April 3, 2017

Mrs. Maria Walden
Director of Legislation and Policy
PSRS and PEERS of Missouri
3210 West Truman Blvd.
Jefferson City, MO 65109

Re: Estimated Fiscal Impact to PSRS of House Bill 936

Dear Maria:

As requested and pursuant to our engagement letter with the Public School and Education Employee Retirement Systems of Missouri ("PSRS and PEERS of Missouri") dated June 9, 2014 (and amended April 16, 2015), we have estimated the cost of a proposed change to the Public School Retirement System ("PSRS"). The proposed change is contained in House Bill 936 ("HB 936"), a copy of which was provided to us by PSRS and PEERS of Missouri via email on March 31, 2017. Our understanding of the proposed change, a description of the analysis we performed, and summary results of our analysis are included in this letter below. Detailed results of our analysis, summaries of the assumptions and benefit provisions reflected in our analysis, and other disclosures related to our analysis can be found in the following enclosed exhibits:

- Exhibit I – Detailed Impact to the Funded Status and Actuarially Determined Contribution Rate
- Exhibit II – Actuarial Assumptions and Methods
- Exhibit III – Plan Provisions
- Exhibit IV – Disclosures

Proposed Change:

Currently, when retired PSRS members return to work in positions covered by either PSRS or the Public Education Employee Retirement System ("PEERS"), they are subject to the following requirements:

- The retirement allowance is suspended for any such member who:
  - Works more than 550 hours per school year, and /or
  - Earns more than 50% of the annual compensation a full-time member would earn in the same position.

- The member and their employer are required to contribute to PSRS or PEERS, to the extent the retirement allowance is suspended and the member satisfies other statutory eligibility requirements.

It is our understanding that HB 936 would change the current working after retirement provisions to allow retired PSRS members to return to work for a covered district in a position that does not require certification under RSMo Section 168.021 in any capacity without a discontinuance of the member's retirement allowance and without becoming an active member entitled to future benefit accruals and subject to making contributions to PSRS or PEERS. We note that employees of covered districts employed in non-certificated positions generally participate in PEERS.

Consistent with current law, retired PSRS members who return to work for a covered district in a position that requires certification under RSMo Section 168.021 will have their retirement allowance suspended and will earn additional benefits and be required to contribute to PSRS or PEERS (depending on their covered position) if their employment exceeds the threshold noted above.

It is our understanding that the proposed change in provisions would be applicable immediately upon HB 936 being signed into law.

Analysis:

HB 936 would provide greater ability for retired PSRS members to receive full retirement benefits from PSRS while also earning compensation as a full-time active employee in a PEERS covered position. PSRS members who retire with an unreduced benefit after completing 30 years of service or meeting the "Rule of 80" (i.e. when age plus service is greater than or equal to 80) typically receive a retirement benefit that replaces 50% - 75% of the compensation they were paid as an active employee. These members are often under 60 year of age. For these members, retiring from a certificated PSRS covered position and returning to work in a non-certificated PEERS covered position could result in a significant increase in overall compensation when considering both salary and pension. We expect a number of active PSRS members would take advantage of this situation, resulting in higher rates of retirement when members are first eligible for unreduced benefits. As a point of reference 6,706 of 78,129 PSRS active members were eligible for unreduced retirement as of June 30, 2016. A number of current PSRS retirees who are still of working age are also likely to take advantage of this situation.

Since non-certificated positions are generally covered by PEERS, we expect that HB 936 would result in a decrease in active PEERS membership as PSRS retirees would fill a number of positions that would otherwise be filled by employees that would earn benefits and make contributions to PEERS. Districts would benefit by hiring retired PSRS members into PEERS covered positions because they would save the cost of contributing to PEERS for those employees and because retired PSRS members may have already worked for them, or are at least familiar with the industry.

The table below (Table 1) summarizes the estimated fiscal impact of HB 936 on PSRS. Our analysis is based on the census data, assumptions, and methods used in the June 30, 2016 actuarial valuation of PSRS. To estimate the potential impact of HB 926, we have increased the assumed retirement rates when members are first eligible for unreduced retirement. Since there is no prior experience available to benchmark the potential impact on retirement patterns, we have selected two alternative retirement assumptions in order to provide a range for the potential impact of HB 936. Exhibits II and III provide details of the changes in assumptions, methods, and plan provisions reflected in our analysis.

The estimated fiscal impact of HB 936 on PEERS is presented in a separate letter.

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Table 1: PSRS Summary Results

($ in Millions)	BASELINE - June 30, 2016 Valuation [1,4]	HB 936 Scenario 1 [2,4]	HB 936 Scenario 2 [3,4]
Funded Status			
Present Value of Future Benefits ("PVFB")	$48,677.7	$48,750.3	$48,814.9
Change from BASELINE		$72.6	$137.2
Actuarial Accrued Liability ("AAL")	$41,744.6	$41,838.0	$41,917.7
Change from BASELINE		$93.4	$173.1
Actuarial Value of Assets ("AVA")	$35,419.3	$35,419.3	$35,419.3
Change from BASELINE		$0.0	$0.0
Funded Percentage (AVA / AAL)	84.85%	84.66%	84.50%
Change from BASELINE		(0.19%)	(0.35%)
Actuarially Determined Contribution Rate			
Anticipated Payroll [4]	$4,556.1	$4,553.7	$4,551.2
Normal Cost Rate	16.25%	16.33%	16.40%
Change from BASELINE		0.08%	0.15%
Unfunded Actuarial Accrued Liability Amortization Rate [5]	9.34%	9.50%	9.64%
Change from BASELINE		0.16%	0.30%
Actuarially Determined Contribution Rate ("ADC Rate")	**25.59%**	**25.83%**	**26.04%**
Change from BASELINE		0.24%	0.45%

[1] The BASELINE results reflect assumed retirement rates of 20% - 45% when members become eligible for unreduced retirement under the Rule of 80 or after 30 years of service.

[2] Scenario 1 reflects an assumed retirement rate of 45% at all age and service combinations at which members become eligible for unreduced retirement under the Rule of 80 or after 30 years of service.

[2] Scenario 2 reflects an assumed retirement rate of 50% at all age and service combinations at which members become eligible for unreduced retirement under the Rule of 80 or after 30 years of service.

[3] The assumed retirement rates reflected in the results are presented in Exhibit II.

[4] Excludes anticipated payroll for members at or over the age at which the retirement rate is 100%.

