

May 8, 2019

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

Subject: Actuarial Projections for the Wyoming Retirement System

Dear Ruth:

We are providing 30-year projections for each plan in the Wyoming Retirement System (“WRS”) as of January 1, 2019 estimating the future Funded Ratio and Actuarially Determined Contribution (“ADC”) for each plan.

Analysis

The 30-year baseline projections for each plan incorporate data as of January 1, 2019. 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 new set of actuarial assumptions as adopted by the WRS Board of Trustees on August 23, 2017.

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 30th-year projected funded ratios decreased for plans except Fire B. All plans experienced losses from less than expected investment returns in 2018, however, most of the plans experienced liability gains due to lower than expected individual pay increases for 2018.

- 1) The 30th year projected funded ratio for the State plan decreased, from 106.1% to 71.5%. This reflects the increased contributions to the plan under HB 109 and the slightly lower future normal costs due to the change in the refund provisions under HB 110.
- 2) Fire A: With no funding source for the plan, trust assets are projected to be depleted in approximately 2026 (last year this was 2028).
- 3) Wardens: The plan is projected to be 78.1% funded in 30 years (last year the projection showed 102.8% in 30 years).
- 4) Fire B: This plan is projected to be 92.3% funded in 30 years (last year the projection showed 79.9% in 30 years). The improvement in funded status is a result of the employee and employer rate increases that are being phased in over the next four years.

- 5) Law Enforcement: The plan is projected to be 75.3% funded in 30 years (last year the projection showed 100.2% in 30 years).
- 6) The three plans of Judges, Vol Fire, and Guard Fire are still projected to be very close to or above 100% in 30 years.

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

Plan	Funded Ratio		Actuarially Determined Contribution	
	2019	2049	2019	2049
State	74.2%	71.5%	11.64%	16.64%
Judges	97.7%	99.9%	14.37%	0.00%
Law Enforcement	85.6%	75.3%	10.48%	22.57%
Wardens	76.5%	78.1%	16.86%	26.04%
Guard Fire	85.6%	162.1%	0.19%	0.00%
Fire B	92.9%	92.3%	16.58%	21.53%
Fire A (depletion)	46.1%	N/A (2026)	\$16,974k	N/A
Volfire & EMT	72.8%	127.5%	\$3,543k	\$0

Assumptions and Methods

- All calculations incorporate data, provisions, and assumptions used in the January 1, 2019 actuarial valuations, including:
 - Future investment returns are assumed to equal the discount rate of 7.00% 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 a layered amortization of the unfunded accrued liability as specified in the January 1, 2019 actuarial valuation. Future experience is assumed to match the assumptions in all cases and no new amortization bases are established for any of the projections.
- The Guard Fire plan faces an uncertain future regarding its funding from Federal sources which are assumed to continue in these projections.

The calculations 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



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Wyoming Retirement System - Public Employees' Pension Plan ("State")
Projection Results Based on January 1, 2019 Actuarial Valuation - Baseline

Discount Rate: 7.00%

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 Millions) (5)	Employer Contributions (in Millions) (6)	Actuarial Accrued Liability (AAL, in Millions) (7)	Actuarial Value of Assets (AVA, in Millions) (8)	Unfunded Actuarial Accrued Liability (UAAL, in Millions) (9)	Funded Ratio (10)	Funding Shortfall/(Surplus) (11)	Employer ADC (12)	Employer Normal Cost (NC) (13)	Layered Amortization Payment (14)	Assumed Expenses (15)
		Employee (3)	Employer (4)											
2019	7.00%	8.625%	8.745%	\$1,782	\$156	\$9,870	\$7,318	\$2,551	74.2%	2.89%	11.64%	2.29%	8.95%	0.40%
2020	7.00%	8.875%	8.995%	1,828	164	10,135	7,293	2,842	72.0%	3.41%	12.40%	1.91%	10.09%	0.40%
2021	7.00%	9.125%	9.245%	1,874	173	10,399	7,389	3,010	71.1%	3.44%	12.68%	1.55%	10.73%	0.40%
2022	7.00%	9.250%	9.370%	1,920	180	10,661	7,498	3,162	70.3%	3.68%	13.05%	1.32%	11.32%	0.40%
2023	7.00%	9.250%	9.370%	1,967	184	10,921	7,529	3,393	68.9%	4.48%	13.85%	1.23%	12.23%	0.40%
2024	7.00%	9.250%	9.370%	2,014	189	11,178	7,707	3,471	68.9%	4.74%	14.11%	1.14%	12.58%	0.40%
2025	7.00%	9.250%	9.370%	2,062	193	11,432	7,882	3,550	68.9%	5.03%	14.40%	1.05%	12.95%	0.40%
2026	7.00%	9.250%	9.370%	2,112	198	11,683	8,054	3,629	68.9%	5.34%	14.71%	0.97%	13.34%	0.40%
2027	7.00%	9.250%	9.370%	2,162	203	11,930	8,224	3,707	68.9%	5.68%	15.05%	0.90%	13.76%	0.40%
2028	7.00%	9.250%	9.370%	2,214	207	12,176	8,391	3,785	68.9%	6.06%	15.43%	0.82%	14.20%	0.40%
2029	7.00%	9.250%	9.370%	2,267	212	12,419	8,557	3,862	68.9%	6.46%	15.83%	0.75%	14.68%	0.40%
2030	7.00%	9.250%	9.370%	2,321	217	12,669	8,731	3,939	68.9%	6.90%	16.27%	0.69%	15.18%	0.40%
2031	7.00%	9.250%	9.370%	2,376	223	12,918	8,904	4,015	68.9%	7.38%	16.75%	0.62%	15.73%	0.40%
2032	7.00%	9.250%	9.370%	2,432	228	13,166	9,077	4,090	68.9%	7.90%	17.27%	0.57%	16.31%	0.40%
2033	7.00%	9.250%	9.370%	2,489	233	13,413	9,250	4,163	69.0%	8.47%	17.84%	0.51%	16.93%	0.40%
2034	7.00%	9.250%	9.370%	2,547	239	13,660	9,424	4,236	69.0%	9.09%	18.46%	0.46%	17.60%	0.40%
2035	7.00%	9.250%	9.370%	2,607	244	13,907	9,600	4,307	69.0%	9.76%	19.13%	0.41%	18.31%	0.40%
2036	7.00%	9.250%	9.370%	2,668	250	14,153	9,777	4,377	69.1%	10.48%	19.85%	0.37%	19.09%	0.40%
2037	7.00%	9.250%	9.370%	2,730	256	14,400	9,955	4,445	69.1%	11.27%	20.64%	0.33%	19.91%	0.40%
2038	7.00%	9.250%	9.370%	2,794	262	14,646	10,136	4,511	69.2%	12.12%	21.49%	0.29%	20.80%	0.40%
2039	7.00%	9.250%	9.370%	2,860	268	14,894	10,320	4,574	69.3%	11.91%	21.28%	0.25%	20.63%	0.40%
2040	7.00%	9.250%	9.370%	2,927	274	15,143	10,507	4,636	69.4%	11.65%	21.02%	0.22%	20.39%	0.40%
2041	7.00%	9.250%	9.370%	2,997	281	15,394	10,700	4,694	69.5%	11.87%	21.24%	0.20%	20.64%	0.40%
2042	7.00%	9.250%	9.370%	3,068	288	15,648	10,899	4,749	69.6%	12.17%	21.54%	0.17%	20.97%	0.40%
2043	7.00%	9.250%	9.370%	3,142	294	15,906	11,105	4,801	69.8%	12.17%	21.54%	0.15%	20.99%	0.40%
2044	7.00%	9.250%	9.370%	3,218	302	16,169	11,320	4,849	70.0%	12.75%	22.12%	0.13%	21.59%	0.40%
2045	7.00%	9.250%	9.370%	3,296	309	16,439	11,546	4,893	70.2%	13.35%	22.72%	0.12%	22.20%	0.40%
2046	7.00%	9.250%	9.370%	3,377	316	16,717	11,785	4,932	70.5%	13.97%	23.34%	0.11%	22.84%	0.40%
2047	7.00%	9.250%	9.370%	3,460	324	17,004	12,038	4,966	70.8%	14.61%	23.98%	0.10%	23.49%	0.40%
2048	7.00%	9.250%	9.370%	3,546	332	17,303	12,309	4,994	71.1%	7.20%	16.57%	0.09%	16.09%	0.40%
2049	7.00%	9.250%	9.370%	3,635	341	17,614	12,599	5,016	71.5%	7.27%	16.64%	0.08%	16.16%	0.40%

