

May 3, 2016

Ms. Ruth Ryerson  
Executive Director  
Wyoming Retirement System  
6101 Yellowstone Road, Suite 500  
Cheyenne, WY 82009

**Subject: Requested Actuarial Projections for the Wyoming Retirement System**

Dear Ruth:

As requested, we are providing 30-year projections for each plan in the Wyoming Retirement System (“WRS”) as of January 1, 2016 estimating the future Funded Ratio and Annual Required Contribution (“ARC”) for each plan.

### **Analysis**

The sets of 30-year baseline projections for each plan are detailed in Appendix A and incorporate data as of January 1, 2016. Annual contributions based on the plan’s individual funding source, if applicable, are assumed to be made annually. Please note that these projections are estimates only and are based upon the current set of actuarial assumptions as adopted by the WRS Board of Trustees on February 22, 2013.

The results of these future projections are dependent upon the actuarial assumptions used. Actual results can and almost certainly will differ as actual future experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods.

### **Summary and Conclusions**

The 30-year projected funded ratios have declined for all plans, due to the less than expected asset returns for 2015.

- 1) The 30 year projected funded ratio for the State plan decreased, from 107.90% to 86.4%. The 2015 asset loss dampened the long term growth of the assets-and the future assumption of 7.75% per year means that there is no “bounce back” assumed for the low returns. The “gap” due to the one year loss compounds over the projection period, and by 2045 the 2015 projection had shown assets at \$25.506 billion and with the 2016 projection those assets are projected to be \$20.994 billion. This illustrates the great volatility in a 30 year projection model, when the underlying asset returns are also volatile.
- 2) Fire A: With no funding source for the plan, trust assets are projected to be depleted in approximately 2027 (last year this was 2028).

- 3) Wardens: The plan is projected to be 83.1% funded in 30 years (last year the projection showed 94.0% in 30 years).
- 4) Fire B: This plan is projected to be 86.0% funded in 30 years (last year the projection showed 99.8% in 30 years)
- 5) The three plans of Judges, Law Enforcement and Guard Fire are still projected to be above 100% in 30 years.

A summary of the results detailed in Appendix A is as follows for each WRS plan:

Plan	Funded Ratio		Actuarially Determined Contribution	
	2016	2046	2016	2046
State	78.2%	86.4%	9.38%	5.04%
Judges	107.1%	154.0%	8.75%	0.00%
Law Enforcement	93.3%	104.9%	7.47%	4.67%
Wardens	78.2%	83.1%	16.63%	15.81%
Guard Fire	90.2%	154.6%	0.34%	0.00%
Fire B	98.9%	86.0%	12.44%	18.44%
Fire A	63.9%	N/A (2028)	\$10,664k	N/A

### Assumptions and Methods

- All calculations incorporate data, provisions, and assumptions used in the January 1, 2016 actuarial valuations, including:
  - Future investment returns are assumed to equal the discount rate of 7.75% each year.
  - A second tier of benefits for participants who are hired after September 1, 2012 for the State plan;
  - No post-retirement cost-of-living adjustment (“COLA”) is reflected, with the exception of the Fire A plan;
- The Actuarially Determined Contribution “ADC” is based upon an “open” amortization period over the same number of years as specified in the January 1, 2016 actuarial valuation.
- The Guard Fire plan faces an uncertain future regarding its funding from Federal sources which are assumed to continue in these projections.

The calculations detailed in Appendix A are based upon assumptions regarding future events, which may or may not materialize. Please bear in mind that actual results could deviate significantly from our projections which will move the projected “fully funded” year up in time if actual future experience is favorable or back in time if actual future experience is not favorable. In addition, note that these results show projections based upon a limited set of assumptions and contribution scenarios and are to be viewed as rough estimates only.

**Closing**

All of the work conforms with generally accepted actuarial principles and practices, and to the Actuarial Standards of Practice issued by the Actuarial Standards Board. The actuaries submitting this statement are members of the American Academy of Actuaries and meet all of the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. In addition, the undersigned are experienced in performing actuarial valuations for other large public retirement systems.

If you require any additional or clarifying information, please do not hesitate to contact the undersigned.

Respectfully submitted,

**Gabriel, Roeder, Smith & Company**



Leslie Thompson, FSA, FCA, EA, MAAA  
Senior Consultant



Paul Wood, ASA, FCA, MAAA  
Consultant

cc: Polly Scott

**Wyoming Retirement System - Public Employees' Pension Plan ("State")**  
**Projection Results Based on January 1, 2016 Actuarial Valuation - Baseline**

