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STATE OF VERMONT
OFFICE OF THE STATE TREASURER

TO: Pension Benefits, Design, and Funding Task Force
Jill Krowinski, Speaker of the House
Becca Balint, Senate President Pro Tempore

FROM: Beth Pearce, Vermont State Treasurer

DATE: August 31, 2021

RE: Impact of Treatment of Additional Revenues on the Pension Funds' Unfunded Liabilities and ADECs

As directed by the Boards of Trustees of the Vermont State Employees' Retirement System (VSERS) and the Vermont State Teachers' Retirement System (VSTRS), the Treasurer's Office submitted a report to the General Assembly on January 15, 2021 (January 15 Report). The Report identifies options and makes recommendations on ways to lower the unfunded liabilities and actuarially determined employer contributions (ADECs) for the VSERS and VSTRS pension plans. It also provides options to begin prefunding other post-employment benefits (OPEB).

At the request of the Trustee Boards, this work continued after the submission of the January 15 Report. In response to Board discussions as well as employee group public statements specific to the use of revenues, our office undertook an additional assessment of the impact of using additional revenues (beyond the ADEC) to fund the pension systems. The Treasurer's Office maintains that some level of additional revenues should be dedicated to funding the pension systems, in concert with other structural changes.

Because this discussion is currently taking place in the Pension Design Task Force, we are providing this analysis to the Task Force for consideration. Our expectation is that the Task Force will generate recommendations of sufficient scope and dollar levels to address the underfunding of the pension systems and the growth of the ADEC. It is also our expectation that the General Assembly will act on these proposals. The General Assembly is responsible for setting the benefits, funding of the ADEC, and for the systems' overall funding policies. As such, the General Assembly is the creator and owner of the solution.

Summary

As noted in the January 15 Report, a portion of any available revenues should be directed to paying down liabilities rather than establishing new programs or expanding existing programs. Pay your debts first. One-time revenues should not be built into base operating budgets.

One-time funds can be used to reduce debt and other liabilities such as pension and retiree health care (OPEB), but recurring, dedicated revenues will have the greatest impact. Importantly, while additional revenues are an important part of the solution, that does not eliminate the need to include structural changes and risk mitigation strategies.

With these principles in mind, we analyzed the impact of a one-time increase in revenues and, alternatively, a dedicated, recurring increase in revenues for both VSERS and VSTRS. The amount, for the purpose of the hypothetical modeling exercise, is \$80 million divided equally between both systems if there is a one-time revenue increase and \$80 million per year if there is a recurring revenue increase. The Treasurer's Office makes no recommendations as to the level of dollars allocated to this effort nor the source of those funds. We understand that the Task Force is investigating various revenue options, and as such, we believe that this analysis may be useful in framing questions to the actuary, potentially lowering consulting costs to be incurred by the Task Force and therefore the taxpayers.¹

In addition to analyzing the impact of one-time and recurring increases in revenues, the Treasurer's Office also looked at alternative methods of recognizing the additional revenues in the determination of the ADEC in future years. These alternative methods of recognizing the additional revenue have a significant impact on the net savings associated with these additional payments to VSERS and VSTRS.

Key Findings and Recommendations

1. How additional revenues are treated in the determination of the ADEC i.e., the funding policy, will determine the extent of the impact on the unfunded actuarial liability (UAL) and the aggregate ADEC made to the plans. This will require discussions of funding policy decisions and tradeoffs on the timing of the reduction in the ADEC.
2. By putting more dollars into the plans through appropriation of dedicated, recurring dollars, the UAL will be retired earlier, lowering interest/opportunity costs on the balance. This results in a significant net savings for the taxpayer through the 2038 amortization period, even after adding in the additional recurring contributions. Accelerating payments to the pension plans results in NET savings.
3. Any adjustments to the funding policies must be codified in statute to ensure that the approach is consistently applied over the life of the UAL. During the 2018 Special Session, an additional \$26.2 million was appropriated to supplement the VSTRS FY20 ADEC. The plan was to exclude the \$26.2 million from the calculation of the ADEC

¹ A separate memorandum will be submitted for prefunding the OPEB plans, incorporating recent contract changes to the VSTRS plan, which lower premium costs and the unfunded liability.

until the end of the amortization schedule in FY38. The \$26.2 million contribution was expected to generate interest earnings of \$77.4 million and lower the ADEC in FY38. (This is the equivalent of Approach 1 outlined below.) While the contribution was deferred in the determination of the FY20 ADEC, the appropriation in FY21 did not defer the \$26.2 million contribution, effectively reversing course and losing out on the maximum savings. In order to maximize the interest savings, any increase in revenues should be accompanied by a statutory change that codifies the funding policy, so it is not subject to the year-to-year budget needs.