[5] Per statute, a change in provisions that increases the Actuarial Accrued Liability is amortized over 20 years (level percent of pay basis).

Please note that the PVFB represents the present value of all benefits expected to be paid to members of PSRS. This includes benefits that have been earned through service accrued to date (i.e. accrued liability) and benefits that will be earned through future service (i.e. future normal cost). The AAL is the portion of the PVFB attributed to past service using the Entry Age Normal (level percent of pay) actuarial cost method, consistent with the Board's funding policy.

A change in PVFB typically affects future contribution rates due to a change in future Normal Costs as well as amortization of the change in AAL. Because the PVFB is estimated to increase the ADC Rate is also expected to increase.

The ADC Rate is the sum of two components:

1. The Normal Cost Rate = The ongoing cost of future benefit accruals.
2. The Unfunded Actuarial Accrued Liability ("UAAL") Amortization Rate = The temporary cost of amortizing the current unfunded AAL.

In computing the estimated change in the ADC rate, the estimated increase in UAAL resulting from the change is amortized over 20 years as level percent of pay, per statute. Although delaying retirement beyond first eligibility for an unreduced benefit results in a higher monthly benefit for the member, the present value of the delayed (but higher) monthly benefit is less than the present value of the benefit commencing at first eligibility for an unreduced benefit. The reasons being that delaying retirement results in the member forgoing receipt of benefit payments, delaying future cost-of-living adjustments, and reducing the period of time that they will receive pension payments. As such, the PVFB and AAL are estimated to increase under HB 936 because a larger percentage of members are assumed to retire when they are first eligible for an unreduced benefit. To the extent members do not accelerate retirement and all assumptions are the same as the baseline valuation, there would be no fiscal impact to PSRS.

As shown in Table 1 above, we have estimated the fiscal impact of HB 936 on PSRS under two different scenarios in order to provide a range of possible outcomes. In Scenario 1, we have assumed a retirement rate of 45% at all age and service combinations at which members first become eligible for unreduced retirement under the Rule of 80 or after 30 years of service. This results in approximately 60 additional retirees per year. In Scenario 2, we have assumed a retirement rate of 50% at all age and service combinations at which members first become eligible for unreduced retirement under the Rule of 80 or after 30 years of service. This results in approximately 120 additional retirees per year. We expect that these members would retire from certificated PSRS covered positions and return to full-time employment in non-certificated PEERS covered positions, thereby reducing the number of active and contributing members in both PSRS and PEERS.

Please also note the following when reviewing the results:

- Our analysis was performed based on our understanding of the current PSRS benefit provisions as set forth in Chapter 169 of the Missouri Revised Statutes, as well as the modification to those statutes contained in HB 936 and described above.

- Our analysis was performed by measuring the impact of the change at June 30, 2016, using census data collected from PSRS and PEERS of Missouri as of June 30, 2016. Our estimates do not incorporate the impact of future employees who may become members of PSRS. Please refer to our actuarial valuation report dated October 28, 2016 for a summary of the census data.

- Our analysis was completed using the assumptions and methods adopted by the Board of Trustees of PSRS of Missouri for the June 30, 2016 valuations, except that the results of Scenarios 1 and 2 reflect modifications to the assumed retirement rates. A summary of the assumptions and methods reflected in our analysis is provided in Exhibit II.

- The BASELINE results shown in Table 1 above and in the enclosed Exhibit I equal the results of our June 30, 2016 valuation of the system.

- The results illustrated herein are sensitive to retirement assumption. The actual fiscal cost of HB 936 would be determined by the actual number of members who alter the timing of their retirement from certificated, PSRS covered position in order to take advantage of the ability to work full-time for a district in a non-certificated, PEERS covered position while continuing to receive their PSRS retirement allowance. The actual fiscal cost would also be subject to the demographic characteristics of any new members that are hired to replace the additional retirees from PSRS, which has not been quantified.

- The results presented are on a funding basis only, consistent with the Board's funding policy, and do not reflect the Governmental Accounting Standards applicable to pension plans.

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- Our analysis illustrates the estimated change in the Actuarially Determined Contribution Rate, which may or may not affect the actual contribution rates set by the Board.

- Our analysis does not include any additional administrative cost that may be incurred by PSRS of Missouri to implement this change.

- A stochastic model of potential results on a forecasted basis was not completed due to the limited scope of our engagement.

- The calculations are based upon assumptions regarding future events. However, long term costs will be determined by actual future events, which may differ materially from the assumptions that were made. The calculations are also based upon present and proposed plan provisions that are outlined in the letter. If you have reason to believe that the assumptions that were used are unreasonable, that the plan provisions are incorrectly described, that important plan provisions relevant to this proposal are not described, or that conditions have changed since the calculations were made, please contact the author of this letter prior to relying on information in the letter as any changes may impact the result.

- Future actuarial measurements may differ significantly from the current measurements presented in this analysis 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 or additional cost or contribution requirements based on funded status); and changes in plan provisions or applicable law.

The assumptions and methods used in the BASELINE valuation are presented in Part A of Exhibit II and the changes in assumptions for estimating the fiscal impact of HB 936 are present in Part B of Exhibit II. The BASELINE PSRS plan provisions are presented in Part A of Exhibit III and the changes in plan provisions for quantifying the fiscal impact of HB 936 are presented in Part B of Exhibit III. Actual costs will differ based on demographic experience compared to the assumptions selected by PSRS for this cost analysis.

To the best of our knowledge this actuarial statement is complete and accurate and has been prepared in accordance with generally accepted actuarial principles and practice and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations are also consistent with our understanding of Missouri state law. The undersigned actuaries are members of the Society of Actuaries and other professional organizations, including the American Academy of Actuaries, and meet the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States relating to pension plans. The team working on this engagement is not aware of any relationship between the PwC practitioners involved in this engagement and PSRS and PEERS of Missouri that may impair our objectivity.

The content of this document is limited to the matters specifically addressed herein and does not address any other potential tax consequences, or the potential application of tax penalties, to any matter other than as set forth herein. Our conclusions are not binding upon any taxing authority or the courts and there is no assurance that any relevant taxing authority will not successfully assert a contrary position. In addition, no exceptions (including the reasonable cause exception) are available for any federal or state penalties imposed if any portion of a transaction is determined to lack economic substance or fails to satisfy any similar rule of law, and our advice will not protect you from any such penalties. This document supersedes all prior written or oral advice with respect to the issues addressed in this document and all such prior communications should not be relied upon by any person for any purpose. This document has been prepared pursuant to an engagement letter between PSRS and PEERS of Missouri and PwC, and is intended solely for the use and benefits of PSRS and PEERS of Missouri and not for reliance by any other person.