Discount Rate: 7.75%

Valuation as of January 1,	Market Return for FY Beginning on Valuation Date	Contribution Rate for Fiscal Year Following Valuation Date		Projected Payroll (in Millions)	Employer Contributions (in Millions)	Actuarial Accrued Liability (AAL, in Millions)	Actuarial Value of Assets (AVA, in Millions)	Unfunded Actuarial Accrued Liability (UAAL, in Millions)	Funded Ratio	Funding Shortfall/ (Surplus)	30-Year Employer ARC	Employer Normal Cost (NC)	30-Year Amortization Payment	Assumed Expenses
		Employee	Employer											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
2016	7.75%	8.250%	8.370%	\$1,859	\$156	\$8,713	\$6,815	\$1,898	78.2%	1.01%	9.38%	3.58%	5.48%	0.32%
2017	7.75%	8.250%	8.370%	1,935	162	9,078	7,063	2,015	77.8%	0.95%	9.32%	3.42%	5.58%	0.32%
2018	7.75%	8.250%	8.370%	2,011	168	9,441	7,253	2,189	76.8%	1.08%	9.45%	3.30%	5.84%	0.32%
2019	7.75%	8.250%	8.370%	2,090	175	9,806	7,380	2,426	75.3%	1.35%	9.72%	3.18%	6.22%	0.32%
2020	7.75%	8.250%	8.370%	2,171	182	10,171	7,544	2,627	74.2%	1.50%	9.87%	3.06%	6.49%	0.32%
2021	7.75%	8.250%	8.370%	2,255	189	10,536	7,824	2,712	74.3%	1.36%	9.73%	2.96%	6.45%	0.32%
2022	7.75%	8.250%	8.370%	2,343	196	10,901	8,104	2,797	74.3%	1.21%	9.58%	2.86%	6.40%	0.32%
2023	7.75%	8.250%	8.370%	2,435	204	11,267	8,386	2,881	74.4%	1.07%	9.44%	2.77%	6.35%	0.32%
2024	7.75%	8.250%	8.370%	2,531	212	11,635	8,671	2,964	74.5%	0.91%	9.28%	2.69%	6.28%	0.32%
2025	7.75%	8.250%	8.370%	2,633	220	12,008	8,961	3,047	74.6%	0.76%	9.13%	2.61%	6.20%	0.32%
2026	7.75%	8.250%	8.370%	2,739	229	12,386	9,259	3,127	74.8%	0.60%	8.97%	2.53%	6.12%	0.32%
2027	7.75%	8.250%	8.370%	2,851	239	12,784	9,578	3,206	74.9%	0.44%	8.81%	2.46%	6.03%	0.32%
2028	7.75%	8.250%	8.370%	2,968	248	13,192	9,910	3,282	75.1%	0.28%	8.65%	2.40%	5.93%	0.32%
2029	7.75%	8.250%	8.370%	3,090	259	13,612	10,257	3,355	75.4%	0.12%	8.49%	2.34%	5.82%	0.32%
2030	7.75%	8.250%	8.370%	3,218	269	14,046	10,621	3,425	75.6%	-0.05%	8.32%	2.29%	5.71%	0.32%
2031	7.75%	8.250%	8.370%	3,352	281	14,495	11,005	3,490	75.9%	-0.23%	8.14%	2.24%	5.58%	0.32%
2032	7.75%	8.250%	8.370%	3,492	292	14,961	11,410	3,551	76.3%	-0.40%	7.97%	2.19%	5.45%	0.32%
2033	7.75%	8.250%	8.370%	3,637	304	15,447	11,841	3,606	76.7%	-0.58%	7.79%	2.15%	5.32%	0.32%
2034	7.75%	8.250%	8.370%	3,790	317	15,953	12,299	3,654	77.1%	-0.76%	7.61%	2.11%	5.17%	0.32%
2035	7.75%	8.250%	8.370%	3,948	330	16,482	12,787	3,695	77.6%	-0.95%	7.42%	2.08%	5.02%	0.32%
2036	7.75%	8.250%	8.370%	4,113	344	17,035	13,307	3,728	78.1%	-1.14%	7.23%	2.05%	4.86%	0.32%
2037	7.75%	8.250%	8.370%	4,286	359	17,614	13,863	3,751	78.7%	-1.34%	7.03%	2.02%	4.69%	0.32%
2038	7.75%	8.250%	8.370%	4,465	374	18,221	14,457	3,764	79.3%	-1.54%	6.83%	1.99%	4.52%	0.32%
2039	7.75%	8.250%	8.370%	4,653	389	18,857	15,093	3,764	80.0%	-1.74%	6.63%	1.97%	4.34%	0.32%
2040	7.75%	8.250%	8.370%	4,848	406	19,524	15,773	3,751	80.8%	-1.95%	6.42%	1.95%	4.15%	0.32%
2041	7.75%	8.250%	8.370%	5,052	423	20,224	16,500	3,724	81.6%	-2.17%	6.20%	1.93%	3.95%	0.32%
2042	7.75%	8.250%	8.370%	5,264	441	20,958	17,279	3,679	82.4%	-2.39%	5.98%	1.91%	3.75%	0.32%
2043	7.75%	8.250%	8.370%	5,486	459	21,730	18,113	3,617	83.4%	-2.61%	5.76%	1.90%	3.53%	0.32%
2044	7.75%	8.250%	8.370%	5,718	479	22,541	19,008	3,534	84.3%	-2.85%	5.52%	1.89%	3.31%	0.32%
2045	7.75%	8.250%	8.370%	5,960	499	23,394	19,966	3,428	85.3%	-3.08%	5.29%	1.88%	3.08%	0.32%
2046	7.75%	8.250%	8.370%	6,212	520	24,291	20,994	3,298	86.4%	-3.33%	5.04%	1.88%	2.85%	0.32%

**Wyoming Retirement System - Judicial Retirement System ("Judges")**  
**Projection Results Based on January 1, 2016 Actuarial Valuation - Baseline**