Wyoming Retirement System - Judicial Retirement System ("Judges")
Projection Results Based on January 1, 2019 Actuarial Valuation - Baseline

Discount Rate: 7.00%

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)	Employer ADC	Employer Normal Cost (NC)	Layered Amortization Payment	Assumed Expenses
		Employee	Employer											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
2019	7.00%	9.22%	14.50%	\$6,866	\$996	\$31,068	\$30,341	\$727	97.7%	-0.13%	14.37%	13.06%	0.89%	0.42%
2020	7.00%	9.22%	14.50%	7,145	1,036	33,114	31,539	1,575	95.2%	0.85%	15.35%	13.04%	1.89%	0.42%
2021	7.00%	9.22%	14.50%	7,439	1,079	35,244	33,224	2,021	94.3%	1.34%	15.84%	13.00%	2.42%	0.42%
2022	7.00%	9.22%	14.50%	7,746	1,123	37,462	35,021	2,441	93.5%	1.79%	16.29%	12.95%	2.92%	0.42%
2023	7.00%	9.22%	14.50%	8,061	1,169	39,708	36,538	3,170	92.0%	2.56%	17.06%	12.90%	3.74%	0.42%
2024	7.00%	9.22%	14.50%	8,402	1,218	41,993	38,708	3,286	92.2%	2.58%	17.08%	12.72%	3.94%	0.42%
2025	7.00%	9.22%	14.50%	8,778	1,273	44,256	40,873	3,383	92.4%	2.58%	17.08%	12.55%	4.12%	0.42%
2026	7.00%	9.22%	14.50%	9,151	1,327	46,492	43,021	3,471	92.5%	2.74%	17.24%	12.51%	4.31%	0.42%
2027	7.00%	9.22%	14.50%	9,512	1,379	48,740	45,189	3,551	92.7%	2.90%	17.40%	12.45%	4.53%	0.42%
2028	7.00%	9.22%	14.50%	9,910	1,437	50,972	47,344	3,628	92.9%	3.02%	17.52%	12.35%	4.75%	0.42%
2029	7.00%	9.22%	14.50%	10,324	1,497	53,267	49,571	3,697	93.1%	3.17%	17.67%	12.26%	4.99%	0.42%
2030	7.00%	9.22%	14.50%	10,754	1,559	55,680	51,927	3,753	93.3%	3.34%	17.84%	12.18%	5.24%	0.42%
2031	7.00%	9.22%	14.50%	11,211	1,626	58,206	54,409	3,796	93.5%	3.46%	17.96%	12.04%	5.50%	0.42%
2032	7.00%	9.22%	14.50%	11,684	1,694	60,797	56,982	3,815	93.7%	3.55%	18.05%	11.86%	5.76%	0.42%
2033	7.00%	9.22%	14.50%	12,144	1,761	63,465	59,663	3,803	94.0%	3.71%	18.21%	11.77%	6.02%	0.42%
2034	7.00%	9.22%	14.50%	12,631	1,832	66,304	62,533	3,771	94.3%	3.17%	17.67%	11.76%	5.49%	0.42%
2035	7.00%	9.22%	14.50%	13,134	1,904	69,336	65,613	3,722	94.6%	2.43%	16.93%	11.75%	4.76%	0.42%
2036	7.00%	9.22%	14.50%	13,657	1,980	72,563	68,906	3,657	95.0%	2.07%	16.57%	11.72%	4.44%	0.42%
2037	7.00%	9.22%	14.50%	14,199	2,059	76,002	72,433	3,568	95.3%	1.72%	16.22%	11.69%	4.11%	0.42%
2038	7.00%	9.22%	14.50%	14,767	2,141	79,576	76,124	3,452	95.7%	1.04%	15.54%	11.68%	3.44%	0.42%
2039	7.00%	9.22%	14.50%	15,355	2,226	83,304	79,988	3,316	96.0%	0.89%	15.39%	11.65%	3.32%	0.42%
2040	7.00%	9.22%	14.50%	15,975	2,316	87,229	84,079	3,150	96.4%	0.75%	15.25%	11.65%	3.19%	0.42%
2041	7.00%	9.22%	14.50%	16,637	2,412	91,269	88,315	2,954	96.8%	0.63%	15.13%	11.67%	3.03%	0.42%
2042	7.00%	9.22%	14.50%	17,309	2,510	95,378	92,648	2,730	97.1%	0.47%	14.97%	11.68%	2.86%	0.42%
2043	7.00%	9.22%	14.50%	17,997	2,610	99,604	97,128	2,476	97.5%	0.27%	14.77%	11.68%	2.67%	0.42%
2044	7.00%	9.22%	14.50%	18,713	2,713	103,990	101,804	2,186	97.9%	0.06%	14.56%	11.70%	2.44%	0.42%
2045	7.00%	9.22%	14.50%	19,462	2,822	108,533	106,672	1,862	98.3%	-0.18%	14.32%	11.72%	2.18%	0.42%
2046	7.00%	9.22%	14.50%	20,249	2,936	113,266	111,765	1,501	98.7%	-0.45%	14.05%	11.73%	1.89%	0.42%
2047	7.00%	9.22%	14.50%	21,097	3,059	118,120	117,024	1,096	99.1%	-0.75%	13.75%	11.77%	1.56%	0.42%
2048	7.00%	9.22%	14.50%	21,943	3,182	123,110	122,459	651	99.5%	-1.09%	13.41%	11.78%	1.21%	0.42%
2049	7.00%	9.22%	14.50%	22,817	3,309	128,249	128,098	151	99.9%	-1.47%	13.03%	11.80%	0.81%	0.42%

