INDEPENDENT FISCAL OFFICE

November 18, 2019

The Honorable Garth D. Everett
House State Government Committee Chairman
Pennsylvania House of Representatives
400 Irvis Office Building
Harrisburg, PA 17120

Re: Requested Actuarial Note for House Bill 1960, Printer's Number 2794

Dear Chairman Everett:

I am writing in response to your request of October 29, 2019 concerning an actuarial note for House Bill 1960, Printer's Number 2794. The bill would amend Title 24 (Education), Title 64 (Public Authorities and Quasi-public Corporations) and Title 71 (State Government) of the Pennsylvania Consolidated Statutes, and establish the Commonwealth Pension Investment Office (CPIO) to manage and invest the assets of the State Employees' Retirement System (SERS) and Public School Employees' Retirement System (PSERS).

Major provisions of the bill are as follows:

- The trustees of the CPIO would consist of nine members: three appointed by the SERS board, three appointed by the PSERS board and three appointed by the six appointees of the two boards.
- Trustees would serve four-year terms and no trustee could serve more than two full or partial terms. All trustees would be appointed from a pool of qualified candidates identified and maintained by an independent third-party consultant.
- Trustees must have demonstrated competencies in various disciplines such as economics, finance, financial management and accounting.
- Administrative expenses of the CPIO would be split between PSERS (60 percent) and SERS (40 percent) and paid from investment earnings. The administrative budget of the CPIO would be prepared and approved by the trustees after transmission to the boards of SERS and PSERS for review and comment. By November 1 of each year, a copy of the approved budget will be provided to the boards of SERS and PSERS.

- Investment expenses for internally managed funds and externally managed funds would be divided in a just and reasonable way based on the share of each investment held by SERS and PSERS.
- The CPIO would have authority to invest the retirement funds of SERS and PSERS. The office would have authority to (1) diversify investments to minimize risk, (2) hold, purchase, sell, lend, assign, transfer or dispose of securities and investments in which money in the client funds has been invested, (3) invest, reinvest, assign, reassign, sell and transfer client funds and portfolios of the client boards and (4) other necessary actions to generally invest and manage the assets of SERS and PSERS.
- The CPIO would not be subject to a number of provisions under the Administrative Code of 1929 and the Procurement Code. This would allow the office greater flexibility regarding the structure and salary level of investment staff and contractors.
- The bill establishes two restricted funds that would receive employer contributions through a certified transfer from the Department of Revenue in order to establish a dedicated funding mechanism to ensure that the full actuarially required contributions are made each year. The transfer would come from personal income tax revenues.

In general, HB 1960 seeks to combine the investment offices of SERS and PSERS in an attempt to generate cost savings and enhance net investment returns. As discussed in the Public Pension Management and Asset Investment Review Commission (PPMAIRC) Final Report (released December 13, 2018) upon which many of the bill's provisions are based, various benefits could be realized through a consolidated investment office:

- The elimination of duplicative or redundant costs could produce cost savings. Savings might be realized via reduced costs for various professional services used by the systems to support the evaluation and selection of investments and the sharing of subscription services.
- The consolidation may allow for a higher assumed or realized net rate of return due to the ability to leverage the larger portfolio. The larger portfolio could facilitate (1) lower asset management fees/expenses, (2) access to preferential fee terms and/or (3) the increased leveraging of market power in general negotiations with managers.
- The consolidated office could improve investment performance via access to highly qualified investment staff. The new staff might increase internal asset management or "in-sourcing" and reduce external management fees and costs.

On October 29, 2019, the Independent Fiscal Office (IFO) sent an official request to both systems noting that the legislation could potentially facilitate a material increase in their gross and net investment returns. The IFO requested simulations and estimates from the systems regarding the potential impact of the bill. The responses submitted by SERS and PSERS are attached to this letter, as well as a high-level review and commentary by Milliman, the IFO's contract actuary. Regarding the output submitted by the systems, it is noted that:

- The initial request asked each system for actuarial projections that reflected "a reasonable estimate based on the best judgement of each system." SERS did not believe it could make that determination, and the IFO requested that SERS simulate a 10 and 20 basis point increase in the net return for illustrative purposes only, recognizing that the simulation was performed at the request of the IFO and did not reflect any internal estimates by SERS. Those results are attached along with SERS' estimates of potential administrative cost savings.
- PSERS performed its own simulation in consultation with its actuary and investment consultant.

Under section 615-B of the Administrative Code of 1929, the IFO has the responsibility to review legislative changes that may affect public employee pension or retirement plans and to provide actuarial notes for such legislation. For the purpose of House Bill 1960, the IFO requested that its contracted actuary (Milliman) review the output and simulations submitted by the systems and provide commentary. The IFO reviewed House Bill 1960, Printer's Number 2794, and in consultation with its contracted actuary, concluded that it was not possible to make a determination based on the material submitted by the systems that there was a definitive actuarial impact from House Bill 1960 that could be quantified accurately and upon which the actuary could opine. Therefore, House Bill 1960 does not require additional analysis prior to further consideration by the General Assembly. The office reviewed the legislation for actuarial cost impact, but it has not reviewed the provisions for legal, administrative or policy implications.

I trust this letter adequately responds to your request. If I may provide further assistance, please contact me at (717) 230-8293.

Sincerely,

Matthew J. Knittel

Matthew J. Knittel
Director, Independent Fiscal Office

Attachments

cc:
Governor Tom Wolf
Members of the General Assembly

Milliman

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November 18, 2019

Mr. Matthew Knittel
Director
Pennsylvania Independent Fiscal Office
Second Floor
Rachel Carson State Office Building
400 Market Street
Harrisburg, PA 17105

Re: House Bill 1960, Printer's Number 2794

Dear Mr. Knittel:

As requested, we have prepared commentary from an actuarial perspective on House Bill 1960, Printer's Number 2794 (Bill). The Bill would establish the Commonwealth Pension Investment Office to serve in a fiduciary capacity the investment management needs of the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS). This letter does not constitute an actuarial note nor an actuarial opinion.

Executive Summary

The intent of the Bill is to create a new state agency, the Commonwealth Pension Investment Office ("CPIO"), to implement the existing investment policies adopted by the PSERS and SERS' Boards that is anticipated to reduce investment management fees and increase net returns for both systems. The adoption of investment policies would remain at the discretion of the respective Boards of PSERS and SERS.

Due to the conflicting analyses provided by the systems and their consultants with the General Assembly's objectives of the Bill, we do not believe there is a definitive actuarial cost or savings associated with this Bill. The consolidation of the investment functions could result in total higher or lower costs over time than if the consolidation does not occur.

The information provided by SERS and PSERS indicates that some reduction in fees may occur due to the consolidation but they both indicate that establishing and maintaining the CPIO could lead to increased costs of both systems over the long-term. As the intent of establishing the CPIO is to lower investment fees while increasing net investment returns, it will be incumbent upon the CPIO to meet these objectives over time if this Bill is enacted.

As requested, we have included the impact of fund assets earnings 10 basis points higher than the expected investment return assumption each year over a 21-year projection period for SERS to illustrate the intended effect of establishing the CPIO.

Summary of the Bill

The Bill would establish the Commonwealth Pension Investment Office (CPIO). The CPIO would be an independent administrative board that would prudently invest and manage funds from both PSERS and SERS, as directed by a board of highly qualified professionals, to ensure a secure retirement for public school and state employees. Such funds would include defined benefit and defined contribution assets.

The CPIO Board of Trustees would be composed of nine members: three trustees appointed by the PSERS' Board, three trustees appointed by the SERS' Board, and three trustees appointed by the prior six trustees. The Bill specifies the required qualifications and the terms of the trustees.

The CPIO shall have general authority over and exclusively invest and manage the investment funds of PSERS and SERS for their defined benefit plans with the exception of specific delineated duties of the PSERS and SERS Boards, including the following:

- Set the strategic asset allocation, actuarial assumptions, including assumed investment returns and rate of inflation, whether economic or demographic and risk policy of the funds.
- Set liquidity requirements and require the investment office to maintain assets in cash or other liquid investment and to transfer cash to PSERS and SERS as requested.
- Monitor progress against long-term-fund-level performance targets
- Manage and invest a cash or short-term investment account as part of the retirement funds for the collection of contributions, payment of benefits and operation of PSERS and SERS.

The CPIO shall make recommendations to the PSERS and SERS Boards regarding investment policy, asset allocation, strategy and procedures.

The following topics would also be added to the required annual training for PSERS and SERS Board members: asset allocation, investment risk, risk management, and setting return assumptions.

An integration management team would be established to initiate and oversee the creation of and transition to the new CPIO prior to a majority of the appointed trustees of the CPIO taking the oath of office.

Administrative expenses of the CPIO would be allocated to the systems based on the following percentages: 60% to PSERS and 40% to SERS.

Other public pension boards in the Commonwealth may enter into an agreement with the CPIO for investment services.

Discussion of the Bill

This Bill would move the investment functions from PSERS and SERS to a single investment office, as recommended in the Final Report and Recommendations of the Public Pension Management and Asset Investment Review Commission dated December 13, 2018. As stated in the report – "The Office would leverage the combined size of the Commonwealth's two pension funds to obtain more favorable investment contract terms, eliminate redundancies between the two retirement systems and develop internal capacity." Please refer to the report available at https://www.patreasury.gov/pdf/2018-PPMAIRC-FINAL.pdf for more information.

The Systems' Board would retain the responsibility for setting the investment policy, including asset allocation, and the investment return assumption used in the valuation. This Bill would change the implementation of the Systems' investment policies.

PSERS versus SERS

Based on information provided by PSERS and their investment consultants, they have been internally managing certain public market investments. Furthermore, they have embarked on a cost reduction plan by increasing their co-investment private equity program. It appears that the Bill's intention is to take PSERS capabilities, expand them to SERS, place them under a centralized state agency, and increase the amount of assets managed to further decrease fees and enhance net investment returns.

Based on the information provided by SERS, they estimated general annual cost savings of $2.13 million for SERS due to managing assets internally plus $1.39 million for PSERS due to the increase in the assets managed internally, plus a savings of $2.27 million due to the reduction of consultant services for total annual savings of $5.79 million.

PSERS' investment consultant, Aon, indicates that savings due to the consolidation of assets could be 0.5 basis points per year, or initially $2.76 million, once the CPIO is fully operational.

Based on the information provided by each of the systems, it appears that SERS believes expanding PSERS internal management capabilities to SERS would be beneficial, but that PSERS is skeptical that additional savings could be achieved. It would be incumbent upon the CPIO to utilize the operations and programs established by PSERS to enhance and expand the savings that they have recently achieved.

Both PSERS and SERS expect that these savings would be offset by the additional costs of the CPIO. PSERS' investment consultant, Aon, assumed increased administrative costs for the CPIO to be 1.45 basis points in 2021 and 2.9 basis points in 2022 and beyond. SERS indicates that they expect the annual operational costs of the CPIO to be several multiples greater than the expected annual savings mentioned earlier.

