

The experience and dedication you deserve

January 23, 2012

Ms. Elizabeth Miller Acting Executive Director and Chief Investment Officer Kansas Public Employees Retirement System 611 South Kansas Avenue, Suite 100 Topeka, KS 66603

Re: Cost Study for Study Commission Plan

Dear Liz:

At your request, we have completed an actuarial cost study related to the plan design for KPERS Tier 3 that was recommended by the KPERS Study Commission. At the time the study was requested, a formal legislative bill had not yet been introduced. Therefore, our cost projections are based on our understanding of the key plan design provisions of the Study Commission recommendations for Tier 3 members. A draft copy of the legislation has since been provided to us, but there was insufficient time to modify the cost projections. Any differences in the draft bill and the plan provisions used for the cost projections are not expected to materially impact our cost projections. Our cost study is based on a plan design for Tier 3 that consists of a cash balance plan (referred to as the employer annuity account) and a pure defined contribution (DC) plan (referred to as the employee directed account). The effective date of the new plan design will be July 1, 2013, and all employees hired on or after that date will be members of KPERS Tier 3. In addition, all non-vested members (both active and inactive) of KPERS on January 1, 2014 will become Tier 3 members and have their employee account balance transferred to the employee directed portion of the Tier 3 plan.

Plan Design

A summary of basic plan provisions included in our cost study follows:

Cash Balance Plan (Employer Annuity Account)

- Employer credits to the account will be based on the employee's years of service beginning with a 1% credit for the first year of service and increasing 0.50% per year until a 5% credit is granted when the employee has completed 8 or more years of service.
- The guaranteed interest credit will be 0%, but the intent of the plan design is to credit the member's employer annuity account with interest credits that mirror the actual earnings of the KPERS portfolio.
- 100% vesting after five (5) years of service.



- Normal retirement age is age 65 and 5 years of service.
- No employee contributions. Employer contributions are determined as part of the annual actuarial valuation.
- Once vested, a member cannot withdraw the employer annuity account until reaching the normal retirement age of 65. There is no early retirement provision. Upon reaching normal retirement age, the balance in the employer annuity account is converted into monthly income, based on the form of payment elected by the member. The annuity amount is determined by the annuity conversion factors which are based on the interest rates published by the Pension Benefit Guaranty Corporation (PBGC) for distress terminations and the mortality table selected by the Board.
- If a member dies prior to reaching the normal retirement age of 65, no benefit is payable and the account balance is forfeited unless (1) the member is vested; (2) the member has at least ten (10) years of service at death; and (3) the member's spouse at the time of death is designated as the sole primary beneficiary. In that case, the spouse shall receive a benefit when the member would have reached his normal retirement age.
- If a member becomes disabled while actively working, such member shall be given participating service credit for the entire period of his disability. Such member's employer annuity account shall be credited with the regular employer credit. All credits to the employer annuity account shall cease upon the earliest of (i) death; (ii) attainment of normal retirement age; or (iii) the date the member is no longer entitled to receive disability benefits.
- A benefit of \$4,000 is payable upon a retired member's death.

Statutory Contribution Cap

In KPERS, the employers do not necessarily contribute the full actuarial contribution rate. Based on legislation passed in 1993, the employer contribution rates certified by the Board may not increase by more than the statutory cap. The current statutory cap, which has been changed periodically, is 0.60% for the State, School and Local groups. Senate Substitute for HB 2194 increased the statutory cap to an ultimate cap of 1.2%.

The Study Commission recommended the elimination of the statutory cap on employer contributions, effective July 1, 2013. Therefore, this provision is reflected in our cost study.

Senate Substitute for HB 2194

The baseline projections shown in the cost study are based on Senate Substitute for HB 2194 as passed by the 2011 Legislature. In addition, the projections for the Study Commission Plan reflect the default benefit provision changes for KPERS Tier 1 and 2 members included in Senate Substitute for HB 2194.

Defined Contribution Plan (Employee Directed Account)

- Employee contribution rate is 6% of pay and is deposited into the employee directed account. The employee will direct all investments in this account and investment earnings and losses will directly accrue to the account balance.
- The employee is always 100% vested in the employee directed account.
- Upon termination of employment the employee can elect to roll the funds in his or her account balance to another qualified plan or an IRA.
- Upon retirement, the employee directed account balance is payable at the direction of the employee in either a lump sum, or periodic payments as determined by the employee. There is no guaranteed payment for the lifetime of the member unless the employee purchases an annuity.



Actuarial Assumptions and Methods

The same actuarial methods and assumptions that were used in the December 31, 2010 actuarial valuation were used in this cost study with the exception of retirement rates. Because retirement eligibility requirements are different than those in the current plan, as well as the benefits provided, the retirement patterns are expected to change. Cavanaugh Macdonald selected retirement rates that we believe are reasonable given the limited knowledge we have at this time about behaviors that will occur many years in the future. However, actual experience may vary, at times significantly, from the assumptions used in these projections. If it does, the cost projections will also be impacted.

The employer funded portion of the Study Commission Plan is a cash balance plan, which is a defined benefit plan. As such, the contribution rate to fund the benefits will be based on the results of the actuarial valuation. The projection of future benefit amounts for Tier 3 members requires the use of two additional assumptions that are not necessary in the valuation of projected benefits for Tiers 1 and 2 members. They are:

- (1) interest crediting rate and
- (2) annuity conversion factors (which requires a postretirement interest rate and a mortality table).

Because the intent of the Study Commission proposal is to credit the actual return on the KPERS portfolio to the employer annuity account, the interest crediting rate was set to the assumed rate of return, currently 8%. The Study Commission recommended the interest rates published by the Pension Benefit Guaranty Corporation for distress terminations be used to determine the annuity conversion factors. The PBGC distress termination interest rates vary every month and are dependent on market conditions. Tying the annuity conversion rate to the PBGC distress termination rates increases the uncertainty about what rates will actually be used to convert a member's employer annuity account into monthly income and requires that an actuarial assumption be used to estimate future experience. Based on long term historical PBGC distress termination rates, this assumption was set at 6.5% for the cost study. The mortality table used for the annuity conversion factor (which is used to convert the employer annuity account to monthly income) was the RP 2000 Mortality Table projected to 2035, using Projection Scale AA, with a 50/50 male/female blend.

The projected benefit payments for Tier 3 members will be projected in the actuarial valuation along with those for Tiers 1 and 2 members. The valuation will develop one overall employer contribution rate, which will include the UAL payment, to be paid on all covered payroll (Tier 1, Tier 2 and Tier 3 members). From an actuarial perspective, the valuation process will be unchanged other than reflecting the new benefit structure for Tier 3 members.

The amortization period used in the cost study remained at a closed 22 year period starting on December 31, 2010. In order to mitigate the impact of the time lag between the valuation date and the fiscal year in which the contribution rate is effective, the amortization period was set to an open ten year period in 2030 for cost projections for both the baseline and the Study Commission Plan.

Results

The cost impact of the Study Commission plan design will unfold over time as current Tier 1 and Tier 2 members leave covered employment and are replaced by Tier 3 members. Therefore, a projection of costs over a long time period is necessary to evaluate the long term impact of the proposed changes. The cost estimates for the Study Commission Plan are reflected in the attached exhibits which show the expected employer contribution in each future year, assuming all actuarial assumptions are met in the future.



The "Baseline" scenario reflects the estimated employer costs under Senate Substitute for HB 2194. Please note that all dollar amounts shown are future dollar amounts, calculated using the estimated employer contribution rate and projected payroll in future years.

Disclaimers, Caveats, and Limitations

The numerical charts and graphs that comprise this study are based primarily upon the December 31, 2010 valuation results, the actuarial assumptions used in the valuation, and the projection model prepared by the System's actuary, Cavanaugh Macdonald Consulting, LLC. Significant items are noted below:

- Investment return in future years is assumed to be 8% on a market value basis, unless otherwise indicated.
- All demographic assumptions regarding mortality, disability, retirement, salary increases, and termination of employment are assumed to hold true in the future. Please note that the actuarial assumption assumes that mortality will improve in the future (i.e. people will live longer).
- Changes in the retirement plan eligibility and benefit amounts may have an effect on future termination and retirement patterns. While we have attempted to reflect the change in retirement eligibility, how changes in the benefit structure may ultimately impact employment patterns cannot be known at this time and, therefore, has not been modeled.
- The number of active members covered by KPERS in the future is assumed to remain level (neither growth nor decline in the active membership count). As active members leave employment, they are assumed to be replaced by new employees who have a similar demographic profile as recent new hires.
- Plan provisions for Tiers 1 and 2 are modified in accordance with Senate Substitute for HB 2194, Tier 3 benefits are described in this letter. There are no other benefit changes reflected in future years.
- The funding methods including the entry age normal cost method, the asset smoothing method, and the amortization method and period remain unchanged other than as noted elsewhere in this letter.
- The state and local employers will contribute as scheduled under HB 2194 (with consideration to changes in the statutory caps in the legislation) and with no statutory cap under the Study Commission Plan.
- We relied upon the membership data provided by KPERS for the actuarial valuation. The numerical results depend on the integrity of this information. If there are material inaccuracies in this 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 some future state of events. The projections are based on the System's estimated financial status on December 31, 2010, and project future events using one set of assumptions out of a range of many possibilities. 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 made. 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 feel free to call us to discuss this further if you wish.