Analysis

As noted above, for the purpose of modeling the impact of additional revenues, we utilized an additional \$80 million, split evenly between VSERS and VSTRS, appropriated as one-time dollars. Approaches 1 and 2 show the impact of a one-time appropriation of \$40 million to each system in FY23. We also modeled recurring additional revenue of \$80 million per year, split evenly between VSERS and VSTRS. Approaches 3, 4, and 5 show the impact of a recurring appropriation of \$40 million to each system beginning in FY23 and extending until the UAL is retired (FY33 for VSERS and FY35 for VSTRS). The results are described below.

Approach 1 – A one-time contribution to the plan is received, the assets of the fund will increase, and the funding percentage will improve. In fact, the projected funding percentage will be higher in all future years when compared to the projected funding percentage without the additional contribution. In this approach, the \$40 million is excluded from the assets of the plan when calculating the ADEC so that the ADEC remains unchanged from the baseline until FY38.² By deferring the contribution in the determination of the ADEC to later, the value of compound interest is maximized, resulting in a reduction to the ADEC in the final year of the amortization schedule of \$107 million. The aggregate ADEC are reduced by \$67 million (\$107 million reduction in FY38 ADEC less \$40 million additional contribution in FY23).

This approach maximizes the reduction in the aggregate ADEC , but defers the impact to FY38. The ADEC will not be reduced during the period from FY23 to FY37, putting additional pressures on the operating budget but resulting in a greater reduction to the ADEC in FY38.

Approach 2 – A one-time contribution to the plan is received, the assets of the fund will increase, and the funding percentage will improve. However, unlike Approach 1, the \$40 million is included in the assets of the plan when calculating the ADEC per the amortization schedule currently set by statute. The ADEC in all future years through FY38 will be less than the baseline. As a result, the aggregate reduction in employer contributions will be less when compared to Approach 1. The State will realize those

² Since the ADEC is comprised of the normal cost and an amortization payment to pay down the unfunded liability, future budgets will need to fund the normal cost past FY38. The dollars needed for this will be significantly reduced as the UAL will have been fully paid and retired.

ADEC reductions earlier in the amortization period, providing near-term relief, but at a price. The net savings under this approach is \$31 million compared to \$67 million under Approach 1.

Using the example of \$40 million for each system, the one-time contributions will not change the date (FY38) of the current projected paydown of the entire UAL. If larger one-time contributions were made, it is possible that retirement of the UAL could be realized in an earlier fiscal year, but the amounts to accomplish this would be substantial.

Obviously a dedicated, recurring additional contribution would have a greater impact, lowering the UAL and increasing the aggregate savings compared to a one-time additional contribution. This is demonstrated in Approaches 3, 4, and 5. However, the same patterns and tradeoffs of maximizing the interest savings by delaying ADEC reductions versus earlier budgetary relief through immediate ADEC reductions would be present.

Approach 3 – A recurring additional contribution of \$40 million is made annually to each system, increasing assets and improving the funding percentage each year. As is the case in Approach 1, the additional contributions are excluded from the assets of the plan when calculating the ADEC so that the ADEC remains unchanged from the baseline, thereby maximizing the impact of compound interest and lowering the aggregate ADEC required to pay down the UAL. Under this approach and at the \$40 million annual increase in contribution, the UAL for VSERS would be paid off by FY33 instead of FY38, the date currently set by statute. The UAL for VSTRS would be completely paid by FY35.

Approach 4 – As in Approach 3, a recurring additional contribution of \$40 million is made annually to each system, increasing assets and improving the funding percentage each year. Similar to Approach 2, the additional recurring contributions are included in the assets of the plan when calculating the ADEC. The ADEC in all future years through FY38 will be less than the baseline. However, since the advantage of compound interest is diminished as compared to Approach 3, the total dollars needed to pay down the ADEC through FY38 is increased. The result is to lower the ADEC in near term but to reduce the net savings when compared to Approach 3. Neither the VSERS nor the VSTRS plan would be able to pay off the unfunded liability earlier than the scheduled date of FY38.

