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January 28, 2021

Ms. Ronda Stegmann
Executive Director
Missouri State Employees' Retirement System
907 Wildwood Drive
Jefferson City, MO 65109

Re: Fiscal Note for House Bill 897 (Future Members of General Assembly and Statewide Elected Officials Who Become Members on or After January 1, 2022 Receive 1.7% Benefit Multiplier)

Dear Ronda:

At your request, we have performed an actuarial cost study to determine the cost impact of House Bill 897 (HB 897). HB 897 modifies the retirement benefits provided to members of the Missouri General Assembly (Legislators) and any statewide elected officials who first serve in those positions on or after January 1, 2022. Currently, retirement benefits for these members are equal to one twenty-fourth of the monthly pay for a senator or representative, or in the highest office held by such a member, on the annuity starting date multiplied by the years of credited service. Under HB 897, retirement benefits would be calculated using a benefit multiplier of one and seven-tenths percent instead of one twenty-fourths. All other provisions related to the benefit formula and retirement eligibility remain unchanged.

Because HB 897 applies to future members, it was necessary to perform a projection to measure the expected cost impact over time including the change in estimated employer contribution rates and amounts, and the funded status of MOSERS. No statement in this letter is intended to be interpreted as a recommendation in favor of the change or in opposition to it.

Data

For purposes of the projections, the total number of active members, including the subset of actives that are Legislators and Elected Officials, is assumed to remain constant in both scenarios. As active members in the Legislators and Elected Officials group are assumed to terminate and retire, based on the actuarial assumptions, new members with a similar demographic profile as recent new Legislators and Elected Officials are assumed to replace the existing members.



A brief summary of the June 30, 2020 valuation data used in this cost study follows:

<u>Group</u>	<u>Number</u>	<u>Payroll</u>	<u>Averages</u>		
			<u>Salary</u>	<u>Age</u>	<u>Service</u>
Elected Officials	6	\$ 659,976	\$109,996	47.7 years	3.3 years
Legislators	193	6,943,847	35,978	53.2	4.8
Total MOSERS	45,999	\$1,980,910,473	\$ 43,064	45.5 years	10.8 years

Estimated Cost Impact

Under HB 897, members of the General Assembly (Legislators) and Elected Officials who become members on or after January 1, 2022, will have their retirement benefits determined using a 1.7% benefit multiplier instead of the current benefit multiplier of 4.17% (one twenty-fourth). All other components of the benefit formula remain unchanged, including the eligibility requirement for retirement benefits. This change applies prospectively so it only affects new entrants. Therefore, there is no change to the benefit formula for Legislators and Elected Officials who became members prior to January 1, 2022.

Attached to this letter are two exhibits that provide a comparison of the key valuation results for the baseline scenario (no change in current provisions) and HB 897 (proposed change to a 1.7% benefit multiplier). Exhibit A-1 shows a 30-year projection of the estimated contribution rates and resulting dollar amounts under the baseline and HB 897. The impact is minimal, largely because the group affected by the proposed change (Legislators and Elected Officials) is a very small percentage of the total active membership, (only about 0.4%).

Exhibit A-2 shows a 30-year projection of key funding metrics including actuarial accrued liabilities, actuarial value of assets and market value of assets, along with the funded ratios and unfunded actuarial accrued liabilities for both the baseline and HB 897.

The projections that comprise this cost study assume that all actuarial assumptions, including the 6.95% investment return assumption, are met each year in the future. The cost projections are sensitive to the assumptions used, particularly the investment return assumption. To the extent the investment return assumption is not met in the future or the assumption is changed, the cost projections in this study are expected to change. Such experience other than assumed would impact both the baseline and the alternate scenario. Further analysis can be provided upon request if it is deemed to be necessary or helpful.

Disclaimers, Caveats, Risks and Limitations

The numerical tables that comprise this cost study are based primarily upon the June 30, 2020 valuation results, the actuarial assumptions and methods used in that report, and a projection model prepared by the System’s actuary, Cavanaugh Macdonald Consulting, LLC. Significant items are noted below with additional detail provided in the attached exhibits. We believe the assumptions and methods are individually, and in aggregate, consistent and reasonable (taking into account the experience of each Plan and reasonable expectations).