Sincerely,

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

Patrice Beckham

Brent A. Banister, PhD, FSA, EA, FCA, MAAA Chief Pension Actuary

But a But

S:/Kansas PERS/2012 Correspondence/Fiscal Note for Prelim Study Commission Bill

Exhibit A1

HB 2194 vs Study Commission Plan State/School Group



(1)	(2)	(3) Employer Contr	(5) (6) (7) Employer Contribution Amount (\$M)							
Fiscal	Total									
Year	Payroll	HB 2194	SC Plan		HB 2194		SC Plan		Difference	
2012	\$ 4,465.19	8.77%	8.77%	\$	391.60	\$	391.60	\$	_	
2013	4,609.30	9.37%	9.37%		431.89		431.89		-	
2014	4,742.86	10.27%	13.44%		487.09		637.46		150.37	
2015	4,889.77	11.27%	13.61%		551.08		665.71		114.63	
2016	5,048.36	12.37%	14.82%		624.48		748.18		123.70	
2017	5,217.25	13.57%	14.79%		707.98		771.52		63.54	
2018	5,396.09	14.46%	14.65%		780.44		790.34		9.90	
2019	5,585.80	14.67%	14.74%		819.50		823.56		4.06	
2020	5,786.83	14.80%	14.79%		856.63		856.13		(0.49)	
2021	5,999.32	14.85%	14.84%		890.84		890.20		(0.64)	
2022	6,223.41	14.84%	14.89%		923.50		926.50		3.00	
2023	6,458.61	14.81%	14.92%		956.42		963.37		6.95	
2024	6,704.71	14.76%	14.93%		989.41		1,001.19		11.78	
2025	6,962.16	14.70%	14.93%		1,023.12		1,039.68		16.56	
2026	7,231.45	14.62%	14.93%		1,057.31		1,079.54		22.23	
2027	7,512.93	14.54%	14.91%		1,092.03		1,119.90		27.87	
2028	7,806.93	14.45%	14.88%		1,127.87		1,161.97		34.10	
2029	8,113.92	14.34%	14.83%		1,163.67		1,203.48		39.81	
2030	8,433.95	14.21%	14.77%		1,198.79		1,245.30		46.51	
2031	8,767.29	14.08%	14.67%		1,234.26		1,285.93		51.66	
2032	9,114.66	13.90%	14.53%		1,266.68		1,324.29		57.60	
2033	9,476.23	5.43%	6.70%		514.43		635.32		120.89	
2034	9,852.28	3.95%	5.38%		389.15		529.85		140.69	
2035	10,243.64	2.42%	4.00%		248.31		409.87		161.55	
2036	10,650.79	1.38%	3.07%		147.01		327.41		180.40	
2037	11,073.56	0.90%	2.68%		100.20		296.41		196.21	
2038	11,513.15	0.58%	2.43%		67.01		279.86		212.86	
2039	11,970.93	0.41%	2.32%		49.01		277.90		228.89	
2040	12,448.09	0.33%	2.28%		40.91		284.40		243.49	
2041	12,947.04	0.29%	2.30%		37.12		297.30		260.18	
2042	13,469.39	0.29%	2.33%		38.50		313.37		274.87	
2043	14,014.53	0.29%	2.38%		41.34		332.99		291.65	
2044	14,581.39	0.31%	2.43%		45.83		354.78		308.95	
2045	15,170.09	0.34%	2.48%		50.94		375.94		325.00	
2046	15,780.74	0.37%	2.54%		58.01		400.70		342.69	
2047	16,410.26	0.40%	2.58%		65.64		423.35		357.71	
2048	17,057.88	0.42%	2.64%		72.21		449.90		377.69	
2049	17,727.69	0.46%	2.67%		80.91		474.08		393.17	
2050	18,423.67	0.48%	2.73%		88.50		502.67		414.17	
2051	19,147.45	0.52%	2.76%		98.70		528.98		430.28	
2052	19,899.69	0.54%	2.81%		107.47		558.23		450.76	
2053	20,682.16	0.56%	2.85%		116.60		588.83		472.22	
2054	21,496.61	0.59%	2.89%		126.16		620.88		494.72	
2055	22,344.49	0.61%	2.92%		136.30		652.33		516.03	
2056	23,227.14	0.63%	2.95%		146.94		685.08		538.14	
2057	24,145.92	0.65%	2.97%		158.06		717.13		559.07	
2058	25,102.38	0.68%	2.99%		169.68		750.59		580.91	
2059	26,098.07	0.69%	3.02%		179.31		788.21		608.90	
2060	27,134.62	0.71%	3.04%		192.09		824.95		632.86	
	·			\$	22,140.94	\$	33,039.06	\$	10,898.12	

Exhibit A2

HB 2194 vs Study Commission Plan Local Group



(1)	(2)	(3) (4) Employer Contribution Rate			(5) (6) (7) Employer Contribution Amount (\$M)							
Fiscal	Total		_									
Year	Payroll	HB 2194	SC Plan		HB 2194		SC Plan		<u>Difference</u>			
2012	\$ 1,678.75	7.34%	7.34%	\$	123.22	\$	123.22	\$	-			
2013	1,726.92	7.94%	7.94%		137.12		137.12		-			
2014	1,777.74	8.65%	8.91%		153.84		158.39		4.55			
2015	1,834.05	9.12%	9.47%		167.26		173.71		6.45			
2016	1,893.42	9.00%	9.45%		170.45		178.89		8.44			
2017	1,955.65	9.00%	9.53%		176.01		186.32		10.32			
2018	2,020.46	9.00%	9.60%		181.84		193.92		12.08			
2019	2,087.94	8.99%	9.67%		187.74		201.89		14.15			
2020	2,158.09	8.98%	9.72%		193.71		209.84		16.12			
2021	2,231.91	8.98%	9.80%		200.50		218.70		18.20			
2022	2,309.17	8.98%	9.87%		207.43		227.86		20.43			
2023	2,389.76	8.98%	9.93%		214.53		237.32		22.79			
2024	2,474.65	8.97%	9.99%		222.08		247.11		25.02			
2025	2,563.71	8.98%	10.04%		230.12		257.51		27.39			
2026	2,656.71	8.97%	10.10%		238.33		268.22		29.89			
2027	2,753.93	8.97%	10.14%		247.00		279.24		32.24			
2028	2,856.33	8.96%	10.16%		255.91		290.34		34.43			
2029	2,963.32	8.94%	10.19%		265.02		302.01		37.00			
2030	3,075.51	8.93%	10.20%		274.64		313.69		39.05			
2031	3,192.38	8.91%	10.18%		284.39		324.92		40.52			
2032	3,313.68	3.65%	5.05%		120.93		167.23		46.30			
2032	3,440.20	2.75%	4.20%		94.68		144.35		49.67			
2033	3,571.81	1.82%	3.32%		64.89		118.44		53.54			
2034	3,709.17	1.49%	3.04%		55.37		112.61		57.24			
2036	3,851.93	1.27%	2.85%		48.93		109.62		60.69			
2037	4,001.21	1.14%	2.77%		45.58		110.65		65.07			
2037	4,157.18	1.06%	2.71%		44.04		110.05		68.82			
2038									73.10			
	4,319.48	0.99%	2.68%		42.82		115.91					
2040 2041	4,488.52	0.94%	2.67%		42.38		119.90		77.52 82.08			
	4,663.81	0.90%	2.66%		41.91		123.99					
2042	4,846.82	0.86%	2.65%		41.89		128.67		86.78			
2043	5,037.31	0.83%	2.65%		41.88		133.48		91.60			
2044	5,235.49	0.81%	2.65%		42.38		138.90		96.52			
2045	5,442.03	0.79%	2.66%		42.93		145.01		102.08			
2046	5,656.91	0.77%	2.67%		43.52		151.28		107.76			
2047	5,879.63	0.76%	2.68%		44.74		157.70		112.96			
2048	6,110.89	0.74%	2.70%		45.44		164.88		119.44			
2049	6,351.53	0.74%	2.70%		46.85		171.65		124.80			
2050	6,602.17	0.73%	2.72%		48.39		179.27		130.87			
2051	6,862.33	0.73%	2.74%		50.05		187.79		137.74			
2052	7,132.79	0.74%	2.75%		52.53		195.90		143.37			
2053	7,414.16	0.73%	2.77%		54.48		205.03		150.55			
2054	7,707.23	0.73%	2.77%		56.57		213.73		157.17			
2055	8,012.19	0.74%	2.79%		59.61		223.55		163.94			
2056	8,329.45	0.74%	2.81%		62.01		233.76		171.76			
2057	8,659.60	0.76%	2.81%		65.41		243.53		178.12			
2058	9,003.17	0.76%	2.83%		68.14		254.59		186.45			
2059	9,360.70	0.76%	2.84%		71.02		266.11		195.09			
2060	9,732.77	0.76%	2.85%		74.05		277.16		203.11			
				\$	5,744.57	\$	9,437.77	\$	3,693.20			

Exhibit B1

Kansas Public Employee Retirement System Comparison of State/School Group Employer Contributions for Retirement Benefits HB 2194 versus Study Commission Plan