Please call with any questions or if you require additional information.

Sincerely,

Cindy Fraterrigo

Cindy Fraterrigo, FSA, EA, MAAA

Brandon A. Robertson

Brandon Robertson, ASA, EA, MAAA

cc: M. Steve Yoakum
Anita Brand

Exhibit I

Public School Retirement System of Missouri

House Bill 936 - Allow Retired PSRS Members to Return to Work in a Non-Certificated Position Without Suspension of Benefits or Contributing to the System

Detailed Cost Analysis as of June 30, 2016

	BASELINE - June 30, 2016 Valuation [1,4]	HB 936 Scenario 1 [2,4]	HB 936 Scenario 2 [3,4]
Funded Status			
Present Value of Future Benefits ("PVFB"):			
Member Contribution Balances	$6,994,369,700	$6,994,369,700	$6,994,369,700
Actives [5]	15,664,041,020	15,736,578,273	15,801,244,974
Inactives [6]	124,310,214	124,310,214	124,310,214
Retirees, Beneficiaries, and Disableds	25,895,011,565	25,895,011,565	25,895,011,565
Total PVFB	$48,677,732,499	$48,750,269,752	$48,814,936,453
Change from BASELINE		$72,537,253	$137,203,954
Actuarial Accrued Liability ("AAL"):			
Member Contribution Balances	$6,994,369,700	$6,994,369,700	$6,994,369,700
Actives [5]	8,730,927,183	8,824,325,733	8,904,027,149
Inactives [6]	124,310,214	124,310,214	124,310,214
Retirees, Beneficiaries, and Disableds	25,895,011,565	25,895,011,565	25,895,011,565
Total AAL	$41,744,618,662	$41,838,017,212	$41,917,718,628
Change from BASELINE		$93,398,550	$173,099,966
Actuarial Value of Assets ("AVA")	35,419,277,279	35,419,277,279	35,419,277,279
Unfunded Actuarial Accrued Liability (AAL - AVA)	$6,325,341,383	$6,418,739,933	$6,498,441,349
Funded Percentage (AVA / AAL)	**84.85%**	**84.66%**	**84.50%**
Change from BASELINE		**(0.19%)**	**(0.35%)**
Actuarially Determined Contribution Rate			
Anticipated Payroll [7]	$4,556,137,282	$4,553,749,360	$4,551,241,004
Normal Cost:			
Amount	$740,176,751	$743,760,953	$746,411,910
Percentage of Payroll	16.25%	16.33%	16.40%
Change from BASELINE		0.08%	0.15%
Unfunded Actuarial Accrued Liability (UAAL) Annual Amortizations: [8]			
Amount	$425,472,449	$432,538,349	$438,568,017
Percentage of Payroll	9.34%	9.50%	9.64%
Change from BASELINE		0.16%	0.30%
Actuarially Determined Contribution Rate:			
Percentage of Payroll	**25.59%**	**25.83%**	**26.04%**
Change from BASELINE		**0.24%**	**0.45%**

[1] The BASELINE results reflect assumed retirement rates of 20% - 45% when members become eligible for unreduced retirement under the Rule of 80 or after 30 years of service.

[2] Scenario 1 reflects an assumed retirement rate of 45% at all age and service combinations at which members become eligible for unreduced retirement under the Rule of 80 or after 30 years of service.

[3] Scenario 2 reflects an assumed retirement rate of 50% at all age and service combinations at which members become eligible for unreduced retirement under the Rule of 80 or after 30 years of service.

[4] The assumed retirement rates reflected in the results are presented in Exhibit II.

[5] Includes 2,108 members who retired in July 2016 and who are not affected by the assumed retirement rates.

[6] Includes 24 members who retired in July 2016 and who are not affected by the assumed retirement rates.

[7] Excludes anticipated payroll for members at or over the age at which the retirement rate is 100%.

[8] Per statute, a change in provisions that increases the Actuarial Accrued Liability is amortized over 20 years (level percent of pay basis).

Public School Retirement System of Missouri

House Bill 936 - Allow Retired PSRS Members to Return to Work in a Non-Certificated Position Without Suspension of Benefits or Contributing to the System

A. Actuarial Assumptions - Baseline

Unless stated otherwise, the actuarial assumptions used in this analysis are the same assumptions used in the June 30, 2016 actuarial valuation.

Inflation

2.25% per annum.

Investment Return

7.75% per annum (net of investment and administrative expenses).

Payroll Growth

2.75% per annum, consisting of 2.25% inflation, 0.25% real wage growth due to the inclusion of active health care costs in pensionable earnings, and 0.25% of real wage growth due to productivity.

Salary and Payroll Increases

Service	Inflation	Health Care Cost and Productivity	Merit, Promotion, Seniority	Individual Salary Growth
0	2.25%	0.50%	6.75%	9.50%
1	2.25%	0.50%	3.25%	6.00%
2	2.25%	0.50%	3.10%	5.85%
3	2.25%	0.50%	2.95%	5.70%
4	2.25%	0.50%	2.80%	5.55%
5	2.25%	0.50%	2.65%	5.40%
6	2.25%	0.50%	2.50%	5.25%
7	2.25%	0.50%	2.35%	5.10%
8	2.25%	0.50%	2.20%	4.95%
9	2.25%	0.50%	2.05%	4.80%
10	2.25%	0.50%	1.90%	4.65%
11	2.25%	0.50%	1.75%	4.50%
12	2.25%	0.50%	1.60%	4.35%
13	2.25%	0.50%	1.45%	4.20%
14	2.25%	0.50%	1.30%	4.05%
15	2.25%	0.50%	1.23%	3.98%
16	2.25%	0.50%	1.16%	3.91%
17	2.25%	0.50%	1.09%	3.84%
18	2.25%	0.50%	1.02%	3.77%
19	2.25%	0.50%	0.95%	3.70%
20	2.25%	0.50%	0.88%	3.63%
21	2.25%	0.50%	0.81%	3.56%
22	2.25%	0.50%	0.74%	3.49%
23	2.25%	0.50%	0.67%	3.42%
24	2.25%	0.50%	0.60%	3.35%
25	2.25%	0.50%	0.53%	3.28%
26	2.25%	0.50%	0.46%	3.21%
27	2.25%	0.50%	0.39%	3.14%
28	2.25%	0.50%	0.32%	3.07%
29	2.25%	0.50%	0.25%	3.00%
30+	2.25%	0.50%	0.25%	3.00%