Wyoming Retirement System - Law Enforcement Retirement Fund ("Law Enforcement")
Projection Results Based on January 1, 2019 Actuarial Valuation - Baseline

Discount Rate: 7.00%

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)	Employer ADC	Employer Normal Cost (NC)	Layered Amortization Payment	Assumed Expenses
		Employee	Employer											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
2019	7.00%	8.60%	8.60%	\$159,748	\$13,738	\$749,525	\$641,342	\$108,183	85.6%	1.88%	10.48%	5.71%	4.35%	0.42%
2020	7.00%	8.60%	8.60%	165,027	14,192	785,842	655,034	130,807	83.4%	2.79%	11.39%	5.63%	5.34%	0.42%
2021	7.00%	8.60%	8.60%	170,327	14,648	823,241	678,951	144,290	82.5%	3.27%	11.87%	5.56%	5.89%	0.42%
2022	7.00%	8.60%	8.60%	175,435	15,087	861,827	704,421	157,405	81.7%	3.76%	12.36%	5.50%	6.44%	0.42%
2023	7.00%	8.60%	8.60%	180,581	15,530	901,473	723,746	177,727	80.3%	4.55%	13.15%	5.44%	7.29%	0.42%
2024	7.00%	8.60%	8.60%	185,761	15,975	941,952	756,846	185,106	80.3%	4.82%	13.42%	5.39%	7.61%	0.42%
2025	7.00%	8.60%	8.60%	190,971	16,423	983,213	790,456	192,757	80.4%	5.13%	13.73%	5.35%	7.96%	0.42%
2026	7.00%	8.60%	8.60%	196,276	16,880	1,025,240	824,528	200,712	80.4%	5.46%	14.06%	5.31%	8.33%	0.42%
2027	7.00%	8.60%	8.60%	201,634	17,341	1,067,961	858,976	208,985	80.4%	5.83%	14.43%	5.28%	8.73%	0.42%
2028	7.00%	8.60%	8.60%	207,082	17,809	1,111,310	893,708	217,602	80.4%	6.22%	14.82%	5.24%	9.16%	0.42%
2029	7.00%	8.60%	8.60%	212,600	18,284	1,155,029	928,447	226,582	80.4%	6.64%	15.24%	5.21%	9.61%	0.42%
2030	7.00%	8.60%	8.60%	218,159	18,762	1,199,713	963,768	235,945	80.3%	7.11%	15.71%	5.18%	10.11%	0.42%
2031	7.00%	8.60%	8.60%	223,905	19,256	1,244,708	998,972	245,736	80.3%	7.61%	16.21%	5.15%	10.64%	0.42%
2032	7.00%	8.60%	8.60%	229,761	19,759	1,290,070	1,034,098	255,972	80.2%	8.16%	16.76%	5.13%	11.21%	0.42%
2033	7.00%	8.60%	8.60%	235,772	20,276	1,335,806	1,069,118	266,688	80.0%	8.74%	17.34%	5.10%	11.82%	0.42%
2034	7.00%	8.60%	8.60%	241,915	20,805	1,381,937	1,104,025	277,911	79.9%	9.37%	17.97%	5.08%	12.47%	0.42%
2035	7.00%	8.60%	8.60%	248,216	21,347	1,428,504	1,138,829	289,676	79.7%	10.05%	18.65%	5.06%	13.17%	0.42%
2036	7.00%	8.60%	8.60%	254,655	21,900	1,475,538	1,173,525	302,013	79.5%	10.79%	19.39%	5.04%	13.93%	0.42%
2037	7.00%	8.60%	8.60%	261,291	22,471	1,523,046	1,208,082	314,964	79.3%	11.59%	20.19%	5.03%	14.74%	0.42%
2038	7.00%	8.60%	8.60%	268,129	23,059	1,571,130	1,242,563	328,567	79.1%	12.43%	21.03%	5.01%	15.60%	0.42%
2039	7.00%	8.60%	8.60%	275,193	23,667	1,619,953	1,277,090	342,863	78.8%	12.27%	20.87%	5.00%	15.45%	0.42%
2040	7.00%	8.60%	8.60%	282,411	24,287	1,669,638	1,311,749	357,889	78.6%	12.19%	20.79%	4.98%	15.39%	0.42%
2041	7.00%	8.60%	8.60%	289,799	24,923	1,720,198	1,346,504	373,694	78.3%	12.52%	21.12%	4.97%	15.73%	0.42%
2042	7.00%	8.60%	8.60%	297,344	25,572	1,771,727	1,381,398	390,330	78.0%	12.89%	21.49%	4.96%	16.11%	0.42%
2043	7.00%	8.60%	8.60%	305,067	26,236	1,824,197	1,416,346	407,851	77.6%	13.00%	21.60%	4.95%	16.23%	0.42%
2044	7.00%	8.60%	8.60%	312,953	26,914	1,877,746	1,451,430	426,316	77.3%	13.64%	22.24%	4.95%	16.87%	0.42%
2045	7.00%	8.60%	8.60%	321,011	27,607	1,932,430	1,486,643	445,787	76.9%	14.30%	22.90%	4.94%	17.54%	0.42%
2046	7.00%	8.60%	8.60%	329,250	28,316	1,988,269	1,521,939	466,331	76.5%	14.98%	23.58%	4.93%	18.23%	0.42%
2047	7.00%	8.60%	8.60%	337,660	29,039	2,045,261	1,557,243	488,018	76.1%	15.71%	24.31%	4.93%	18.96%	0.42%
2048	7.00%	8.60%	8.60%	346,263	29,779	2,103,463	1,592,538	510,925	75.7%	13.42%	22.02%	4.92%	16.68%	0.42%
2049	7.00%	8.60%	8.60%	355,062	30,535	2,162,914	1,627,781	535,133	75.3%	13.97%	22.57%	4.92%	17.23%	0.42%