Page						HB 2194				Difference (2)				
2011 4.465, 186 0.000 8.776 3.318 147,582 244.014 391,597 0.000 0.114 4.99,301 0.000 0.976 3.318 15.2346 279,564 411,892 0.000 0.114 4.742,839 0.000 0.976 3.318 15.2346 279,564 4.1840 0.1841		Payro	11	Employer	Normal		UAL		Employer		DB Normal		Total	
2011 4.465, 186 0.000 8.776 3.318 147,582 244.014 391,597 0.000 0.114 4.99,301 0.000 0.976 3.318 15.2346 279,564 411,892 0.000 0.114 4.742,839 0.000 0.976 3.318 15.2346 279,564 4.1840 0.1841	FYE	Tier 1/2	Tier 3	Rate-DB	Cost Rate	Cost (2)	Payment (2)	Cost (2)	Rate-DB	Cost Rate	Cost (2)	Payment (2)	Cost (2)	
2013 4,090,301 0,000 0,27% 3,31% 15,2366 279,546 41,892 9,27% 3,31% 15,2366 279,546 431,892 0,000 0,000 10														0.000
2014 4,742.859 0.000 10.27% 3.31% 156.759 330.332 487.092 13.44% 3.31% 156.759 480.704 637.461 19.0372 19.00072 19.00073														
2010 4,597,134 541,224 12,37% 2,22% 111,974 512,598 62,4482 4,82% 2,55% 128,749 619,433 748,182 123,700 2017 43,523,224 83,524 13,57% 2,12% 1110,348 670,194 780,442 44,65% 2,55% 136,333 65,1006 793,338 9,896 790,144 11,148 11,148 11,149		4,742.859		10.27%		156.760	330.332	487.092			156.760	480.704	637.464	
2010 4,971,134 541,224 13,57% 2,12% 111,974 512,598 624,482 14,87% 2,55% 138,749 619,433 748,182 123,700 2017 43,127,214 84,224 13,57% 2,12% 111,830 59,711 707,981 14,79% 2,25% 136,333 654,006 703,338 9,896 10,174,43 15,686 14,67% 2,094% 10,0954 70,995 819,500 14,74% 2,25% 136,333 654,006 703,338 9,896 10,000 14,000 14,000 14,89% 1,997,100 14,89% 1,89% 10,0954 70,995 819,500 14,74% 2,25% 146,088 78,000 16,000 14,75% 14,89% 1,917,115 2,271,100 14,85% 1,87% 1,917,100 14,85% 1,87% 1,917,100 14,85% 1,87% 1,917,100 14,85% 1,917,100 14,85% 1,917,100 14,85% 1,917,100 14,85% 1,917,100 14,85% 1,917,100 14,85% 1,917,100 14,85% 1,917,100 14,85% 1,917,100 14,85% 1,917,100 14,85% 1,917,100 14,85% 1,917,100 14,85% 1,917,100 14,85% 1,917,100 1	2015						438.128						665.708	
2018 4,171,386 1,224,718 14,46% 2,04% 110,248 670,194 780,442 14,65% 2,53% 136,333 654,006 790,238 9,896 2019 4,071,433 15,686,662 14,67% 1,96% 1,917,013 14,80% 1,818% 108,967 747,658 856,625 14,70% 2,52% 146,088 710,044 856,132 (0,493) 2021 3,791,517 2,270,101 14,85% 1,818% 108,967 747,658 856,625 14,70% 2,53% 151,688 738,516 800,244 (0,649) 2022 3,597,727 2,625,683 14,84% 1,74% 108,323 815,267 923,409 14,80% 2,54% 157,907 768,591 926,408 2,999 2023 3,495,477 2,980,737 14,81% 1,67% 1,017,734 818,662 964,161 14,95% 2,55% 161,439 789,911 963,369 6,954 2024 3,343,442 3,341,209 14,76% 1,55% 107,671 915,524 1023,124 14,95% 2,55% 17,1819 829,373 1,001,191 17,782 2023 3,095,688 4,155,766 14,42% 1,42% 107,824 940,409 1,687,315 14,95% 2,55% 14,179 16,180,132 1,009,64 16,55% 1,009,64 1,45%	2016													
2018 4,171,366 1,224,718 1,446% 2,044% 110,248 670,194 780,442 14,65% 2,53% 13,6333 654,006 790,238 9,896 2019 4,071,431 1,586,662 14,67% 1,96% 1,917,913 14,80% 1,88% 108,967 747,658 856,625 14,70% 2,53% 114,608 710,044 856,132 (0,493) 2021 3,797,151 2,270,160 14,85% 1,81% 108,333 782,311 808,044 14,84% 2,53% 115,1688 738,166 800,031 (0,604) 2022 3,397,777 2,625,683 14,84% 1,74% 108,332 815,267 923,499 14,89% 2,53% 116,439 799,319 93,639 69,548 2,999 2023 3,349,377 2,983,460 14,70% 1,50% 107,754 881,662 954,410 14,95% 2,55% 161,439 799,319 93,6498 2,999 2023 3,345,42 3,361,269 14,70% 1,55% 107,679 81,526 993,449 14,93% 2,56% 171,819 829,373 1,001,191 1,752 2023 3,055,688 4,153,766 14,70% 1,55% 107,607 91,524 102,312 14,93% 2,56% 171,819 829,373 1,001,191 1,752 2023 3,055,688 4,153,766 14,70% 1,55% 107,607 91,524 102,312 14,93% 2,56% 171,819 829,373 1,001,191 1,752 2023 3,055,688 4,153,766 14,40% 1,40% 1,55% 107,607 91,524 102,312 14,93% 2,56% 171,819 829,373 1,001,191 1,752 2,229 2,248,479 3,565,487 1,44% 1,08,86 1,08,381 1,38,383 1,49,3	2017	4,332.724	884.524	13.57%	2.12%	110.810	597.171	707.981	14.79%	2.53%	131.884	639.635	771.518	63.538
2019 4,017.143 1,568.6662 14.67% 1.96% 109.544 709.956 819.500 14.74% 2.52% 140.076 682.585 823.561 4.0429 2020 3,388.916 10.17913 14.88% 1.81% 108.553 72.311 890.844 14.84% 2.23% 151.688 738.516 890.204 (0.640) 2022 3,799.777 2,656.83 14.84% 1.74% 108.533 782.311 890.844 14.84% 2.25% 157.007 708.591 92.648 2.999 2023 3,469.577 2,989.037 14.81% 1.07% 107.754 848.662 956.416 14.92% 2.55% 164.439 798.931 963.369 6.954 1.078	2018		1,224.718	14.46%	2.04%	110.248	670.194	780.442			136.333			
2020 3,888,916 1917,913 14,80% 1,88% 108,97 747,658 856,625 14,79% 2,25% 146,088 710,044 856,132 0,049 2021 3,797,157 2,625,683 14,84% 1,74% 108,232 815,267 923,499 14,89% 2,25% 151,088 738,816 809,024 0,0640 2022 3,397,727 2,625,683 14,84% 1,74% 108,232 815,267 923,499 14,89% 2,25% 164,439 798,931 963,369 693,400 14,24% 3,341,242 3,361,269 14,76% 1,61% 107,734 881,669 989,409 14,95% 2,26% 171,191 829,373 1,001,191 11,782 2025 3,185,808 3,746,69 14,67% 1,585,90 10,534 14,95% 2,26% 171,191 829,373 1,001,191 11,782 1,000,000	2019	4,017.143	1,568.662	14.67%	1.96%	109.544	709.956	819.500	14.74%		140.976	682.585		
2022 3,997,727 2,625,683 14,84% 1,74% 108,232 815,267 923,499 14,89% 2,54% 157,907 768,591 926,498 2,999 2023 3,436,442 3,361,269 14,76% 1,61% 107,739 881,609 989,409 14,93% 2,55% 171,819 829,373 1,001,101 11,752 2026 3,345,442 3,345,449 1,47% 1,61% 107,325 99,409 1,493% 2,55% 171,819 803,233 1,001,101 11,752 2026 3,055,688 4,135,766 14,62% 1,49% 107,825 99,409 1,057,315 14,90% 2,60% 187,906 801,638 1,179,544 22,23 2027 2,707,6187 4,561,609 4,945,319 14,44% 1,44% 10,828 1,107,988 1,127,868 14,89% 2,67% 208,31 1,119,914 2,278,11 2029 2,744,799 3,564,349 1,44% 10,828 1,019,489 1,147,968 1,449 1,245,333	2020	3,868.916	1,917.913	14.80%	1.88%	108.967	747.658	856.625	14.79%	2.52%	146.088	710.044	856.132	(0.493)
2023 3,469,577 2,989,037 14,81% 1,67% 10,7754 848,662 956,416 14,92% 2,55% 161,439 79,931 963,369 1,938 2024 3,343,442 3,361,269 1,470% 1,55% 107,601 915,524 1,023,124 14,93% 2,57% 171,1819 80,533 1,039,884 16,599 2026 3,056,688 4,135,766 1,44% 10,740 98,193 1,092,084 2,57% 117,1819 18,790,681 11,199,544 2,223 2027 2,976,817 4,536,108 14,54% 1,44% 107,840 98,193 1,092,033 14,91% 2,62% 10,986,66 923,338 1,119,904 27,871 2028 2,261,699 4,945,199 1,443% 1,088,66 1,058,666 14,83% 2,67% 216,828 986,662 2,134,14 3,941 4,938 1,049,89 1,636,66 14,83% 2,67% 216,828 98,6652 1,204,841 3,941 4,248 1,436,93 1,447% 2,77%	2021	3,729.151	2,270.169	14.85%	1.81%	108.533	782.311	890.844	14.84%	2.53%	151.688	738.516	890.204	(0.640)
2023 3,49,577 2,989,037 14,81% 1,07% 197,754 848,662 956,416 14,92% 2,55% 164,439 79,931 963,369 1,091,11 2025 3,218,508 3,743,649 14,70% 1,55% 107,601 915,524 1,023,124 14,93% 2,57% 179,161 860,523 1,169,968 1,167,954 1,023,124 14,93% 2,57% 179,161 860,523 1,169,968 1,179,544 2,220 2027 2,976,817 4,536,108 14,44% 1,47% 10,744 984,193 1,092,033 14,91% 2,62% 196,566 923,338 1,119,904 27,871 2028 2,616,699 4,945,319 1,444% 1,348 10,8856 1,094,809 1,163,666 14,83% 2,67% 216,828 986,662 1,203,481 3,9815 2030 2,636,015 5,799,90 1,214 1,29 1,123,666 14,25% 2,77% 2,77% 2,273,131 1,144,81% 1,103,666 1,123,866 1,424,81 1,4	2022	3,597.727	2,625.683	14.84%	1.74%	108.232	815.267	923.499	14.89%		157.907	768.591		2.999
2025 3,218,508 3,743,649 14,70% 1,55% 107,601 915,524 1,023,124 14,93% 2,60% 187,906 891,638 1,079,944 22,23 2027 2,976,817 4,536,108 14,54% 1,078,409 984,193 1,092,033 14,91% 2,02% 106,566 923,338 1,119,904 27,871 2028 2,086,009 4,945,319 1,44% 1,39% 108,238 1,019,538 1,127,868 1,64% 2,039 95,558 1,161,966 34,098 2039 2,748,479 3,566,437 14,34% 1,34% 108,858 1,054,909 1,163,666 14,83% 2,67% 216,828 98,652 1,203,481 39,815 2031 2,254,41 6,243,849 1,468% 1,20% 110,256 1,123,967 1,244,263 1,47% 2,73% 29,111 1,046,814 1,285,293 51,603 2031 2,273,400 7,178,922 5,45% 1,118 111,166 1,155,788 1,266,84 14,53% 2,76%	2023	3,469.577	2,989.037	14.81%	1.67%	107.754	848.662	956.416	14.92%		164.439	798.931	963.369	6.954