Cost of Living Adjustments (COLA)

COLA of 1.00% on January 1, 2018, and increasing 0.05% annually to an ultimate assumption of 1.50% for January 1, 2028 and beyond. The COLA reflected for January 1, 2017 is 0%, in accordance with the actual COLA approved by the Board. This COLA assumption is based on the current policy of the Board to grant a 0% COLA whenever annual inflation, as measured by the CPI-U index for a fiscal year, is less than 2%, 2% COLA whenever annual inflation is between 2% and 5%, and 5% whenever the annual inflation exceeds 5%. The COLA is effective each January 1 and is compounded, though total lifetime increases cannot exceed 80%.

Public School Retirement System of Missouri

House Bill 936 - Allow Retired PSRS Members to Return to Work in a Non-Certificated Position Without Suspension of Benefits or Contributing to the System

A. Actuarial Assumptions - Baseline (Continued)

Cost of Living Adjustments (Continued)

The COLA assumption applies to service retirements and beneficiary annuities. The COLA does not apply to the dependent-based survivor benefits payable to a qualified spouse, a qualified spouse with children, dependent children, or dependent parents. Members begin receiving COLAs on the second January after benefit commencement. Total lifetime COLA cannot exceed 80% of the original benefit. Future COLAs for current benefit recipients reflect actual cumulative adjustments granted at the time of the valuation.

Mortality Rates

Pre-Retirement: 75% of the RP-2006 White Collar Mortality Table, with static projection to 2028 using the 2014 SSA Improvement Scale. Illustrative rates per 1,000 members at various ages are as follows:

Age	Male	Female
20	0.196	0.097
30	0.228	0.123
40	0.280	0.224
50	0.851	0.666
60	1.929	1.205
70	6.434	3.579

Post-Retirement: RP-2006 White Collar Mortality Tables with plan-specific experience adjustments and static projection to 2028 using the 2014 SSA Improvement Scale. The plan-specific experience adjustments are as follows:

Age	Male	Female
<60	1.00	1.00
60-74	0.89	0.67
75-89	1.05	0.91
>=90	1.05	1.16

Illustrative rates per 1,000 members at various ages are as follows:

Age	Male	Female
40	0.373	0.298
50	2.655	1.982
60	3.639	2.034
70	9.212	6.211
80	34.813	25.742
90	126.672	118.203
100	314.507	310.679
110	465.570	493.661

Disabled Retirees: RP-2006 Disabled Retiree Mortality Table, with static projection to 2028 using the 2014 SSA Improvement Scale. Illustrative rates per 1,000 members at various ages are as follows:

Age	Male	Female
40	9.317	4.862
50	19.588	11.367
60	20.817	13.263
70	33.674	24.771
80	68.090	56.760
90	168.008	134.892
100	311.674	275.075
110	443.401	425.570

Public School Retirement System of Missouri

House Bill 936 - Allow Retired PSRS Members to Return to Work in a Non-Certificated Position Without Suspension of Benefits or Contributing to the System

A. Actuarial Assumptions - Baseline (Continued)

Retirement Rates

	Service											
Age	< = 20	21	22	23	24	25	26	27	28	29	30	> = 31
<= 50	0	0	0	0	0	50	30	30	30	30	450	450
51	0	0	0	0	0	50	30	30	30	200	450	450
52	0	0	0	0	0	50	30	30	200	200	450	450
53	0	0	0	0	0	50	30	300	200	200	450	450
54	0	0	0	0	0	50	300	200	200	200	450	450
55	50	50	50	50	50	400	200	200	200	200	450	450
56	30	30	30	30	400	200	200	200	200	200	450	450
57	30	30	30	400	200	200	200	200	200	200	450	450
58	30	30	400	200	200	200	200	200	200	200	450	450
59	30	400	200	200	200	200	200	200	200	200	450	450
60	150	150	150	150	150	200	200	200	200	200	450	450
61	150	150	150	150	150	200	200	200	200	200	450	450
62	150	150	150	150	150	200	200	200	200	200	450	450
63	150	150	150	150	150	200	200	200	200	200	450	450
64	150	150	150	150	150	200	200	200	200	200	450	450
65	250	250	250	250	250	400	400	400	400	400	450	450
66	250	250	250	250	250	300	300	300	300	300	450	450
67	250	250	250	250	250	300	300	300	300	300	450	450
68	250	250	250	250	250	300	300	300	300	300	450	450
69	250	250	250	250	250	300	300	300	300	300	450	450
>= 70	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

Withdrawal Rates

Termination of membership prior to eligibility for retirement from all causes other than death, disability or retirement, whether resulting in a refund or a deferred benefit, is assumed in accordance with the following illustrative rates per 1,000 members:

Years of Service	Rate
0	240
1	115
2	100
3	80
4	70
5	60
6	50
7	40
8	35
9	30
10	28
11	25
12	23
13	20
14	18
15	15
16	15
17	13
18 - 24	10
25+	0

Public School Retirement System of Missouri

House Bill 936 - Allow Retired PSRS Members to Return to Work in a Non-Certificated Position Without Suspension of Benefits or Contributing to the System

A. Actuarial Assumptions - Baseline (Continued)

Disability Rates

Retirement for disability prior to age 60 is assumed in accordance with the following illustrative rates per 1,000 eligible members:

Age	Rates
25	0.017
30	0.080
35	0.220
40	0.480
45	0.780
50	1.110
55	1.460

Refund of Contributions

For active members assumed to terminate employment with less than five years of service, regardless of age, 100% take an immediate refund of their contributions.

For active members assumed to terminate employment with five or more years of service, but prior to satisfying the age and service requirements for service retirement, the member will select the option that has the greater present value between an immediate refund and a deferred annuity.

For active members assumed to terminate employment with five or more years of service and satisfy the age and service requirements for service retirement upon termination, 100% are assumed to elect a lifetime annuity benefit.

For inactive members, the member will select the option that has the greater present value between an immediate refund and a deferred annuity.

Interest on Member Accounts

1.00% per annum.