Private Equity Investments

An item of concern regarding the Bill noted by PSERS is that they believe additional enhanced returns could only be achieved by the CPIO to the extent that internal management of private investments, or other asset classes such as real estate and infrastructure, be increased. Aon notes that PSERS has recently increased their co-investment private equity program so it is skeptical of the CPIO's ability to provide further increases. Furthermore, Aon notes potential difficulties in contracting to be successful in this space and questions if the CPIO would have the necessary capabilities and resources to handle these items.

It is our understanding that the purpose of establishing the CPIO is to be able to enhance investment returns, along with reducing fees. Once the CPIO is established, the chief investment officer would need to determine if there are any impediments to successfully achieving this purpose based on the enabling legislation. The chief investment officer may interpret the enabling legislation such that it does not restrict its capabilities and be able to enhance and expand the program. Due to differences in SERS and PSERS, SERS may receive more of a benefit than PSERS from a centralized office. To the extent that the enabling legislation does restrict the CPIO from obtaining its goals, the CPIO would need to discuss the issues with the General Assembly so they have the ability to make changes where needed. We believe that a single decision today to establish the CPIO would not restrict it or the General Assembly from any future decision to ensure that the goals of the agency are met through prudent and reasonable means.

Policy versus Implementation

As noted earlier, this letter constitutes Milliman's perspective from an actuarial point of view versus an actuarial cost note. Not every expense associated with maintaining a retirement system has an "actuarial cost". However, setting a funding policy that will cover all benefits and expenses of the system is prudent to ensure that the system remains reasonably funded. Much of the discussion regarding the establishment of the CPIO is related to the implementation of an investment strategy rather than the establishment of an investment strategy or asset allocation policy. The respective Boards of each system would continue to set their own investment policy based on their own prevailing plan metrics.

A retirement system's investment policy indicates the target asset allocation, ranges that investment managers may operate under, benchmark indices for each asset class, etc. For example, an investment policy might indicate a target asset allocation of 15% to the US small cap equity market with performance to be measured against the Russell 2000 index. The investment policy would generally not indicate which investment managers to use. Those decisions would be made by the parties responsible for the implementation of the investment policy. For example, the allocation to US small cap investments could be implemented by hiring one or more active managers, passive managers, or investing in active or passive mutual funds or ETFs. The decisions on which individual small-cap stocks to invest in will be made by the asset managers or funds. Therefore, it would be incumbent upon the CPIO to effectively manage the assets at a lower cost or to achieve higher returns by selecting best in class asset managers in order to receive additional net returns over and above current practice.

Investment return assumption

Actuarial Standard of Practice No. 27 *Selection of Economic Assumptions for Measuring Pension Obligations* ("ASOP27") provides guidance to actuaries when setting or recommending economic assumptions for a retirement plan. Such assumptions should be appropriate, reflect the actuary's professional judgement, reflect relevant historical and current economic data, reflect the actuary's estimate of future experience, the actuary's observation of the estimates inherent in market data or a combination thereof, and should have no significant bias (i.e., it is not significantly optimistic or pessimistic).

With respect to the investment return assumption, ASOP27 indicates that actuaries should consider the plan's investment policy, including asset allocations.

ASOP27 also indicates that anticipating superior (or inferior) investment manager performance may be unduly optimistic (or pessimistic). In particular, the actuary "should not assume that superior or inferior returns will be achieved, net of investment expenses, from an active investment management strategy compared to a passive investment management strategy unless the actuary believes, based on relevant supporting data, the such superior or inferior returns represent a reasonable expectation over the measurement period."

To the extent that investment and other administrative expenses paid from the plan are not otherwise recognized, ASOP27 indicates that the investment return assumption be reduced to reflect these expenses.

The PSERS actuarial valuation reflects a current investment return assumption of 7.25% that is net of both investment and other administrative expenses. The SERS actuarial valuation reflects a current investment return assumption of 7.25% as of December 31, 2018, which is being reduced to 7.125% effective December 31, 2019, that is net of investment expenses. For SERS, a separate (non-investment) administrative expense assumption is added to the plan's normal cost.

As the Bill would not change the investment policies of the Systems, the potential impact on the System's investment return assumption would be due to any change in the investment expenses due to the establishment of the CPIO. Note that while there could be a change in the basis point reduction for investment expenses, such change may not result in an actual change in the investment return assumption selected as such assumptions are not selected with such precision and are typically rounded to the nearest 0.25% or 0.125%. As much of the difference between current practice and that expected to be in place if the Bill is enacted is due to implementation of investment policies, we believe that it is very difficult to speculate on the impact on the investment return assumption. This could have a positive or negative impact depending on many items that are not actuarial in nature.

Administrative Costs

Administrative costs of the CPIO would be allocated 60% to PSERS and 40% to SERS. We note that as of the respective 2018 valuation dates, PSERS comprises 67% of the combined systems' assets on a market value basis. We also note that the allocation of administrative expenses is fixed; consideration could be given to potentially changing this allocation in future years.

Potential Actuarial Cost

PSERS

The IFO provided us with a copy of the November 15, 2019 estimate by Buck which included the November 13, 2019 analysis by Aon for PSERS. Aon notes that it expects the additional ongoing costs of the CPIO would outweigh any general savings or enhanced returns that may be achieved. The long-term net impact would be a reduction of 2.4 basis points each year from 7.25% to 7.226%. Based on approximately $58 billion in assets, this would result in approximately $13.9 million in additional fees each year.

Buck modeled this additional fee into increases in the annual contribution requirement. The graph in Exhibit I displays the estimated employer contribution rates under current law and if this Bill is enacted. Note that the estimated employer contribution rate if this Bill is enacted is at most 0.23% of pay higher than under the current law in any one year. Also note that the estimated increase in the employer contributions of $775 million if the Bill is enacted is 0.6% of the total employer contributions expected under current law during the projection period.

Due to time constraints, Milliman has not reviewed the projections in any detail, but provide the comparison for informational purposes. We believe that if the CPIO's goals of reduced fees and enhanced returns is not being sufficiently achieved that it would modify its policies over time to meet the goals established in the enabling legislation.

The selection of the investment return assumption will ultimately be determined by the PSERS Board in consultation with their advisors. To the extent that this Bill would result in a decrease in the net investment return of 0.024%, it is possible that the PSERS Board would not take any action to reduce the investment return assumption solely due to the anticipated impacts caused from this Bill. As such, the impact of potentially lower returns, if any, would be recognized over time as they occur.

SERS

The IFO provided us with a copy of the November 9, 2019 letter from SERS, which included projections by Korn Ferry Hay Group (Hay). As requested by the IFO, this letter contained projections assuming that the investment return assumption was increased by 10 basis points from 7.125% to 7.225% effective December 31, 2024. The IFO also provided us with a copy of the projections reflecting current law and the reduction in the investment return assumption from 7.25% to 7.125% effective with the December 31, 2019 valuation approved by the SERS Board.

As the intent of the CPIO is to increase net investment returns for PSERS and SERS, the attached graph in Exhibit II shows the illustrative impact of increasing the annual investment return on the market value of assets by 10 basis points, with and without reflecting the increase in the investment return assumption, on the SERS projected employer contribution rate. The current law projection, including the planned reduction in the investment return assumption to 7.125%, is shown in blue. The red line shows the impact of a 10 basis point increase in the market return to 7.225% each year beginning in 2024 while the investment return assumption remains 7.125% in all years. This approach would reflect the potential increased returns over time as they are realized. The green line shows the impact of a 10 basis point increase in the market return each year to 7.225% beginning in 2024 and also reflects a 10 basis point increase in the investment return assumption to 7.225% effective with the December 31, 2024 valuation. This approach would anticipate the potential increased returns in advance. As shown in the graph in Exhibit II, anticipating the increased returns in the investment return assumption would result in lower employer contribution rates as compared to reflecting the increased returns as they are realized.

Note that based on the information provided by Hay, Milliman estimated the projected employer contribution rates for the red line scenario (increased market returns without a corresponding increase in the investment return assumption).

Projection Notes

The multi-year projections of the employer contribution rate provided by PSERS and SERS under current law and alternate scenarios show the projected appropriation payroll and the employer contribution rate, and the employer contribution amount. These projections are based on the latest actuarial valuations (June 30, 2018 for PSERS and December 31, 2018 for SERS), reflect the 7.125% investment return assumption effective December 31, 2019 for SERS, and, except where noted, assume that future experience will exactly match the actuarial assumptions used to prepare the valuation and projections.

The multi-year projections reflect a single deterministic scenario assuming that all assumptions are exactly realized, including actual investment return on the market value of assets of 7.25% for PSERS under current law, 7.25% for 2019 and 7.125% thereafter for SERS under current law, and as specified under the alternate scenarios each and every year. In reality, actual investment returns will vary from year to year, which will have an impact on the future employer and member costs.

Basis for Analysis

In performing this analysis, we have relied on the information provided by the IFO, PSERS, SERS, Buck, Aon, and Korn Ferry Hay Group. We have not audited or verified this data and other information. If the data or information is inaccurate or incomplete, the results of this analysis may likewise be inaccurate or incomplete.

We performed a limited review of the projections prepared by Korn Ferry Hay Group as provided by the IFO and SERS for reasonableness and consistency and have not found material defects. Due to time constraints, we did not review projections provided by Buck regarding PSERS. If there are material defects, it is possible that they would be uncovered by a detailed, systematic review and comparison to search for values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Future actuarial measurements may differ significantly from the current measurements presented in this analysis due to actual plan experience deviating from the actuarial assumptions, the natural operation of the plan's actuarial cost method, and changes in plan provisions, actuarial assumptions, actuarial methods, and applicable law. An assessment of the potential range and cost effect of such differences is beyond the scope of this analysis.

Milliman's work is prepared solely for the internal business use of the Pennsylvania Independent Fiscal Office. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions:

- The IFO may provide a copy of Milliman's work, in its entirety, to its professional service providers who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to provide services to the IFO.
- The IFO may provide a copy of Milliman's work, in its entirety, any applicable regulatory or governmental agency, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are pension actuaries and not chartered investment professionals. As indicated above, this letter offers our commentary from an actuarial perspective on the Bill and the Systems' analyses. We do not consider this letter to be an actuarial opinion under the American Academy of Actuaries' Qualification Standards.

Please let us know if we can provide any additional information regarding this Bill.