- The investment return in all future years is assumed to be 6.95% on a market value basis.
- All demographic assumptions regarding mortality, disability, retirement, salary increases, and termination of employment used in the valuation are assumed to be met in the future. Note that term limits may result in turnover in the short term that is different than the assumption, which is a long-term assumption.
- The same demographic assumptions used for the Legislators and Elected Officials in the baseline scenario are also used in the HB 897 scenario. Given the nature of their employment, the change in the benefit multiplier is not expected to significantly modify the termination and retirement rates.
- The number of total active members in the future is assumed to remain level (neither a growth nor a decline in the active membership count). As active members are assumed leave covered employment (Legislators, Elected Officials and the overall active population), they are assumed to be replaced by new employees who have a similar demographic profile as recent new hires. To the extent the actual demographics of new hires are different than assumed, it will also impact the cost savings shown in this study.
- The funding methods, including the entry age normal cost method, the asset smoothing method, and the amortization method and period, are consistent between scenarios.
- We relied upon the membership data provided by MOSERS for the actuarial valuation. The numerical results depend on the integrity of this information. If there are material inaccuracies in the data, the results presented herein may be different and the projections may need to be revised.

Models are designed to identify anticipated trends and to compare various scenarios rather than predicting the future state of events. The projections are based on the System's estimated financial status on June 30, 2020, and project future events using one set of assumptions out of a range of many reasonable possibilities. A different set of assumptions would lead to different results. In order to prepare the results in this letter, we have utilized appropriate actuarial models that were developed for this purpose. These models use assumptions about future contingent events along with recognized actuarial approaches to develop the results. The projections do not predict the System's financial condition or its ability to pay benefits in the future and do not provide any guarantee of future financial soundness of the System. Over time, a defined benefit plan's total cost will depend on a number of factors, including the amount of benefits paid, the number of people paid benefits, the duration of the benefit payments, plan expenses, and the amount of earnings on assets invested to pay benefits. These amounts and other variables are uncertain and unknowable at the time the projections were prepared. Because not all of the assumptions will unfold exactly as expected, actual results will differ from the projections. To the extent that actual experience deviates significantly from the assumptions, results could be significantly better or significantly worse than indicated in this study.

Please note that in the event that more than one plan change is considered, it is very important to remember that the results of separate actuarial studies cannot generally be added together to produce an accurate estimate of the combined effect of all of the changes. The total cost impact can be considerably different than the sum of the parts due to the interaction of various plan provisions and assumptions used in the studies.



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We, Patrice A. Beckham F.S.A. and Bryan K. Hoge, F.S.A., are consulting actuaries with Cavanaugh Macdonald Consulting, LLC. We are also members of the American Academy of Actuaries and Fellows of the Society of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. We are available to answer any questions on the material contained in this study or to provide explanations or further details upon request.

If you have questions or need additional analysis, please let us know.

Sincerely,

A handwritten signature in blue ink that reads 'Patrice Beckham' in a cursive script.

Patrice A. Beckham, FSA, FCA, EA, MAAA
Principal and Consulting Actuary

A handwritten signature in blue ink that reads 'Bryan K. Hoge' in a cursive script.

Bryan K. Hoge, FSA, FCA, EA, MAAA
Consulting Actuary



Exhibit A-1

COMPARISON OF BASELINE (NO CHANGE) VERSUS HB 897 (REVISED BENEFIT STRUCTURE WITH 1.7% BENEFIT MULTIPLIER FOR LEGISLATORS AND ELECTED OFFICIALS BECOMING MEMBERS ON OR AFTER JANUARY 1, 2022)