Approach 5 – One way to address the tradeoff in the timing of ADEC reductions is to split the difference. In Approach 5, half of the additional recurring contributions are reflected in the assets when determining the ADEC while the other half are deferred and will accrue interest until the accumulated value is enough to pay off the remaining UAL. This results in aggregate ADEC savings that are less than those in Approach 3 but more than those in Approach 4. The UAL would be paid off earlier than FY38, but not as early as in Approach 3. In the case of VSERS, the UAL would be paid off by FY35, and for VSTRS, the UAL would be paid off by FY36.

In all cases, the addition of revenue (one-time and recurring) is more than offset by total reductions to the ADEC. Spending more now will lower the overall costs to pay down the unfunded liability. Approach 3 will achieve greater savings than Approach 4 but will do so in the out years rather than in the near-term.

The actuary has presented the results of these five approaches in the accompanying letter and attachments. The chart below summarized the approaches and the key results.³

Summary of Results										
Category	VSERS					VSTRS				
Approach	1	2	3	4	5	1	2	3	4	5
Total Savings to ADEC (million)	(106.7)	(71.0)	(772.4)	(665.4)	(733.8)	(106.7)	(71.0)	(904.6)	(751.8)	(848.9)
Additional Contributions (million)	40.0	40.0	440.0	440.0	440.0	40.0	40.0	520.0	520.0	520.0
Net ADEC Savings to System (million)	(\$66.7)	(\$31.0)	(\$332.4)	(\$225.4)	(\$293.8)	(\$66.7)	(\$31.0)	(\$384.6)	(\$231.8)	(\$328.9)

I hope this information will be helpful in framing your approaches to the use of revenues as a means to reduce liabilities and the required ADECs. The Treasurer’s Office believes that a significant influx of revenue, especially recurring dollars, will have a positive impact on the plans. This should be part of an overall plan that incorporates structural changes, identifies key drivers of increased liabilities, and includes corresponding risk mitigation strategies.

Please let us know if we can be of any further assistance with respect to this important effort.

CC: Joint Fiscal Office
 Steve Howard, Executive Director, VSEA
 Jeff Fannon, Executive Director, VT-NEA

³ As noted by Segal, “for this analysis, since approach 3 will enable VSTRS and VSERS to pay off the remaining UAL by July 1, 2035 and July 1, 2033, respectively, for approaches 3, 4, and 5, we assumed that additional \$40 million contributions would be made each year, with the final additional contribution being made on January 1, 2035 and January 1, 2033, respectively, so that each approach includes the same number of additional \$40 million contributions.”



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August 24, 2021

Via Email beth.pearce@vermont.gov

Ms. Beth Pearce
Vermont Retirement Systems
Office of the State Treasurer
109 State Street, 4th Floor
Montpelier, VT 05609-6901

Re: Impact of Additional \$40 Million Contribution(s) on VSTRS and VSERS

Dear Beth:

As requested, we have calculated the impact on the Unfunded Accrued Liability (UAL) and on employer contribution requirements of adjusting the timing of the recognition of additional \$40 million contribution(s) using the following five approaches:

1. An additional one-time \$40 million contribution will be made on January 1, 2023, and this contribution will accrue interest at the assumed investment return rate (7.00%) until the accumulated value of the additional contribution is enough to pay off the remaining UAL.
2. An additional one-time \$40 million contribution will be made on January 1, 2023, and this contribution will be applied against the UAL immediately.
3. Additional recurring \$40 million contributions will be made every plan year (with the first contribution being made on January 1, 2023) and these contributions will accrue interest at the assumed investment return rate (7.00%) until the accumulated value of the additional contributions is enough to pay off the remaining UAL.
4. Additional recurring \$40 million contributions will be made every plan year (with the first contribution being made on January 1, 2023) and these contributions will be applied against the UAL immediately.
5. Additional recurring \$40 million contributions will be made every plan year (with the first contribution being made on January 1, 2023). Half of each contribution will be applied against the UAL immediately and the other half of each contribution will accrue interest at the assumed investment return rate (7.00%) until the accumulated value of the additional contributions is enough to pay off the remaining UAL.