Wyoming Retirement System - State Highway Patrol, Game & Fish Warden and Criminal Investigator Retirement Fund ("Wardens")
Projection Results Based on January 1, 2019 Actuarial Valuation - Baseline

Discount Rate: 7.00%

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) (6)	Employer Contributions (in Thousands) (7)	Actuarial Accrued Liability (AAL, in Thousands) (8)	Actuarial Value of Assets (AVA, in Thousands) (9)	Unfunded Actuarial Accrued Liability (UAAL, in Thousands) (10)	Funded Ratio (11)	Funding Shortfall/(Surplus) (12)	Employer ADC (13)	Employer Normal Cost (NC) (14)	Layered Amortization Payment (15)	Assumed Expenses (16)
		Employee (3)	Employer (4)	HP Game & Fish Commission (5)											
2019	7.00%	14.56%	14.88%	0.16%	\$23,697	\$3,564	\$186,533	\$142,735	\$43,798	76.5%	1.98%	16.86%	4.75%	11.50%	0.61%
2020	7.00%	14.56%	14.88%	0.14%	24,255	3,643	192,837	144,163	48,674	74.8%	3.33%	18.21%	4.64%	12.96%	0.61%
2021	7.00%	14.56%	14.88%	0.13%	24,885	3,735	199,159	147,749	51,410	74.2%	4.02%	18.90%	4.56%	13.73%	0.61%
2022	7.00%	14.56%	14.88%	0.11%	25,550	3,830	205,630	151,613	54,017	73.7%	4.71%	19.59%	4.52%	14.46%	0.61%
2023	7.00%	14.56%	14.88%	0.09%	26,247	3,929	212,269	154,058	58,212	72.6%	5.85%	20.73%	4.48%	15.64%	0.61%
2024	7.00%	14.56%	14.88%	0.08%	26,932	4,029	219,031	159,564	59,467	72.8%	6.18%	21.06%	4.42%	16.03%	0.61%
2025	7.00%	14.56%	14.88%	0.07%	27,616	4,129	225,979	165,100	60,879	73.1%	6.59%	21.47%	4.37%	16.49%	0.61%
2026	7.00%	14.56%	14.88%	0.06%	28,361	4,237	232,962	170,650	62,312	73.3%	7.02%	21.90%	4.33%	16.96%	0.61%
2027	7.00%	14.56%	14.88%	0.05%	29,129	4,349	240,052	176,292	63,760	73.4%	7.49%	22.37%	4.30%	17.46%	0.61%
2028	7.00%	14.56%	14.88%	0.04%	29,913	4,463	247,263	182,043	65,220	73.6%	8.00%	22.88%	4.27%	18.00%	0.61%
2029	7.00%	14.56%	14.88%	0.03%	30,711	4,579	254,559	187,866	66,693	73.8%	8.56%	23.44%	4.25%	18.58%	0.61%
2030	7.00%	14.56%	14.88%	0.03%	31,531	4,701	261,893	193,713	68,180	74.0%	9.14%	24.02%	4.22%	19.19%	0.61%
2031	7.00%	14.56%	14.88%	0.02%	32,389	4,826	269,340	199,662	69,678	74.1%	9.77%	24.65%	4.19%	19.85%	0.61%
2032	7.00%	14.56%	14.88%	0.02%	33,244	4,953	276,899	205,722	71,177	74.3%	10.45%	25.33%	4.16%	20.56%	0.61%
2033	7.00%	14.56%	14.88%	0.01%	34,159	5,086	284,582	211,895	72,687	74.5%	11.18%	26.06%	4.14%	21.31%	0.61%
2034	7.00%	14.56%	14.88%	0.01%	35,071	5,222	292,436	218,238	74,199	74.6%	11.97%	26.85%	4.12%	22.12%	0.61%
2035	7.00%	14.56%	14.88%	0.01%	36,015	5,363	300,456	224,739	75,716	74.8%	12.83%	27.71%	4.11%	22.99%	0.61%
2036	7.00%	14.56%	14.88%	0.01%	36,961	5,504	308,611	231,378	77,233	75.0%	13.76%	28.64%	4.09%	23.94%	0.61%
2037	7.00%	14.56%	14.88%	0.01%	37,956	5,652	316,919	238,165	78,753	75.2%	14.76%	29.64%	4.08%	24.95%	0.61%
2038	7.00%	14.56%	14.88%	0.00%	38,979	5,800	325,455	245,184	80,271	75.3%	15.83%	30.71%	4.08%	26.02%	0.61%
2039	7.00%	14.56%	14.88%	0.00%	40,016	5,954	334,250	252,465	81,785	75.5%	15.87%	30.75%	4.06%	26.08%	0.61%
2040	7.00%	14.56%	14.88%	0.00%	41,062	6,110	343,280	259,993	83,287	75.7%	15.64%	30.52%	4.05%	25.86%	0.61%
2041	7.00%	14.56%	14.88%	0.00%	42,148	6,272	352,552	267,770	84,782	76.0%	16.03%	30.91%	4.04%	26.26%	0.61%
2042	7.00%	14.56%	14.88%	0.00%	43,256	6,436	362,148	275,888	86,261	76.2%	16.48%	31.36%	4.03%	26.72%	0.61%
2043	7.00%	14.56%	14.88%	0.00%	44,389	6,605	372,063	284,344	87,720	76.4%	16.50%	31.38%	4.01%	26.76%	0.61%
2044	7.00%	14.56%	14.88%	0.00%	45,537	6,776	382,287	293,134	89,153	76.7%	17.34%	32.22%	4.00%	27.61%	0.61%
2045	7.00%	14.56%	14.88%	0.00%	46,712	6,951	392,802	302,243	90,559	76.9%	18.17%	33.05%	3.99%	28.45%	0.61%
2046	7.00%	14.56%	14.88%	0.00%	47,905	7,128	403,604	311,671	91,933	77.2%	19.05%	33.93%	3.99%	29.33%	0.61%
2047	7.00%	14.56%	14.88%	0.00%	49,121	7,309	414,718	321,446	93,272	77.5%	19.96%	34.84%	3.98%	30.25%	0.61%
2048	7.00%	14.56%	14.88%	0.00%	50,363	7,494	426,141	331,570	94,571	77.8%	10.93%	25.81%	3.97%	21.23%	0.61%
2049	7.00%	14.56%	14.88%	0.00%	51,648	7,685	437,897	342,069	95,827	78.1%	11.16%	26.04%	3.97%	21.46%	0.61%