Service Purchases

A 1.00% load is added to the Normal Cost to account for anticipated losses resulting from service purchases and reinstatements.

Provisions for Expenses

There is no specific provision for expenses. The implicit assumption is that investment and administrative expenses are paid from investment income in excess of 7.75% per annum.

Dependent Assumptions (Pre-Retirement)

70% of male and female members are assumed to be married.

Beneficiaries are assumed to be of the opposite sex from the member.

Male spouses are assumed to be 2 years older than females spouses.

Dependent Benefits (Pre-Retirement)

All active members under age 50 are assumed to receive a dependent-based survivor benefit for a spouse and 2 dependent children. The spouse is assumed to receive payments of $860 per month for life, and each child is assumed to receive payments of $860 per month for 18 years if the member is under age 32, and grading down to 0 years if the member is age 50. All active members age 50 or older are assumed to receive a retirement-based survivor benefit for life.

Beneficiary Age (Post-Retirement)

Members are assumed to be 3 years older than their joint annuitant.

Public School Retirement System of Missouri

House Bill 936 - Allow Retired PSRS Members to Return to Work in a Non-Certificated Position Without Suspension of Benefits or Contributing to the System

A. Actuarial Assumptions - Baseline (Continued)

Return of Unused Member Account Balance

The cash refund is explicitly valued.

Form of Payment

For active members, benefits are assumed to be paid in the form of a single life annuity since all optional forms are actuarially equivalent using the same interest and mortality assumptions used in the valuation.

Data Assumptions

Members without a date of birth provided are assumed to be 30 years old. Pensionable pay for members who did not earn service during the past year is assumed to be the greater of the current year's salary, the previous year's salary and $10,000. Pensionable pay for other active members is assumed to be the greater of annualized pay and $10,000.

Social Security Coverage

It is assumed that members who are currently employed in positions covered by Social Security will continue to be employed in Social Security covered positions for the remainder of their PSRS tenure and receive 2/3 PSRS membership credit for each year of future service. All others are assumed to continue to be employed in a position that is not covered by Social Security and receive full PSRS membership credit for future service.

Exhibit II

Public School Retirement System of Missouri

House Bill 936 - Allow Retired PSRS Members to Return to Work in a Non-Certificated Position Without Suspension of Benefits or Contributing to the System

B. Actuarial Assumptions - Proposed Change

Retirement Rates

Scenario 1: Retirement is assumed in accordance with the following rates per 1,000 eligible members with highlighted amounts representing a change from the Baseline assumption:

	Service											
Age	< = 20	21	22	23	24	25	26	27	28	29	30	> = 31
<= 50	0	0	0	0	0	50	30	30	30	30	450	450
51	0	0	0	0	0	50	30	30	30	450	450	450
52	0	0	0	0	0	50	30	30	450	200	450	450
53	0	0	0	0	0	50	30	450	200	200	450	450
54	0	0	0	0	0	50	450	200	200	200	450	450
55	50	50	50	50	50	450	200	200	200	200	450	450
56	30	30	30	30	450	200	200	200	200	200	450	450
57	30	30	30	450	200	200	200	200	200	200	450	450
58	30	30	450	200	200	200	200	200	200	200	450	450
59	30	450	200	200	200	200	200	200	200	200	450	450
60	150	150	150	150	150	200	200	200	200	200	450	450
61	150	150	150	150	150	200	200	200	200	200	450	450
62	150	150	150	150	150	200	200	200	200	200	450	450
63	150	150	150	150	150	200	200	200	200	200	450	450
64	150	150	150	150	150	200	200	200	200	200	450	450
65	250	250	250	250	250	400	400	400	400	400	450	450
66	250	250	250	250	250	300	300	300	300	300	450	450
67	250	250	250	250	250	300	300	300	300	300	450	450
68	250	250	250	250	250	300	300	300	300	300	450	450
69	250	250	250	250	250	300	300	300	300	300	450	450
>= 70	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

Scenario 2: Retirement is assumed in accordance with the following rates per 1,000 eligible members with highlighted amounts representing a change from the Baseline assumption:

	Service											
Age	< = 20	21	22	23	24	25	26	27	28	29	30	> = 31
<= 50	0	0	0	0	0	50	30	30	30	30	500	500
51	0	0	0	0	0	50	30	30	30	500	500	500
52	0	0	0	0	0	50	30	30	500	200	500	500
53	0	0	0	0	0	50	30	500	200	200	500	500
54	0	0	0	0	0	50	500	200	200	200	500	500
55	50	50	50	50	50	500	200	200	200	200	500	500
56	30	30	30	30	500	200	200	200	200	200	500	500
57	30	30	30	500	200	200	200	200	200	200	500	500
58	30	30	500	200	200	200	200	200	200	200	500	500
59	30	500	200	200	200	200	200	200	200	200	500	500
60	150	150	150	150	150	200	200	200	200	200	500	500
61	150	150	150	150	150	200	200	200	200	200	500	500
62	150	150	150	150	150	200	200	200	200	200	500	500
63	150	150	150	150	150	200	200	200	200	200	500	500
64	150	150	150	150	150	200	200	200	200	200	500	500
65	250	250	250	250	250	400	400	400	400	400	500	500
66	250	250	250	250	250	300	300	300	300	300	500	500
67	250	250	250	250	250	300	300	300	300	300	500	500
68	250	250	250	250	250	300	300	300	300	300	500	500
69	250	250	250	250	250	300	300	300	300	300	500	500
>= 70	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

All other assumptions are the same as the Baseline.

Public School Retirement System of Missouri

House Bill 936 - Allow Retired PSRS Members to Return to Work in a Non-Certificated Position Without Suspension of Benefits or Contributing to the System

C. Actuarial Methods - Baseline

Unless stated otherwise, the actuarial methods used in this analysis are the same methods used in the June 30, 2016 actuarial valuation.

Actuarial Cost Method

The actuarial cost method is Entry Age Normal - Level Percent of Payroll.

The Normal Cost is calculated separately for each active member and is equal to the level percentage of the member's compensation needed as an annual contribution from entry age to retirement age in order to fund the member's projected benefits. The Actuarial Accrued Liability on any valuation date is the accumulated value of past Normal Costs from entry age to the valuation date.

Asset Valuation Method

The Actuarial Value of Assets is a smoothed value of assets. The actuarial value at June 30 of the prior year is projected by increasing the amount by 8% interest, adding contributions with 8% interest for half the year, and subtracting benefit payments with 8% interest for half the year. 20% of the difference between the actual returns on market value for the year and the expected return from the projection of the prior year actuarial value, along with corresponding amounts from each of the prior four years, is added to the actuarial value.