Discount Rate: 7.75%

Valuation as of January 1,	Market Return for FY Beginning on Valuation Date	Contribution Rate for Fiscal Year Following Valuation Date		Projected Payroll (in Thousands)	Employer Contributions (in Thousands)	Actuarial Accrued Liability (AAL, in Thousands)	Actuarial Value of Assets (AVA, in Thousands)	Unfunded Actuarial Accrued Liability (UAAL, in Thousands)	Funded Ratio	Funding Shortfall/ (Surplus)	30-Year Employer ARC	Employer Normal Cost (NC)	30-Year Amortization Payment	Assumed Expenses
		Employee	Employer											
		(3)	(4)											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
2016	7.75%	9.22%	14.50%	\$6,624	\$960	\$23,005	\$24,634	(\$1,629)	107.1%	-5.75%	8.75%	9.85%	-1.40%	0.30%
2017	7.75%	9.22%	14.50%	6,864	995	25,035	26,822	(1,787)	107.1%	-5.88%	8.62%	9.80%	-1.48%	0.30%
2018	7.75%	9.22%	14.50%	7,113	1,031	27,169	28,979	(1,810)	106.7%	-5.91%	8.59%	9.74%	-1.45%	0.30%
2019	7.75%	9.22%	14.50%	7,372	1,069	29,388	31,071	(1,684)	105.7%	-5.79%	8.71%	9.71%	-1.30%	0.30%
2020	7.75%	9.22%	14.50%	7,632	1,107	31,679	33,409	(1,729)	105.5%	-5.83%	8.67%	9.66%	-1.29%	0.30%
2021	7.75%	9.22%	14.50%	7,890	1,144	33,988	36,222	(2,234)	106.6%	-6.23%	8.27%	9.58%	-1.61%	0.30%
2022	7.75%	9.22%	14.50%	8,163	1,184	36,290	39,084	(2,794)	107.7%	-6.67%	7.83%	9.47%	-1.94%	0.30%
2023	7.75%	9.22%	14.50%	8,453	1,226	38,518	41,941	(3,422)	108.9%	-7.10%	7.40%	9.40%	-2.30%	0.30%
2024	7.75%	9.22%	14.50%	8,776	1,273	40,719	44,832	(4,113)	110.1%	-7.57%	6.93%	9.29%	-2.66%	0.30%
2025	7.75%	9.22%	14.50%	9,109	1,321	42,862	47,752	(4,889)	111.4%	-8.04%	6.46%	9.21%	-3.05%	0.30%
2026	7.75%	9.22%	14.50%	9,458	1,371	44,932	50,677	(5,745)	112.8%	-8.43%	6.07%	9.22%	-3.45%	0.30%
2027	7.75%	9.22%	14.50%	9,791	1,420	46,997	53,685	(6,688)	114.2%	-8.88%	5.62%	9.20%	-3.88%	0.30%
2028	7.75%	9.22%	14.50%	10,164	1,474	49,040	56,762	(7,722)	115.7%	-9.39%	5.11%	9.12%	-4.31%	0.30%
2029	7.75%	9.22%	14.50%	10,556	1,531	51,141	60,001	(8,860)	117.3%	-9.88%	4.62%	9.08%	-4.77%	0.30%
2030	7.75%	9.22%	14.50%	10,968	1,590	53,373	63,483	(10,111)	118.9%	-10.39%	4.11%	9.04%	-5.23%	0.30%
2031	7.75%	9.22%	14.50%	11,402	1,653	55,728	67,214	(11,486)	120.6%	-11.00%	3.50%	8.92%	-5.72%	0.30%
2032	7.75%	9.22%	14.50%	11,843	1,717	58,136	71,144	(13,007)	122.4%	-11.61%	2.89%	8.82%	-6.24%	0.30%
2033	7.75%	9.22%	14.50%	12,284	1,781	60,664	75,344	(14,680)	124.2%	-12.20%	2.30%	8.79%	-6.78%	0.30%
2034	7.75%	9.22%	14.50%	12,747	1,848	63,389	79,902	(16,512)	126.0%	-12.79%	1.71%	8.77%	-7.35%	0.30%
2035	7.75%	9.22%	14.50%	13,222	1,917	66,264	84,780	(18,517)	127.9%	-13.41%	1.09%	8.75%	-7.95%	0.30%
2036	7.75%	9.22%	14.50%	13,719	1,989	69,292	89,997	(20,705)	129.9%	-14.06%	0.44%	8.71%	-8.57%	0.30%
2037	7.75%	9.22%	14.50%	14,233	2,064	72,491	95,589	(23,098)	131.9%	-14.73%	-0.23%	8.68%	-9.21%	0.30%
2038	7.75%	9.22%	14.50%	14,760	2,140	75,771	101,482	(25,711)	133.9%	-15.41%	-0.91%	8.68%	-9.89%	0.30%
2039	7.75%	9.22%	14.50%	15,314	2,220	79,135	107,691	(28,556)	136.1%	-16.14%	-1.64%	8.65%	-10.59%	0.30%
2040	7.75%	9.22%	14.50%	15,892	2,304	82,647	114,304	(31,657)	138.3%	-16.86%	-2.36%	8.65%	-11.31%	0.30%
2041	7.75%	9.22%	14.50%	16,504	2,393	86,222	121,256	(35,034)	140.6%	-17.58%	-3.08%	8.67%	-12.05%	0.30%
2042	7.75%	9.22%	14.50%	17,127	2,483	89,820	128,524	(38,704)	143.1%	-18.35%	-3.85%	8.68%	-12.83%	0.30%
2043	7.75%	9.22%	14.50%	17,768	2,576	93,520	136,213	(42,692)	145.7%	-19.16%	-4.66%	8.68%	-13.64%	0.30%
2044	7.75%	9.22%	14.50%	18,425	2,672	97,337	144,366	(47,029)	148.3%	-19.99%	-5.49%	8.71%	-14.49%	0.30%
2045	7.75%	9.22%	14.50%	19,110	2,771	101,236	152,970	(51,734)	151.1%	-20.84%	-6.34%	8.73%	-15.37%	0.30%
2046	7.75%	9.22%	14.50%	19,832	2,876	105,260	162,096	(56,836)	154.0%	-21.74%	-7.24%	8.74%	-16.27%	0.30%

**Wyoming Retirement System - Law Enforcement Retirement Fund ("Law Enforcement")**  
**Projection Results Based on January 1, 2016 Actuarial Valuation - Baseline**