Wyoming Air Guard Firefighters Retirement System ("Guard Fire")
Projection Results Based on January 1, 2019 Actuarial Valuation - Baseline

Discount Rate: 7.00%

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)	Employer ADC	Employer Normal Cost (NC)	Layered Amortization Payment	Assumed Expenses
		Employee	Employer											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
2019	7.00%	16.650%	7.120%	\$2,400	\$171	\$9,013	\$7,711	\$1,302	85.6%	-6.93%	0.19%	-3.43%	3.31%	0.31%
2020	7.00%	16.650%	7.120%	2,481	177	9,496	8,148	1,348	85.8%	-6.97%	0.15%	-3.55%	3.39%	0.31%
2021	7.00%	16.650%	7.120%	2,557	182	10,018	8,751	1,267	87.4%	-7.35%	-0.23%	-3.65%	3.11%	0.31%
2022	7.00%	16.650%	7.120%	2,628	187	10,572	9,417	1,155	89.1%	-7.80%	-0.68%	-3.75%	2.76%	0.31%
2023	7.00%	16.650%	7.120%	2,700	192	11,155	10,056	1,099	90.2%	-8.07%	-0.95%	-3.84%	2.58%	0.31%
2024	7.00%	16.650%	7.120%	2,775	198	11,760	10,897	862	92.7%	-8.80%	-1.68%	-3.91%	1.92%	0.31%
2025	7.00%	16.650%	7.120%	2,853	203	12,400	11,788	612	95.1%	-9.55%	-2.43%	-3.97%	1.24%	0.31%
2026	7.00%	16.650%	7.120%	2,930	209	13,058	12,725	333	97.4%	-10.35%	-3.23%	-4.04%	0.50%	0.31%
2027	7.00%	16.650%	7.120%	3,010	214	13,730	13,706	24	99.8%	-11.20%	-4.08%	-4.09%	-0.30%	0.31%
2028	7.00%	16.650%	7.120%	3,093	220	14,405	14,723	(317)	102.2%	-12.10%	-4.98%	-4.14%	-1.15%	0.31%
2029	7.00%	16.650%	7.120%	3,180	226	15,090	15,783	(693)	104.6%	-13.06%	-5.94%	-4.17%	-2.08%	0.31%
2030	7.00%	16.650%	7.120%	3,272	233	15,800	16,905	(1,106)	107.0%	-14.09%	-6.97%	-4.21%	-3.07%	0.31%
2031	7.00%	16.650%	7.120%	3,361	239	16,540	18,099	(1,559)	109.4%	-15.20%	-8.08%	-4.25%	-4.14%	0.31%
2032	7.00%	16.650%	7.120%	3,454	246	17,315	19,371	(2,056)	111.9%	-16.39%	-9.27%	-4.29%	-5.29%	0.31%
2033	7.00%	16.650%	7.120%	3,547	253	18,124	20,724	(2,600)	114.3%	-17.66%	-10.54%	-4.32%	-6.53%	0.31%
2034	7.00%	16.650%	7.120%	3,642	259	18,967	22,161	(3,194)	116.8%	-19.04%	-11.92%	-4.36%	-7.87%	0.31%
2035	7.00%	16.650%	7.120%	3,733	266	19,840	23,683	(3,843)	119.4%	-20.53%	-13.41%	-4.39%	-9.33%	0.31%
2036	7.00%	16.650%	7.120%	3,829	273	20,740	25,289	(4,549)	121.9%	-22.14%	-15.02%	-4.43%	-10.90%	0.31%
2037	7.00%	16.650%	7.120%	3,924	279	21,667	26,985	(5,317)	124.5%	-23.88%	-16.76%	-4.48%	-12.59%	0.31%
2038	7.00%	16.650%	7.120%	4,019	286	22,621	28,774	(6,153)	127.2%	-25.77%	-18.65%	-4.53%	-14.43%	0.31%
2039	7.00%	16.650%	7.120%	4,120	293	23,603	30,663	(7,060)	129.9%	-27.74%	-20.62%	-4.57%	-16.36%	0.31%
2040	7.00%	16.650%	7.120%	4,222	301	24,608	32,653	(8,044)	132.7%	-30.01%	-22.89%	-4.61%	-18.59%	0.31%
2041	7.00%	16.650%	7.120%	4,327	308	25,633	34,745	(9,112)	135.5%	-32.09%	-24.97%	-4.64%	-20.64%	0.31%
2042	7.00%	16.650%	7.120%	4,434	316	26,684	36,951	(10,267)	138.5%	-34.25%	-27.13%	-4.68%	-22.77%	0.31%
2043	7.00%	16.650%	7.120%	4,543	323	27,763	39,282	(11,519)	141.5%	-36.74%	-29.62%	-4.71%	-25.23%	0.31%
2044	7.00%	16.650%	7.120%	4,654	331	28,864	41,736	(12,873)	144.6%	-38.96%	-31.84%	-4.74%	-27.41%	0.31%
2045	7.00%	16.650%	7.120%	4,764	339	29,984	44,321	(14,337)	147.8%	-41.34%	-34.22%	-4.77%	-29.76%	0.31%
2046	7.00%	16.650%	7.120%	4,875	347	31,116	47,034	(15,918)	151.2%	-43.85%	-36.73%	-4.79%	-32.25%	0.31%
2047	7.00%	16.650%	7.120%	4,991	355	32,249	49,875	(17,625)	154.7%	-46.48%	-39.36%	-4.81%	-34.86%	0.31%
2048	7.00%	16.650%	7.120%	5,112	364	33,387	52,854	(19,467)	158.3%	-52.44%	-45.32%	-4.82%	-40.81%	0.31%
2049	7.00%	16.650%	7.120%	5,236	373	34,528	55,982	(21,454)	162.1%	-55.57%	-48.45%	-4.84%	-43.92%	0.31%