Amortization of Unfunded Actuarial Accrued Liability

Gains and losses occurring from census experience different than assumed and assumption changes are amortized over a 30-year period as a level percent of payroll. A new gain or loss base is established each year based on the additional gain or loss during that year and that base is amortized over a new 30-year period. The purpose of the method is to give a smooth progression of the costs from year to year and, at the same time, provide for an orderly funding of the unfunded liabilities.

Increases in the Actuarial Accrued Liability caused by changes in the benefit provisions are amortized over 20 years, as determined in the 2007 session of the Legislature.

D. Actuarial Methods - Proposed Change

All methods are the same as the Baseline.

Exhibit III

Public School Retirement System of Missouri

House Bill 936 - Allow Retired PSRS Members to Return to Work in a Non-Certificated Position Without Suspension of Benefits or Contributing to the System

A. Plan Provisions - Baseline

Member Contributions

Half the total PSRS contribution rate. For fiscal year 2016, the total PSRS contribution rate is 29.00%.

Normal (Unreduced) Retirement

Eligibility	Attainment of age 60 with at least five years of Creditable Service, or Completion of 30 years of Creditable Service at any age, or Age plus Creditable Service is at least 80.
Benefit	2.50% of Final Average Salary for each year of Membership Service. A minimum benefit applies for Members with at least 15 years of Creditable Service and varies from $600/month at 15 years of Creditable Service to $1,200/month at 30 years of Creditable Service. Benefits are also subject to a maximum equal to 100% of the Member's Final Average Salary at the time of retirement.
Compensation	All regular earnings as an employee of a PSRS-covered employer. Compensation or salary includes, but is not limited to, payments for extra duties, overtime payments, career ladder payments, payments for overloads (e.g. extra hours taught) and additional courses, and employer-paid medical, dental and vision insurance premiums for the member.
Final Average Salary	Average monthly salary over the Member's three highest consecutive years of service. Effective August 28, 2007, the maximum increase in the annual compensation used for the final average salary shall not exceed ten percent.
Membership Service	Service while a participating member of PSRS. Service is measured each year in relation to full contract salary for that year. Members employed in position that are covered by Social Security receives two-thirds for each year of Membership Service earned in those positions.
Prior Service	Service in a covered position prior to July 1, 1946. A year of Prior Service is the equivalent of 0.6 years of Membership Service.
Creditable Service	Membership Service plus any service rendered prior to PSRS inception.
Normal Form of Benefit	Single Life Annuity Options available include joint and survivor (50%, 75%, or 100%), term certain (60 or 120 months) and life thereafter, and partial lump sum option (PLSO).

Early (Age Reduced) Retirement

Eligibility	Attainment of age 55 and under age 60 with at least five years of creditable service.
Benefit	Normal retirement benefit accrued to the date of early retirement, actuarially reduced from age 60.

Special Early Retirement Under Modified Formula

Eligibility	Retirement at an age under 55 and with at least 25 years of creditable service but not eligible for the Rule of 80.
Benefit	Based on a percentage of final average salary per year of creditable service. Percentages are as follows:

Years of Service	Benefit Percentage
25-25.9	2.20%
26-26.9	2.25%
27-27.9	2.30%
28-28.9	2.35%
29-29.9	2.40%

Post-Retirement Death Benefit	Regardless of the form of benefit selected, a lump sum benefit of $5,000 is paid at the death of the retiree.

Public School Retirement System of Missouri

House Bill 936 - Allow Retired PSRS Members to Return to Work in a Non-Certificated Position Without Suspension of Benefits or Contributing to the System

A. Plan Provisions - Baseline (Continued)

COLA Adjustments

The Board has established a policy of providing a 0% COLA whenever annual inflation, as measured by the CPI-U index for a fiscal year, is less than 2%, 2% COLA whenever annual inflation is between 2% and 5%, and 5% whenever the annual inflation exceeds 5%.

For any member retiring on or after July 1, 2001, such adjustments commence in the second January after commencement of benefits. The total of such increases may not exceed 80% of the original benefit for any member.

Disability Benefits

Definition of Disability	Incapacity for performance of gainful employment after completion of five years of creditable service and before age 60.
Benefit	Lifetime benefit equal to 90% of accrued normal retirement benefit. This benefit level is subject to a minimum of 50% salary in the last full year of membership but not greater than the member's accrued normal retirement benefit assuming continuous employment to age 60 at current pay. COLA adjustments similar to those provided to retirees are provided on this benefit.
Form of Benefit	If eligible, surviving designated spouse or dependent child or parent may elect a monthly survivor benefit.

Vesting

Eligibility	Accrual of five years of creditable service.
Benefit	Accrued normal retirement benefit payable at earliest retirement age based on service at date of termination. Benefit is based on formula in effect at commencement of benefit.

Death/Survivor Benefits

Refund: Refund of accumulated member contributions with interest.

Dependent-Based Survivor Benefits: In lieu of the refund, survivors of a member with at least 2 years of service at death may elect the following survivor benefit package:

1. Spouse who was married to the deceased member for at least three years and with no dependent children - up to \$860 per month payable after spouse age 60 (immediately if spouse is disabled) and prior to remarriage.
2. Spouse with dependent children
   a. Up to \$860 per month payable to spouse with at least one dependent child under age 18.
   b. Up to an additional \$430 per month payable for each child under age 18. Benefits continue to the spouse after the child reaches age 18, up to age 24, if the child is a full-time student.
   c. Family maximum - \$2,160 per month.
3. If no surviving spouse, each eligible child receives up to \$720 per month payable as in 2.b. above, subject to a family maximum of \$2,160.
4. If no surviving spouse or children, a benefit of up to \$720 per month is payable to a dependent parent over age 65, subject to a maximum of \$1,440.

No COLA adjustments apply to this benefit.

Public School Retirement System of Missouri

House Bill 936 - Allow Retired PSRS Members to Return to Work in a Non-Certificated Position Without Suspension of Benefits or Contributing to the System

A. Plan Provisions - Baseline (Continued)

Death/Survivor Benefits (continued)

Retirement-Based Survivor Benefits

In lieu of the benefits described above, if the member has at least 5 years of membership service at date of death, the designated spouse may receive a survivor benefit based on 100% J&S equivalent of the benefit accrued to date of death. The benefit may commence:

1. immediately if member is eligible to retire at date of death, or
2. at a future retirement date of the deceased member.