Fiscal Year	Rates Set in 6/30 Val in Year	Estimated Payroll	Baseline				HB 897				Change
			Total Actuarial Contribution Rate	Member Contribution Rate	Employer Contribution Rate	Employer Contribution Dollars	Total Actuarial Contribution Rate	Member Contribution Rate	Employer Contribution Rate	Employer Contribution Dollars	Employer Contribution Dollars
2021	2019	2,062,946,218	24.54%	1.66%	22.88%	472,002,095	24.54%	1.66%	22.88%	472,002,095	-
2022	2020	2,085,418,586	25.31%	1.80%	23.51%	490,281,910	25.31%	1.80%	23.51%	490,281,910	-
2023	2021	2,113,619,121	26.08%	1.99%	24.09%	509,170,846	26.08%	1.99%	24.09%	509,170,846	-
2024	2022	2,145,353,616	26.80%	2.17%	24.63%	528,400,596	26.79%	2.17%	24.62%	528,186,060	(214,536)
2025	2023	2,180,643,047	27.44%	2.34%	25.10%	547,341,405	27.42%	2.34%	25.08%	546,905,276	(436,129)
2026	2024	2,218,684,295	27.87%	2.50%	25.37%	562,880,206	27.85%	2.50%	25.35%	562,436,469	(443,737)
2027	2025	2,258,578,920	27.79%	2.65%	25.14%	567,806,740	27.76%	2.65%	25.11%	567,129,167	(677,573)
2028	2026	2,301,411,467	27.70%	2.79%	24.91%	573,281,596	27.67%	2.79%	24.88%	572,591,173	(690,423)
2029	2027	2,346,275,359	27.62%	2.93%	24.69%	579,295,386	27.58%	2.93%	24.65%	578,356,876	(938,510)
2030	2028	2,393,355,934	27.53%	3.05%	24.48%	585,893,533	27.48%	3.05%	24.43%	584,696,855	(1,196,678)
2031	2029	2,442,826,919	27.43%	3.17%	24.26%	592,629,811	27.39%	3.17%	24.22%	591,652,680	(977,131)
2032	2030	2,494,724,009	27.35%	3.28%	24.07%	600,480,069	27.29%	3.28%	24.01%	598,983,235	(1,496,834)
2033	2031	2,548,810,929	27.27%	3.38%	23.89%	608,910,931	27.21%	3.38%	23.83%	607,381,644	(1,529,287)
2034	2032	2,605,092,968	27.18%	3.46%	23.72%	617,928,052	27.12%	3.46%	23.66%	616,364,996	(1,563,056)
2035	2033	2,663,540,979	27.09%	3.54%	23.55%	627,263,901	27.04%	3.54%	23.50%	625,932,130	(1,331,771)
2036	2034	2,724,269,181	27.00%	3.62%	23.38%	636,934,135	26.95%	3.62%	23.33%	635,572,000	(1,362,135)
2037	2035	2,787,072,914	26.92%	3.68%	23.24%	647,715,745	26.86%	3.68%	23.18%	646,043,501	(1,672,244)
2038	2036	2,852,251,158	26.84%	3.74%	23.10%	658,870,017	26.79%	3.74%	23.05%	657,443,892	(1,426,125)
2039	2037	2,919,837,185	26.75%	3.79%	22.96%	670,394,618	26.69%	3.79%	22.90%	668,642,715	(1,751,903)
2040	2038	2,989,817,592	26.66%	3.83%	22.83%	682,575,356	26.61%	3.83%	22.78%	681,080,447	(1,494,909)
2041	2039	3,061,987,310	26.57%	3.86%	22.71%	695,377,318	26.52%	3.86%	22.66%	693,846,324	(1,530,994)
2042	2040	3,136,273,409	26.48%	3.89%	22.59%	708,484,163	26.42%	3.89%	22.53%	706,602,399	(1,881,764)
2043	2041	3,212,887,769	26.38%	3.92%	22.46%	721,614,593	26.33%	3.92%	22.41%	720,008,149	(1,606,444)
2044	2042	3,291,488,073	26.29%	3.94%	22.35%	735,647,584	26.24%	3.94%	22.30%	734,001,840	(1,645,744)
2045	2043	3,372,173,919	26.21%	3.95%	22.26%	750,645,914	26.15%	3.95%	22.20%	748,622,610	(2,023,304)
2046	2044	3,454,722,458	26.10%	3.96%	22.14%	764,875,552	26.05%	3.96%	22.09%	763,148,191	(1,727,361)
2047	2045	3,538,944,823	26.02%	3.97%	22.05%	780,337,333	25.97%	3.97%	22.00%	778,567,861	(1,769,472)
2048	2046	3,624,961,176	25.94%	3.98%	21.96%	796,041,474	25.89%	3.98%	21.91%	794,228,994	(1,812,480)
2049	2047	3,713,625,157	25.86%	3.98%	21.88%	812,541,184	25.81%	3.98%	21.83%	810,684,372	(1,856,812)
2050	2048	3,804,496,195	10.40%	3.99%	6.41%	243,868,206	10.36%	3.99%	6.37%	242,346,408	(1,521,798)
2051	2049	3,897,829,780	9.33%	3.99%	5.34%	208,144,110	9.28%	3.99%	5.29%	206,195,195	(1,948,915)
2052	2050	3,993,722,600	6.25%	3.99%	2.26%	90,258,131	6.20%	3.99%	2.21%	88,261,269	(1,996,862)
						19,067,892,510				19,027,367,579	(40,524,931)