Without any additional contributions, both VSTRS and VSERS are currently projected to pay off the entire UAL by July 1, 2038. If a one-time \$40 million additional contribution is made as in approach 1, neither System will be able to pay off the entire UAL at an earlier date, but this approach will reduce the UAL as of July 1, 2037 in each System by roughly \$106.7 million. Approach 2 will reduce the July 1, 2023 UAL by roughly \$41.4 million and reduces future employer contribution requirements over time through June 30, 2038.

If additional \$40 million contributions are made on a recurring basis each plan year, approach 3 will enable VSTRS to pay off the remaining UAL by July 1, 2035, and VSERS will be able to pay off the remaining UAL by July 1, 2033. Approach 4 will reduce the July 1, 2023 UAL by roughly \$41.4 million, and this approach reduces future employer contribution requirements on a progressive basis over time through June 30, 2038*. However, neither System will be able to pay off the remaining UAL earlier than July 1, 2038 under approach 4.

Approach 5 uses a combination of approach 3 and approach 4, where half of the additional recurring contributions are used to pay off the UAL immediately while the other half will accrue interest in a separate account until the accumulated value is enough to pay off the remaining UAL. Under approach 5, the July 1, 2023 UAL will be reduced by roughly \$20.7 million, future employer contribution requirements will be reduced over time on a progressive basis, and the remaining UAL will be paid off by July 1, 2036 for VSTRS and by July 1, 2035 for VSERS.

Pages 4-5 below display the change in the projected UAL and the change in projected employer contributions for VSTRS reflective of each of the five approaches above, and pages 6-7 below display the same information for VSERS reflective of each of the five approaches above.

This analysis was prepared in accordance with generally accepted actuarial principles and practices at the request of the Treasurer's Office to assist in administering both Systems. Please refer to our June 30, 2020, Actuarial Valuation and Review reports for the 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.

* For this analysis, since approach 3 will enable VSTRS and VSERS to pay off the remaining UAL by July 1, 2035 and July 1, 2033, respectively, for approaches 3, 4, and 5, we assumed that additional \$40 million contributions would be made each year, with the final additional contribution being made on January 1, 2035 and January 1, 2033, respectively, so that each approach includes the same number of additional \$40 million contributions.

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 such other 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,

A handwritten signature in black ink that reads "Matthew A. Strom". The signature is fluid and cursive, with a long horizontal line extending to the right.

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

cc: Kathleen Riley, Segal

VSTRS – Changes in Projected UAL

Year	Baseline Unfunded Accrued Liability (UAL) as of July 1	(1) Additional One-Time \$40M ER Contribution Applied Later	(2) Additional One-Time \$40M ER Contribution Applied Immediately	(3) Additional Recurring \$40M ER Contributions Applied Later	(4) Additional Recurring \$40M ER Contributions Applied Immediately	(5) Additional Recurring \$40M ER Contributions 1/2 Applied Immediately & 1/2 Applied Later
2021	\$1,989,023,080	-	-	-	-	-
2022	1,980,840,400	-	-	-	-	-
2023	1,960,704,067	-	(\$41,376,322)	-	(\$41,376,322)	(\$20,688,161)
2024	1,930,330,396	-	(44,272,664)	-	(85,648,986)	(42,824,493)
2025	1,889,446,442	-	(43,455,779)	-	(129,104,765)	(64,552,382)
2026	1,837,480,923	-	(42,085,321)	-	(170,982,354)	(85,491,177)
2027	1,773,788,722	-	(40,447,758)	-	(210,710,005)	(105,355,002)
2028	1,697,593,748	-	(38,553,829)	-	(247,638,407)	(123,819,203)
2029	1,608,046,241	-	(36,385,074)	-	(280,992,364)	(140,496,182)
2030	1,504,164,351	-	(33,918,417)	-	(309,834,792)	(154,917,396)
2031	1,384,897,257	-	(31,128,678)	-	(333,019,113)	(166,509,557)
2032	1,249,064,380	-	(27,988,735)	-	(349,119,718)	(174,559,859)
2033	1,095,382,355	-	(24,469,426)	-	(356,324,422)	(178,162,211)
2034	922,419,337	-	(20,539,411)	(\$97,880,093)	(352,256,599)	(176,128,299)
2035	728,614,019	-	(16,165,008)	(728,614,019)	(333,654,037)	(223,617,300)
2036	512,243,975	-	(11,310,033)	(512,243,975)	(254,339,232)	(512,243,975)
2037	271,402,403	(\$106,690,259)	(5,935,613)	(271,402,403)	(144,871,066)	(271,402,403)
2038	-	-	-	-	-	-
2039	-	-	-	-	-	-
2040	-	-	-	-	-	-

