial calculations were directed under my supervision. I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of my knowledge, the information supplied in this report is complete and accurate. In my opinion, each assumption is reasonable (taking into account the experience of the plan and reasonable expectations) and the assumptions, in combination, offer my best estimate of anticipated experience under the plan.

Please let me know if you have any questions or need any additional information.

Sincerely,

Matthew A. Strom, FSA, MAAA, EA
Senior Vice President and Actuary

cc: Kathleen Riley, Segal

Results

VSERS Group G – Scenario Descriptions

Universe	Description of Members Included
Uni-1	All Department of Corrections (only) active members in Group F who are currently covered by the provision allowing unreduced retirement at age 55 with 20 years of service.
Uni-2	All Department of Corrections active members plus other active members mentioned in 3 V.S.A. § 459(c)(2)(A) in Group F who are currently covered by the provision allowing unreduced retirement at age 55 with 20 years of service. This includes "*Group F members who have 20 years of service as facility employees of the Department of Corrections, as Department of Corrections employees who provide direct security and treatment services to offenders under supervision in the community, or as Woodside facility employees, or as Vermont State Hospital employees, or as employees of its successor in interest, who provide direct patient care*".

Scenario	Uni-1	Uni-2	55/20	57/20	Prospective	All Service	Multiplier
Uni-1 + PC-1	✓		✓		✓		1.8%
Uni-1 + PC-2	✓		✓		✓		2.0%
Uni-1 + PC-3	✓		✓		✓		2.2%
Uni-1 + PC-4	✓		✓		✓		2.5%
Uni-1 + PC-5	✓			✓	✓		1.8%
Uni-1 + PC-6	✓			✓	✓		2.0%
Uni-1 + PC-7	✓			✓	✓		2.2%
Uni-1 + PC-8	✓			✓	✓		2.5%
Uni-2 + PC-1		✓	✓		✓		1.8%
Uni-2 + PC-2		✓	✓		✓		2.0%
Uni-2 + PC-3		✓	✓		✓		2.2%
Uni-2 + PC-4		✓	✓		✓		2.5%
Uni-2 + PC-5		✓		✓	✓		1.8%
Uni-2 + PC-6		✓		✓	✓		2.0%
Uni-2 + PC-7		✓		✓	✓		2.2%
Uni-2 + PC-8		✓		✓	✓		2.5%
Uni-1 + PC-9	✓		✓			✓	2.5%
Uni-2 + PC-9		✓	✓			✓	2.5%

VSERS – Universe 1 and Universe 2 – Scenarios PC-1 to PC-9 – Excludes "Grandfathered" Eligibilities for Group G New Entrants

	Existing Group G Members* (Excludes "Grandfathered" Eligibilities)			Group G New Entrants** (Excludes "Grandfathered" Eligibilities)			Composite		
2021 Valuation ($ in millions)	Increase in Present Value of Benefits (PVB)	Present Value of Future Salary (PVFS)	Additional Contribution Rate (PVB/PVFS)	Increase in Present Value of Benefits (PVB)	Present Value of Future Salary (PVFS)	Additional Contribution Rate (PVB/PVFS)	Increase in Present Value of Benefits (PVB)	Present Value of Future Salary (PVFS)	Additional Contribution Rate (PVB/PVFS)
Uni-1 + PC-1	$18.4	$454.3	4.04%	$0.7	$273.1	0.26%	$19.1	$727.4	2.62%
Uni-1 + PC-2	23.3	441.6	5.29%	2.2	273.4	0.79%	25.5	714.9	3.57%
Uni-1 + PC-3	27.2	433.8	6.27%	3.2	273.6	1.17%	30.4	707.3	4.29%
Uni-1 + PC-4	32.3	424.0	7.61%	4.4	273.8	1.60%	36.6	697.9	5.25%
Uni-1 + PC-5	14.6	445.1	3.28%	-0.1	273.0	0.00%	14.5	718.2	2.02%
Uni-1 + PC-6	18.8	445.9	4.21%	1.1	273.3	0.42%	19.9	719.2	2.77%
Uni-1 + PC-7	21.8	443.7	4.92%	2.0	273.5	0.74%	23.9	717.2	3.33%
Uni-1 + PC-8	25.6	433.4	5.91%	3.0	273.8	1.09%	28.6	707.1	4.05%
Uni-2 + PC-1	20.3	509.7	3.98%	-0.1	347.8	0.00%	20.2	857.5	2.36%
Uni-2 + PC-2	25.9	495.2	5.23%	1.8	348.4	0.53%	27.7	843.6	3.29%
Uni-2 + PC-3	30.2	486.9	6.20%	3.2	348.8	0.93%	33.4	835.7	4.00%
Uni-2 + PC-4	35.8	476.0	7.53%	4.9	349.4	1.39%	40.7	825.4	4.93%
Uni-2 + PC-5	16.2	500.9	3.23%	-1.0	347.7	0.00%	15.2	848.6	1.79%
Uni-2 + PC-6	20.9	500.6	4.17%	0.7	348.3	0.19%	21.5	849.0	2.53%
Uni-2 + PC-7	24.3	498.1	4.88%	1.9	348.7	0.54%	26.2	846.8	3.09%
Uni-2 + PC-8	28.6	486.1	5.88%	3.2	349.3	0.92%	31.8	835.5	3.80%
Uni-1 + PC-9	37.6	432.4	8.69%	4.4	273.8	1.60%	42.0	706.2	5.94%
Uni-2 + PC-9	41.6	485.0	8.58%	4.9	349.4	1.39%	46.5	834.4	5.57%