Discount Rate: 7.75%

Valuation as of January 1,	Market Return for FY Beginning on Valuation Date	Contribution Rate for Fiscal Year Following Valuation Date		Projected Payroll (in Thousands)	Employer Contributions (in Thousands)	Actuarial Accrued Liability (AAL, in Thousands)	Actuarial Value of Assets (AVA, in Thousands)	Unfunded Actuarial Accrued Liability (UAAL, in Thousands)	Funded Ratio	Funding Shortfall/(Surplus)	30-Year Employer ARC	Employer Normal Cost (NC)	30-Year Amortization Payment	Assumed Expenses
		Employee	Employer											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
2016	7.75%	8.60%	8.60%	\$161,357	\$13,877	\$596,856	\$557,126	\$39,730	93.3%	-1.13%	7.47%	5.86%	1.32%	0.29%
2017	7.75%	8.60%	8.60%	167,914	14,441	633,522	589,843	43,679	93.1%	-1.11%	7.49%	5.81%	1.39%	0.29%
2018	7.75%	8.60%	8.60%	174,953	15,046	671,266	619,306	51,959	92.3%	-0.95%	7.65%	5.77%	1.59%	0.29%
2019	7.75%	8.60%	8.60%	182,134	15,663	710,492	645,646	64,846	90.9%	-0.66%	7.94%	5.74%	1.91%	0.29%
2020	7.75%	8.60%	8.60%	189,567	16,303	751,079	676,475	74,604	90.1%	-0.49%	8.11%	5.71%	2.11%	0.29%
2021	7.75%	8.60%	8.60%	197,318	16,969	793,202	718,384	74,819	90.6%	-0.58%	8.02%	5.69%	2.03%	0.29%
2022	7.75%	8.60%	8.60%	205,287	17,655	836,873	762,105	74,768	91.1%	-0.68%	7.92%	5.68%	1.95%	0.29%
2023	7.75%	8.60%	8.60%	213,757	18,383	882,196	807,733	74,463	91.6%	-0.78%	7.82%	5.66%	1.87%	0.29%
2024	7.75%	8.60%	8.60%	222,535	19,138	929,294	855,449	73,845	92.1%	-0.88%	7.72%	5.65%	1.78%	0.29%
2025	7.75%	8.60%	8.60%	231,735	19,929	978,237	905,337	72,901	92.5%	-0.98%	7.62%	5.65%	1.69%	0.29%
2026	7.75%	8.60%	8.60%	241,331	20,754	1,029,131	957,543	71,587	93.0%	-1.08%	7.52%	5.64%	1.59%	0.29%
2027	7.75%	8.60%	8.60%	251,311	21,613	1,083,248	1,013,381	69,867	93.6%	-1.18%	7.42%	5.63%	1.49%	0.29%
2028	7.75%	8.60%	8.60%	261,730	22,509	1,139,554	1,071,858	67,697	94.1%	-1.29%	7.31%	5.63%	1.39%	0.29%
2029	7.75%	8.60%	8.60%	272,505	23,435	1,197,886	1,132,867	65,019	94.6%	-1.40%	7.20%	5.63%	1.28%	0.29%
2030	7.75%	8.60%	8.60%	283,751	24,403	1,258,314	1,196,512	61,802	95.1%	-1.52%	7.08%	5.63%	1.17%	0.29%
2031	7.75%	8.60%	8.60%	295,528	25,415	1,320,875	1,262,877	57,998	95.6%	-1.63%	6.97%	5.63%	1.05%	0.29%
2032	7.75%	8.60%	8.60%	307,801	26,471	1,385,700	1,332,164	53,536	96.1%	-1.75%	6.85%	5.62%	0.93%	0.29%
2033	7.75%	8.60%	8.60%	320,675	27,578	1,452,866	1,404,509	48,358	96.7%	-1.88%	6.72%	5.62%	0.81%	0.29%
2034	7.75%	8.60%	8.60%	334,123	28,735	1,522,452	1,480,066	42,386	97.2%	-2.01%	6.59%	5.62%	0.68%	0.29%
2035	7.75%	8.60%	8.60%	348,183	29,944	1,594,647	1,559,100	35,547	97.8%	-2.14%	6.46%	5.62%	0.55%	0.29%
2036	7.75%	8.60%	8.60%	362,892	31,209	1,669,608	1,641,858	27,750	98.3%	-2.28%	6.32%	5.62%	0.41%	0.29%
2037	7.75%	8.60%	8.60%	378,270	32,531	1,747,474	1,728,570	18,905	98.9%	-2.42%	6.18%	5.62%	0.27%	0.29%
2038	7.75%	8.60%	8.60%	394,331	33,912	1,828,432	1,819,521	8,911	99.5%	-2.57%	6.03%	5.62%	0.12%	0.29%
2039	7.75%	8.60%	8.60%	411,083	35,353	1,912,641	1,914,987	(2,346)	100.1%	-2.72%	5.88%	5.62%	-0.03%	0.29%
2040	7.75%	8.60%	8.60%	428,576	36,858	2,000,285	2,015,264	(14,979)	100.7%	-2.88%	5.72%	5.62%	-0.19%	0.29%
2041	7.75%	8.60%	8.60%	446,836	38,428	2,091,550	2,120,671	(29,121)	101.4%	-3.04%	5.56%	5.62%	-0.35%	0.29%
2042	7.75%	8.60%	8.60%	465,846	40,063	2,186,574	2,231,491	(44,918)	102.1%	-3.21%	5.39%	5.62%	-0.52%	0.29%
2043	7.75%	8.60%	8.60%	485,711	41,771	2,285,458	2,347,969	(62,511)	102.7%	-3.38%	5.22%	5.62%	-0.69%	0.29%
2044	7.75%	8.60%	8.60%	506,397	43,550	2,388,486	2,470,561	(82,075)	103.4%	-3.56%	5.04%	5.62%	-0.87%	0.29%
2045	7.75%	8.60%	8.60%	527,948	45,404	2,495,825	2,599,611	(103,786)	104.2%	-3.74%	4.86%	5.62%	-1.05%	0.29%
2046	7.75%	8.60%	8.60%	550,411	47,335	2,607,565	2,735,400	(127,835)	104.9%	-3.93%	4.67%	5.62%	-1.25%	0.29%

**Wyoming Retirement System - State Highway Patrol, Game & Fish Warden and Criminal Investigator Retirement Fund ("Wardens")**  
**Projection Results Based on January 1, 2016 Actuarial Valuation - Baseline**