Sincerely,

Timothy J. Nugent

Scott F. Porter

Katherine A. Warren

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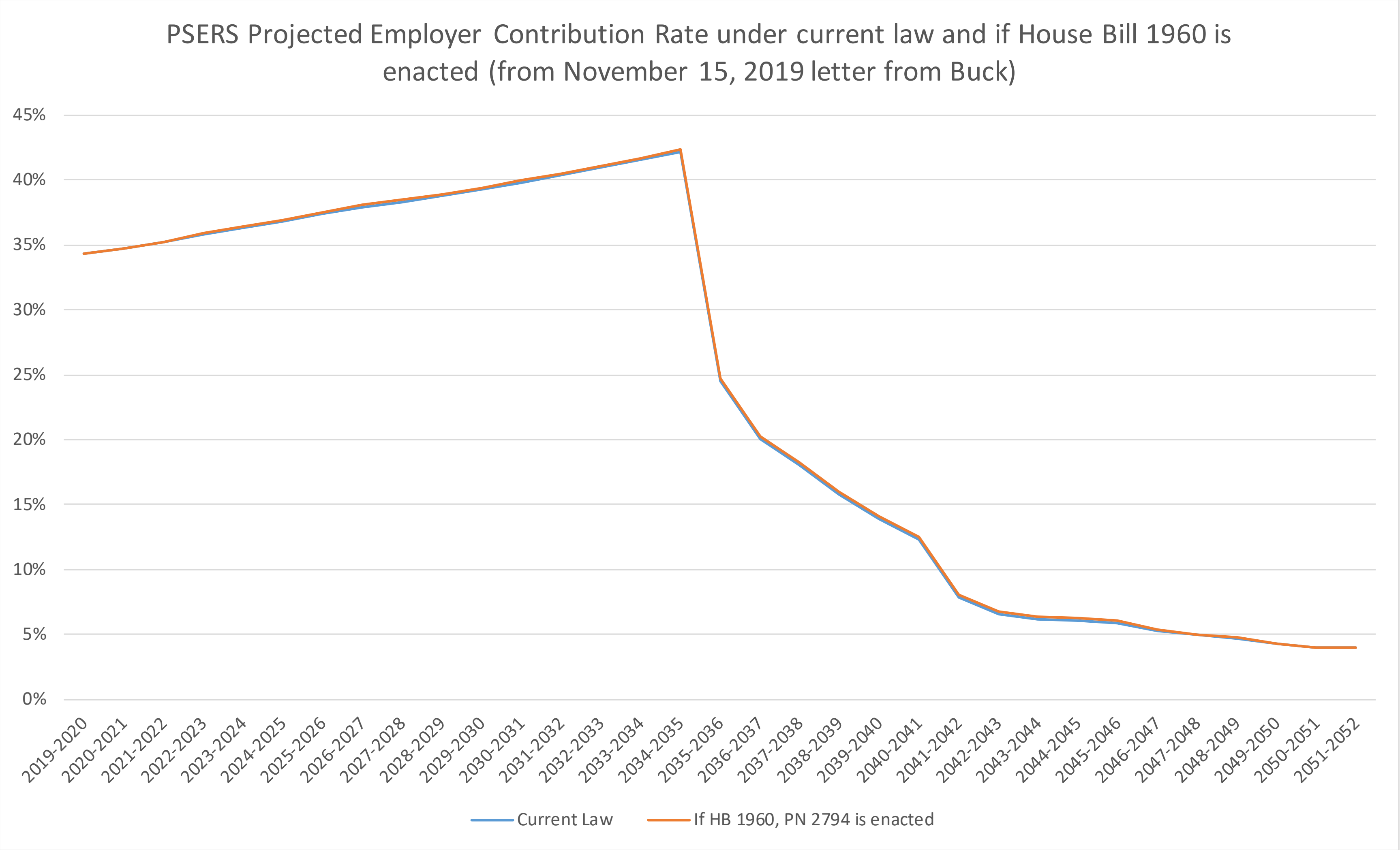
Enclosures

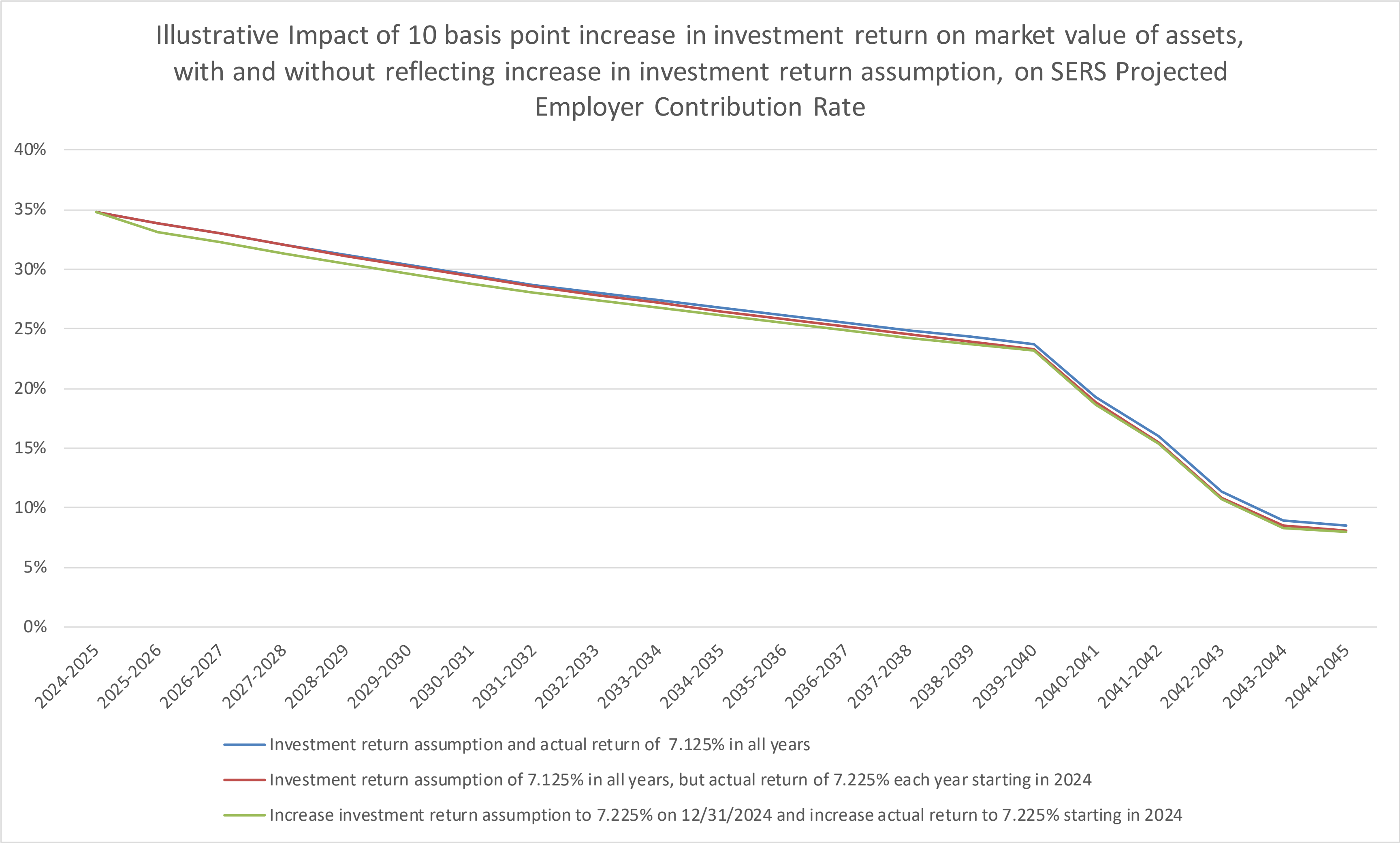
<u>EXHIBIT I</u>



From projections prepared by Buck as provided by the IFO and PSERS. Note that the projected employer contribution rate if HB 1960 is enacted is at most 0.23% of pay higher than under current law in any one year.

This exhibit is an attachment to a November 18, 2019 letter to Mr. Matthew Knittel. Please refer to that letter for more information, including explanatory notes and statements of reliance.

This analysis was prepared solely for the Pennsylvania Independent Fiscal Office and may not be appropriate for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.



Based on projections requested by the IFO prepared by Korn Ferry Hay Group as provided by the IFO and SERS. Milliman estimated the impact of annual higher returns of 7.225% but maintaining the assumption at 7.125% (red line).

This exhibit is an attachment to a November 18, 2019 letter to Mr. Matthew Knittel. Please refer to that letter for more information, including explanatory notes and statements of reliance.

This analysis was prepared solely for the Pennsylvania Independent Fiscal Office and may not be appropriate for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

November 9, 2019

Matthew Knittel
Director, Independent Fiscal Office
Rachel Carson State Office Building
400 Market Street
Harrisburg, PA 17105

RE: HB 1960, PN 2794

Dear Matt,

I am writing in response to your letter of November 5, 2019, which was in response to my letter of November 1, 2019, to your office regarding the proposed analysis of H.B. 1960, PN 2794. In your letter, you proposed four categories to classify and quantify the potential impact from the consolidation proposed by H.B. 1960. I offer the following response:

General Cost Savings

As noted in prior conversations, SERS has been working with PSERS to create general estimates of the savings the systems may achieve through the creation of a consolidated investment office due to the (i) increase of internal management of assets, and (ii) elimination or reduction of investment consultant costs and services.

With regard to general cost savings, I offer the following estimates:

	(In $ Millions)
SERS annual cost reductions from not paying external managers and managing assets internally	2.13
PSERS annual cost reductions from an increase in its internally managed assets	1.39
SERS and PSERS annual cost reductions from consolidated internal trading activities	3.52
SERS and PSERS annual cost reductions from reduction of investment consultants and services	2.27
SERS and PSERS annual total cost reduction estimate	$5.79

As a general observation, however, it is my belief that there will be initial setup costs of a new consolidated investment office. In addition, there will be annual operational costs that will be several multiples greater than the $5.79 million in total savings listed above. Examples of the ongoing costs will include a significant administrative cost component, including paid trustees, the retention of a third-party executive search firm for trustees, an executive director, CFO and accounting division, legal division, internal audit division, HR division, IT division, press secretary, facilities, etc.

I suggest that the IFO contract with an outside firm that specializes in investment operations and management consulting to provide a full analysis on expected costs and savings from the establishment of a consolidated investment office.

Savings from Indexing

Because indexing is a function of asset allocation by the client boards and cannot be predicted, SERS is not in a position to provide any estimates related to potential savings from increased indexing from a consolidated investment office.

Impact on Net Return from Portfolio Size

As confirmed in your November 5 letter, it is not possible for SERS to quantify the effects of net returns from the proposed consolidation. Nevertheless, the IFO has requested that SERS provide the results of two simulations that assume the net return increases by 10 basis points and 20 basis points relative to a "baseline" scenario that uses a 7.125 percent assumed net return over 30 years. The IFO has also requested that the simulations would: (i) occur in isolation and would not assume any other changes, and (ii) include the same output transmitted by SERS on October 22, 2019, for the baseline projections. For the simulations, the higher net return would be expected and the model assumption would be increased in all years to reflect the higher net return. Attached please find the requested simulations.

I am providing the attached simulations, as specifically requested by the IFO, with the understanding that the IFO will clearly state in its letter that (1) the simulations are for illustrative purposes only, (2) were performed at the request of the IFO, and (3) do not reflect any internal estimates by SERS. I also request that the IFO clearly state that these simulations are being provided with the understanding that SERS does not have any evidence to establish the likelihood of either scenario occurring.

Impact from Newly-Hired Personnel

I refer you to our General Cost Savings response.

Please feel free to contact me if you have any additional questions or concerns.

Sincerely,

Terrill (Terri) J. Sanchez
Executive Director

Pennsylvania State Employees' Retirement System
30 North 3rd Street, Suite 150, Harrisburg, PA 17101-1716
P: 717.787.9657 | F: 717.783.7300

Attachments

Pennsylvania State Employees' Retirement System (SERS)
30 Year Projection
($ millions)

This simulation is for illustrative purposes only and were performed at the request of the IFO and do not reflect any internal estimates by SERS.