2026 3,095,688 4,135,766 14,62% 14,9% 107,825 949,990 1,073,155 14,93% 2,60% 187,906 891,638 1,079,544 22,230 2027 2,976,817 4,536,108 14,45% 1,34% 10,868 1,019,585 1,127,868 14,88% 2,64% 20,6398 955,568 1,161,966 34,098 2029 2,748,479 5,564,371 14,24% 13,44% 13,44% 10,885 1,054,390 1,163,666 14,83% 2,67% 2,168,28 966,652 1,203,481 39,815 2030 2,636,015 5,797,930 14,24% 1,24% 1,20% 109,127 1,089,666 1,189,793 14,77% 2,70% 227,335 1,017,977 1,245,303 46,510 2,031,200 2,240,718 6,703,938 13,90% 1,22% 110,946 1,123,967 1,234,6684 14,53% 2,76% 2,51,492 1,072,795 1,324,287 57,602 2,325,3441 6,348,349 14,68% 1,22% 110,946 1,123,967 1,245,6684 14,53% 2,76% 2,51,492 1,072,795 1,324,287 57,602 2,325,3441 6,348,349 1,478 2,348,349 1,478 2,348,349 1,478 2,348,349 1,478 2,348,349 1,478 2,348,349 1,478 2,348,349 1,478 2,348,349 1,478 1,478 2,348,349 1,478 1,478 2,348,349 1,478	2024	3,343.442	3,361.269	14.76%	1.61%	107.739	881.669	989.409	14.93%	2.56%	171.819	829.373	1,001.191	11.782
2027 2.976.817 4.536.108 14.54% 1.44% 107.840 984.193 1.09.2.033 14.91% 2.62% 196.566 923.338 1.119.904 27.871	2025	3,218.508	3,743.649	14.70%	1.55%	107.601	915.524	1,023.124	14.93%	2.57%	179.161	860.523	1,039.684	16.559
2028 2,861,609 4,945,519 1,4.5% 1,09% 108,283 1,107,868 1,488% 2,64% 206,398 955,568 1,161,966 34,098 2030 2,636,015 5,797,930 14,21% 1,29% 109,127 1,089,666 1,198,793 14,77% 2,70% 227,325 1,017,977 1,245,303 46,510 2031 2,525,041 6,243,849 14,08% 1,096 1,123,967 1,234,263 14,677% 2,73% 239,111 1,046,814 1,285,925 5,1663 2032 2,241,0718 6,709,938 13,90% 1,22% 110,946 1,155,738 1,266,684 14,57% 2,76% 251,492 1,072,795 1,242,287 7,7602 2033 2,297,300 7,178,932 5,43% 1,118% 111,686 402,740 514,425 6,70% 27,8% 251,492 1,072,795 1,242,877 7,7602 22,188 25,946 399,153 5,38% 1,169,406 1,189,402 24,831 4,00% 2,28% 2,28 21	2026	3,095.688	4,135.766	14.62%	1.49%	107.825	949.490	1,057.315	14.93%	2.60%	187.906	891.638	1,079.544	22.230
2029 2,748,479 5,365,437 14,34% 1,24% 108,856 1,054,809 1,163,3666 14,83% 2,67% 216,828 986,652 1,203,481 39,815	2027	2,976.817	4,536.108	14.54%	1.44%	107.840	984.193	1,092.033	14.91%	2.62%	196.566	923.338	1,119.904	27.871
2030 2,636,015 5,797,930 14,21% 12% 12% 10,926 1,123,967 1,242,63 14,77% 2,70% 227,325 1,017,977 1,245,303 44,510 232,232,441 6,243,849 1,40,8% 1,22% 110,946 1,155,738 1,266,684 14,53% 2,76% 251,492 1,072,795 1,324,287 57,602 2033 2,297,300 7,178,932 5,43% 1,18% 111,686 402,740 514,425 6,70% 2,78% 26,63,80 371,468 635,319 120,893	2028	2,861.609	4,945.319	14.45%	1.39%	108.283	1,019.585	1,127.868	14.88%	2.64%	206.398	955.568	1,161.966	34.098
2031 2,523,441 6,243,849 14,08% 12,0% 110,296 1,123,967 1,243,263 14,67% 2,73% 239,111 1,046,814 1,285,925 51,663	2029	2,748.479	5,365.437	14.34%	1.34%	108.856	1,054.809	1,163.666	14.83%	2.67%	216.828	986.652	1,203.481	39.815
2032 2,410,718 6,703,938 13,90% 1,22% 110,946 1,155,738 1,266,684 14,53% 2,76% 251,492 1,072,795 1,234,287 57,602 233 2,297,300 7,178,932 5,43% 1,15% 113,289 275,864 339,153 5,38% 2,22% 277,628 252,218 529,846 140,694 2,182,241 7,670,035 3,95% 1,15% 113,289 275,864 339,153 5,38% 2,22% 277,628 252,218 529,846 140,694 2,182,241 7,670,035 3,95% 1,15% 113,289 275,864 339,153 5,38% 2,22% 277,628 252,218 529,846 140,694 2,035 2,065,928 8,177,707 2,42% 1,11% 114,119 134,192 248,311 4,00% 2,48% 301,112 2,103 327,414 180,403 2,037 1,827,085 9,246,479 0,90% 1,05% 116,807 -16,610 100,196 2,68% 2,91% 331,876 -25,469 296,407 196,210 2,038 1,578,269 10,392,660 0,41% 1,00% 119,635 -70,628 49,006 2,32% 2,96% 354,514 -76,614 277,900 228,894 2,040 1,452,370 1,0995,722 0,33% 0,97% 120,583 -70,628 40,915 2,28% 2,98% 371,538 -87,137 284,402 243,437 2,041 1,329,445 1,107,595 0,29% 0,95% 122,573 -86,540 37,123 2,30% 3,02% 30,02% 30,020 9,32,19 297,301 260,178 2041 1,23,344 1,107,595 0,29% 0,99% 124,704 -86,204 38,499 2,33% 3,05% 410,352 -96,980 313,372 274,873 2041 1,123,484 1,107,485 1,291,2073 0,29% 0,99% 124,704 -86,204 38,499 2,33% 3,05% 410,352 -96,980 313,372 274,873 2041 1,124,486 1,124,48	2030	2,636.015	5,797.930	14.21%	1.29%	109.127	1,089.666	1,198.793	14.77%	2.70%	227.325	1,017.977	1,245.303	46.510
2033 2,297300 7,178.932 5,43% 1,18% 11,686 40,2740 514,425 6,70% 2,78% 263.850 371,468 655.319 120.893 2034 2,182.241 7,670.035 3,95% 1,15% 113,289 275.864 389,153 5,38% 2,82% 277,628 252.218 529,846 140,694 2035 2,665.928 8,177.707 2,42% 1,11% 114,119 134,192 248,311 4,00% 2,84% 291,039 118,826 409,865 161,555 2036 1,948,113 8,702,679 1,38% 1,08% 115,059 31,952 147,011 3,07% 2,87% 306,112 21,302 327,414 180,403 2037 1,827,085 9,809,757 0,88% 1,02% 117,663 -50,658 67,005 2,43% 2,93% 337,428 -57,566 279,862 212,857 2039 1,758,269 10,995,722 0,33% 0,97% 120,583 -70,628 49,006 2,32% 2,96% 354,514 -76,614 277,900 228,894 2040 1,452,370 10,995,722 0,33% 0,97% 120,583 -79,668 40,915 2,28% 2,98% 371,538 -87,137 284,402 243,487 2041 1,294,445 11,617,595 0,29% 0,95% 122,773 -85,450 37,123 2,30% 300,500 390,520 -93,219 297,301 260,178 2043 1,102,458 12,912,073 0,29% 0,99% 126,028 -85,489 41,340 2,38% 3,07% 410,352 -69,690 313,372 274,873 2044 1,248,4677 0,34% 0,88% 132,859 -85,489 41,340 2,38% 3,09% 451,017 -96,237 354,780 308,948 2044 783,139 14,997,606 0,37% 0,86% 135,338 -77,326 58,012 2,54% 3,11% 471,514 -95,572 375,942 235,002 2046 783,139 14,997,606 0,37% 0,86% 135,338 -77,326 58,012 2,54% 3,14% 515,246 -91,897 432,349 2049 465,713 17,699 0,46% 0,83% 142,147 -69,937 72,210 2,64% 3,14% 515,246 -91,897 432,339 377,711 2048 573,131 16,484,746 0,42% 0,83% 142,147 -69,937 72,210 2,64% 3,14% 515,246 -91,897 432,339 377,711 2048 573,131 16,484,746 0,42% 0,83% 142,147 -69,937 72,210 2,64% 3,14% 515,246 -91,897 -91,897 -91,897 -91,897 -91,897 -91,897 -91,897 -91,897 -91,897 -91,897 -91,897 -91,897	2031	2,523.441	6,243.849	14.08%	1.26%	110.296	1,123.967	1,234.263	14.67%	2.73%	239.111	1,046.814	1,285.925	51.663
2034 2,182,241 7,670,035 3,99% 1,15% 113,289 27,864 389,153 5,38% 2,28% 277,628 252,218 529,846 140,694 2035 2,065,928 8,177,707 2,42% 1,11% 114,119 134,192 248,111 4,00% 2,84% 291,039 118,826 49,846 161,555 2036 1,948,113 8,702,679 1,38% 1,08% 116,610 100,196 2,68% 2,91% 306,6112 21,302 327,414 118,043 2037 1,827,085 9,246,4479 0,99% 1,05% 116,6807 -16,610 100,196 2,68% 2,91% 321,876 -25,469 296,407 196,210 2037 1,578,269 10,392,660 0,41% 1,00% 19,635 -70,628 49,006 2,23% 2,96% 354,514 -76,614 277,900 228,894 2041 1,452,370 1,039% 1,22,573 -85,450 37,123 2,30% 3,02% 390,520 -93,219	2032	2,410.718	6,703.938	13.90%	1.22%	110.946	1,155.738	1,266.684	14.53%	2.76%	251.492	1,072.795	1,324.287	57.602
2035 2,065,928 8,177,707 2,42% 1,11% 114,119 134,192 248,311 4,00% 2,84% 291,039 118,826 409,865 161,555 2036 1,948,113 8,702,679 1,38% 1,108% 115,059 31,952 147,011 3,07% 2,87% 306,112 21,302 327,414 180,403 2037 1,827,085 9,246,479 0,90% 1,05% 116,807 -16,610 100,106 2,68% 2,91% 321,876 -25,469 296,407 196,210 2038 1,733,396 9,809,757 0,58% 1,02% 117,663 -50,658 67,005 2,43% 2,29% 334,142 -76,662 212,857 2040 1,452,370 10,995,722 0,33% 0,97% 120,583 -79,668 40,915 2,28% 2,98% 371,538 -87,137 284,402 243,487 2041 1,329,445 11,617,555 0,29% 0,95% 122,573 854,50 371,23 2,30% 30,55% <	2033	2,297.300	7,178.932	5.43%	1.18%	111.686	402.740	514.425	6.70%	2.78%	263.850	371.468	635.319	120.893
2036 1.948.113 8,702.679 1.38% 1.08% 115.059 31.952 1.47.011 3.07% 2.87% 306.112 21.302 327.414 180.403 2037 1,827.085 9,246.479 0.90% 1.10.5% 117.663 -50.688 67.005 2.43% 2.93% 337.428 -57.566 279.862 212.857 2038 1,738.269 10.392.660 0.41% 1.00% 119.635 -70.628 49.006 2.32% 2.96% 354.514 -76.614 277.900 228.89 2040 1,523.70 10.995.722 0.33% 0.97% 120.583 -79.668 40.915 2.28% 2.98% 371.538 -87.137 284.402 243.487 2041 1,329.445 11,617.595 0.29% 0.95% 122.573 -85.450 37.123 2.30% 30.0% 390.520 -93.219 297.301 206.178 2042 1,213.354 12,256.040 0.29% 0.99% 126.828 85.489 41.340 2.33%	2034	2,182.241	7,670.035	3.95%	1.15%	113.289	275.864	389.153	5.38%	2.82%	277.628	252.218	529.846	140.694