Projections are based on the June 30, 2020 actuarial valuation and assume that all assumptions are met in the future, including the 6.95% assumed rate of return. To the extent actual experience differs from that assumed, the actual valuation results and employer contributions in future years will also differ from the projections shown here.

The Baseline scenario is based on the plan provisions used in the June 30, 2020 valuation and contributions are assumed to be made at the Actuarial Contribution Rate. HB 897 is based on the same plan provision as the baseline, except for Legislators and Elected Officials becoming members on or after January 1, 2022, the benefit formula uses a 1.7% multiplier instead of a 4.17% (one twenty-fourth) multiplier. All other benefit formula components remain unchanged, including retirement eligibility.

Please see the June 30, 2020 actuarial valuation report for details on the actuarial methods and assumptions used in these projections. Also, note that the one-year lag between the valuation date and the effective date of the contribution rate is reflected in this exhibit.



Exhibit A-2

COMPARISON OF BASELINE (NO CHANGE) VERSUS HB 897 (REVISED BENEFIT STRUCTURE WITH 1.7% BENEFIT MULTIPLIER FOR LEGISLATORS AND ELECTED OFFICIALS BECOMING MEMBERS ON OR AFTER JANUARY 1, 2022)

Valuation Year (6/30)	Baseline							HB 897						
	Actuarial Liability	Actuarial Value of Assets	UAAL (AVA)	Funded Ratio (AVA)	Market Value of Assets	UAAL (MVA)	Funded Ratio (MVA)	Actuarial Liability	Actuarial Value of Assets	UAAL (AVA)	Funded Ratio (AVA)	Market Value of Assets	UAAL (MVA)	Funded Ratio (MVA)
2020	14,258,408,888	8,711,224,151	5,547,184,737	61.1%	7,910,830,533	6,347,578,355	55.5%	14,258,408,888	8,711,224,151	5,547,184,737	61.1%	7,910,830,533	6,347,578,355	55.5%
2021	14,444,838,992	8,598,042,162	5,846,796,830	59.5%	8,010,584,244	6,434,254,748	55.5%	14,444,838,992	8,598,042,162	5,846,796,830	59.5%	8,010,584,244	6,434,254,748	55.5%
2022	14,612,274,497	8,483,993,064	6,128,281,433	58.1%	8,109,470,846	6,502,803,651	55.5%	14,612,274,497	8,483,993,064	6,128,281,433	58.1%	8,109,470,846	6,502,803,651	55.5%
2023	14,755,835,076	8,367,162,434	6,388,672,642	56.7%	8,205,248,373	6,550,586,703	55.6%	14,755,835,076	8,367,162,434	6,388,672,642	56.7%	8,205,248,373	6,550,586,703	55.6%
2024	14,873,816,455	8,297,346,394	6,576,470,061	55.8%	8,297,346,394	6,576,470,061	55.8%	14,873,816,455	8,297,346,394	6,576,470,061	55.8%	8,297,346,394	6,576,470,061	55.8%
2025	14,965,572,250	8,386,015,924	6,579,556,326	56.0%	8,386,015,924	6,579,556,326	56.0%	14,965,572,250	8,386,015,924	6,579,556,326	56.0%	8,386,015,924	6,579,556,326	56.0%