Fiscal Year	Calendar Year	Appropriated (Funding) Payroll	Employee Contribution Rate	Employer Unfunded Liability Rate	Employer Contribution to Return Act-5 Savings	Employer Normal Cost/Floor Rate[2/]	Employer Contribution Rate	Employer Contribution Amount	Funded Ratio	Accrued Liability[1/]	Actuarial Value of Assets	Unfunded Accrued Liability
2019/2020	2018	$ 6,469.4	6.25 %	31.57 %	0.71 %	1.25 %	33.53 %	$ 2,178.7	56.0 %	$ 51,782.2	$ 28,989.6	$ 22,792.6
2020/2021	2019	$ 6,657.0	6.25	32.29	0.66	1.41	34.36	$ 2,303.1	54.9	$ 53,222.8	$ 29,220.8	$ 24,002.0
2021/2022	2020	$ 6,850.1	6.25	31.93	0.62	1.41	33.96	$ 2,347.6	55.4	$ 53,831.9	$ 29,812.9	$ 24,019.0
2022/2023	2021	$ 7,048.7	6.25	26.73	0.00	9.16	35.89	$ 2,556.8	60.6	$ 50,304.8	$ 30,474.9	$ 19,829.9
2023/2024	2022	$ 7,253.1	6.25	26.83	0.00	8.90	35.73	$ 2,624.8	60.4	$ 50,851.6	$ 30,736.7	$ 20,114.9
2024/2025	2023	$ 7,463.5	6.25	26.16	0.00	8.65	34.81	$ 2,638.0	61.7	$ 51,401.5	$ 31,717.6	$ 19,683.9
2025/2026	2024	$ 7,679.9	6.25	25.00	0.00	8.13	33.13	$ 2,590.2	63.8	$ 51,294.0	$ 32,731.0	$ 18,563.0
2026/2027	2025	$ 7,902.6	6.25	24.32	0.00	7.91	32.23	$ 2,599.4	65.2	$ 51,756.4	$ 33,744.7	$ 18,011.7
2027/2028	2026	$ 8,131.8	6.25	23.64	0.00	7.70	31.34	$ 2,607.8	66.6	$ 52,130.2	$ 34,728.0	$ 17,402.2
2028/2029	2027	$ 8,367.6	6.25	22.97	0.00	7.50	30.47	$ 2,615.3	68.1	$ 52,427.5	$ 35,692.5	$ 16,735.0
2029/2030	2028	$ 8,610.3	6.25	22.32	0.00	7.30	29.62	$ 2,623.3	69.6	$ 52,651.1	$ 36,633.9	$ 16,017.2
2030/2031	2029	$ 8,860.0	6.25	21.69	0.00	7.12	28.81	$ 2,632.4	71.1	$ 52,797.7	$ 37,544.9	$ 15,252.8
2031/2032	2030	$ 9,116.9	6.25	21.09	0.00	6.94	28.03	$ 2,641.9	72.7	$ 52,910.0	$ 38,477.4	$ 14,432.6
2032/2033	2031	$ 9,381.3	6.25	20.49	0.10	6.77	27.36	$ 2,661.0	74.4	$ 52,961.9	$ 39,408.7	$ 13,553.2
2033/2034	2032	$ 9,653.4	6.25	19.90	0.22	6.61	26.73	$ 2,682.3	76.2	$ 52,958.3	$ 40,352.8	$ 12,605.5
2034/2035	2033	$ 9,933.3	6.25	19.34	0.33	6.44	26.11	$ 2,702.7	78.1	$ 52,918.1	$ 41,338.8	$ 11,579.3
2035/2036	2034	$ 10,221.4	6.25	18.77	0.43	6.29	25.49	$ 2,722.3	80.2	$ 52,834.7	$ 42,366.3	$ 10,468.4
2036/2037	2035	$ 10,517.8	6.25	18.20	0.53	6.15	24.88	$ 2,742.5	82.4	$ 52,712.2	$ 43,444.0	$ 9,268.2
2037/2038	2036	$ 10,822.8	6.25	17.65	0.62	6.02	24.29	$ 2,762.4	84.8	$ 52,571.2	$ 44,598.2	$ 7,973.0
2038/2039	2037	$ 11,136.7	6.25	17.12	0.71	5.89	23.72	$ 2,783.0	87.4	$ 52,365.3	$ 45,788.6	$ 6,576.7
2039/2040	2038	$ 11,459.7	6.25	16.58	0.79	5.78	23.15	$ 2,803.0	90.3	$ 52,125.3	$ 47,052.4	$ 5,072.9
2040/2041	2039	$ 11,792.0	6.25	12.13	0.86	5.67	18.66	$ 2,359.2	93.3	$ 51,834.8	$ 48,380.1	$ 3,454.7
2041/2042	2040	$ 12,134.0	6.25	8.87	0.93	5.57	15.37	$ 2,032.2	95.8	$ 51,722.2	$ 49,543.9	$ 2,178.3
2042/2043	2041	$ 12,485.8	6.25	5.23	0.00	5.48	10.71	$ 1,513.1	97.8	$ 51,483.7	$ 50,330.8	$ 1,152.9
2043/2044	2042	$ 12,847.9	6.25	2.96	0.00	5.39	8.35	$ 1,257.5	99.0	$ 51,134.3	$ 50,607.3	$ 527.0
2044/2045	2043	$ 13,220.5	6.25	2.66	0.00	5.29	7.95	$ 1,245.5	99.6	$ 50,547.1	$ 50,362.6	$ 184.5
2045/2046	2044	$ 13,603.9	6.25	2.30	0.00	5.20	7.50	$ 1,222.8	100.3	$ 49,721.5	$ 49,875.9	$ (154.4)
2046/2047	2045	$ 13,998.4	6.25	1.33	0.00	5.12	6.45	$ 1,115.2	101.0	$ 48,770.6	$ 49,248.6	$ (478.0)
2047/2048	2046	$ 14,404.4	6.25	0.88	0.00	5.04	5.92	$ 1,073.2	101.5	$ 47,724.4	$ 48,424.0	$ (699.6)
2048/2049	2047	$ 14,822.1	6.25	0.83	0.00	4.97	5.80	$ 1,089.4	101.9	$ 46,487.5	$ 47,363.8	$ (876.3)
2049/2050	2048	$ 15,251.9	6.25	0.00	0.00	4.91	4.91	$ 988.1	102.4	$ 45,045.4	$ 46,107.3	$ (1,061.9)

General Note - The contribution projections above are based on fiscal year, include information for the defined benefit plan only, and are based on an assumed rate of return of 7.125% until FY 25/26 where the assumed rate of return was increased to 7.225%.

[1/]SERS actuary Korn Ferry is not able to provide projections of present value of future benefits. This is consistent with previous responses to IFO requests. The Present Value of Future Benefits as of the 2018 valuation was $57,106 million.

[3/]SERS has historically calculated normal cost based on a variation of the traditional entry age method but will be transitioning to the traditional entry age method (which is in line with GASB 67 requirements) effective with CY 2021 above. The normal cost for CY 2018,2019 and 2020 above are based on the variation of traditional entry age method. Normal cost for those years under the GASB 67 traditional entry age method are 10.27%, 9.70%, and 9.42%, respectively.

The current composite normal cost for SERS legacy classes of membership is 9.93%. For SERS members hired after January 1, 2019, the normal cost is 17.45% for PA State Police, 8.08% for Hazardous Duty, and 2.25% for all new Act 5 membership classes.

Pennsylvania State Employees' Retirement System (SERS)

30 Year Projection of Assets ($ thousands)

This simulation is for illustrative purposes only and were performed at the request of the IFO and do not reflect any internal estimates by SERS.

Fiscal Year	Calendar Year	Beginning of Year Market Value	Employer Contributions	Employee Contributions	Investment Income/(Loss)	Benefit Payments	Administrative Expenses	End of Year Market Value
2019/2020	2018							$ 26,934,733
2020/2021	2019	26,934,733	$ 2,137,864	$ 399,900	$ 1,913,733	$ 3,587,954	$ 26,652	27,771,624
2021/2022	2020	27,771,624	$ 2,272,888	$ 409,116	$ 1,941,392	$ 3,702,660	$ 27,385	28,664,975
2022/2023	2021	28,664,975	$ 2,350,345	$ 417,823	$ 2,003,931	$ 3,819,273	$ 28,138	29,589,663
2023/2024	2022	29,589,663	$ 2,448,218	$ 426,716	$ 2,069,329	$ 3,938,912	$ 28,912	30,566,102
2024/2025	2023	30,566,102	$ 2,560,645	$ 435,797	$ 2,139,057	$ 4,055,232	$ 29,707	31,616,662
2025/2026	2024	31,616,662	$ 2,595,389	$ 445,072	$ 2,242,473	$ 4,167,884	$ 30,524	32,701,188
2026/2027	2025	32,701,188	$ 2,572,179	$ 454,544	$ 2,316,498	$ 4,273,233	$ 31,363	33,739,813
2027/2028	2026	33,739,813	$ 2,546,111	$ 464,218	$ 2,387,355	$ 4,371,786	$ 32,226	34,733,485
2028/2029	2027	34,733,485	$ 2,548,434	$ 474,098	$ 2,455,575	$ 4,482,002	$ 33,112	35,696,478
2029/2030	2028	35,696,478	$ 2,549,731	$ 484,188	$ 2,521,831	$ 4,584,379	$ 34,023	36,633,826
2030/2031	2029	36,633,826	$ 2,550,661	$ 494,493	$ 2,586,287	$ 4,685,133	$ 34,958	37,545,176
2031/2032	2030	37,545,176	$ 2,552,252	$ 505,017	$ 2,650,572	$ 4,739,477	$ 35,920	38,477,620
2032/2033	2031	38,477,620	$ 2,554,505	$ 515,765	$ 2,715,548	$ 4,817,709	$ 36,908	39,408,821
2033/2034	2032	39,408,821	$ 2,566,142	$ 526,742	$ 2,780,929	$ 4,891,870	$ 37,922	40,352,842
2034/2035	2033	40,352,842	$ 2,589,485	$ 537,952	$ 2,848,218	$ 4,950,760	$ 38,965	41,338,772
2035/2036	2034	41,338,772	$ 2,614,472	$ 549,401	$ 2,918,419	$ 5,014,703	$ 40,037	42,366,324
2036/2037	2035	42,366,324	$ 2,638,064	$ 561,094	$ 2,991,819	$ 5,072,135	$ 41,138	43,444,028
2037/2038	2036	43,444,028	$ 2,661,511	$ 573,035	$ 3,069,635	$ 5,107,739	$ 42,269	44,598,201
2038/2039	2037	44,598,201	$ 2,685,070	$ 585,231	$ 3,151,380	$ 5,187,833	$ 43,432	45,788,617
2039/2040	2038	45,788,617	$ 2,708,737	$ 597,686	$ 3,236,946	$ 5,234,986	$ 44,626	47,052,374
2040/2041	2039	47,052,374	$ 2,732,413	$ 610,406	$ 3,327,299	$ 5,296,539	$ 45,853	48,380,100
2041/2042	2040	48,380,100	$ 2,526,490	$ 623,397	$ 3,414,167	$ 5,353,143	$ 47,114	49,543,897
2042/2043	2041	49,543,897	$ 2,142,699	$ 636,664	$ 3,482,181	$ 5,426,181	$ 48,410	50,330,850
2043/2044	2042	50,330,850	$ 1,661,485	$ 650,214	$ 3,519,258	$ 5,504,753	$ 49,741	50,607,313
2044/2045	2043	50,607,313	$ 1,206,930	$ 664,052	$ 3,520,366	$ 5,584,926	$ 51,109	50,362,626
2045/2046	2044	50,362,626	$ 1,062,480	$ 678,185	$ 3,494,864	$ 5,669,745	$ 52,514	49,875,896
2046/2047	2045	49,875,896	$ 1,036,223	$ 692,619	$ 3,456,023	$ 5,758,216	$ 53,959	49,248,586
2047/2048	2046	49,248,586	$ 962,710	$ 707,359	$ 3,405,403	$ 5,844,577	$ 55,442	48,424,039
2048/2049	2047	48,424,039	$ 878,522	$ 722,414	$ 3,339,688	$ 5,943,917	$ 56,967	47,363,779
2049/2050	2048	47,363,779	$ 856,165	$ 737,788	$ 3,258,915	$ 6,050,800	$ 58,534	46,107,313

General Note - The projections above are based on SERS calendar year-end, include information for the defined benefit plan only, and are based on an assumed rate of return of 7.125% until CY 2024 where the assumed rate of return was increased to 7.225%.