2037 1,827,085 9,246,479 0,90% 1,05% 116,807 -16,610 100,196 2,68% 2,91% 321,876 -25,469 296,407 196,210 2038 1,703,396 9,809,757 0,58% 1,02% 117,663 -50,658 67,005 2,43% 2,93% 337,428 -57,566 279,862 212,857 2039 1,578,269 10,392,660 0,41% 1,00% 119,635 -70,668 49,006 2,32% 2,99% 354,514 -76,614 277,900 228,894 2040 1,452,370 10,995,722 0,33% 0,97% 122,5573 -85,450 371,23 2,30% 30,05% 305,520 -93,219 297,301 260,178 2041 1,213,354 12,256,040 0,29% 0,93% 124,704 -86,204 38,499 2,33% 3,05% 410,352 -96,980 313,372 274,873 2043 1,102,458 12,912,073 0,29% 0,90% 126,828 -85,489 41,340 2,38% 3,05% 4410,352 -96,980 313,372 274,873 2043 1,102,458 12,912,073 0,34% 0,89% 130,404 -84,572 45,832 2,43% 3,09% 451,017 -96,237 354,780 308,948 2045 885,412 14,284,677 0,34% 0,88% 132,859 -81,918 50,941 2,48% 3,11% 471,514 -95,572 375,942 325,002 2047 680,796 15,729,466 0,40% 0,85% 139,484 -73,386 65,638 2,58% 3,14% 515,246 -91,897 423,349 377,614 2048 573,131 16,484,746 0,42% 0,83% 146,504 -65,937 72,210 2,64% 3,16% 538,604 -88,701 449,903 377,614 2049 465,713 17,261,980 0,46% 0,83% 146,504 -65,937 72,210 2,64% 3,16% 558,515 -82,906 502,669 414,168 2051 299,011 18,848,441 0,52% 0,82% 151,141 -62,640 88,501 2,73% 3,18% 585,575 -82,906 502,669 414,168 2051 299,011 18,848,441 0,52% 0,82% 151,141 -62,640 88,501 2,73% 3,18% 585,575 -82,906 502,669 414,168 2051 299,011 18,848,441 0,52% 0,82% 151,141 -62,640 88,501 2,73% 3,18% 585,575 -82,906 502,669 414,168 2051 299,011 18,848,441 0,52% 0,82% 151,141 -62,640 88,501 2,73% 3,18% 585,575 -82,906 502,669 414,168 2051 299,011 18,848,441 0,52% 0,82% 156,139 -73,442	2035	2,065.928	8,177.707	2.42%	1.11%	114.119	134.192	248.311	4.00%	2.84%	291.039	118.826	409.865	161.555
2038 1,703,396 9,809,757 0.58% 1,02% 117,663 -50,658 67,005 2,43% 2,93% 337,428 -57,566 279,862 212,857 2039 1,578,269 10,392,660 0.41% 1,00% 119,635 -70,628 49,006 2,32% 2,96% 354,514 -76,614 277,900 228,894 2041 1,452,370 10,995,722 0,33% 0,97% 120,583 -79,668 40,915 2,228% 2,98% 371,538 28,7137 284,402 243,487 2041 1,329,445 11,617,595 0,29% 0,95% 122,573 -85,450 37,123 2,30% 30,02% 390,520 -93,219 297,301 260,178 2042 1,213,354 12,256,040 0,29% 0,99% 126,828 -85,489 41,340 2,38% 3,07% 429,689 -96,700 333,2989 291,649 2044 992,920 13,588,470 0,31% 0,89% 132,845 50,941 2,48% 3,11%	2036	1,948.113	8,702.679	1.38%	1.08%	115.059	31.952	147.011	3.07%	2.87%	306.112	21.302	327.414	180.403
2039 1,578,269 10,392,660 0.41% 1.00% 119,635 -70,628 49,006 2.32% 2.96% 354,514 -76,614 277,900 228,894 2040 1,452,370 10,995,722 0.33% 0.97% 120,583 -79,668 40,915 2.28% 2.98% 371,538 -87,137 284,402 243,487 2042 1,213,354 12,256,040 0.29% 0.93% 124,704 -86,204 38,499 2.33% 3.05% 410,352 -96,980 313,372 274,873 2043 1,102,458 12,912,073 0.29% 0.90% 126,828 -85,489 41,340 2.38% 3.07% 429,689 -96,700 332,989 291,649 2043 1,102,458 12,912,073 0.29% 0.90% 130,404 -84,572 45,832 2.43% 3.09% 451,017 -96,237 352,899 291,649 2045 885,412 14,284,677 0.34% 0.88% 132,859 -81,918 50,941 2.48%	2037	1,827.085	9,246.479	0.90%	1.05%	116.807	-16.610	100.196	2.68%	2.91%	321.876	-25.469	296.407	196.210
2040 1,452,370 10,995,722 0.33% 0.97% 120,583 -79,668 40,915 2.28% 2.98% 371,538 -87,137 284,402 243,487 2041 1,329,445 11,1617,595 0.29% 0.93% 124,704 -86,204 38,499 2.33% 3.05% 410,352 -96,980 313,372 274,873 2043 1,102,458 12,912,073 0.29% 0.99% 126,828 -85,489 41,340 2.38% 3.07% 429,689 -96,700 332,989 291,649 2044 992,920 13,588,470 0.31% 0.89% 130,404 -84,572 45,832 2.43% 3.09% 451,017 -96,237 354,780 308,948 2045 885,412 14,284,677 0.34% 0.88% 132,859 81,918 50,941 2.48% 3.11% 471,514 -95,572 375,942 337,5942 233,469 140,409 436,831 14,997,606 0.37% 0.86% 132,859 81,918 50,941 43,139	2038	1,703.396	9,809.757	0.58%	1.02%	117.663	-50.658	67.005	2.43%	2.93%	337.428	-57.566	279.862	212.857
2041 1,329,445 11,617,595 0.29% 0.95% 122,573 -85,450 37,123 2.30% 3.02% 390,520 -93,219 297,301 260,178 2042 1,213,354 12,256,040 0.29% 0.93% 124,7704 -86,204 38,499 2.33% 3.05% 410,352 -96,980 313,372 274,873 2043 1,102,458 1,291,2073 0.29% 0.90% 126,828 85,489 41,340 2.38% 3.07% 429,689 -96,700 332,989 291,649 2044 992,920 13,588,470 0.31% 0.89% 130,404 -84,572 45,832 2.43% 3.09% 451,017 -96,237 354,780 308,948 2045 885,412 12,284,677 0.34% 0.88% 132,859 -81,918 50,941 2.48% 3.11% 471,514 -95,572 375,942 325,002 2046 783,139 14,977,606 0.37% 0.86% 135,338 -77,326 58,012 2.54% <td< td=""><td>2039</td><td>1,578.269</td><td>10,392.660</td><td>0.41%</td><td>1.00%</td><td>119.635</td><td>-70.628</td><td>49.006</td><td>2.32%</td><td>2.96%</td><td>354.514</td><td>-76.614</td><td>277.900</td><td>228.894</td></td<>	2039	1,578.269	10,392.660	0.41%	1.00%	119.635	-70.628	49.006	2.32%	2.96%	354.514	-76.614	277.900	228.894
2042 1,213.354 12,256.040 0.29% 0.93% 124.704 -86.204 38.499 2.33% 3.05% 410.352 -96.980 313.372 274.873 2043 1,102.458 12,912.073 0.29% 0.90% 126.828 -85.489 41.340 2.38% 3.07% 429.689 -96.700 332.989 291.649 2044 992.920 13,588.470 0.31% 0.89% 130.404 -84.572 45.832 2.43% 3.09% 451.017 -96.237 354.780 308.948 2045 885.412 14,284.677 0.34% 0.88% 132.859 -81.918 50.941 2.48% 3.11% 471.514 -95.572 375.942 325.002 2046 783.139 14,997.606 0.37% 0.86% 135.338 -77.326 58.012 2.54% 3.13% 493.809 -93.106 400.703 342.691 2047 680.796 15,729.466 0.40% 0.83% 142.147 -69.937 72.210 2.64% 3	2040	1,452.370	10,995.722	0.33%	0.97%	120.583	-79.668	40.915	2.28%	2.98%	371.538	-87.137	284.402	243.487
2043 1,102.458 12,912.073 0.29% 0.90% 126.828 -85.489 41.340 2.38% 3.07% 429.689 -96.700 332.989 291.649 2044 992.920 13,588.470 0.31% 0.89% 130.404 -84.572 45.832 2.43% 3.09% 451.017 -96.237 354.780 308.948 2045 885.412 14,284.677 0.34% 0.88% 132.859 -81.918 50.941 2.48% 3.11% 471.514 -95.572 375.942 325.002 2046 783.139 14,997.606 0.37% 0.86% 135.358 -77.326 58.012 2.54% 3.13% 493.809 -93.106 400.703 342.691 2047 680.796 15,729.466 0.40% 0.85% 139.484 -73.846 65.638 2.58% 3.14% 515.246 -91.897 423.349 357.711 2048 573.131 16,484.746 0.42% 0.83% 142.147 -69.937 72.210 2.64% 3.1	2041	1,329.445	11,617.595	0.29%	0.95%					3.02%				
2044 992.920 13,588.470 0.31% 0.89% 130.404 -84.572 45.832 2.43% 3.09% 451.017 -96.237 354.780 308.948 2045 885.412 14.284.677 0.34% 0.88% 132.859 -81.918 50.941 2.48% 3.11% 471.514 -95.572 375.942 325.002 2046 783.139 14,997.606 0.37% 0.86% 135.338 -77.326 58.012 2.54% 3.13% 493.809 -93.106 400.703 357.711 2047 680.796 15,729.466 0.40% 0.83% 142.147 -69.937 72.210 2.64% 3.16% 538.604 -88.701 449.903 377.694 2048 573.131 16,484.746 0.42% 0.83% 146.504 -65.592 80.912 2.67% 3.16% 558.604 -88.701 449.903 377.694 2050 373.175 18,050.490 0.48% 0.82% 151.41 -62.640 88.501 2.73% 3.18%<	2042	1,213.354	12,256.040	0.29%	0.93%	124.704	-86.204	38.499	2.33%	3.05%	410.352	-96.980	313.372	274.873
2045 885.412 14,284.677 0.34% 0.88% 132.859 -81.918 50.941 2.48% 3.11% 471.514 -95.572 375.942 325.002 2046 783.139 14,997.606 0.37% 0.86% 135.338 -77.326 58.012 2.54% 3.13% 493.809 -93.106 400.703 342.691 2047 680.796 15,729.466 0.40% 0.85% 139.484 -73.846 65.638 2.58% 3.14% 515.246 -91.897 423.349 357.711 2048 573.131 16,484.746 0.42% 0.83% 142.147 -69.937 72.210 2.64% 3.16% 538.604 -88.701 449.903 377.694 2049 465.713 17,261.980 0.46% 0.83% 146.504 -65.592 80.912 2.67% 3.16% 585.575 -82.906 502.669 414.168 2051 299.011 18,848.441 0.52% 0.82% 156.139 -57.442 98.696 2.76% 3.18%	2043		12,912.073	0.29%	0.90%	126.828	-85.489	41.340	2.38%	3.07%		-96.700	332.989	291.649