The benefit may be reduced for early commencement if the deceased member would not have been eligible for unreduced retirement ate that date based on service to date of death.

COLA adjustments similar to those provided to retirees are provided on these benefits.

B. Plan Provisions - Proposed Change

Working After Retirement

Retirement Benefit

Retired members may return to work for a covered district in a position that does not require certification under RSMo Section 168.021 in any capacity without a discontinuance of the member's retirement allowance and without contribution to the System or to the Public Education Employees Retirement System.

Consistent with current law, retired member who return to work for a covered district in a position that requires certification under RSMo Section 168.021 will have their retirement allowance discontinued and will resume contributions to the System if their employment exceeds 550 hours and/or 50% of the annual compensation payable to a full-time employee in the position held.

Public School Retirement System of Missouri

House Bill 936 - Allow Retired PSRS Members to Return to Work in a Non-Certificated Position Without Suspension of Benefits or Contributing to the System

Disclosures

This letter has been prepared pursuant to the engagement letter between PricewaterhouseCoopers LLP and PSRS and PEERS of Missouri, dated June 9, 2014, and amended April 16, 2015.

In preparing the results presented in this letter, we have relied upon information provided to us by PSRS and PEERS of Missouri, including member census, benefit provisions, and benefit payments. While the scope of our engagement did not call for us to perform an audit or independent verification of this information, we have reviewed this information for reasonableness. The accuracy of the results presented in this letter is dependent upon the accuracy and completeness of the underlying information.

The results of our analysis presented herein were computed using assumptions and methods that are consistent with the funding policy adopted by the Board of Trustees of PSRS and PEERS of Missouri. The results do not reflect application of Governmental Accounting Standards applicable to pension plans.

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 or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

To the best of our knowledge, the individuals involved in this engagement have no relationship that may impair or appear to impair the objectivity of our work.

No statement in this letter is intended as a recommendation in favor, or in opposition, of the proposed legislation. Except as otherwise noted, potential impacts on other benefit plans were not considered.

The calculations are based upon assumptions regarding future events. However, the plan's long term costs will be determined by actual future events, which may differ materially from the assumptions that were made. The calculations are also based upon present and proposed plan provisions that are outlined in the letter. If you have reason to believe that the assumptions that were used are unreasonable, that the plan provisions are incorrectly described, that important plan provisions relevant to this proposal are not described, or that conditions have changed since the calculations were made, please contact the author of this letter prior to relying on information in the letter.

If you have reason to believe that the information provided in this letter is inaccurate, or is in any way incomplete, or if you need further information in order to make an informed decision on the subject matter of this letter, please contact the author of this letter prior to making such decision.

In the event that more than one plan change is being considered, it should be noted that the results of separate actuarial valuations cannot generally be added together to produce a correct estimate of the combined effect of all of the changes. The total can be considerably greater or less than the sum of the parts due to the interaction of various plan provisions with each other, and with the assumptions that must be used.

The content of this document is limited to the matters specifically addressed herein and does not address any other potential tax consequences, or the potential application of tax penalties, to any matter other than as set forth herein. Our conclusions are not binding upon any taxing authority or the courts and there is no assurance that any relevant taxing authority will not successfully assert a contrary position. In addition, no exceptions (including the reasonable cause exception) are available for any federal or state penalties imposed if any portion of a transaction is determined to lack economic substance or fails to satisfy any similar rule of law, and our advice will not protect you from any such penalties. This document supersedes all prior written or oral advice with respect to the issues addressed in this document and all such prior communications should not be relied upon by any person for any purpose. This document has been prepared pursuant to an engagement letter between PSRS and PEERS of Missouri and PwC, and is intended solely for the use and benefits of PSRS and PEERS of Missouri and not for reliance by any other person.

pwc

April 3, 2017

Mrs. Maria Walden
Director of Legislation and Policy
PSRS and PEERS of Missouri
3210 West Truman Blvd.
Jefferson City, MO 65109

Re: Estimated Fiscal Impact to PEERS of House Bill 936

Dear Maria:

As requested and pursuant to our engagement letter with the Public School and Education Employee Retirement Systems of Missouri ("PSRS and PEERS of Missouri") dated June 9, 2014 (and amended April 16, 2015), we have estimated the cost of a proposed change to the Public Education Employee Retirement System ("PEERS"). The proposed change is contained in House Bill 936 ("HB 936"), a copy of which was provided to us by PSRS and PEERS of Missouri via email on March 31, 2017. Our understanding of the proposed change, a description of our analysis, and our estimate of the fiscal impact are included in this letter below. Additional disclosures related to our assessment can be found in the enclosed Exhibit I.

Proposed Change:

Currently, when retired members of the Public School Retirement System ("PSRS") return to work in positions covered by either PSRS or PEERS, they are subject to the following requirements:

- The retirement allowance is suspended for any such member who:
  - Works more than 550 hours per school year, and /or
  - Earns more than 50% of the annual compensation a full-time member would earn in the same position.

- The member and their employer are required to contribute to PSRS or PEERS, to the extent the retirement allowance is suspended and the member satisfies other statutory eligibility requirements.

It is our understanding that HB 936 would change the current working after retirement provisions to allow retired PSRS members to return to work for a covered district in a position that does not require certification under RSMo Section 168.021 in any capacity without a discontinuance of the member's retirement allowance and without becoming an active member entitled to future benefit accruals and subject to making contributions to PSRS or PEERS. We note that employees of covered districts employed in non-certificated positions generally participate in PEERS.

Consistent with current law, retired PSRS members who return to work for a covered district in a position that requires certification under RSMo Section 168.021 will have their retirement allowance suspended and will earn additional benefits and be required to contribute to PSRS or PEERS (depending on their covered position) if their employment exceeds the threshold noted above.

It is our understanding that the proposed change in provisions would be applicable immediately upon HB 936 being signed into law.