Wyoming Paid Firemen's Retirement Fund Plan B ("Fire B")
Projection Results Based on January 1, 2019 Actuarial Valuation - Baseline

Discount Rate: 7.00%

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)	Employer Contributions (in Thousands) (6)	Actuarial Accrued Liability (AAL, in Thousands) (7)	Actuarial Value of Assets (AVA, in Thousands) (8)	Unfunded Actuarial Accrued Liability (UAAL, in Thousands) (9)	Funded Ratio (10)	Funding Shortfall/(Surplus) (11)	Employer ADC (12)	Employer Normal Cost (NC) (13)	Layered Amortization Payment (14)	Assumed Expenses (15)
		Employee (3)	Employer (4)											
2019	7.00%	9.495%	12.500%	\$28,729	\$3,591	\$162,717	\$151,225	\$11,492	92.9%	4.08%	16.58%	13.36%	2.71%	0.51%
2020	7.00%	9.995%	13.500%	29,834	4,028	174,771	157,545	17,226	90.1%	3.94%	17.44%	12.80%	4.12%	0.51%
2021	7.00%	10.495%	14.500%	30,988	4,493	187,323	166,725	20,598	89.0%	3.19%	17.69%	12.28%	4.91%	0.51%
2022	7.00%	10.995%	15.500%	32,127	4,980	200,376	176,912	23,464	88.3%	2.29%	17.79%	11.73%	5.55%	0.51%
2023	7.00%	11.245%	16.000%	33,209	5,313	213,926	186,457	27,469	87.2%	2.40%	18.40%	11.43%	6.46%	0.51%
2024	7.00%	11.245%	16.000%	34,350	5,496	227,949	199,800	28,149	87.7%	2.54%	18.54%	11.41%	6.62%	0.51%
2025	7.00%	11.245%	16.000%	35,503	5,681	242,404	213,581	28,822	88.1%	2.70%	18.70%	11.40%	6.79%	0.51%
2026	7.00%	11.245%	16.000%	36,638	5,862	257,283	227,796	29,488	88.5%	2.89%	18.89%	11.40%	6.98%	0.51%
2027	7.00%	11.245%	16.000%	37,824	6,052	272,606	242,447	30,159	88.9%	3.10%	19.10%	11.41%	7.18%	0.51%
2028	7.00%	11.245%	16.000%	39,020	6,243	288,394	257,561	30,834	89.3%	3.34%	19.34%	11.43%	7.40%	0.51%
2029	7.00%	11.245%	16.000%	40,161	6,426	304,528	273,022	31,506	89.7%	3.61%	19.61%	11.45%	7.65%	0.51%
2030	7.00%	11.245%	16.000%	41,230	6,597	320,838	288,660	32,179	90.0%	3.93%	19.93%	11.48%	7.94%	0.51%
2031	7.00%	11.245%	16.000%	42,292	6,767	337,213	304,346	32,866	90.3%	4.27%	20.27%	11.51%	8.26%	0.51%
2032	7.00%	11.245%	16.000%	43,380	6,941	353,657	320,083	33,573	90.5%	4.64%	20.64%	11.53%	8.60%	0.51%
2033	7.00%	11.245%	16.000%	44,549	7,128	370,246	335,940	34,305	90.7%	5.04%	21.04%	11.56%	8.96%	0.51%
2034	7.00%	11.245%	16.000%	45,701	7,312	387,020	351,966	35,055	90.9%	5.48%	21.48%	11.60%	9.37%	0.51%
2035	7.00%	11.245%	16.000%	46,850	7,496	403,929	368,099	35,830	91.1%	5.96%	21.96%	11.65%	9.81%	0.51%
2036	7.00%	11.245%	16.000%	47,941	7,671	420,897	384,271	36,625	91.3%	6.49%	22.49%	11.68%	10.30%	0.51%
2037	7.00%	11.245%	16.000%	49,087	7,854	437,869	400,410	37,459	91.4%	7.05%	23.05%	11.71%	10.83%	0.51%
2038	7.00%	11.245%	16.000%	50,281	8,045	454,853	416,526	38,327	91.6%	7.64%	23.64%	11.73%	11.40%	0.51%
2039	7.00%	11.245%	16.000%	51,607	8,257	472,007	432,771	39,236	91.7%	7.00%	23.00%	11.76%	10.73%	0.51%
2040	7.00%	11.245%	16.000%	52,831	8,453	489,305	449,147	40,159	91.8%	6.25%	22.25%	11.79%	9.96%	0.51%
2041	7.00%	11.245%	16.000%	54,086	8,654	506,640	465,521	41,119	91.9%	6.01%	22.01%	11.81%	9.69%	0.51%
2042	7.00%	11.245%	16.000%	55,395	8,863	524,066	481,948	42,118	92.0%	5.84%	21.84%	11.82%	9.51%	0.51%
2043	7.00%	11.245%	16.000%	56,773	9,084	541,612	498,457	43,155	92.0%	5.40%	21.40%	11.83%	9.06%	0.51%
2044	7.00%	11.245%	16.000%	58,228	9,317	559,311	515,086	44,225	92.1%	5.63%	21.63%	11.83%	9.28%	0.51%
2045	7.00%	11.245%	16.000%	59,730	9,557	577,191	531,868	45,324	92.1%	5.86%	21.86%	11.84%	9.51%	0.51%
2046	7.00%	11.245%	16.000%	61,262	9,802	595,306	548,856	46,450	92.2%	6.10%	22.10%	11.84%	9.75%	0.51%
2047	7.00%	11.245%	16.000%	62,816	10,051	613,657	566,053	47,604	92.2%	6.35%	22.35%	11.85%	9.99%	0.51%
2048	7.00%	11.245%	16.000%	64,429	10,309	632,247	583,456	48,790	92.3%	5.38%	21.38%	11.85%	9.02%	0.51%
2049	7.00%	11.245%	16.000%	66,104	10,577	651,124	601,116	50,008	92.3%	5.53%	21.53%	11.85%	9.17%	0.51%