2046 783.139 14,997.606 0.37% 0.86% 135.338 -77.326 58.012 2.54% 3.13% 493.809 -93.106 400.703 342.691 2047 680.796 15,729.466 0.40% 0.85% 139.484 -73.846 65.638 2.58% 3.14% 515.246 -91.897 423.349 357.711 2048 573.131 16,484.746 0.42% 0.83% 142.147 -69.937 72.210 2.64% 3.16% 538.604 -88.701 449.903 377.694 2049 465.713 17,261.980 0.46% 0.83% 146.504 -65.592 80.912 2.67% 3.16% 550.945 -86.866 474.079 393.168 2050 373.175 18,050.490 0.48% 0.82% 156.139 -57.442 98.696 2.76% 3.18% 609.395 -80.419 528.976 430.279 2051 299.011 18,848.441 0.52% 0.82% 156.139 -57.442 98.696 2.76% 3.18% 609.395 -80.419 528.976 430.279 2052 235	2044	992.920	13,588.470	0.31%	0.89%	130.404	-84.572	45.832	2.43%	3.09%	451.017	-96.237	354.780	308.948
2047 680.796 15,729.466 0.40% 0.85% 139.484 -73.846 65.638 2.58% 3.14% 515.246 -91.897 423.349 357.711 2048 573.131 16,484.746 0.42% 0.83% 142.147 -69.937 72.210 2.64% 3.16% 538.604 -88.701 449.903 377.694 2049 465.713 17,261.980 0.46% 0.83% 146.504 -65.592 80.912 2.67% 3.16% 560.945 -86.866 474.079 393.168 2050 373.175 18,050.490 0.48% 0.82% 151.141 -62.640 88.501 2.73% 3.18% 585.575 -82.906 502.669 414.168 2051 299.011 18,848.441 0.52% 0.82% 156.139 -57.442 98.696 2.76% 3.18% 609.395 -80.419 528.976 430.279 2052 235.082 19,664.612 0.54% 0.81% 161.199 -53.729 107.469 2.81% 3.20	2045	885.412	14,284.677	0.34%	0.88%	132.859	-81.918	50.941	2.48%	3.11%	471.514	-95.572	375.942	325.002
2048 573.131 16,484.746 0.42% 0.83% 142.147 -69.937 72.210 2.64% 3.16% 538.604 -88.701 449.903 377.694 2049 465.713 17,261.980 0.46% 0.83% 146.504 -65.592 80.912 2.67% 3.16% 560.945 -86.866 474.079 393.168 2050 373.175 18,050.490 0.48% 0.82% 151.141 -62.640 88.501 2.73% 3.18% 585.575 -82.906 502.669 414.168 2051 299.011 18,848.441 0.52% 0.82% 156.139 -57.442 98.696 2.76% 3.18% 699.395 -80.419 528.976 430.279 2052 235.082 19,664.612 0.54% 0.81% 161.199 -53.729 107.469 2.81% 3.20% 635.841 -77.609 558.232 450.762 2053 178.915 20,503.240 0.56% 0.80% 166.240 -49.637 116.603 2.85% 3.2				0.37%										
2049 465.713 17,261.980 0.46% 0.83% 146.504 -65.592 80.912 2.67% 3.16% 560.945 -86.866 474.079 393.168 2050 373.175 18,050.490 0.48% 0.82% 151.141 -62.640 88.501 2.73% 3.18% 585.575 -82.906 502.669 414.168 2051 299.011 18,848.441 0.52% 0.82% 156.139 -57.442 98.696 2.76% 3.18% 609.395 -80.419 528.976 430.279 2052 235.082 19,664.612 0.54% 0.81% 161.199 -53.729 107.469 2.81% 3.20% 635.841 -77.609 558.232 450.762 2053 178.915 20,503.240 0.56% 0.80% 166.240 -49.637 116.603 2.85% 3.20% 661.214 -72.388 588.827 472.224 2054 133.803 21,362.806 0.59% 0.81% 173.457 -47.293 126.164 2.89% 3.	2047	680.796	15,729.466	0.40%	0.85%	139.484		65.638	2.58%	3.14%	515.246	-91.897	423.349	
2050 373.175 18,050.490 0.48% 0.82% 151.141 -62.640 88.501 2.73% 3.18% 585.575 -82.906 502.669 414.168 2051 299.011 18,848.441 0.52% 0.82% 156.139 -57.442 98.696 2.76% 3.18% 609.395 -80.419 528.976 430.279 2052 235.082 19,664.612 0.54% 0.81% 161.199 -53.729 107.469 2.81% 3.20% 635.841 -77.609 558.232 450.762 2053 178.915 20,503.240 0.56% 0.80% 166.240 -49.637 116.603 2.85% 3.20% 661.214 -72.388 588.827 472.224 2054 133.803 21,362.806 0.59% 0.81% 173.457 -47.293 126.164 2.89% 3.21% 689.669 -68.789 620.880 494.716 2055 101.111 22,243.377 0.61% 0.80% 178.755 -42.455 136.300 2.92% 3	2048	573.131	16,484.746	0.42%		142.147				3.16%		-88.701		377.694
2051 299.011 18,848.441 0.52% 0.82% 156.139 -57.442 98.696 2.76% 3.18% 609.395 -80.419 528.976 430.279 2052 235.082 19,664.612 0.54% 0.81% 161.199 -53.729 107.469 2.81% 3.20% 635.841 -77.609 558.232 450.762 2053 178.915 20,503.240 0.56% 0.80% 166.240 -49.637 116.603 2.85% 3.20% 661.214 -72.388 588.827 472.224 2054 133.803 21,362.806 0.59% 0.81% 173.457 -47.293 126.164 2.89% 3.21% 689.669 -68.789 620.880 494.716 2055 101.111 22,243.377 0.61% 0.80% 178.755 -42.455 136.300 2.92% 3.21% 717.127 -64.799 652.328 516.027 2056 76.276 23,150.859 0.63% 0.80% 186.424 -39.486 146.938 2.95% 3	2049	465.713	17,261.980	0.46%	0.83%	146.504	-65.592	80.912	2.67%	3.16%	560.945	-86.866	474.079	393.168
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2053 178.915 20,503.240 0.56% 0.80% 166.240 -49.637 116.603 2.85% 3.20% 661.214 -72.388 588.827 472.224 2054 133.803 21,362.806 0.59% 0.81% 173.457 -47.293 126.164 2.89% 3.21% 689.669 -68.789 620.880 494.716 2055 101.111 22,243.377 0.61% 0.80% 178.755 -42.455 136.300 2.92% 3.21% 717.127 -64.799 652.328 516.027 2056 76.276 23,150.859 0.63% 0.80% 186.424 -39.486 146.938 2.95% 3.22% 747.794 -62.713 685.080 538.142 2057 56.488 24,089.437 0.65% 0.80% 194.278 -36.219 158.059 2.97% 3.22% 777.495 -60.365 717.130 559.071 2058 41.446 25,060.935 0.68% 0.81% 202.313 -32.633 169.680 2.99% 3.22% 808.330 -57.735 750.594 580.914 2059														
2054 133.803 21,362.806 0.59% 0.81% 173.457 -47.293 126.164 2.89% 3.21% 689.669 -68.789 620.880 494.716 2055 101.111 22,243.377 0.61% 0.80% 178.755 -42.455 136.300 2.92% 3.21% 717.127 -64.799 652.328 516.027 2056 76.276 23,150.859 0.63% 0.80% 186.424 -39.486 146.938 2.95% 3.22% 747.794 -62.713 685.080 538.142 2057 56.488 24,089.437 0.65% 0.80% 194.278 -36.219 158.059 2.97% 3.22% 777.495 -60.365 717.130 559.071 2058 41.446 25,060.935 0.68% 0.81% 202.313 -32.633 169.680 2.99% 3.22% 808.330 -57.735 750.594 580.914 2059 30.655 26,067.418 0.69% 0.81% 210.629 -31.318 179.311 3.02% 32.	2052	235.082	19,664.612	0.54%	0.81%	161.199	-53.729	107.469	2.81%	3.20%	635.841	-77.609	558.232	450.762
2055 101.111 22,243.377 0.61% 0.80% 178.755 -42.455 136.300 2.92% 3.21% 717.127 -64.799 652.328 516.027 2056 76.276 23,150.859 0.63% 0.80% 186.424 -39.486 146.938 2.95% 3.22% 747.794 -62.713 685.080 538.142 2057 56.488 24,089.437 0.65% 0.80% 194.278 -36.219 158.059 2.97% 3.22% 777.495 -60.365 717.130 559.071 2058 41.446 25,060.935 0.68% 0.81% 202.313 -32.633 169.680 2.99% 3.22% 808.330 -57.735 750.594 580.914 2059 30.655 26,067.418 0.69% 0.81% 210.629 -31.318 179.311 3.02% 3.23% 843.019 -54.806 788.213 608.901 2060 22.730 27,111.890 0.71% 0.81% 219.227 -27.135 192.092 3.04% 3.23	2053			0.56%		166.240		116.603		3.20%			588.827	
2056 76.276 23,150.859 0.63% 0.80% 186.424 -39.486 146.938 2.95% 3.22% 747.794 -62.713 685.080 538.142 2057 56.488 24,089.437 0.65% 0.80% 194.278 -36.219 158.059 2.97% 3.22% 777.495 -60.365 717.130 559.071 2058 41.446 25,060.935 0.68% 0.81% 202.313 -32.633 169.680 2.99% 3.22% 808.330 -57.735 750.594 580.914 2059 30.655 26,067.418 0.69% 0.81% 210.629 -31.318 179.311 3.02% 3.23% 843.019 -54.806 788.213 608.901 2060 22.730 27,111.890 0.71% 0.81% 219.227 -27.135 192.092 3.04% 3.23% 876.505 -51.556 824.949 632.857	2054	133.803	21,362.806	0.59%	0.81%	173.457		126.164		3.21%	689.669		620.880	494.716
2057 56.488 24,089.437 0.65% 0.80% 194.278 -36.219 158.059 2.97% 3.22% 777.495 -60.365 717.130 559.071 2058 41.446 25,060.935 0.68% 0.81% 202.313 -32.633 169.680 2.99% 3.22% 808.330 -57.735 750.594 580.914 2059 30.655 26,067.418 0.69% 0.81% 210.629 -31.318 179.311 3.02% 3.23% 843.019 -54.806 788.213 608.901 2060 22.730 27,111.890 0.71% 0.81% 219.227 -27.135 192.092 3.04% 3.23% 876.505 -51.556 824.949 632.857														
2058 41.446 25,060.935 0.68% 0.81% 202.313 -32.633 169.680 2.99% 3.22% 808.330 -57.735 750.594 580.914 2059 30.655 26,067.418 0.69% 0.81% 210.629 -31.318 179.311 3.02% 3.23% 843.019 -54.806 788.213 608.901 2060 22.730 27,111.890 0.71% 0.81% 219.227 -27.135 192.092 3.04% 3.23% 876.505 -51.556 824.949 632.857														
2059 30.655 26,067.418 0.69% 0.81% 210.629 -31.318 179.311 3.02% 3.23% 843.019 -54.806 788.213 608.901 2060 22.730 27,111.890 0.71% 0.81% 219.227 -27.135 192.092 3.04% 3.23% 876.505 -51.556 824.949 632.857														
$2060 \qquad 22.730 \qquad 27,111.890 \qquad 0.71\% \qquad 0.81\% \qquad \underline{219.227} \qquad \underline{-27.135} \qquad \underline{192.092} \qquad 3.04\% \qquad 3.23\% \qquad \underline{876.505} \qquad \underline{-51.556} \qquad \underline{824.949} \qquad \underline{\qquad 632.857}$														
6,553,694 15,587,248 22.140.942 18.354.879 14.684.180 33.039.058 10.898.117	2060	22.730	27,111.890	0.71%	0.81%				3.04%	3.23%				
292-207 207 207 207 207 207 207 207 207 207						6,553.694	15,587.248	22,140.942			18,354.879	14,684.180	33,039.058	10,898.117