Pennsylvania State Employees' Retirement System (SERS)
30 Year Projection
($ millions)

This simulation is for illustrative purposes only and were performed at the request of the IFO and do not reflect any internal estimates by SERS.

Fiscal Year	Calendar Year	Appropriated (Funding) Payroll	Employee Contribution Rate	Employer Unfunded Liability Rate	Employer Contribution to Return Act-5 Savings	Employer Normal Cost/Floor Rate[2/]	Employer Contribution Rate	Employer Contribution Amount	Funded Ratio	Accrued Liability[1/]	Actuarial Value of Assets	Unfunded Accrued Liability
2019/2020	2018	$ 6,469.4	6.25 %	31.57 %	0.71 %	1.25 %	33.53 %	$ 2,178.7	56.0 %	$ 51,782.2	$ 28,989.6	$ 22,792.6
2020/2021	2019	$ 6,657.0	6.25	32.29	0.66	1.41	34.36	$ 2,303.1	54.9	$ 53,222.8	$ 29,220.8	$ 24,002.0
2021/2022	2020	$ 6,850.1	6.25	31.93	0.62	1.41	33.96	$ 2,347.6	55.4	$ 53,831.9	$ 29,812.9	$ 24,019.0
2022/2023	2021	$ 7,048.7	6.25	26.73	0.00	9.16	35.89	$ 2,556.8	60.6	$ 50,304.8	$ 30,474.9	$ 19,829.9
2023/2024	2022	$ 7,253.1	6.25	26.83	0.00	8.90	35.73	$ 2,624.8	60.4	$ 50,851.6	$ 30,736.7	$ 20,114.9
2024/2025	2023	$ 7,463.5	6.25	26.16	0.00	8.65	34.81	$ 2,638.0	61.7	$ 51,401.5	$ 31,717.6	$ 19,683.9
2025/2026	2024	$ 7,679.9	6.25	24.54	0.00	7.88	32.42	$ 2,536.2	64.5	$ 50,721.1	$ 32,737.2	$ 17,983.9
2026/2027	2025	$ 7,902.6	6.25	23.87	0.00	7.67	31.54	$ 2,544.8	65.9	$ 51,199.5	$ 33,762.4	$ 17,437.1
2027/2028	2026	$ 8,131.8	6.25	23.20	0.00	7.46	30.66	$ 2,552.4	67.4	$ 51,562.4	$ 34,730.4	$ 16,832.0
2028/2029	2027	$ 8,367.6	6.25	22.54	0.00	7.26	29.80	$ 2,559.2	68.8	$ 51,848.3	$ 35,679.0	$ 16,169.3
2029/2030	2028	$ 8,610.3	6.25	21.89	0.00	7.07	28.96	$ 2,566.3	70.3	$ 52,059.8	$ 36,603.6	$ 15,456.2
2030/2031	2029	$ 8,860.0	6.25	21.27	0.00	6.89	28.16	$ 2,575.2	71.8	$ 52,193.2	$ 37,490.4	$ 14,702.8
2031/2032	2030	$ 9,116.9	6.25	20.67	0.00	6.72	27.39	$ 2,584.4	73.4	$ 52,291.1	$ 38,396.9	$ 13,894.2
2032/2033	2031	$ 9,381.3	6.25	20.09	0.10	6.55	26.74	$ 2,603.2	75.1	$ 52,327.3	$ 39,300.7	$ 13,026.6
2033/2034	2032	$ 9,653.4	6.25	19.52	0.22	6.39	26.13	$ 2,624.3	76.9	$ 52,306.7	$ 40,215.6	$ 12,091.1
2034/2035	2033	$ 9,933.3	6.25	18.96	0.33	6.23	25.52	$ 2,644.5	78.8	$ 52,247.7	$ 41,170.7	$ 11,077.0
2035/2036	2034	$ 10,221.4	6.25	18.40	0.43	6.08	24.91	$ 2,663.8	80.9	$ 52,144.1	$ 42,165.8	$ 9,978.3
2036/2037	2035	$ 10,517.8	6.25	17.85	0.53	5.94	24.32	$ 2,683.7	83.1	$ 51,999.5	$ 43,209.5	$ 8,790.0
2037/2038	2036	$ 10,822.8	6.25	17.31	0.62	5.81	23.74	$ 2,703.2	85.5	$ 51,834.3	$ 44,327.9	$ 7,506.4
2038/2039	2037	$ 11,136.7	6.25	16.78	0.71	5.69	23.18	$ 2,723.4	88.1	$ 51,602.0	$ 45,480.7	$ 6,121.3
2039/2040	2038	$ 11,459.7	6.25	16.25	0.79	5.58	22.62	$ 2,743.1	91.0	$ 51,333.1	$ 46,704.8	$ 4,628.3
2040/2041	2039	$ 11,792.0	6.25	11.78	0.86	5.48	18.12	$ 2,295.9	94.1	$ 51,011.0	$ 47,990.8	$ 3,020.2
2041/2042	2040	$ 12,134.0	6.25	8.51	0.93	5.38	14.82	$ 1,966.2	96.5	$ 50,865.2	$ 49,109.2	$ 1,756.0
2042/2043	2041	$ 12,485.8	6.25	4.86	0.00	5.29	10.15	$ 1,443.7	98.5	$ 50,589.8	$ 49,845.1	$ 744.7
2043/2044	2042	$ 12,847.9	6.25	2.59	0.00	5.20	7.79	$ 1,185.8	99.7	$ 50,200.0	$ 50,064.1	$ 135.9
2044/2045	2043	$ 13,220.5	6.25	2.30	0.00	5.10	7.40	$ 1,173.1	100.4	$ 49,567.8	$ 49,754.8	$ (187.0)
2045/2046	2044	$ 13,603.9	6.25	1.95	0.00	5.01	6.96	$ 1,149.7	101.0	$ 48,691.9	$ 49,196.7	$ (504.8)
2046/2047	2045	$ 13,998.4	6.25	0.99	0.00	4.93	5.92	$ 1,040.7	101.7	$ 47,685.6	$ 48,491.6	$ (806.0)
2047/2048	2046	$ 14,404.4	6.25	0.53	0.00	4.86	5.39	$ 997.8	102.2	$ 46,579.0	$ 47,581.7	$ (1,002.7)
2048/2049	2047	$ 14,822.1	6.25	0.49	0.00	4.79	5.28	$ 1,013.3	102.5	$ 45,275.2	$ 46,427.7	$ (1,152.5)
2049/2050	2048	$ 15,251.9	6.25	0.00	0.00	4.73	4.73	$ 961.4	103.0	$ 43,759.3	$ 45,068.6	$ (1,309.3)

General Note - The contribution projections above are based on fiscal year, include information for the defined benefit plan only, and are based on an assumed rate of return of 7.125% until FY 25/26, where the assumed rate was increased to 7.325%.

[1/] SERS actuary Korn Ferry is not able to provide projections of present value of future benefits. This is consistent with previous responses to IFO requests. The Present Value of Future Benefits as of the 2018 valuation was $57,106 million.

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The current composite normal cost for SERS legacy classes of membership is 9.64%. For SERS members hired after January 1, 2019, the normal cost is 16.96% for PA State Police, 7.82% for Hazardous Duty, and 2.14% for all new Act 5 membership classes.

Pennsylvania State Employees' Retirement System (SERS)

30 Year Projection of Assets ($ thousands)

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Fiscal Year	Calendar Year	Beginning of Year Market Value	Employer Contributions	Employee Contributions	Investment Income/(Loss)	Benefit Payments	Administrative Expenses	End of Year Market Value
2019/2020	2018							$ 26,934,733
2020/2021	2019	26,934,733	$ 2,137,864	$ 399,900	$ 1,913,733	$ 3,587,954	$ 26,652	27,771,624
2021/2022	2020	27,771,624	$ 2,272,888	$ 409,116	$ 1,941,392	$ 3,702,660	$ 27,385	28,664,975
2022/2023	2021	28,664,975	$ 2,350,345	$ 417,823	$ 2,003,931	$ 3,819,273	$ 28,138	29,589,663
2023/2024	2022	29,589,663	$ 2,448,218	$ 426,716	$ 2,069,329	$ 3,938,912	$ 28,912	30,566,102
2024/2025	2023	30,566,102	$ 2,560,645	$ 435,797	$ 2,139,057	$ 4,055,232	$ 29,707	31,616,662
2025/2026	2024	31,616,662	$ 2,595,389	$ 445,072	$ 2,273,511	$ 4,167,884	$ 30,524	32,732,226
2026/2027	2025	32,732,226	$ 2,545,516	$ 454,544	$ 2,349,857	$ 4,273,233	$ 31,363	33,777,547
2027/2028	2026	33,777,547	$ 2,491,669	$ 464,218	$ 2,421,168	$ 4,371,786	$ 32,226	34,750,590
2028/2029	2027	34,750,590	$ 2,493,278	$ 474,098	$ 2,488,795	$ 4,482,002	$ 33,112	35,691,647
2029/2030	2028	35,691,647	$ 2,493,819	$ 484,188	$ 2,554,334	$ 4,584,379	$ 34,023	36,605,586
2030/2031	2029	36,605,586	$ 2,493,960	$ 494,493	$ 2,617,938	$ 4,685,133	$ 34,958	37,491,886
2031/2032	2030	37,491,886	$ 2,494,992	$ 505,017	$ 2,681,257	$ 4,739,477	$ 35,920	38,397,755
2032/2033	2031	38,397,755	$ 2,496,946	$ 515,765	$ 2,745,176	$ 4,817,709	$ 36,908	39,301,025
2033/2034	2032	39,301,025	$ 2,508,304	$ 526,742	$ 2,809,405	$ 4,891,870	$ 37,922	40,215,684
2034/2035	2033	40,215,684	$ 2,531,380	$ 537,952	$ 2,875,464	$ 4,950,760	$ 38,965	41,170,755
2035/2036	2034	41,170,755	$ 2,556,102	$ 549,401	$ 2,944,367	$ 5,014,703	$ 40,037	42,165,885
2036/2037	2035	42,165,885	$ 2,579,416	$ 561,094	$ 3,016,398	$ 5,072,135	$ 41,138	43,209,520
2037/2038	2036	43,209,520	$ 2,602,559	$ 573,035	$ 3,092,784	$ 5,107,739	$ 42,269	44,327,890
2038/2039	2037	44,327,890	$ 2,625,777	$ 585,231	$ 3,173,026	$ 5,187,833	$ 43,432	45,480,659
2039/2040	2038	45,480,659	$ 2,649,069	$ 597,686	$ 3,257,005	$ 5,234,986	$ 44,626	46,704,807
2040/2041	2039	46,704,807	$ 2,672,332	$ 610,406	$ 3,345,692	$ 5,296,539	$ 45,853	47,990,845
2041/2042	2040	47,990,845	$ 2,464,536	$ 623,397	$ 3,430,640	$ 5,353,143	$ 47,114	49,109,161
2042/2043	2041	49,109,161	$ 2,077,678	$ 636,664	$ 3,496,152	$ 5,426,181	$ 48,410	49,845,064
2043/2044	2042	49,845,064	$ 1,593,403	$ 650,214	$ 3,529,890	$ 5,504,753	$ 49,741	50,064,077
2044/2045	2043	50,064,077	$ 1,135,961	$ 664,052	$ 3,526,699	$ 5,584,926	$ 51,109	49,754,754
2045/2046	2044	49,754,754	$ 989,982	$ 678,185	$ 3,496,054	$ 5,669,745	$ 52,514	49,196,716
2046/2047	2045	49,196,716	$ 963,031	$ 692,619	$ 3,451,427	$ 5,758,216	$ 53,959	48,491,618
2047/2048	2046	48,491,618	$ 888,409	$ 707,359	$ 3,394,368	$ 5,844,577	$ 55,442	47,581,735
2048/2049	2047	47,581,735	$ 802,977	$ 722,414	$ 3,321,447	$ 5,943,917	$ 56,967	46,427,689
2049/2050	2048	46,427,689	$ 779,829	$ 737,788	$ 3,232,656	$ 6,050,800	$ 58,534	45,068,628