VSTRS – Changes in Projected Employer Contributions

Year	Baseline Employer Contributions (\$ for Plan Year Ending June 30	(1) Additional One-Time \$40M ER Contribution Applied Later	(2) Additional One-Time \$40M ER Contribution Applied Immediately	(3) Additional Recurring \$40M ER Contributions Applied Later	(4) Additional Recurring \$40M ER Contributions Applied Immediately	(5) Additional Recurring \$40M ER Contributions 1/2 Applied Immediately & 1/2 Applied Later
2021	\$132,141,701	-	-	-	-	-
2022	196,206,504	-	-	-	-	-
2023	206,114,337	-	-	-	-	-
2024	213,883,154	-	-	-	-	-
2025	221,528,179	-	(\$3,785,713)	-	(\$3,785,713)	(\$1,892,856)
2026	229,265,042	-	(4,265,592)	-	(8,252,127)	(4,126,063)
2027	237,114,893	-	(4,431,071)	-	(13,164,472)	(6,582,236)
2028	245,118,293	-	(4,568,092)	-	(18,559,040)	(9,279,520)
2029	253,280,773	-	(4,705,613)	-	(24,513,588)	(12,256,794)
2030	261,629,680	-	(4,846,841)	-	(31,132,162)	(15,566,081)
2031	270,161,089	-	(4,992,255)	-	(38,553,873)	(19,276,936)
2032	278,904,408	-	(5,142,024)	-	(46,970,879)	(23,485,440)
2033	287,871,593	-	(5,296,285)	-	(56,660,423)	(28,330,211)
2034	297,091,238	-	(5,455,173)	-	(68,045,541)	(34,022,770)
2035	306,579,145	-	(5,618,829)	(\$97,880,093)	(81,821,527)	(40,910,764)
2036	316,377,856	-	(5,787,393)	(259,910,257)	(99,255,403)	(106,417,983)
2037	326,577,355	-	(5,961,015)	(268,684,009)	(123,038,402)	(268,684,009)
2038	337,444,272	(\$106,690,259)	(6,139,846)	(278,080,448)	(138,072,425)	(278,080,448)
2039	60,874,259	-	-	-	-	-
2040	62,397,094	-	-	-	-	-

Total Savings to the System under each approach	(\$106,690,259)	(\$70,995,742)	(\$904,554,808)	(\$751,825,574)	(\$848,912,113)
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Total Additional Contribution(s) under each approach*	\$40,000,000	\$40,000,000	\$520,000,000	\$520,000,000	\$520,000,000
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Net Savings to the System under each approach	(\$66,690,259)	(\$30,995,742)	(\$384,554,808)	(\$231,825,574)	(\$328,912,113)
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*Under approaches 1 and 2, we assumed that one additional \$40 million contribution was made on January 1, 2023. Under approaches 3, 4, and 5, we assumed that thirteen additional \$40 million contributions were made on January 1st of each year, with the first additional contribution being made on January 1, 2023 and the last additional contribution being made on January 1, 2035.