Wyoming Paid Firemen's Retirement Fund Plan A ("Fire A")
Projection Results Based on January 1, 2019 Actuarial Valuation - Baseline

Discount Rate: 7.00%

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)	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)	10-Year Employer ADC (in Thousands)	Employer Normal Cost (NC, in Thousands)	10-Year Amortization Payment (in Thousands)	Assumed Expenses (in Thousands)	Benefit Payments (in Thousands)
		Employee	Employer											
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
2019	7.00%	-	-	\$66	\$227,101	\$104,674	\$122,427	46.1%	\$16,974	\$16,974.4	\$10.2	\$16,851.0	\$113.2	\$16,111
2020	7.00%	-	-	-	226,343	91,384	134,959	40.4%	18,689	18,689.2	-	18,576.0	113.2	16,473
2021	7.00%	-	-	-	225,146	79,297	145,849	35.2%	20,188	20,188.0	-	20,074.8	113.2	16,771
2022	7.00%	-	-	-	223,558	66,302	157,256	29.7%	21,758	21,758.1	-	21,644.9	113.2	17,038
2023	7.00%	-	-	-	221,582	50,804	170,777	22.9%	23,619	23,619.3	-	23,506.1	113.2	17,275
2024	7.00%	-	-	-	219,223	36,374	182,848	16.6%	25,281	25,280.7	-	25,167.5	113.2	17,481
2025	7.00%	-	-	-	216,486	20,721	195,765	9.6%	27,059	27,058.6	-	26,945.4	113.2	17,657
2026	7.00%	-	-	-	213,376	3,791	209,586	1.8%	28,961	28,960.9	-	28,847.7	113.2	17,803
2027	7.00%	-	-	-	209,897	0	209,897	0.0%	30,598	30,597.8	-	30,484.6	113.2	17,921
2028	7.00%	-	-	-	206,052	0	206,052	0.0%	32,234	32,234.3	-	32,121.1	113.2	18,009
2029	7.00%	-	-	-	201,847	0	201,847	0.0%	33,983	33,982.9	-	33,869.7	113.2	18,068
2030	7.00%	-	-	-	197,287	0	197,287	0.0%	35,852	35,852.2	-	35,739.0	113.2	18,097
2031	7.00%	-	-	-	192,378	0	192,378	0.0%	37,851	37,851.5	-	37,738.3	113.2	18,094
2032	7.00%	-	-	-	187,128	0	187,128	0.0%	39,991	39,990.8	-	39,877.6	113.2	18,059
2033	7.00%	-	-	-	181,546	0	181,546	0.0%	42,281	42,280.9	-	42,167.7	113.2	17,990
2034	7.00%	-	-	-	175,646	0	175,646	0.0%	44,733	44,733.3	-	44,620.1	113.2	17,884
2035	7.00%	-	-	-	169,442	0	169,442	0.0%	47,360	47,360.3	-	47,247.1	113.2	17,739
2036	7.00%	-	-	-	162,954	0	162,954	0.0%	50,175	50,175.4	-	50,062.2	113.2	17,553
2037	7.00%	-	-	-	156,203	0	156,203	0.0%	53,193	53,192.8	-	53,079.6	113.2	17,325
2038	7.00%	-	-	-	149,216	0	149,216	0.0%	56,428	56,427.9	-	56,314.7	113.2	17,052
2039	7.00%	-	-	-	142,022	0	142,022	0.0%	59,897	59,897.3	-	59,784.1	113.2	16,732
2040	7.00%	-	-	-	134,655	0	134,655	0.0%	63,619	63,618.6	-	63,505.4	113.2	16,365
2041	7.00%	-	-	-	127,153	0	127,153	0.0%	67,611	67,610.8	-	67,497.6	113.2	15,949
2042	7.00%	-	-	-	119,556	0	119,556	0.0%	71,894	71,894.4	-	71,781.2	113.2	15,484
2043	7.00%	-	-	-	111,909	0	111,909	0.0%	76,491	76,491.1	-	76,377.9	113.2	14,971
2044	7.00%	-	-	-	104,257	0	104,257	0.0%	81,424	81,424.1	-	81,310.9	113.2	14,410
2045	7.00%	-	-	-	96,649	0	96,649	0.0%	86,718	86,718.5	-	86,605.3	113.2	13,804
2046	7.00%	-	-	-	89,135	0	89,135	0.0%	92,401	92,400.7	-	92,287.5	113.2	13,155
2047	7.00%	-	-	-	81,768	0	81,768	0.0%	98,499	98,499.1	-	98,385.9	113.2	12,466
2048	7.00%	-	-	-	74,596	0	74,596	0.0%	105,044	105,044.0	-	104,930.8	113.2	11,744
2049	7.00%	-	-	-	67,670	0	67,670	0.0%	112,068	112,067.7	-	111,954.5	113.2	10,993

Wyoming Retirement System - Volunteer Firefighter and Emergency Medical Technician Pension Fund
Projection Results Based on January 1, 2019 Actuarial Valuation - Baseline