* Existing Group G members that would yield a decrease in actuarial accrued liability under the Group G structure relative to Group F are assumed to remain in Group F.

** Based on the present value of new entrants over the next 20 years. Additionally, the maximum retirement benefit for all Group G new entrants was set to 50% of AFC.

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VSERS – Universe 1 and Universe 2 – Scenarios PC-1 to PC-9 – Includes "Grandfathered" Eligibilities for Group G New Entrants

2021 Valuation ($ in millions)	Existing Group G Members* (Excludes "Grandfathered" Eligibilities)			Group G New Entrants** (Includes "Grandfathered" Eligibilities)			Composite		
	Increase in Present Value of Benefits (PVB)	Present Value of Future Salary (PVFS)	Additional Contribution Rate (PVB/PVFS)	Increase in Present Value of Benefits (PVB)	Present Value of Future Salary (PVFS)	Additional Contribution Rate (PVB/PVFS)	Increase in Present Value of Benefits (PVB)	Present Value of Future Salary (PVFS)	Additional Contribution Rate (PVB/PVFS)
Uni-1 + PC-1	$18.4	$454.3	4.04%	$2.9	$273.0	1.06%	$21.2	$727.3	2.92%
Uni-1 + PC-2	23.3	441.6	5.29%	4.5	273.3	1.65%	27.9	714.9	3.90%
Uni-1 + PC-3	27.2	433.8	6.27%	5.7	273.5	2.10%	32.9	707.3	4.66%
Uni-1 + PC-4	32.3	424.0	7.61%	7.2	273.8	2.62%	39.4	697.8	5.65%
Uni-1 + PC-5	14.6	445.1	3.28%	2.2	273.0	0.81%	16.8	718.1	2.34%
Uni-1 + PC-6	18.8	445.9	4.21%	3.7	273.3	1.36%	22.5	719.1	3.13%
Uni-1 + PC-7	21.8	443.7	4.92%	4.8	273.4	1.77%	26.7	717.1	3.72%
Uni-1 + PC-8	25.6	433.4	5.91%	6.1	273.7	2.24%	31.8	707.1	4.49%
Uni-2 + PC-1	20.3	509.7	3.98%	3.8	347.9	1.10%	24.1	857.6	2.81%
Uni-2 + PC-2	25.9	495.2	5.23%	6.0	348.5	1.73%	31.9	843.6	3.78%
Uni-2 + PC-3	30.2	486.9	6.20%	7.7	348.9	2.22%	37.9	835.7	4.54%
Uni-2 + PC-4	35.8	476.0	7.53%	9.7	349.5	2.78%	45.5	825.4	5.52%
Uni-2 + PC-5	16.2	500.9	3.23%	3.0	347.8	0.87%	19.2	848.7	2.27%
Uni-2 + PC-6	20.9	500.6	4.17%	5.1	348.4	1.46%	26.0	849.0	3.06%
Uni-2 + PC-7	24.3	498.1	4.88%	6.7	348.8	1.92%	31.0	846.8	3.66%
Uni-2 + PC-8	28.6	486.1	5.88%	8.5	349.4	2.44%	37.1	835.5	4.44%
Uni-1 + PC-9	37.6	432.4	8.69%	7.2	273.8	2.62%	44.8	706.2	6.34%
Uni-2 + PC-9	41.6	485.0	8.58%	9.7	349.5	2.78%	51.3	834.4	6.15%

* Existing Group G members that would yield a decrease in actuarial accrued liability under the Group G structure relative to Group F are assumed to remain in Group F.