2026	15,035,534,734	8,473,562,114	6,561,972,620	56.4%	8,473,562,114	6,561,972,620	56.4%	15,035,534,734	8,473,562,114	6,561,972,620	56.4%	8,473,562,114	6,561,972,620	56.4%
2027	15,079,720,602	8,546,390,416	6,533,330,186	56.7%	8,546,390,416	6,533,330,186	56.7%	15,079,720,602	8,546,390,416	6,533,330,186	56.7%	8,546,390,416	6,533,330,186	56.7%
2028	15,098,490,827	8,605,797,610	6,492,693,217	57.0%	8,605,797,610	6,492,693,217	57.0%	15,098,490,827	8,605,797,610	6,492,693,217	57.0%	8,605,797,610	6,492,693,217	57.0%
2029	15,092,954,545	8,654,121,045	6,438,833,500	57.3%	8,654,121,045	6,438,833,500	57.3%	15,092,954,545	8,654,121,045	6,438,833,500	57.3%	8,654,121,045	6,438,833,500	57.3%
2030	15,064,224,737	8,693,411,286	6,370,813,451	57.7%	8,693,411,286	6,370,813,451	57.7%	15,064,224,737	8,693,411,286	6,370,813,451	57.7%	8,693,411,286	6,370,813,451	57.7%
2031	15,015,877,600	8,728,131,025	6,287,746,575	58.1%	8,728,131,025	6,287,746,575	58.1%	15,015,877,600	8,728,131,025	6,287,746,575	58.1%	8,728,131,025	6,287,746,575	58.1%
2032	14,949,518,079	8,761,688,101	6,187,829,978	58.6%	8,761,688,101	6,187,829,978	58.6%	14,949,518,079	8,761,688,101	6,187,829,978	58.6%	8,761,688,101	6,187,829,978	58.6%
2033	14,868,362,158	8,798,678,539	6,069,683,619	59.2%	8,798,678,539	6,069,683,619	59.2%	14,868,362,158	8,798,678,539	6,069,683,619	59.2%	8,798,678,539	6,069,683,619	59.2%
2034	14,774,358,876	8,842,286,530	5,932,072,346	59.8%	8,842,286,530	5,932,072,346	59.8%	14,774,358,876	8,842,286,530	5,932,072,346	59.8%	8,842,286,530	5,932,072,346	59.8%
2035	14,670,649,892	8,897,222,951	5,773,426,941	60.6%	8,897,222,951	5,773,426,941	60.6%	14,670,649,892	8,897,222,951	5,773,426,941	60.6%	8,897,222,951	5,773,426,941	60.6%
2036	14,558,606,113	8,966,550,707	5,592,055,406	61.6%	8,966,550,707	5,592,055,406	61.6%	14,558,606,113	8,966,550,707	5,592,055,406	61.6%	8,966,550,707	5,592,055,406	61.6%
2037	14,441,472,568	9,055,645,466	5,385,827,102	62.7%	9,055,645,466	5,385,827,102	62.7%	14,441,472,568	9,055,645,466	5,385,827,102	62.7%	9,055,645,466	5,385,827,102	62.7%
2038	14,322,993,185	9,170,264,215	5,152,728,970	64.0%	9,170,264,215	5,152,728,970	64.0%	14,322,993,185	9,170,264,215	5,152,728,970	64.0%	9,170,264,215	5,152,728,970	64.0%
2039	14,207,551,336	9,316,681,691	4,890,869,645	65.6%	9,316,681,691	4,890,869,645	65.6%	14,207,551,336	9,316,681,691	4,890,869,645	65.6%	9,316,681,691	4,890,869,645	65.6%
2040	14,099,710,478	9,501,740,035	4,597,970,443	67.4%	9,501,740,035	4,597,970,443	67.4%	14,099,710,478	9,501,740,035	4,597,970,443	67.4%	9,501,740,035	4,597,970,443	67.4%
2041	14,003,792,171	9,732,188,702	4,271,603,469	69.5%	9,732,188,702	4,271,603,469	69.5%	14,003,792,171	9,732,188,702	4,271,603,469	69.5%	9,732,188,702	4,271,603,469	69.5%
