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STATE OF VERMONT
OFFICE OF THE STATE TREASURER

TO: Pension Benefits, Design, and Funding Task Force

FROM: Beth Pearce, Vermont State Treasurer

DATE: September 20, 2021

RE: Calculation of Impact of VSTRS Underfunding

Members of the Task Force have inquired as to the impact of past underfunding of the Vermont State Teachers' Retirement System (VSTRS) on the current funding level and the actuarially determined employer contribution (ADEC). The Treasurer's Office has prepared a *ROUGH* estimate based on historical data, beginning in 1979. While the Treasurer's Office is solely responsible for the estimates, we have reviewed the overall methodology with our consulting actuaries.

As has already been noted, significant underfunding of the VSTRS system occurred in the 1990s through 2006 and continued through 2014 for health care payments made from the VSTRS pension fund. During some of the period in the 1990s, investment returns were very high, resulting in a huge opportunity loss. Determining the ultimate loss to the system is not, however, as simple as taking the contribution shortfalls and accumulating these amounts with the applicable investment returns. This is because any loss resulting from a contribution shortfall in the prior year is included in the calculation of the ADEC for the following year. The loss due to the contribution shortfall is included in the unfunded liability and amortized over the remaining amortization period.[1] The actuarial process is iterative—the shortfall measured as of the prior valuation date is increased with interest and reduced by the amortization payment made during the year. Then the new year's loss, if any, is added and the total amount is amortized over the remaining funding period at that point. So, as you move closer to the end date established by statute to retire the unfunded liability (set at FY2038 by statute), the ADEC payment is expected to "compensate" for the funding shortfalls. The downside: lost investment opportunity and the need for higher contributions to retire the unfunded liability.

While there are several variables that impact the result, the best available estimate is that, as of June 30, 2020, the past underfunding shortfall added $353 million to the unfunded liability, although as noted below, that sum is likely understated. The estimated impact based on this shortfall adds $28 million to today's ADEC and will continue to require additional ADEC contributions through FY2038.

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[1] The ADEC has two parts: (1) The Normal Cost represents the portion of the cost of projected benefits allocated to the current plan year. The employer normal cost equals the total normal cost of the plan reduced by employee contributions and (2) Amortization payment or the annual amount needed to eliminate the unfunded liability over the plan's amortization period, i.e., the year established at which the liability will be fully paid.

This is a rough estimate. The contribution shortfalls were accumulated at the applicable valuation interest rate and reduced by a payment which approximately represents the increase in the following year's ADEC due to the accumulated contribution shortfall.

In addition, health care was paid out of a sub trust of the pension fund but was not adequately funded. While this drag on the system funding was largely corrected for FY2015, it contributed to the funding shortfall. We included the health care funding shortfall from 2001 to 2014 but were unable to identify amounts prior to 2001. The lack of inclusion of the costs all the way back to 1979 results in some understatement of the impact of underfunding.

Since FY2007, actual contributions have exceeded the ADEC, especially in FY2018 and FY2019. These surpluses reduce the impact of underfunding experienced prior to 2007.

It is reasonable to posit that ***at least*** $353 million of todays unfunded liability exists because of past shortfalls in the employer contributions and that today's employer contribution is now $28 million higher than it would be if the ADEC was appropriately funded prior years. It is also reasonable to assume that without the underfunding, the funded status of the plan would approximate 60.2% instead of the current level of 51.3%. Below is a sample of the methodology used to develop the estimate.

Sample Estimate Methodology:

Year	1979	1980		2019	2020
Rate of return assumption	6.50%	6.50%		7.50%	7.00%
Rate of Increase in amortization payment	0.05	0.05		0.03	0.03
Amortization period	22	21		19	18
Contribution shortfall	2,981,670	472,130		(13,534,136)	(744,193)
Prior year shortfall still remaining (zero in 1979 start year)	-	3,008,634	Repeat Each Year	373,181,173	357,525,091
Total	2,981,670	3,480,764		359,647,037	356,780,898
Amortization	161,673	196,396		28,062,166	27,798,116
Balance (Total *Rate of return assumption - amortization adjusted for interest)	3,008,634	3,504,335		357,525,091	353,000,966

Notes to chart:

- Over this 42 year period, the interest rate has ranged from a low of 6.5% at the beginning of the period, to a high of 8.5% for a number of years, to 7% as of June 30, 2020.
- The amortization period for the unfunded liability has been extended three times, most recently as of June 30, 2006.
- The amortization payments were calculated to increase at the rate of 5% per year prior to June 30, 2019 and at the rate of 3% per year beginning June 30, 2019