⁽¹⁾ Effective 1/1/14 (2) In millions.

Exhibit B2

Kansas Public Employee Retirement System Comparison of Local Group Employer Contributions for Retirement Benefits HB 2194 versus Study Commission Plan



	HB 2194								Study Commission Plan (1)						
	Payro	11	Employer	Normal	Normal	UAL	Total	Employer	DB Normal	DB Normal	UAL	Total	Difference (2)		
FYE	Tier 1/2	Tier 3	Rate-DB	Cost Rate	Cost (2)	Payment (2)	Cost (2)	Rate-DB	Cost Rate	Cost (2)	Payment (2)	Cost (2)			
2012	1,678.751	0.000	7.34%	2.94%	49.355	73.865	123.220	7.34%	2.94%	49.355	73.865	123.220	0.000		
2013	1,726.922	0.000	7.94%	2.94%	50.772	86.346	137.118	7.94%	2.94%	50.772	86.346	137.118	0.000		
2014	1,777.741	0.000	8.65%	1.96%	34.906	118.931	153.837	8.91%	2.23%	39.634	118.753	158.388	4.551		
2015	1,682.855	151.199	9.12%	1.86%	34.106	133.152	167.259	9.47%	2.20%	40.370	133.336	173.706	6.447		
2016	1,601.267	292.153	9.00%	1.76%	33.371	137.084	170.455	9.45%	2.18%	41.242	137.652	178.894	8.439		
2017	1,531.885	423.760	9.00%	1.69%	33.049	142.958	176.006	9.53%	2.18%	42.584	143.740	186.324	10.317		
2018	1,468.854	551.608	9.00%	1.62%	32.730	149.110	181.840	9.60%	2.18%	44.002	149.918	193.920	12.080		
2019	1,411.513	676.427	8.99%	1.55%	32.396	155.343	187.739	9.67%	2.18%	45.506	156.387	201.893	14.154		
2020	1,357.016	801.074	8.98%	1.49%	32.073	161.641	193.714	9.72%	2.18%	47.119	162.720	209.839	16.125		
2021	1,306.765	925.141	8.98%	1.42%	31.768	168.732	200.500	9.80%	2.19%	48.854	169.848	218.702	18.202		
2022	1,259.029	1,050.142	8.98%	1.36%	31.472	175.959	207.431	9.87%	2.20%	50.747	177.113	227.860	20.429		
2023	1,211.644	1,178.114	8.98%	1.31%	31.237	183.294	214.531	9.93%	2.21%	52.828	184.489	237.317	22.786		
2023	1,166.580	1,308.070	8.97%	1.25%	31.040	191.043	222.083	9.99%	2.23%	55.072	192.033	247.105	25.022		
2025	1,122.814	1,440.897	8.98%	1.21%	30.916	199.200	230.117	10.04%	2.24%	57.541	199.969	257.511	27.394		
2026	1,079.538	1,577.175	8.97%	1.16%	30.845	207.489	238.335	10.10%	2.27%	60.204	208.021	268.225	29.890		
2027	1,036.739	1,717.192	8.97%	1.12%	30.815	216.184	246.999	10.14%	2.29%	63.055	216.184	279.239	32.240		
2028	996.305	1,860.024	8.96%	1.08%	30.834	225.079	255.913	10.14%	2.31%	66.118	224.222	290.340	34.427		
2029	956.653	2,006.671	8.94%	1.04%	30.915	234.103	265.017	10.19%	2.34%	69.392	232.621	302.013	36.995		
2030	918.258	2,157.256	8.93%	1.04%	31.056	243.581	274.637	10.19%	2.37%	72.872	240.813	313.685	39.048		
2030	880.111	2,137.230	8.91%	0.98%	31.030	253.156	284.395	10.18%	2.40%	76.549	248.367	324.916	40.521		
2031	841.490	2,472.188	3.65%	0.95%	31.460	89.469	120.929	5.05%	2.43%	80.416	86.818	167.234	46.305		
2032	802.890	2,637.309	2.75%	0.93%	31.727	62.956	94.682	4.20%	2.45%	84.495	59.859	144.354	49.672		
2033	763.519	2,808.290	1.82%	0.92%	32.032	32.861	64.893	3.32%	2.49%	88.791	29.646	118.437	53.544		
2034	724.959	2,984.212	1.49%	0.90%	32.032	22.997	55.370	3.04%	2.49%	93.318	19.288	112.606	57.236		
	685.180	3,166.753	1.49%	0.87%	32.373	16.178	48.933	2.85%	2.55%	98.065	11.556	109.621	60.688		
2036															
2037	645.945 606.916	3,355.264	1.14%	0.83% 0.81%	33.176	12.404	45.580 44.043	2.77%	2.58%	103.051	7.602 4.573	110.653	65.073 68.819		
2038 2039		3,550.260	1.06% 0.99%	0.81%	33.650	10.393	42.818	2.71%	2.60%	108.289	2.160	112.862	73.096		
	567.903 528.254	3,751.578			34.179	8.639		2.68%	2.63%	113.755	0.449	115.914			
2040	528.254 486.776	3,960.270 4,177.037	0.94% 0.90%	0.77% 0.76%	34.753 35.379	7.630	42.384 41.909	2.67%	2.66%	119.453 125.386	-1.399	119.901 123.987	77.518 82.078		
2041 2042	445.926			0.76%		6.529	41.889	2.66%	2.69%				86.780		
		4,400.890	0.86%	0.74%	36.073	5.816	41.889	2.65%	2.71%	131.576	-2.908	128.668	91.598		
2043	405.937	4,631.369	0.83%		36.841	5.037		2.65%	2.74%	138.010	-4.534 5.750	133.476			
2044	365.661	4,869.826	0.81%	0.72%	37.672	4.712	42.384	2.65%	2.76%	144.659	-5.759	138.900	96.516		
2045	326.896	5,115.138	0.79%	0.71%	38.575	4.354	42.929	2.66%	2.78%	151.541	-6.530	145.010	102.082		
2046	290.352	5,366.555	0.77%	0.70%	39.565	3.960	43.524	2.67%	2.80%	158.635	-7.354	151.281	107.757		
2047	254.343	5,625.289	0.76%	0.69%	40.626	4.116	44.742	2.68%	2.82%	165.929	-8.231	157.698	112.956		
2048	218.593	5,892.300	0.74%	0.68%	41.776	3.667	45.443	2.70%	2.84%	173.434	-8.555	164.879	119.436		
2049	184.549	6,166.985	0.74%	0.68%	43.043	3.811	46.854	2.70%	2.85%	181.178	-9.527	171.651	124.797		
2050	155.998	6,446.177	0.73%	0.67%	44.431	3.961	48.393	2.72%	2.87%	189.171	-9.903	179.268	130.875		
2051	129.299	6,733.033	0.73%	0.67%	45.934	4.117	50.051	2.74%	2.88%	197.400	-9.607	187.793	137.742		
2052	104.361	7,028.427	0.74%	0.67%	47.536	4.993	52.529	2.75%	2.89%	205.888	-9.986	195.902	143.373		
2053	81.172	7,332.993	0.73%	0.66%	49.285	5.190	54.475	2.77%	2.90%	214.664	-9.638	205.025	150.550		
2054	63.826	7,643.400	0.73%	0.66%	51.171	5.395	56.566	2.77%	2.90%	223.753	-10.019	213.733	157.167		
2055	50.205	7,961.988	0.74%	0.66%	53.201	6.410	59.610	2.79%	2.91%	233.169	-9.615	223.554	163.944		
2056	38.812	8,290.643	0.74%	0.66%	55.344	6.664	62.007	2.81%	2.92%	242.927	-9.162	233.765	171.757		
2057	29.195	8,630.402	0.76%	0.67%	57.619	7.794	65.413	2.81%	2.92%	253.060	-9.526	243.535	178.122		
2058	22.087	8,981.087	0.76%	0.67%	60.035	8.103	68.138	2.83%	2.93%	263.589	-9.003	254.585	186.447		
2059	16.902	9,343.797	0.76%	0.67%	62.592	8.425	71.016	2.84%	2.93%	274.534	-8.425	266.110	195.093		
2060	12.843	9,719.925	0.76%	0.67%	65.286	8.759	<u>74.046</u>	2.85%	2.94%	285.949	<u>-8.790</u>	277.158	203.113		
					1,912.986	3,831.587	5,744.574			5,917.900	3,519.874	9,437.774	3,693.200		