Discount Rate: 7.75%

Valuation as of January 1,	Market Return for FY Beginning on Valuation Date	Contribution Rate for Fiscal Year Following Valuation Date			Projected Payroll (in Thousands)	Employer Contributions (in Thousands)	Actuarial Accrued Liability (AAL, in Thousands)	Actuarial Value of Assets (AVA, in Thousands)	Unfunded Actuarial Accrued Liability (UAAL, in Thousands)	Funded Ratio	Funding Shortfall/ (Surplus)	30-Year Employer ARC	Employer Normal Cost (NC)	30-Year Amortization Payment	Assumed Expenses
		Employee	Employer	HP Game & Fish Commission											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
2016	7.75%	14.56%	14.88%	0.27%	\$24,641	\$3,733	\$164,522	\$128,598	\$35,925	78.2%	1.75%	16.63%	8.36%	7.82%	0.45%
2017	7.75%	14.56%	14.88%	0.22%	25,955	3,919	173,114	134,794	38,320	77.9%	1.88%	16.76%	8.39%	7.92%	0.45%
2018	7.75%	14.56%	14.88%	0.19%	27,332	4,119	182,131	140,238	41,893	77.0%	2.19%	17.07%	8.40%	8.22%	0.45%
2019	7.75%	14.56%	14.88%	0.16%	28,767	4,327	191,567	144,872	46,695	75.6%	2.69%	17.57%	8.42%	8.70%	0.45%
2020	7.75%	14.56%	14.88%	0.13%	30,304	4,549	201,476	150,583	50,893	74.7%	3.01%	17.89%	8.43%	9.01%	0.45%
2021	7.75%	14.56%	14.88%	0.11%	31,928	4,786	212,006	158,999	53,007	75.0%	2.90%	17.78%	8.43%	8.90%	0.45%
2022	7.75%	14.56%	14.88%	0.09%	33,601	5,030	223,333	168,150	55,183	75.3%	2.81%	17.69%	8.43%	8.81%	0.45%
2023	7.75%	14.56%	14.88%	0.08%	35,364	5,290	235,386	177,956	57,430	75.6%	2.70%	17.58%	8.42%	8.71%	0.45%
2024	7.75%	14.56%	14.88%	0.06%	37,159	5,552	248,173	188,440	59,733	75.9%	2.61%	17.49%	8.42%	8.62%	0.45%
2025	7.75%	14.56%	14.88%	0.05%	38,997	5,822	261,643	199,542	62,101	76.3%	2.53%	17.41%	8.42%	8.54%	0.45%
2026	7.75%	14.56%	14.88%	0.04%	40,944	6,109	275,854	211,310	64,544	76.6%	2.44%	17.32%	8.42%	8.45%	0.45%
2027	7.75%	14.56%	14.88%	0.03%	42,975	6,408	290,880	223,821	67,059	76.9%	2.35%	17.23%	8.41%	8.37%	0.45%
2028	7.75%	14.56%	14.88%	0.03%	45,070	6,720	306,761	237,120	69,641	77.3%	2.26%	17.14%	8.40%	8.29%	0.45%
2029	7.75%	14.56%	14.88%	0.02%	47,228	7,037	323,495	251,208	72,287	77.7%	2.18%	17.06%	8.40%	8.21%	0.45%
2030	7.75%	14.56%	14.88%	0.02%	49,437	7,366	341,059	266,058	75,001	78.0%	2.09%	16.97%	8.39%	8.13%	0.45%
2031	7.75%	14.56%	14.88%	0.01%	51,787	7,711	359,547	281,754	77,793	78.4%	2.01%	16.89%	8.39%	8.05%	0.45%
2032	7.75%	14.56%	14.88%	0.01%	54,134	8,061	378,983	298,341	80,642	78.7%	1.94%	16.82%	8.38%	7.99%	0.45%
2033	7.75%	14.56%	14.88%	0.01%	56,642	8,434	399,366	315,792	83,574	79.1%	1.86%	16.74%	8.38%	7.91%	0.45%
2034	7.75%	14.56%	14.88%	0.01%	59,165	8,810	420,708	334,146	86,562	79.4%	1.79%	16.67%	8.37%	7.85%	0.45%
2035	7.75%	14.56%	14.88%	0.01%	61,812	9,204	442,989	353,364	89,625	79.8%	1.71%	16.59%	8.37%	7.77%	0.45%
2036	7.75%	14.56%	14.88%	0.00%	64,466	9,592	466,158	373,414	92,744	80.1%	1.65%	16.53%	8.37%	7.71%	0.45%
2037	7.75%	14.56%	14.88%	0.00%	67,280	10,011	490,258	394,305	95,953	80.4%	1.59%	16.47%	8.37%	7.65%	0.45%
2038	7.75%	14.56%	14.88%	0.00%	70,181	10,443	515,384	416,153	99,232	80.7%	1.52%	16.40%	8.37%	7.58%	0.45%
2039	7.75%	14.56%	14.88%	0.00%	73,235	10,897	541,599	439,012	102,587	81.1%	1.44%	16.32%	8.36%	7.51%	0.45%
2040	7.75%	14.56%	14.88%	0.00%	76,332	11,358	568,925	462,924	106,001	81.4%	1.38%	16.26%	8.36%	7.45%	0.45%
2041	7.75%	14.56%	14.88%	0.00%	79,635	11,850	597,390	487,891	109,499	81.7%	1.30%	16.18%	8.36%	7.37%	0.45%
2042	7.75%	14.56%	14.88%	0.00%	82,996	12,350	627,049	513,996	113,053	82.0%	1.23%	16.11%	8.36%	7.30%	0.45%
2043	7.75%	14.56%	14.88%	0.00%	86,569	12,881	657,948	541,266	116,683	82.3%	1.16%	16.04%	8.36%	7.23%	0.45%
2044	7.75%	14.56%	14.88%	0.00%	90,198	13,421	690,128	569,771	120,358	82.6%	1.09%	15.97%	8.36%	7.16%	0.45%
2045	7.75%	14.56%	14.88%	0.00%	94,016	13,990	723,597	599,498	124,098	82.8%	1.01%	15.89%	8.36%	7.08%	0.45%
2046	7.75%	14.56%	14.88%	0.00%	97,944	14,574	758,390	630,505	127,885	83.1%	0.93%	15.81%	8.36%	7.00%	0.45%

**Wyoming Air Guard Firefighters Retirement System ("Guard Fire")**  
**Projection Results Based on January 1, 2016 Actuarial Valuation - Baseline**