** Based on the present value of new entrants over the next 20 years. Additionally, the maximum retirement benefit for all Group G new entrants was set to 50% of AFC.

Segal

Appendix

Retirement Rates

For retirement from active status, Group G-specific retirement rates were developed based on professional judgement to reflect anticipated changes in retirement patterns resulting from the change in eligibility for unreduced retirement benefits and increased benefit multiplier. The following guidelines were used as a basis for adjusting the existing Group F retirement rates for purposes of Group G:

- Members of Universe 1 and Universe 2 would retire earlier, on average, than other members of Group F.
- A higher benefit multiplier for Group G service would tend to accelerate the pattern of retirement.
- Rates for remaining Group F members would not materially change when members of Universe 1 or Universe 2 were moved from Group F to Group G.

Rates applied to Group G under 55/20 retirement eligibility:

	Group F		Group G (1.8%)		Group G (2.0%)		Group G (2.2%)		Group G (2.5%)	
Age	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
55	5.0%	5.0%	6.5%	6.5%	9.0%	9.0%	11.0%	11.0%	15.0%	15.0%
56	5.0%	5.0%	6.5%	9.4%	9.0%	12.5%	11.0%	15.0%	15.0%	20.0%
57	5.0%	5.0%	9.4%	9.4%	12.5%	12.5%	15.0%	15.0%	20.0%	20.0%
58	5.0%	7.5%	9.4%	9.4%	12.5%	12.5%	15.0%	15.0%	20.0%	20.0%
59	7.5%	7.5%	18.0%	15.1%	23.0%	19.5%	27.0%	23.0%	35.0%	30.0%
60	7.5%	7.5%	27.3%	27.3%	31.0%	31.0%	34.0%	34.0%	40.0%	40.0%
61	15.0%	12.5%	20.5%	17.6%	25.5%	22.0%	29.5%	25.5%	37.5%	32.5%
62	25.0%	25.0%	25.1%	20.1%	29.5%	24.5%	33.0%	28.0%	40.0%	35.0%
63	17.5%	15.0%	25.9%	23.0%	31.5%	28.0%	36.0%	32.0%	45.0%	40.0%
64	20.0%	15.0%	28.8%	34.5%	35.0%	42.0%	40.0%	48.0%	50.0%	60.0%
65	22.5%	20.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
66	25.0%	30.0%								
67	25.0%	30.0%								
68	25.0%	30.0%								
69	25.0%	30.0%								
70	100.0%	100.0%								

Rates applied to Group G under 57/20 retirement eligibility:

	Group F		Group G (1.8%)		Group G (2.0%)		Group G (2.2%)		Group G (2.5%)	
Age	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
55	5.0%	5.0%								
56	5.0%	5.0%								
57	5.0%	5.0%	6.5%	8.6%	9.0%	10.5%	11.0%	12.0%	15.0%	15.0%
58	5.0%	7.5%	9.4%	10.1%	12.5%	14.5%	15.0%	18.0%	20.0%	25.0%
59	7.5%	7.5%	18.0%	15.1%	23.0%	19.5%	27.0%	23.0%	35.0%	30.0%
60	7.5%	7.5%	27.3%	27.3%	31.0%	31.0%	34.0%	34.0%	40.0%	40.0%
61	15.0%	12.5%	20.5%	17.6%	25.5%	22.0%	29.5%	25.5%	37.5%	32.5%
62	25.0%	25.0%	25.1%	20.1%	29.5%	24.5%	33.0%	28.0%	40.0%	35.0%
63	17.5%	15.0%	25.9%	23.0%	31.5%	28.0%	36.0%	32.0%	45.0%	40.0%
64	20.0%	15.0%	28.8%	34.5%	35.0%	42.0%	40.0%	48.0%	50.0%	60.0%
65	22.5%	20.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
66	25.0%	30.0%								
67	25.0%	30.0%								
68	25.0%	30.0%								
69	25.0%	30.0%								
70	100.0%	100.0%								