VSERS – Changes in Projected UAL

Year	Baseline Unfunded Accrued Liability (UAL) as of July 1	(1) Additional One-Time \$40M ER Contribution Applied Later	(2) Additional One-Time \$40M ER Contribution Applied Immediately	(3) Additional Recurring \$40M ER Contributions Applied Later	(4) Additional Recurring \$40M ER Contributions Applied Immediately	(5) Additional Recurring \$40M ER Contributions 1/2 Applied Immediately & 1/2 Applied Later
2021	\$1,082,173,798	-	-	-	-	-
2022	1,086,269,595	-	-	-	-	-
2023	1,083,184,372	-	(\$41,376,322)	-	(\$41,376,322)	(\$20,688,161)
2024	1,073,048,675	-	(44,272,664)	-	(85,648,986)	(42,824,493)
2025	1,056,044,589	-	(43,455,779)	-	(129,104,765)	(64,552,382)
2026	1,031,692,064	-	(42,085,321)	-	(170,982,354)	(85,491,177)
2027	1,000,058,672	-	(40,447,758)	-	(210,710,005)	(105,355,002)
2028	960,599,599	-	(38,553,829)	-	(247,638,407)	(123,819,203)
2029	912,970,013	-	(36,385,074)	-	(280,992,364)	(140,496,182)
2030	856,655,506	-	(33,918,417)	-	(309,834,792)	(154,917,396)
2031	791,007,492	-	(31,128,678)	-	(333,019,113)	(166,509,557)
2032	715,253,758	-	(27,988,735)	(\$22,533,754)	(349,119,718)	(174,559,859)
2033	628,956,167	-	(24,469,426)	(628,956,167)	(356,324,422)	(178,162,211)
2034	531,061,677	-	(20,539,411)	(531,061,677)	(310,880,277)	(155,440,139)
2035	420,765,816	-	(16,165,008)	(420,765,816)	(248,005,051)	(420,765,816)
2036	297,015,091	-	(11,310,033)	(297,015,091)	(174,754,580)	(297,015,091)
2037	158,585,965	(\$106,690,259)	(5,935,613)	(158,585,965)	(92,386,187)	(158,585,965)
2038	-	-	-	-	-	-
2039	-	-	-	-	-	-
2040	-	-	-	-	-	-

VSERS – Changes in Projected Employer Contributions

Year	Baseline Employer Contributions (\$) for Plan Year Ending June 30	(1) Additional One-Time \$40M ER Contribution Applied Later	(2) Additional One-Time \$40M ER Contribution Applied Immediately	(3) Additional Recurring \$40M ER Contributions Applied Later	(4) Additional Recurring \$40M ER Contributions Applied Immediately	(5) Additional Recurring \$40M ER Contributions 1/2 Applied Immediately & 1/2 Applied Later
2021	\$83,876,570	-	-	-	-	-
2022	119,967,769	-	-	-	-	-
2023	125,326,520	-	-	-	-	-
2024	130,310,687	-	-	-	-	-
2025	135,108,679	-	(\$3,785,713)	-	(\$3,785,713)	(\$1,892,856)
2026	140,044,848	-	(4,265,592)	-	(8,252,127)	(4,126,063)
2027	144,873,123	-	(4,431,071)	-	(13,164,472)	(6,582,236)
2028	149,949,479	-	(4,568,092)	-	(18,559,040)	(9,279,520)
2029	155,111,823	-	(4,705,613)	-	(24,513,588)	(12,256,794)
2030	160,455,765	-	(4,846,841)	-	(31,132,162)	(15,566,081)
2031	165,986,096	-	(4,992,255)	-	(38,553,873)	(19,276,936)
2032	171,647,670	-	(5,142,024)	-	(46,970,879)	(23,485,440)
2033	177,332,095	-	(5,296,285)	(\$22,533,754)	(56,660,423)	(28,330,211)
2034	183,329,180	-	(5,455,173)	(139,407,276)	(68,045,541)	(34,022,770)
2035	189,451,612	-	(5,618,829)	(144,424,999)	(81,821,527)	(112,952,890)
2036	195,839,907	-	(5,787,393)	(149,637,341)	(87,596,790)	(149,637,341)
2037	202,573,634	-	(5,961,015)	(155,161,778)	(91,454,446)	(155,161,778)
2038	209,888,344	(\$106,690,259)	(6,139,846)	(161,239,748)	(94,868,528)	(161,239,748)
2039	49,882,010	-	-	-	-	-
2040	51,160,070	-	-	-	-	-
Total Savings to the System under each approach		(\$106,690,259)	(\$70,995,742)	(\$772,404,895)	(\$665,379,109)	(\$733,810,666)
Total Additional Contribution(s) under each approach*		\$40,000,000	\$40,000,000	\$440,000,000	\$440,000,000	\$440,000,000
Net Savings to the System under each approach		(\$66,690,259)	(\$30,995,742)	(\$332,404,895)	(\$225,379,109)	(\$293,810,666)

*Under approaches 1 and 2, we assumed that one additional \$40 million contribution was made on January 1, 2023. Under approaches 3, 4, and 5, we assumed that eleven additional \$40 million contributions were made on January 1st of each year, with the first additional contribution being made on January 1, 2023 and the last additional contribution being made on January 1, 2033.