General Note - The projections above are based on SERS calendar year-end, include information for the defined benefit plan only, and are based on an assumed rate of return of 7.125% until CY 2024 where the assumed rate was increased to 7.325%.

BUCK

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Secaucus, New Jersey 07096

November 15, 2019

Mr. Glen R. Grell
Executive Director
Pennsylvania Public School Employees' Retirement System
5 North 5th Street
Harrisburg, PA 17101

Re: Cost Note for HB 1960, Printer's Number 2794

Dear Glen:

As requested, we have examined proposed legislation that would establish a Commonwealth Pension Investment Office and under which the authority for the investment of plan assets for the Pennsylvania Public School Employees' Retirement System ("PSERS") and the State Employees' Retirement System ("SERS") would be consolidated under an independent administrative Board. The Board would invest and manage the funds of both systems. The Board would consist of the following:

(1) Nine members appointed from a pool of qualified candidates:
   a. Three appointed by PSERS,
   b. Three appointed by SERS,
   c. Three appointed by the other six trustees.
(2) Initial trustees would serve four, five or six year terms.
(3) Trustees after the initial trustees would serve staggered four years terms and be limited to two full or partial terms.
(4) Trustees would meet certain requirements as outlined in the legislation.
(5) Trustees would meet at least six times per year until a chief investment officer is appointed after which meetings would be held not less than four times a year.
(6) Members of the Investment Office would be fiduciaries and co-trustees with the client boards.

Powers and Duties of the Office: To hold general authority over, and exclusively invest and manage, the investment funds of PSERS and SERS in accordance with directives and policies provided by each board; responsibilities to be discharged in this capacity would include:

(1) Exercise of independent authority to hire such individuals and professional personnel as deemed necessary, as well as enter into contracts with external investment managers and consultants.
(2) Lease/purchase offices and supplies,
(3) Exercise broad investment authority,
(4) Set policies for investing and managing all funds,
(5) Monitor overall and asset class performance,
(6) Exercise authority to execute all contracts for the investment of the funds,

(7) Exercise authority to retain external investment management and consulting services on behalf of PSERS and SERS,
(8) Serve as fiduciaries to both systems,
(9) Be vested with all powers to control and manage funds currently delegated to PSERS and SERS,
(10)Meet with PSERS and SERS at least annually and provide monthly reports,
(11)Account for all principal and income, other income and dividends and expenses related to each fund,
(12)Develop policies and procedures and promulgate regulations necessary for proper function of the Office,
(13)Maintain records and books in the format required by each board,
(14)Maintain records of its meetings which shall be open to public inspection.
(15)Prepare annual administrative budgets.
(16)Allocate administrative expenses of the Office that are not related to the retirement fund, as deemed appropriate by the Office.; remaining expenses would be allocated 60% to PSERS and 40% to SERS.

Retained Authority of the SERS Board and the PSERS Board:

(1) Set strategic asset allocations, actuarial assumptions, including assumed investment returns and rates of inflation, whether economic or demographic, and risk policy.
(2) Set liquidity requirements and require the investment office to maintain assets in cash or other liquid investments and to transfer cash to SERS and PSERS when requested.
(3) Monitor progress against long-term-fund-level performance targets.
(4) Manage and invest cash or short-term investment account.

Implementation of the Commonwealth Pension Investment Office:

(1) Appointments to the Office shall be made and a majority of the Office established within one year of the effective date of the Act,
(2) Management of the retirement funds by the Office shall begin the second July 1 following a majority of the Office taking oath,
(3) Within 180 days of a majority of the Office being established, the Office shall publish the classification system for all employees of the Office in the Pennsylvania Bulletin,
(4) The Office shall prepare a list of proposed expenditures intended to be paid from directed commissions, together with a list of actual prior expenditures,
(5) The Office shall appoint a single chief investment officer by the July 1 following a majority of the Office taking oath.
(6) Prior to the majority of trustees of the Office being seated, the integration management team (IMT) shall be established to initiate and oversee the creation and transition to the newly created Office. The IMT shall consist of the secretaries of each system and 3 employees appointed by each secretary. The IMT shall:

a. Provide monthly progress reports to PSERS, SERS, the Governor, the majority and minority leaders of the Senate and House of Representatives, the majority and minority chairpersons of the Senate and House of Representatives Appropriation Committees of and the General Assembly,
b. Contract through PSERS and SERS with consultants and advisors,
c. The cost of the IMT except for the costs of SERS and PSERS employees shall be allocated 60% to PSERS and 40% to SERS,
d. Shall be dissolved the earlier of two years after a majority of the trustees of the Office have taken their oaths or when the Office provides notice to PSERS and SERS.

Based on the version of HB 1960 dated October 25, 2019, PSERS's investment consultant, Aon, has indicated in their letter of November 13, 2019 (a copy of which is attached) that, due to the provisions of HB 1960 and the additional administrative costs involved with establishing a new state agency, there will be reductions in the expected returns on assets. Aon's analysis indicates that there would be no change in the investment returns for the private market investments. The estimated increase in administrative costs associated with establishing a new agency exceed the expected decrease in fees for PSERS resulting from combining SERS' assets with PSERS' current internal management. The reductions in the expected rate of return on assets of the fund would be as follows:

(1) 0% for the fiscal year ending 6/30/2021. A discount rate of 7.25% has been used to value the System's liabilities and determine employer contributions through this date.
(2) .0145% for the fiscal year ending 6/30/2022. A discount rate of 7.2355% has been used to value the System's liabilities and determine employer contributions for the period 7/1/2021 to 6/30/2022.
(3) .0240% for the fiscal year ending 6/30/2023 and thereafter. A discount rate of 7.226% has been used to value the System's liabilities and determine employer contributions for the period 7/1/2022 and thereafter.

Estimates of the potential financial impact of HB1960 are presented in the attached table. In determining the base costs/(savings), the discount rates noted above have been utilized as well as the following:

(1) The calculations presented here are based on the data, methods and assumptions used in the June 30, 2018 actuarial valuation of PSERS.
(2) The following assumptions have been used for the projected actuarial valuations:

- The active participant population is assumed to remain constant over the projection period, and among new school employees hired on or after July 1, 2019, 65% will become Class T-G members, 30% will elect Class T-H membership, and 5% will elect Class DC participation.

- Future new employees are assumed to have similar demographic characteristics (age/gender/salary) to those of new members who entered PSERS in the period July 1, 2015 through June 30, 2018.

Where presented in our analysis, the "funded ratio" and "unfunded accrued liability" are measured on an actuarial-value-of-assets basis. It should be noted that making the same measurements using the market value of the System's assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e., purchase annuities to cover) a portion or all of its liabilities.

The attached Table 1 illustrates the potential expected additional employer costs of $775,347,000 through fiscal year 2052 due to HB 1960. These results may be used as estimates of the likely pattern of emerging costs and liabilities resulting from the proposed changes but should not be viewed as a guarantee of actual costs. Actual future funding obligations will be determined by actuarial valuations made on future valuation dates and will likely differ from the estimates provided in these analyses.

This cost note only provides information with regard to future funding contributions of the System and is not intended to be an argument in favor of or in opposition to the proposed legislation. It does not provide any information with regard to the impact any changes may have on financial disclosures under applicable GASB standards. In addition, please note that ASOP 51 risk analysis has not been provided in this cost note since the measurement date is prior to November1, 2018.

This cost note was prepared under my supervision. I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Academy's qualification Standards to issue this Statement of Actuarial Opinion. This report has been prepared in accordance with all applicable Actuarial Standards of Practice and I am available to answer questions about it.

Please let me know if you have any questions.

Very truly yours,

David L. Driscoll

David L. Driscoll, FSA, MAAA, EA, FCA
Principal, Consulting Actuary

Enc.
Pc: Brian Carl

This is an attachment to Buck's November 15, 2019 cost note on HB 1960. Please refer to that cost note for more information.