Discount Rate: 7.00%

Valuation as of January 1, (1)	Market Return for FY Beginning on Valuation Date (2)	Contribution Rate for Fiscal Year Following Valuation Date		COLA (Only granted when Funded Ratio would remain above 107%) (5)	Actuarial Accrued Liability (AAL, in Thousands) (6)	Actuarial Value of Assets (AVA, in Thousands) (7)	Unfunded Actuarial Accrued Liability (UAAL, in Thousands) (6) - (7) (8)	Funded Ratio (7)/(6) (9)	30-Year Closed Amortization Payment (in Thousands) (10)	Employer ADC (11)	Employer Normal Cost (NC, in Thousands) (12)	Layered Amortization Payment (13)	Funding Shortfall/ (Surplus) (in Thousands) (13) - (4) (14)	Benefit Payments & Refunds for Fiscal Year (in Thousands) (15)
		Employee (3)	Employer (4)											
2019	7.00%	\$422,460	\$3,207,000	0.0%	\$112,288	\$81,801	\$30,487	72.8%	\$2,436.3	\$96.9	\$1,010.2	\$3,543.4	\$336.4	(\$6,686.1)
2020	7.00%	422,460	3,497,768	0.0%	114,564	81,720	32,844	71.3%	2,686.6	98.0	985.3	3,769.9	272.1	(7,022.1)
2021	7.00%	422,460	3,576,468	0.0%	116,627	82,995	33,632	71.2%	2,802.3	99.1	969.1	3,870.5	294.1	(7,359.4)
2022	7.00%	422,460	3,656,938	0.0%	118,472	84,245	34,227	71.1%	2,906.3	100.2	956.5	3,963.1	306.1	(7,639.1)
2023	7.00%	422,460	3,739,219	0.0%	120,144	84,555	35,589	70.4%	3,086.3	101.3	948.2	4,135.8	396.6	(7,932.6)
2024	7.00%	422,460	3,823,352	0.0%	121,753	86,468	35,285	71.0%	3,122.5	102.5	940.4	4,165.4	342.0	(8,215.0)
2025	7.00%	422,460	3,909,377	0.0%	123,176	88,309	34,867	71.7%	3,153.8	103.6	934.3	4,191.7	282.3	(8,496.5)
2026	7.00%	422,460	3,997,338	0.0%	124,401	90,076	34,326	72.4%	3,179.3	104.8	931.4	4,215.6	218.2	(8,735.0)
2027	7.00%	422,460	4,087,278	0.0%	125,464	91,809	33,655	73.2%	3,199.0	106.0	929.0	4,234.0	146.7	(8,902.9)
2028	7.00%	422,460	4,179,242	0.0%	126,424	93,582	32,843	74.0%	3,211.8	107.2	926.2	4,245.2	66.0	(9,056.2)
2029	7.00%	422,460	4,273,275	0.0%	127,291	95,414	31,877	75.0%	3,217.1	108.4	923.5	4,248.9	(24.3)	(9,219.1)
2030	7.00%	422,460	4,369,424	0.0%	128,047	97,302	30,746	76.0%	3,213.9	109.6	921.8	4,245.3	(124.2)	(9,359.3)
2031	7.00%	422,460	4,467,736	0.0%	128,710	99,275	29,435	77.1%	3,201.3	110.8	920.1	4,232.2	(235.6)	(9,486.5)
2032	7.00%	422,460	4,568,260	0.0%	129,285	101,355	27,930	78.4%	3,178.1	112.1	918.8	4,209.0	(359.3)	(9,604.7)
2033	7.00%	422,460	4,671,046	0.0%	129,778	103,561	26,217	79.8%	3,143.4	113.3	916.8	4,173.5	(497.6)	(9,698.5)
2034	7.00%	422,460	4,776,144	0.0%	130,206	105,930	24,276	81.4%	3,095.5	114.6	915.0	4,125.1	(651.0)	(9,780.6)
2035	7.00%	422,460	4,883,607	0.0%	130,577	108,487	22,091	83.1%	3,033.2	115.9	913.3	4,062.4	(821.2)	(9,830.6)
2036	7.00%	422,460	4,993,489	0.0%	130,921	111,281	19,641	85.0%	2,954.8	117.2	911.5	3,983.6	(1,009.9)	(9,871.1)
2037	7.00%	422,460	5,105,842	0.0%	131,245	114,341	16,905	87.1%	2,858.6	118.5	910.2	3,887.4	(1,218.5)	(9,953.8)
2038	7.00%	422,460	5,220,724	0.0%	131,505	117,644	13,861	89.5%	2,742.7	119.8	909.8	3,772.4	(1,448.3)	(10,033.5)
2039	7.00%	422,460	5,338,190	0.0%	131,701	121,214	10,487	92.0%	2,344.3	121.2	908.6	3,374.0	(1,964.2)	(10,085.6)
2040	7.00%	422,460	5,458,299	0.0%	131,854	125,100	6,755	94.9%	1,907.7	122.6	907.8	2,938.1	(2,520.2)	(10,121.9)
2041	7.00%	422,460	5,581,111	0.0%	131,980	129,343	2,638	98.0%	1,553.2	123.9	906.9	2,584.0	(2,997.1)	(10,163.6)
2042	7.00%	422,460	5,706,686	0.0%	132,071	133,965	(1,894)	101.4%	1,165.4	125.3	906.4	2,197.2	(3,509.5)	(10,222.3)
2043	7.00%	422,460	5,835,086	3.0%	132,107	138,979	(6,872)	105.2%	653.3	126.7	906.5	1,686.6	(4,148.5)	(10,277.5)
2044	7.00%	422,460	4,801,809	3.0%	132,088	144,418	(12,330)	109.3%	224.6	128.2	906.1	1,258.8	(3,543.0)	(10,562.2)
2045	7.00%	422,460	4,909,850	3.0%	132,048	148,873	(16,826)	112.7%	(116.9)	129.6	905.2	917.9	(3,992.0)	(10,832.0)
2046	7.00%	422,460	5,020,322	3.0%	132,005	153,472	(21,466)	116.3%	(469.5)	131.1	904.8	566.3	(4,454.0)	(11,114.8)
2047	7.00%	422,460	5,133,279	3.0%	131,955	158,212	(26,257)	119.9%	(833.5)	132.5	904.2	203.2	(4,930.1)	(11,378.0)
2048	7.00%	422,460	5,248,778	3.0%	131,921	163,127	(31,205)	123.7%	(3,384.3)	134.0	903.4	(2,346.9)	(7,595.7)	(11,638.0)
2049	7.00%	422,460	5,366,875	3.0%	131,915	168,235	(36,320)	127.5%	(3,976.4)	135.5	902.9	(2,937.9)	(8,304.8)	(11,912.7)