Discount Rate: 7.75%

Valuation as of January 1,	Market Return for FY Beginning on Valuation Date	Contribution Rate for Fiscal Year Following Valuation Date		Projected Payroll (in Thousands)	Employer Contributions (in Thousands)	Actuarial Accrued Liability (AAL, in Thousands)	Actuarial Value of Assets (AVA, in Thousands)	Unfunded Actuarial Accrued Liability (UAAL, in Thousands)	Funded Ratio	Funding Shortfall/ (Surplus)	30-Year Employer ARC	Employer Normal Cost (NC)	30-Year Amortization Payment	Assumed Expenses
		Employee	Employer											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
2016	7.75%	16.650%	7.120%	\$2,243	\$160	\$7,337	\$6,617	\$720	90.2%	-6.78%	0.34%	-1.61%	1.72%	0.23%
2017	7.75%	16.650%	7.120%	2,348	167	7,952	7,264	688	91.4%	-6.96%	0.16%	-1.64%	1.57%	0.23%
2018	7.75%	16.650%	7.120%	2,453	175	8,601	7,961	640	92.6%	-7.17%	-0.05%	-1.68%	1.40%	0.23%
2019	7.75%	16.650%	7.120%	2,563	182	9,297	8,679	618	93.4%	-7.31%	-0.19%	-1.72%	1.29%	0.23%
2020	7.75%	16.650%	7.120%	2,680	191	10,025	9,485	540	94.6%	-7.56%	-0.44%	-1.75%	1.08%	0.23%
2021	7.75%	16.650%	7.120%	2,799	199	10,788	10,458	330	96.9%	-8.04%	-0.92%	-1.78%	0.63%	0.23%
2022	7.75%	16.650%	7.120%	2,922	208	11,637	11,546	91	99.2%	-8.53%	-1.41%	-1.81%	0.17%	0.23%
2023	7.75%	16.650%	7.120%	3,050	217	12,521	12,700	(179)	101.4%	-9.04%	-1.92%	-1.83%	-0.31%	0.23%
2024	7.75%	16.650%	7.120%	3,184	227	13,440	13,923	(483)	103.6%	-9.55%	-2.43%	-1.85%	-0.81%	0.23%
2025	7.75%	16.650%	7.120%	3,326	237	14,398	15,222	(823)	105.7%	-10.08%	-2.96%	-1.86%	-1.33%	0.23%
2026	7.75%	16.650%	7.120%	3,473	247	15,391	16,597	(1,205)	107.8%	-10.63%	-3.51%	-1.88%	-1.86%	0.23%
2027	7.75%	16.650%	7.120%	3,620	258	16,417	18,049	(1,633)	109.9%	-11.20%	-4.08%	-1.89%	-2.42%	0.23%
2028	7.75%	16.650%	7.120%	3,780	269	17,469	19,576	(2,107)	112.1%	-11.77%	-4.65%	-1.89%	-2.99%	0.23%
2029	7.75%	16.650%	7.120%	3,950	281	18,560	21,192	(2,633)	114.2%	-12.36%	-5.24%	-1.90%	-3.57%	0.23%
2030	7.75%	16.650%	7.120%	4,126	294	19,701	22,918	(3,217)	116.3%	-12.97%	-5.85%	-1.90%	-4.18%	0.23%
2031	7.75%	16.650%	7.120%	4,308	307	20,894	24,757	(3,863)	118.5%	-13.61%	-6.49%	-1.91%	-4.81%	0.23%
2032	7.75%	16.650%	7.120%	4,498	320	22,149	26,726	(4,578)	120.7%	-14.26%	-7.14%	-1.91%	-5.46%	0.23%
2033	7.75%	16.650%	7.120%	4,694	334	23,466	28,832	(5,367)	122.9%	-14.94%	-7.82%	-1.92%	-6.13%	0.23%
2034	7.75%	16.650%	7.120%	4,899	349	24,849	31,085	(6,236)	125.1%	-15.64%	-8.52%	-1.92%	-6.82%	0.23%
2035	7.75%	16.650%	7.120%	5,109	364	26,306	33,499	(7,194)	127.3%	-16.37%	-9.25%	-1.93%	-7.55%	0.23%
2036	7.75%	16.650%	7.120%	5,332	380	27,819	36,065	(8,246)	129.6%	-17.12%	-10.00%	-1.94%	-8.29%	0.23%
2037	7.75%	16.650%	7.120%	5,568	396	29,415	38,816	(9,401)	132.0%	-17.89%	-10.77%	-1.94%	-9.05%	0.23%
2038	7.75%	16.650%	7.120%	5,811	414	31,105	41,775	(10,670)	134.3%	-18.69%	-11.57%	-1.95%	-9.85%	0.23%
2039	7.75%	16.650%	7.120%	6,065	432	32,891	44,951	(12,060)	136.7%	-19.51%	-12.39%	-1.96%	-10.66%	0.23%
2040	7.75%	16.650%	7.120%	6,330	451	34,769	48,354	(13,585)	139.1%	-20.36%	-13.24%	-1.97%	-11.51%	0.23%
2041	7.75%	16.650%	7.120%	6,602	470	36,732	51,987	(15,255)	141.5%	-21.25%	-14.13%	-1.97%	-12.39%	0.23%
2042	7.75%	16.650%	7.120%	6,886	490	38,784	55,865	(17,081)	144.0%	-22.17%	-15.05%	-1.98%	-13.30%	0.23%
2043	7.75%	16.650%	7.120%	7,176	511	40,936	60,015	(19,079)	146.6%	-23.13%	-16.01%	-1.99%	-14.26%	0.23%
2044	7.75%	16.650%	7.120%	7,487	533	43,192	64,452	(21,260)	149.2%	-24.11%	-16.99%	-1.99%	-15.23%	0.23%
2045	7.75%	16.650%	7.120%	7,809	556	45,563	69,204	(23,641)	151.9%	-25.12%	-18.00%	-2.00%	-16.23%	0.23%
2046	7.75%	16.650%	7.120%	8,144	580	48,046	74,286	(26,239)	154.6%	-26.16%	-19.04%	-2.00%	-17.28%	0.23%