2042	13,922,601,030	10,013,389,932	3,909,211,098	71.9%	10,013,389,932	3,909,211,098	71.9%	13,922,601,030	10,013,389,932	3,909,211,098	71.9%	10,013,389,932	3,909,211,098	71.9%
2043	13,859,234,761	10,350,850,321	3,508,384,440	74.7%	10,350,850,321	3,508,384,440	74.7%	13,859,234,761	10,350,850,321	3,508,384,440	74.7%	10,350,850,321	3,508,384,440	74.7%
2044	13,815,604,927	10,749,684,550	3,065,920,377	77.8%	10,749,684,550	3,065,920,377	77.8%	13,815,604,927	10,749,684,550	3,065,920,377	77.8%	10,749,684,550	3,065,920,377	77.8%
2045	13,792,225,484	11,213,885,047	2,578,340,437	81.3%	11,213,885,047	2,578,340,437	81.3%	13,792,225,484	11,213,885,047	2,578,340,437	81.3%	11,213,885,047	2,578,340,437	81.3%
2046	13,789,695,052	11,746,279,068	2,043,415,984	85.2%	11,746,279,068	2,043,415,984	85.2%	13,789,695,052	11,746,279,068	2,043,415,984	85.2%	11,746,279,068	2,043,415,984	85.2%
2047	13,807,566,275	12,350,964,242	1,456,602,033	89.5%	12,350,964,242	1,456,602,033	89.5%	13,807,566,275	12,350,964,242	1,456,602,033	89.5%	12,350,964,242	1,456,602,033	89.5%
2048	13,846,905,304	13,032,874,781	814,030,523	94.1%	13,032,874,781	814,030,523	94.1%	13,846,905,304	13,032,874,781	814,030,523	94.1%	13,032,874,781	814,030,523	94.1%
2049	13,907,920,737	13,796,453,736	111,467,001	99.2%	13,796,453,736	111,467,001	99.2%	13,907,920,737	13,796,453,736	111,467,001	99.2%	13,796,453,736	111,467,001	99.2%
2050	13,991,614,935	14,042,024,706	(50,409,771)	100.4%	14,042,024,706	(50,409,771)	100.4%	13,991,614,935	14,042,024,706	(50,409,771)	100.4%	14,042,024,706	(50,409,771)	100.4%

Projections are based on the June 30, 2020 actuarial valuation and assume that all assumptions are met in the future, including the 6.95% assumed rate of return. To the extent actual experience differs from that assumed, the actual valuation results and employer contributions in future years will also differ from the projections shown here.

The Baseline scenario is based on the plan provisions used in the June 30, 2020 valuation and contributions are assumed to be made at the Actuarial Contribution Rate. HB 897 is based on the same plan provision as the baseline, except for Legislators and Elected Officials becoming members on or after January 1, 2022, the benefit formula uses a 1.7% multiplier instead of a 4.17% (one twenty-fourth) multiplier. All other benefit formula components remain unchanged, including retirement eligibility.

Please see the June 30, 2020 actuarial valuation report for details on the actuarial methods and assumptions used in these projections. Also, note that the one-year lag between the valuation date and the effective date of the contribution rate is reflected in this exhibit.