⁽¹⁾ Effective 1/1/14 (2) In millions.

Addendum to Exhibit A1

CM

HB 2194 vs Study Commission Plan State/School Group

(1)	(2)	(3) Employer Contr	(5) (6) (7) Employer Contribution Amount (\$M)						
Fiscal	Total								
Year	Payroll	<u>HB 2194</u>	SC Plan		HB 2194		SC Plan		Difference
2012	\$ 4,465.19	8.77%	8.77%	\$	391.60	\$	391.60	\$	_
2013	4,609.30	9.37%	9.37%		431.89		431.89		_
2014	4,742.86	10.27%	13.44%		487.09		637.46		150.37
2015	4,889.77	11.27%	13.61%		551.08		665.71		114.63
2016	5,048.36	12.37%	14.82%		624.48		748.18		123.70
2017	5,217.25	13.57%	14.79%		707.98		771.52		63.54
2018	5,396.09	14.46%	14.65%		780.44		790.34		9.90
2019	5,585.80	14.67%	14.74%		819.50		823.56		4.06
2020	5,786.83	14.80%	14.79%		856.63		856.13		(0.49)
2021	5,999.32	14.85%	14.84%		890.84		890.20		(0.64)
2022	6,223.41	14.84%	14.89%		923.50		926.50		3.00
2023	6,458.61	14.81%	14.92%		956.42		963.37		6.95
2024	6,704.71	14.76%	14.93%		989.41		1,001.19		11.78
2025	6,962.16	14.70%	14.93%		1,023.12		1,039.68		16.56
2026	7,231.45	14.62%	14.93%		1,057.31		1,079.54		22.23
2027	7,512.93	14.54%	14.91%		1,092.03		1,119.90		27.87
2028	7,806.93	14.45%	14.88%		1,127.87		1,161.97		34.10
2029	8,113.92	14.34%	14.83%		1,163.67		1,203.48		39.81
2030	8,433.95	14.21%	14.77%		1,198.79		1,245.30		46.51
2031	8,767.29	14.08%	14.67%		1,234.26		1,285.93		51.66
2032	9,114.66	13.90%	14.53%		1,266.68		1,324.29		57.60
2033	9,476.23	5.43%	6.70%		514.43		635.32		120.89
2034	9,852.28	3.95%	5.38%		389.15		529.85		140.69
2035	10,243.64	2.42%	4.00%		248.31		409.87		161.55
2036	10,650.79	1.38%	3.07%		147.01		327.41		180.40
2037	11,073.56	0.90%	2.68%		100.20		296.41		196.21
2038	11,513.15	0.58%	2.43%		67.01		279.86		212.86
2039	11,970.93	0.41%	2.32%		49.01		277.90		228.89
2040	12,448.09	0.33%	2.28%		40.91		284.40		243.49
2041	12,947.04	0.29%	2.30%		37.12		297.30		260.18
2042	13,469.39	0.29%	2.33%		38.50		313.37		274.87
2043	14,014.53	0.29%	2.38%		41.34		332.99		291.65
2044	14,581.39	0.31%	2.43%		45.83		354.78		308.95
2045	15,170.09	0.34%	2.48%		50.94		375.94		325.00
2046	15,780.74	0.37%	2.54%		58.01		400.70		342.69
2047	16,410.26	0.40%	2.58%		65.64		423.35		357.71
2048	17,057.88	0.42%	2.64%		72.21		449.90		377.69
2049	17,727.69	0.46%	2.67%		80.91		474.08		393.17
2050	18,423.67	0.48%	2.73%		88.50		502.67		414.17
2051	19,147.45	0.52%	2.76%		98.70		528.98		430.28
2052	19,899.69	0.54%	2.81%		107.47		558.23		450.76
2053	20,682.16	0.56%	2.85%		116.60		588.83		472.22
2054	21,496.61	0.59%	2.89%		126.16		620.88		494.72
2055	22,344.49	0.61%	2.92%		136.30		652.33		516.03
2056	23,227.14	0.63%	2.95%		146.94		685.08		538.14
2057	24,145.92	0.65%	2.97%		158.06		717.13		559.07
2058	25,102.38	0.68%	2.99%		169.68		750.59		580.91
2059	26,098.07	0.69%	3.02%		179.31		788.21		608.90
2060	27,134.62	0.71%	3.04%		192.09		824.95		632.86
		Present Value as	Total of July 1, 2011	\$ \$	22,140.94 8,317.52	\$ \$	33,039.06 9,383.42	\$ \$	10,898.12 1,065.89

Addendum to Exhibit A2



HB 2194 vs Study Commission Plan Local Group

(1)	(2)	(3) (4) Employer Contribution Rate			(5) (6) (7) Employer Contribution Amount (\$M)						
Fiscal	Total			·					_		
Year	Payroll	HB 2194	SC Plan		HB 2194		SC Plan		<u>Difference</u>		
2012	\$ 1,678.75	7.34%	7.34%	\$	123.22	\$	123.22	\$	-		
2013	1,726.92	7.94%	7.94%		137.12		137.12		-		
2014	1,777.74	8.65%	8.91%		153.84		158.39		4.55		
2015	1,834.05	9.12%	9.47%		167.26		173.71		6.45		
2016	1,893.42	9.00%	9.45%		170.45		178.89		8.44		
2017	1,955.65	9.00%	9.53%		176.01		186.32		10.32		
2018	2,020.46	9.00%	9.60%		181.84		193.92		12.08		
2019	2,087.94	8.99%	9.67%		187.74		201.89		14.15		
2020	2,158.09	8.98%	9.72%		193.71		209.84		16.12		
2021	2,231.91	8.98%	9.80%		200.50		218.70		18.20		
2022	2,309.17	8.98%	9.87%		207.43		227.86		20.43		
2023	2,389.76	8.98%	9.93%		214.53		237.32		22.79		
2024	2,474.65	8.97%	9.99%		222.08		247.11		25.02		
2025	2,563.71	8.98%	10.04%		230.12		257.51		27.39		
2026	2,656.71	8.97%	10.10%		238.33		268.22		29.89		
2027	2,753.93	8.97%	10.14%		247.00		279.24		32.24		
2028	2,856.33	8.96%	10.16%		255.91		290.34		34.43		
2029	2,963.32	8.94%	10.19%		265.02		302.01		37.00		
2030	3,075.51	8.93%	10.20%		274.64		313.69		39.05		
2031	3,192.38	8.91%	10.18%		284.39		324.92		40.52		
2032	3,313.68	3.65%	5.05%		120.93		167.23		46.30		
2033	3,440.20	2.75%	4.20%		94.68		144.35		49.67		
2034	3,571.81	1.82%	3.32%		64.89		118.44		53.54		
2035	3,709.17	1.49%	3.04%		55.37		112.61		57.24		
2036	3,851.93	1.27%	2.85%		48.93		109.62		60.69		
2037	4,001.21	1.14%	2.77%		45.58		110.65		65.07		
2038	4,157.18	1.06%	2.71%		44.04		112.86		68.82		
2039	4,319.48	0.99%	2.68%		42.82		115.91		73.10		
2040	4,488.52	0.94%	2.67%		42.38		119.90		77.52		
2041	4,663.81	0.90%	2.66%		41.91		123.99		82.08		
2042	4,846.82	0.86%	2.65%		41.89		128.67		86.78		
2043	5,037.31	0.83%	2.65%		41.88		133.48		91.60		
2044	5,235.49	0.81%	2.65%		42.38		138.90		96.52		
2045	5,442.03	0.79%	2.66%		42.93		145.01		102.08		
2046	5,656.91	0.77%	2.67%		43.52		151.28		107.76		
2047	5,879.63	0.76%	2.68%		44.74		157.70		112.96		
2048	6,110.89	0.74%	2.70%		45.44		164.88		119.44		
2049	6,351.53	0.74%	2.70%		46.85		171.65		124.80		
2050	6,602.17	0.73%	2.72%		48.39		179.27		130.87		
2051	6,862.33	0.73%	2.74%		50.05		187.79		137.74		
2052	7,132.79	0.74%	2.75%		52.53		195.90		143.37		
2053	7,414.16	0.73%	2.77%		54.48		205.03		150.55		
2054	7,707.23	0.73%	2.77%		56.57		213.73		157.17		
2055	8,012.19	0.74%	2.79%		59.61		223.55		163.94		
2056	8,329.45	0.74%	2.81%		62.01		233.76		171.76		
2057	8,659.60	0.76%	2.81%		65.41		243.53		178.12		
2058	9,003.17	0.76%	2.83%		68.14		254.59		186.45		
2059	9,360.70	0.76%	2.84%		71.02		266.11		195.09		
2060	9,732.77	0.76%	2.85%		74.05		277.16		203.11		
	,					d-					
		Present Value as	Total of July 1, 2011	\$ \$	5,744.57 2,061.12	\$ \$	9,437.77 2,425.98	\$ \$	3,693.20 364.86		