**Wyoming Paid Firemen's Retirement Fund Plan B ("Fire B")**  
**Projection Results Based on January 1, 2016 Actuarial Valuation - Baseline**

Discount Rate: 7.75%

Valuation as of January 1,	Market Return for FY Beginning on Valuation Date	Contribution Rate for Fiscal Year Following Valuation Date		Projected Payroll (in Thousands)	Employer Contributions (in Thousands)	Actuarial Accrued Liability (AAL, in Thousands)	Actuarial Value of Assets (AVA, in Thousands)	Unfunded Actuarial Accrued Liability (UAAL, in Thousands)	Funded Ratio	Funding Shortfall/ (Surplus)	30-Year Employer ARC	Employer Normal Cost (NC)	30-Year Amortization Payment	Assumed Expenses
		Employee	Employer											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
2016	7.75%	9.245%	12.000%	\$27,512	\$3,301	\$125,941	\$124,496	\$1,445	98.9%	0.44%	12.44%	11.79%	0.28%	0.37%
2017	7.75%	9.245%	12.000%	28,694	3,443	137,141	134,233	2,908	97.9%	0.62%	12.62%	11.71%	0.54%	0.37%
2018	7.75%	9.245%	12.000%	30,025	3,603	148,816	143,476	5,340	96.4%	1.00%	13.00%	11.67%	0.95%	0.37%
2019	7.75%	9.245%	12.000%	31,384	3,766	161,063	152,242	8,821	94.5%	1.53%	13.53%	11.66%	1.51%	0.37%
2020	7.75%	9.245%	12.000%	32,790	3,935	173,901	162,179	11,722	93.3%	1.94%	13.94%	11.65%	1.92%	0.37%
2021	7.75%	9.245%	12.000%	34,252	4,110	187,338	174,699	12,639	93.3%	2.00%	14.00%	11.66%	1.98%	0.37%
2022	7.75%	9.245%	12.000%	35,732	4,288	201,432	187,749	13,683	93.2%	2.09%	14.09%	11.67%	2.05%	0.37%
2023	7.75%	9.245%	12.000%	37,300	4,476	216,119	201,303	14,816	93.1%	2.17%	14.17%	11.67%	2.13%	0.37%
2024	7.75%	9.245%	12.000%	38,888	4,667	231,452	215,414	16,038	93.1%	2.26%	14.26%	11.68%	2.21%	0.37%
2025	7.75%	9.245%	12.000%	40,523	4,863	247,379	230,021	17,357	93.0%	2.36%	14.36%	11.70%	2.30%	0.37%
2026	7.75%	9.245%	12.000%	42,192	5,063	263,910	245,124	18,787	92.9%	2.48%	14.48%	11.72%	2.39%	0.37%
2027	7.75%	9.245%	12.000%	43,945	5,273	281,069	260,727	20,342	92.8%	2.60%	14.60%	11.75%	2.48%	0.37%
2028	7.75%	9.245%	12.000%	45,735	5,488	298,860	276,829	22,031	92.6%	2.74%	14.74%	11.79%	2.58%	0.37%
2029	7.75%	9.245%	12.000%	47,540	5,705	317,205	293,338	23,867	92.5%	2.90%	14.90%	11.84%	2.69%	0.37%
2030	7.75%	9.245%	12.000%	49,373	5,925	335,998	310,127	25,871	92.3%	3.08%	15.08%	11.90%	2.81%	0.37%
2031	7.75%	9.245%	12.000%	51,280	6,154	355,152	327,084	28,068	92.1%	3.27%	15.27%	11.96%	2.93%	0.37%
2032	7.75%	9.245%	12.000%	53,256	6,391	374,703	344,229	30,474	91.9%	3.46%	15.46%	12.02%	3.07%	0.37%
2033	7.75%	9.245%	12.000%	55,359	6,643	394,711	361,598	33,112	91.6%	3.66%	15.66%	12.08%	3.21%	0.37%
2034	7.75%	9.245%	12.000%	57,460	6,895	415,126	379,135	35,991	91.3%	3.87%	15.87%	12.14%	3.36%	0.37%
2035	7.75%	9.245%	12.000%	59,746	7,170	435,936	396,785	39,152	91.0%	4.08%	16.08%	12.19%	3.51%	0.37%
2036	7.75%	9.245%	12.000%	62,127	7,455	457,190	414,585	42,606	90.7%	4.29%	16.29%	12.24%	3.68%	0.37%
2037	7.75%	9.245%	12.000%	64,685	7,762	478,914	432,528	46,386	90.3%	4.50%	16.50%	12.29%	3.85%	0.37%
2038	7.75%	9.245%	12.000%	67,351	8,082	501,152	450,644	50,509	89.9%	4.72%	16.72%	12.33%	4.02%	0.37%
2039	7.75%	9.245%	12.000%	70,223	8,427	524,035	469,026	55,009	89.5%	4.93%	16.93%	12.36%	4.20%	0.37%
2040	7.75%	9.245%	12.000%	73,197	8,784	547,622	487,718	59,905	89.1%	5.15%	17.15%	12.39%	4.39%	0.37%
2041	7.75%	9.245%	12.000%	76,360	9,163	571,959	506,723	65,236	88.6%	5.36%	17.36%	12.41%	4.58%	0.37%
2042	7.75%	9.245%	12.000%	79,689	9,563	597,173	526,145	71,028	88.1%	5.57%	17.57%	12.42%	4.78%	0.37%
2043	7.75%	9.245%	12.000%	83,171	9,981	623,330	546,015	77,314	87.6%	5.78%	17.78%	12.43%	4.98%	0.37%
2044	7.75%	9.245%	12.000%	86,840	10,421	650,541	566,408	84,132	87.1%	6.00%	18.00%	12.43%	5.19%	0.37%
2045	7.75%	9.245%	12.000%	90,659	10,879	678,883	587,365	91,518	86.5%	6.22%	18.22%	12.43%	5.41%	0.37%
2046	7.75%	9.245%	12.000%	94,640	11,357	708,425	608,911	99,514	86.0%	6.44%	18.44%	12.43%	5.64%	0.37%