TABLE 1

Pennsylvania Public School Employees' Retirement System
Projection of Contribution Rates and Funded Ratios As of June 30, 2018
PSERS (Current Act-5) vs. House Bill 1960, Printer's Number 2794

Fiscal Year Ending June 30	Appropriation Payroll ($Thousands) Current - Act 5	Appropriation Payroll ($Thousands) HB1960	DC Payroll ($Thousands) Current - Act 5	DC Payroll ($Thousands) HB1960	Fiscal Year Market Rate of Return Current - Act 5	Fiscal Year Market Rate of Return HB1960	Pension Rate Floor Current - Act 5	Pension Rate Floor HB1960	Member Contribution Rate Current - Act 5	Member Contribution Rate HB1960
2017	$ 13,549,000	$ 13,549,000			10.14 %	10.14 %	8.31 %	8.31 %	7.52 %	7.52 %
2018	13,449,000	13,449,000			9.27	9.27	7.70	7.70	7.54	7.54
2019	13,775,000	13,775,000			7.25	7.25	7.59	7.59	7.57	7.57
2020	13,[illegible]	13,[illegible]	$ 589,000	$ 589,000	7.25	7.25	7.49	7.49	7.59	7.59
2021	14,074,690	14,074,690	1,160,980	1,160,980	7.25	7.25	7.34	7.34	7.59	7.59
2022	14,290,001	14,290,001	1,701,920	1,701,920	7.25	7.2365	7.10	7.14	7.49	7.49
2023	14,525,686	14,525,686	2,224,262	2,224,262	7.25	7.2280	6.88	6.95	7.39	7.39
2024	14,778,377	14,778,377	2,751,971	2,751,971	7.25	7.2280	6.66	6.73	7.30	7.30
2025	15,039,456	15,039,456	3,279,885	3,279,885	7.25	7.2280	6.44	6.51	7.22	7.22
2026	15,297,358	15,297,358	3,794,646	3,794,646	7.25	7.2280	6.22	6.29	7.15	7.15
2027	15,545,841	15,545,841	4,325,955	4,325,955	7.25	7.2280	6.01	6.07	7.07	7.07
2028	15,788,254	15,788,254	4,886,339	4,886,339	7.25	7.2280	5.79	5.86	6.99	6.99
2029	16,037,843	16,037,843	5,424,589	5,424,589	7.25	7.2280	5.57	5.63	6.92	6.92
2030	16,262,043	16,262,043	5,998,685	5,998,685	7.25	7.2280	5.34	5.40	6.85	6.85
2031	16,487,832	16,487,832	6,588,516	6,588,516	7.25	7.2280	5.11	5.17	6.77	6.77
2032	16,705,303	16,705,303	7,202,992	7,202,992	7.25	7.2280	4.88	4.94	6.69	6.69
2033	16,922,204	16,922,204	7,842,667	7,842,667	7.25	7.2280	4.64	4.69	6.62	6.62
2034	17,136,055	17,136,055	8,507,534	8,507,534	7.25	7.2280	4.39	4.45	6.54	6.54
2035	17,346,514	17,346,514	9,197,076	9,197,076	7.25	7.2280	4.14	4.19	6.46	6.46
2036	17,558,616	17,558,616	9,909,882	9,909,882	7.25	7.2280	3.89	3.94	6.37	6.37
2037	17,769,847	17,769,847	10,852,245	10,852,245	7.25	7.2280	3.62	3.67	6.29	6.29
2038	17,986,959	17,986,959	11,422,498	11,422,498	7.25	7.2280	3.36	3.41	6.20	6.20
2039	18,207,939	18,207,939	12,222,519	12,222,519	7.25	7.2280	3.09	3.14	6.11	6.11
2040	18,436,276	18,436,276	13,049,464	13,049,464	7.25	7.2280	2.83	2.87	6.02	6.02
2041	18,673,685	18,673,685	13,903,235	13,903,235	7.25	7.2280	2.57	2.61	5.92	5.92
2042	18,921,555	18,921,555	14,783,906	14,783,906	7.25	7.2280	2.30	2.34	5.83	5.83
2043	19,186,111	19,186,111	15,685,074	15,685,074	7.25	7.2280	2.08	2.09	5.73	5.73
2044	19,475,167	19,475,167	16,603,883	16,603,883	7.25	7.2280	1.81	1.85	5.64	5.64
2045	19,798,885	19,798,885	17,532,701	17,532,701	7.25	7.2280	1.60	1.63	5.55	5.55
2046	20,167,567	20,167,567	18,474,184	18,474,184	7.25	7.2280	1.41	1.44	5.46	5.46
2047	20,588,026	20,588,026	19,427,446	19,427,446	7.25	7.2280	1.25	1.28	5.38	5.38
2048	21,080,373	21,080,373	20,404,707	20,404,707	7.25	7.2280	1.12	1.14	5.31	5.31
2049	21,589,420	21,589,420	21,383,845	21,383,845	7.25	7.2280	1.00	1.00	5.25	5.25
2050	22,155,321	22,155,321	22,380,045	22,380,045	7.25	7.2280	0.93	0.95	5.18	5.18
2051	22,757,229	22,757,229	23,331,624	23,331,624	7.25	7.2280	0.85	0.88	5.13	5.13
2052	23,399,600	23,399,600	24,308,087	24,308,087	7.25	7.2280	0.79	0.82	5.08	5.08

Fiscal Year Ending June 30	Employer Normal Cost Rate Current - Act 5	Employer Normal Cost Rate HB1960	Employer Unfunded Liability Rate Current - Act 5	Employer Unfunded Liability Rate HB1960	Preliminary Employer Pension Rate Current - Act 5	Preliminary Employer Pension Rate HB1960	Health Care Contribution Current - Act 5	Health Care Contribution HB1960	Employer DC Contribution Rate Current - Act 5	Employer DC Contribution Rate HB1960	Total Employer Contribution Rate Current - Act 5	Total Employer Contribution Rate HB1960
2017	8.31 %	8.31 %	20.89 %	20.89 %	29.20 %	29.20 %	0.83 %	0.83 %			30.03 %	30.03 %
2018	7.70	7.70	24.04	24.04	31.74	31.74	0.83	0.83			32.57	32.57
2019	7.59	7.59	25.01	25.01	32.60	32.60	0.83	0.83			33.43	33.43
2020	7.49	7.49	25.87	25.87	33.36	33.36	0.84	0.84	0.09 %	0.09 %	34.29	34.29
2021	7.34	7.34	26.40	26.40	33.74	33.74	0.85	0.85	0.18	0.18	34.77	34.77
2022	7.10	7.14	26.99	26.99	34.09	34.13	0.85	0.85	0.25	0.25	35.19	35.23
2023	6.88	6.95	27.78	27.83	34.66	34.78	0.85	0.85	0.33	0.33	35.84	35.96
2024	6.66	6.73	28.41	28.48	35.07	35.21	0.83	0.83	0.40	0.40	36.30	36.44
2025	6.44	6.51	29.03	29.11	35.47	35.62	0.83	0.83	0.47	0.47	36.77	36.92
2026	6.22	6.29	29.82	29.89	36.04	36.18	0.82	0.82	0.53	0.53	37.39	37.53
2027	6.01	6.07	30.51	30.59	36.52	36.66	0.80	0.80	0.61	0.61	37.93	38.07
2028	5.79	5.86	31.06	31.14	36.85	37.00	0.80	0.80	0.66	0.66	38.31	38.46
2029	5.57	5.63	31.67	31.76	37.24	37.39	0.79	0.79	0.72	0.72	38.75	38.90
2030	5.34	5.40	32.34	32.43	37.68	37.83	0.78	0.78	0.80	0.80	39.26	39.41
2031	5.11	5.17	33.04	33.13	38.15	38.30	0.78	0.78	0.86	0.86	39.79	39.94
2032	4.88	4.94	33.78	33.86	38.66	38.80	0.78	0.78	0.93	0.93	40.37	40.51
2033	4.64	4.69	34.52	34.61	39.16	39.30	0.78	0.78	1.01	1.01	40.95	41.09
2034	4.39	4.45	35.30	35.39	39.69	39.84	0.78	0.78	1.08	1.08	41.55	41.70
2035	4.14	4.19	36.10	36.19	40.24	40.38	0.78	0.78	1.15	1.15	42.17	42.31
2036	3.89	3.94	18.61	18.74	22.50	22.68	0.78	0.78	1.23	1.23	24.51	24.69
2037	3.62	3.67	14.37	14.51	17.99	18.18	0.78	0.78	1.30	1.30	20.07	20.26
2038	3.36	3.41	12.58	12.72	15.94	16.13	0.78	0.78	1.37	1.37	18.08	18.28
2039	3.09	3.14	10.47	10.62	13.56	13.76	0.78	0.78	1.45	1.45	15.79	15.99
2040	2.83	2.87	8.82	8.97	11.65	11.84	0.78	0.78	1.53	1.53	13.96	14.15
2041	2.57	2.61	7.34	7.51	9.91	10.12	0.78	0.78	1.61	1.61	12.30	12.51
2042	2.30	2.34	3.12	3.30	5.42	5.64	0.78	0.78	1.69	1.69	7.89	8.11
2043	2.08	2.09	1.99	2.18	4.05	4.27	0.78	0.78	1.77	1.77	6.60	6.82
2044	1.81	1.85	1.75	1.94	3.56	3.79	0.78	0.78	1.85	1.85	6.19	6.42
2045	1.60	1.63	1.79	1.98	3.39	3.61	0.78	0.78	1.92	1.92	6.09	6.31
2046	1.41	1.44	1.69	1.89	3.10	3.33	0.78	0.78	1.98	1.98	5.86	6.09
2047	1.25	1.28	1.23	1.31	2.48	2.59	0.78	0.78	2.04	2.04	5.30	5.41
2048	1.12	1.14	1.01	1.01	2.13	2.15	0.78	0.78	2.10	2.10	5.01	5.03
2049	1.00	1.00	0.80	0.79	1.80	1.82	0.78	0.78	2.14	2.14	4.72	4.74
2050	0.93	0.95	0.37	0.37	1.30	1.32	0.78	0.78	2.19	2.19	4.27	4.29
2051	0.85	0.88	0.16	0.16	1.01	1.04	0.78	0.78	2.22	2.22	4.01	4.04
2052	0.79	0.82	0.21	0.20	1.00	1.02	0.78	0.78	2.24	2.24	4.02	4.04