Analysis:

HB 936 would provide greater ability for retired PSRS members to receive full retirement benefits from PSRS while also earning compensation as a full-time active employee in a PEERS covered position. PSRS members who retire with an unreduced benefit after completing 30 years of service or meeting the "Rule of 80" (i.e. when age plus service is greater than or equal to 80) typically receive a retirement benefit that replaces 50% - 75% of the compensation they were paid as an active employee. These members are often under 60 year of age. For these members, retiring from a certificated PSRS covered position and returning to work in a non-certificated PEERS covered position could result in a significant increase in overall compensation when considering both salary and pension. We expect a number of active PSRS members would take advantage of this situation, resulting in higher rates of retirement when members are first eligible for unreduced benefits. As a point of reference 6,706 of 78,129 PSRS active members were eligible for unreduced retirement as of June 30, 2016. A number of current PSRS retirees who are still of working age are also likely to take advantage of this situation.

Since non-certificated positions are generally covered by PEERS, we expect that HB 936 would result in a decrease in active PEERS membership as PSRS retirees would fill a number of positions that would otherwise be filled by employees that would earn benefits and make contributions to PEERS. Districts would benefit by hiring retired PSRS members into PEERS covered positions because they would save the cost of contributing to PEERS for those employees and because retired PSRS members may have already worked for them, or are at least familiar with the industry.

The estimated fiscal impact of HB 936 on PSRS was estimated under two different scenarios. In Scenario 1, a retirement rate of 45% was assumed at all age and service combinations at which members first become eligible for unreduced retirement under the Rule of 80 or after 30 years of service. This results in approximately 60 additional retirees per year. In Scenario 2, a retirement rate of 50% was assumed at all age and service combinations at which members first become eligible for unreduced retirement under the Rule of 80 or after 30 years of service. This results in approximately 120 additional retirees per year. We expect these members would retire from certificated, PSRS covered positions and return to full-time employment in non-certificated, PEERS covered positions. **Over time, we anticipate that this would reduce the number of active members, and corresponding covered payroll, in PEERS by 1% to 5%.**

In Scenario 1, we have assumed a retirement rate of 45% at all age and service combinations at which members become eligible for unreduced retirement under the Rule of 80 or after 30 years of service. This results in approximately 60 additional retirees per year. In Scenario 2, we have assumed a retirement rate of 50% at all age and service combinations at which members become eligible for unreduced retirement under the Rule of 80 or after 30 years of service. This results in approximately 120 additional retirees per year.

Contributions to PEERS from members and employers are equal to the contribution rate set by the PEERS Board, multiplied by covered payroll. The contribution rate set by the Board is based on the actuarially determined contribution rate ("ADC Rate") computed by the actuary and is the sum of two components:

1. The Normal Cost Rate = the ongoing cost of future benefit accruals, as a percentage of covered payroll.
2. The Unfunded Actuarial Accrued Liability ("UAAL") Amortization Rate = the cost of amortizing the current unfunded AAL, as a percentage of covered payroll.

As noted, a likely impact of HB 936 would be a small decrease in the number of active PEERS members and corresponding covered payroll in the System. It is difficult to predict how much of a decrease would occur, or whether other demographic changes would also occur, such as changes in turnover and retirement patterns that impact the average age and service of active members. As a simple illustration, **a 1% to 5% reduction in covered payroll, but no change in UAAL or Normal Cost Rate (i.e. the active member population gets smaller in number but otherwise there are no changes in the demographic characteristics of the active member population), would increase the ADC Rate by approximately 0.03% to 0.15%** due to an increase in the UAAL Amortization Rate by that amount. In this case, the cost increase would be temporary since the UAAL Amortization Rate goes to 0% when the plan become fully funded. If the proposed change also affected the demographic characteristics of the active members, then there could also be a small impact to the Normal Cost of the System, which could further impact the ADC Rate (upward or downward).

Please note the following:

- Our analysis was based on our understanding of the current PEERS benefit provisions as set forth in Chapter 169 of the Missouri Revised Statutes, as well as the modification to those statutes to affect the change described above.

- No actuarial calculations were performed. Our estimate is based on professional judgement as well as the results of analysis performed for PSRS related to HB 936.

- Our analysis is sensitive to the number of retired PSRS members that would be hired into PEERS covered positions and reduce the number of active and contributing PEERS members. Our analysis is also sensitive to the assumption that a reduction in PEERS active member head count would not impact the Normal Cost Rate of PEERS. The actual fiscal impact of HB 936 would be determined by the actual impact to the active member population.

- To the extent that the proposed changed would result in a decrease in PEERS active member population and covered payroll, employers that do not hire retired PSRS members would see an increase in cost since their covered payroll would not change but the ADC rate increases. Employers that hire retired PSRS members rather than traditional active employees would see a decrease in cost despite the higher ADC rate because of a decrease in their PEERS covered payroll. This shift in cost toward employers with more covered employees that are members of PEERS may not be an equitable result. Please note that if covered payroll decreases, the active participants covered under the plan would also be impacted if the adopted contribution rate needs to be increased as a result of less covered payroll.

- Our analysis does not consider any additional administrative cost that may be incurred by PSRS and PEERS of Missouri to implement this change.

To the best of our knowledge this actuarial statement is complete and accurate and has been prepared in accordance with generally accepted actuarial principles and practice and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. Our analysis and commentary are also consistent with our understanding of Missouri state law. The undersigned actuaries are members of the Society of Actuaries and other professional organizations, including the American Academy of Actuaries, and meet the Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States relating to pension plans. The team working on this engagement is not aware of any relationship between the PwC practitioners involved in this engagement and PSRS and PEERS of Missouri that may impair our objectivity.

The content of this document is limited to the matters specifically addressed herein and does not address any other potential tax consequences, or the potential application of tax penalties, to any matter other than as set forth herein. Our conclusions are not binding upon any taxing authority or the courts and there is no assurance that any relevant taxing authority will not successfully assert a contrary position. In addition, no exceptions (including the reasonable cause exception) are available for any federal or state penalties imposed if any portion of a transaction is determined to lack economic substance or fails to satisfy any similar rule of law, and our advice will not protect you from any such penalties. This document supersedes all prior written or oral advice with respect to the issues addressed in this document and all such prior communications should not be relied upon by any person for any purpose. This document has been prepared pursuant to an engagement letter between PSRS and PEERS of Missouri and PwC, and is intended solely for the use and benefits of PSRS and PEERS of Missouri and not for reliance by any other person.

pwc

Please call with any questions or if you require additional information.

Sincerely,

Cindy Fraterrigo

Cindy Fraterrigo, FSA, EA, MAAA

Brandon A. Robertson

Brandon Robertson, ASA, EA, MAAA

cc: M. Steve Yoakum
Anita Brand