**Wyoming Paid Firemen's Retirement Fund Plan A ("Fire A")**  
**Projection Results Based on January 1, 2016 Actuarial Valuation - Baseline**

Discount Rate: 7.75%

Valuation as of January 1, (1)	Market Return for FY Beginning on Valuation Date (2)	Contribution Rate for Fiscal Year Following Valuation Date		Projected Payroll (in Thousands) (5)	Actuarial Accrued Liability (AAL, in Thousands) (6)	Actuarial Value of Assets (AVA, in Thousands) (7)	Unfunded Actuarial Accrued Liability (UAAL, in Thousands) (8)	Funded Ratio (9)	Funding Shortfall/ (Surplus) (10)	10-Year Employer ARC (in Thousands) (11)	Employer Normal Cost (NC, in Thousands) (12)	10-Year Amortization Payment (in Thousands) (13)	Assumed Expenses (in Thousands) (14)	Benefit Payments (in Thousands) (15)
		Employee (3)	Employer (4)											
2016	7.75%	-	-	\$195	\$204,690	\$130,776	\$73,913	63.9%	\$10,664	\$10,663.7	\$50.1	\$10,490.0	\$123.7	\$15,077
2017	7.75%	-	-	103	204,944	124,599	80,344	60.8%	11,551	11,550.7	24.4	11,402.7	123.7	15,484
2018	7.75%	-	-	38	204,768	115,961	88,807	56.6%	12,739	12,738.9	11.5	12,603.7	123.7	15,826
2019	7.75%	-	-	30	204,210	104,940	99,270	51.4%	14,218	14,217.6	5.2	14,088.7	123.7	16,123
2020	7.75%	-	-	0	203,294	93,755	109,539	46.1%	15,670	15,669.7	0.0	15,546.0	123.7	16,390
2021	7.75%	-	-	0	202,024	83,879	118,144	41.5%	16,891	16,891.0	0.0	16,767.3	123.7	16,614
2022	7.75%	-	-	-	200,422	73,005	127,417	36.4%	18,207	18,207.0	-	18,083.3	123.7	16,813
2023	7.75%	-	-	-	198,491	61,083	137,408	30.8%	19,625	19,625.0	-	19,501.3	123.7	16,985
2024	7.75%	-	-	-	196,232	48,058	148,174	24.5%	21,153	21,152.9	-	21,029.2	123.7	17,131
2025	7.75%	-	-	-	193,645	33,872	159,774	17.5%	22,799	22,799.1	-	22,675.4	123.7	17,251
2026	7.75%	-	-	-	190,733	18,461	172,272	9.7%	24,573	24,573.0	-	24,449.3	123.7	17,347
2027	7.75%	-	-	-	187,497	1,757	185,739	0.9%	26,484	26,484.3	-	26,360.6	123.7	17,416
2028	7.75%	-	-	-	183,937	(13,051)	196,988	-7.1%	28,081	28,080.6	-	27,956.9	123.7	17,460
2029	7.75%	-	-	-	180,055	(28,664)	208,720	-15.9%	29,746	29,745.6	-	29,621.9	123.7	17,477
2030	7.75%	-	-	-	175,855	(45,502)	221,357	-25.9%	31,539	31,539.2	-	31,415.5	123.7	17,467
2031	7.75%	-	-	-	171,341	(63,636)	234,977	-37.1%	33,472	33,472.1	-	33,348.4	123.7	17,426
2032	7.75%	-	-	-	166,519	(83,141)	249,660	-49.9%	35,556	35,556.0	-	35,432.3	123.7	17,354
2033	7.75%	-	-	-	161,398	(104,098)	265,496	-64.5%	37,804	37,803.5	-	37,679.8	123.7	17,248
2034	7.75%	-	-	-	155,990	(126,592)	282,582	-81.2%	40,228	40,228.3	-	40,104.6	123.7	17,106
2035	7.75%	-	-	-	150,310	(150,711)	301,021	-100.3%	42,845	42,845.3	-	42,721.6	123.7	16,926
2036	7.75%	-	-	-	144,378	(176,549)	320,927	-122.3%	45,670	45,670.4	-	45,546.7	123.7	16,705
2037	7.75%	-	-	-	138,214	(204,207)	342,422	-147.7%	48,721	48,721.0	-	48,597.3	123.7	16,443
2038	7.75%	-	-	-	131,846	(233,791)	365,637	-177.3%	52,016	52,015.7	-	51,892.0	123.7	16,137
2039	7.75%	-	-	-	125,302	(265,413)	390,715	-211.8%	55,575	55,574.8	-	55,451.1	123.7	15,786
2040	7.75%	-	-	-	118,616	(299,194)	417,810	-252.2%	59,420	59,420.2	-	59,296.5	123.7	15,389
2041	7.75%	-	-	-	111,823	(335,263)	447,087	-299.8%	63,575	63,575.3	-	63,451.6	123.7	14,948
2042	7.75%	-	-	-	104,963	(373,762)	478,725	-356.1%	68,065	68,065.4	-	67,941.7	123.7	14,463
2043	7.75%	-	-	-	98,075	(414,841)	512,916	-423.0%	72,918	72,917.9	-	72,794.2	123.7	13,934
2044	7.75%	-	-	-	91,202	(458,665)	549,867	-502.9%	78,162	78,162.1	-	78,038.4	123.7	13,363
2045	7.75%	-	-	-	84,390	(505,411)	589,801	-598.9%	83,830	83,829.6	-	83,705.9	123.7	12,751
2046	7.75%	-	-	-	77,686	(555,272)	632,958	-714.8%	89,954	89,954.5	-	89,830.8	123.7	12,101