Fiscal Year Ending June 30	Projected Total Employer Contribution ($Thousands) Current - Act 5	Projected Total Employer Contribution ($Thousands) HB1960	Cost/(Savings) Cash Flow Basis	Cost/(Savings) Present Value as of June 30, 2019	Funded Ratio Current - Act 5	Funded Ratio HB1960	(Based on Actuarial Value of Assets & $Millions) Current - Act 5	(Based on Actuarial Value of Assets & $Millions) HB1960	Actuarial Value of Assets ($Millions) Current - Act 5	Actuarial Value of Assets ($Millions) HB1960	Market Value of Assets ($Millions) Current - Act 5	Market Value of Assets ($Millions) HB1960
2017					56.3 %	56.3 %	$ 44,512.0	$ 44,512.0	$ 57,480.6	$ 57,480.6	$ 53,279.1	$ 53,279.1
2018					56.5	56.5	44,855.4	44,855.4	58,258.3	58,258.3	56,486.4	56,486.4
2019	$ 4,604,983	$ 4,604,983	$ 0	$ 0	57.7	57.7	44,654.8	44,654.8	60,787.9	60,787.9	58,880.7	58,880.7
2020	4,750,452	4,750,452	0	0	58.8	58.8	44,453.3	44,453.3	63,378.2	63,378.2	61,484.4	61,484.4
2021	4,880,773	4,880,773	0	0	59.5	59.5	44,585.7	44,745.2	65,632.5	65,632.6	64,226.8	64,226.9
2022	5,028,333	5,034,049	5,716	4,320	60.7	60.5	44,272.5	44,543.4	68,302.1	68,299.0	67,105.4	67,102.4
2023	5,206,090	5,222,853	16,763	11,813	61.9	61.8	43,751.2	44,024.4	71,159.1	71,157.1	70,179.9	70,178.4
2024	5,364,341	5,385,930	21,589	14,166	63.0	62.9	43,322.7	43,560.8	73,877.3	73,880.9	73,424.9	73,429.2
2025	5,530,631	5,552,737	22,106	13,543	64.5	64.4	42,406.2	42,674.9	77,033.6	77,043.1	76,857.7	76,867.9
2026	5,719,276	5,741,851	22,576	12,896	66.4	66.3	40,850.6	41,116.5	80,752.3	80,767.9	80,494.6	80,511.1
2027	5,896,067	5,917,613	21,547	11,476	68.4	68.3	39,087.4	39,350.4	84,589.9	84,610.1	84,331.5	84,352.4
2028	6,049,385	6,073,089	23,704	11,772	70.5	70.5	37,092.2	37,352.0	88,537.1	88,563.6	88,354.7	88,381.8
2029	6,211,380	6,234,081	22,701	10,512	72.7	72.6	34,768.1	35,024.5	92,716.3	92,747.5	92,582.5	92,594.3
2030	6,384,852	6,408,129	23,277	10,050	75.2	75.0	32,079.8	32,332.8	97,103.5	97,139.4	96,989.1	97,025.6
2031	6,560,962	6,584,826	23,864	9,607	77.8	77.7	28,995.2	29,244.7	101,744.7	101,785.2	101,659.6	101,700.6
2032	6,743,135	6,767,599	24,465	9,183	80.7	80.6	25,483.2	25,729.2	106,636.2	106,681.2	106,573.1	106,618.5
2033	6,930,470	6,953,861	23,391	8,186	83.9	83.7	21,508.3	21,750.9	111,793.8	111,841.4	111,748.1	111,793.9
2034	7,119,826	7,145,545	25,719	8,380	87.3	87.2	17,031.9	17,271.4	117,251.8	117,303.1	117,213.8	117,265.2
2035	7,314,857	7,339,497	24,640	7,497	91.1	90.9	12,015.8	12,251.5	123,018.0	123,071.0	122,987.2	123,040.4
2036	4,304,442	4,335,082	30,640	8,692	92.9	92.7	9,626.6	9,858.5	125,816.3	125,876.3	125,792.4	125,852.6
2037	3,566,442	3,599,403	32,962	8,719	94.3	94.1	7,778.4	7,987.4	127,764.8	127,834.2	127,748.5	127,816.1
2038	3,253,128	3,287,740	34,612	8,538	95.5	95.4	6,085.9	6,293.2	129,237.7	129,318.4	129,223.7	129,304.5
2039	2,875,394	2,911,851	36,457	8,384	96.6	96.4	4,624.8	4,818.1	130,154.7	130,249.1	130,143.9	130,238.5
2040	2,573,073	2,609,460	36,388	7,802	97.5	97.4	3,337.7	3,515.0	130,543.4	130,652.4	130,535.1	130,644.2
2041	2,297,489	2,335,643	38,154	7,628	98.3	98.2	2,210.9	2,389.4	130,439.7	130,566.0	130,433.2	130,559.7
2042	1,492,644	1,533,796	41,153	7,671	98.6	98.5	1,743.6	1,918.8	129,291.6	129,439.9	129,286.6	129,434.9
2043	1,267,228	1,308,264	41,036	7,132	98.8	98.7	1,531.0	1,640.9	127,674.1	127,846.0	127,670.2	127,842.1
2044	1,205,194	1,249,630	44,436	7,201	99.0	98.9	1,302.7	1,383.5	125,793.2	125,994.4	125,790.2	125,991.4
2045	1,204,981	1,248,845	43,864	6,628	99.2	99.1	1,044.4	1,002.8	123,775.2	124,007.5	123,772.9	124,005.2
2046	1,182,809	1,228,171	45,362	6,391	99.4	99.4	779.8	791.3	121,829.1	121,886.9	121,827.3	121,885.2
2047	1,091,799	1,113,488	21,689	2,849	99.5	99.5	582.1	579.7	119,351.4	119,633.2	119,350.8	119,631.8
2048	1,055,506	1,058,952	3,447	422	99.6	99.7	411.7	409.6	116,929.4	117,208.8	116,928.4	117,208.9
2049	1,018,236	1,024,056	5,820	665	99.8	99.8	269.9	268.3	114,412.3	114,690.2	114,411.4	114,689.4
2050	946,459	950,475	4,016	426	99.8	99.8	207.3	205.9	111,756.8	112,033.9	111,756.2	112,032.3
2051	912,015	918,558	6,543	650	99.8	99.8	186.5	185.2	109,025.1	109,302.4	109,024.6	109,301.8
2052	939,661	946,373	6,712	621	99.9	99.9	151.9	150.6	106,287.5	106,567.0	106,287.1	106,566.6
Total	$ 131,503,309	$ 132,278,656	$ 775,347	$ 233,854								

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November 13, 2019

James Grossman
Chief Investment Officer
Pennsylvania Public School Employees' Retirement System
5 North 5th Street
Harrisburg, PA 17101

Re: HB 1960

Dear Jim:

As requested, Aon, in its role as the general investment consultant to PSERS, has done an initial review of the potential opportunities for increasing PSERS' net investment returns as a result of the proposed HB 1960. It is our understanding that this Act would establish a new state agency which has the authority to invest the retirement assets of PSERS and SERS collectively. As part of our analysis, we have reviewed both the draft bill dated October 25, 2019 and PSERS' understanding that this new state agency would still be subject to the Commonwealth Attorney's Act.

Aon's understanding is that HB 1960 does provide for the creation of an independent agency with one of the goals of the new state agency is that it will seek to expand the current PSERS investment team with the goal of increasing the amount of assets managed internally, thereby reducing the investment related costs of using external investment managers. In addition, it is our understanding that the Investment Office will manage take on the responsibility of certain assets of the SERS plan which will be managed internally. As PSERS already utilizes internal investment management for much of their public market investments, potential opportunities for future cost savings involves the greater use of internal management in the private equity and potentially other asset classes such as real estate and infrastructure. Private equity currently represents 15% of the assets of the PSERS Plan. PSERS has already embarked on plans to increase their co-investment private equity program as part of their cost reduction plan. To further move away from traditional investments in private equity limited partnerships, PSERS would need the ability to include both co-underwriting as well as co-investments in their in-house capabilities. Therefore, our understanding is that one area of focus for this new state agency is specifically to increase the necessary in-house capabilities to undertake co-underwriting private investments with general partners and additional co-investment opportunities in the private market asset classes such as private equity. Private equity investments involve making investments in private companies through limited partnerships. Co-investments are additional investments made in these private companies alongside the investments in the limited partnership. Co-underwritten private investments involve making direct investments and performing due diligence on potential investments alongside the general partner or lead investor in advance of committing to buy a company.

The range of realized returns in private equity is quite large, reflecting the complex nature of these investments and the skill required to be successful. Successful investing in the private markets is not only a function of access to investment opportunities that are often associated with larger asset size and better deal flow, but also is contingent on the ability of investors to have the appropriate investment and legal resources needed to source, evaluate, execute and oversee these investments. In addition, a key ingredient to success for any institution investing in private equity is that it has a governance structure that enables the investor to initiate, evaluate, approve and contract with the limited partnerships in a timely manner.

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We note that key governance considerations including independence with respect to board composition, procurement, personnel and budgetary authority which is reflective of industry best practices are an essential requirement in ensuring that the new state agency can realize potential incremental returns. The Official Comment to UMPERSA Section 5 states the point well. "Independence is required because it permits trustees to perform their duties in the face of pressure from others who may not be subject to [fiduciary] obligations. In the absence of independence, trustees may be forced to decide between fulfilling their fiduciary obligations to participants and beneficiaries or complying with the directions of others who are responding to a more wide-ranging (and possibly conflicting) set of interests." Trustees need to have a level of independence sufficient to permit them to perform their duties and to do so effectively and efficiently. Trustees are different from other state actors because they are subject to an extensive and stringent set of fiduciary obligations to retirement system participants and beneficiaries. These obligations both require and justify some level of trustee independence.

While HB 1960 does seem to create a new agency with the independence with respect to board composition, personnel and budgetary authority, as the agency is still subject to the Commonwealth Attorney's Act, its ability to contract independently is not clear. Without this key governance enhancement more clearly articulated in the bill, the potential incremental investment returns may not be realized, resulting in no improvement to the expected return on Plan assets.

Specifically, a truly independent board comprised of experienced investment professionals focused on economic considerations of investments will optimize the decision-making and return potential of investments. In addition, legal review and negotiation of the underwriting documents may require the investment office to engage third-party legal counsel and tax advisors which specialize in private investments in order to ensure access to the necessary expertise to execute these agreements efficiently. Lastly, the ability to hire, retain and compensate a team of in-house experts who have the requisite experience in investment banking, fund investing, co-underwriting, co-investing and financing private equity transactions is necessary for PSERS to obtain access to the hard to access general partners which have the best potential for achieving the higher returns. A deeply resourced and seasoned team is also important for PSERS to successfully navigate the changing market circumstances over the long-term.

Improvement in the Expected Return Assumptions (ERA) from the Act will be severely hampered if important governance changes documented above and currently not clearly articulated in the current draft bill are not included. However, should those key governance changes be included and enacted in legislation, then there can be long-term ERA improvements from net cost savings.

Expected Return Analysis

In modeling the impact of the proposed new agency on PSERS' Expected Return Assumption (ERA), we have factored in the potential for any improvement in investment returns due to lower fees as the result of cost savings of aggregating SERS assets with PSERS' current internal management capabilities, the expectation for higher investment staff costs as well as the impact of incremental administrative costs associated with the creation of a new state agency. Given the inability to do co-underwriting, the ability for PSERS to achieve any incremental higher investment returns above what is already included in the cost reduction plan for increased co-investments is very low so we have modeled no change in the investment returns for private markets. We have assumed some additional cost savings resulting from the aggregating of PSERS and SERS assets in the internal PSERS' asset management capabilities. The estimated cost savings to PSERS due to the consolidation of assets is $2.76 million or 0.5 basis points which we assume will take effect in 2022 once the new agency is fully implemented. We have assumed the following increased administrative costs for the new state agency: 0 bps in 2020, 1.45 bps in 2021 and 2.9 bps in 2022 and beyond.

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The table below summarizes Aon's analysis regarding the total impact of these assumptions on PSERS' current Expected Return Assumption (ERA). This analysis shows that there is a decline in the ERA in the second year from 7.25% to 7.236%, declining further to 7.226% in the third year. This decline for the first three years reflects the incremental costs associated with the investment office building out the necessary new administrative personnel offset by the incremental investment cost savings estimated for 2022 and beyond.

Year	Gross EROA	Proj. Incremental Inv. Cost Savings	Proj. Incremental Admin Exp	Projected New Plan EROA	Change In EROA
	%	%	%	%	%
1	7.250%	0.000%	0.000%	7.250%	0.000%
2	7.250%	0.000%	-0.015%	7.236%	-0.015%
3	7.250%	0.005%	-0.029%	7.226%	-0.024%
4+	7.250%	0.005%	-0.029%	7.226%	-0.024%

In conclusion, the expected incremental returns on private equity is anticipated to be zero and the incremental gain to ERA is expected to be negative since the costs of new administrative personnel of a new state agency will be incurred.

Sincerely,

Claire Shaughnessy
Partner

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