

**Arkansas Local Fire and Police
Pension and Relief Funds**

Summary of
Actuarial Valuation Data and Results
As of December 31, 2021

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May 28, 2022

Arkansas Fire & Police Pension Review Board
620 West Third
Suite 200
Little Rock, AR 72201

Ladies and Gentlemen:

We have completed the actuarial valuations of the 51 Fire and Police Pension Funds as of December 31, 2021. This report contains summary information from those valuations, as well as comparable information from the December 31, 2018, 2019 and 2020 valuations.

The following table shows the progress of the funds over the last several years:

	<u>12/31/2018</u>	<u>12/31/2019</u>	<u>12/31/2020</u>	<u>12/31/2021</u>
Plans Valued	71	65	60	51
Number of Active Members	16	12	10	4
Number on DROP	1	1	0	0
Number of Recipients	1,127	1,054	867	767
cover				
Assets	119,963,499	116,136,560	106,327,323	104,946,588
Unfunded Actuarial Accrued Liability	53,804,989	47,368,430	36,463,669	35,363,920
Market Value of Assets	116,123,169	124,919,966	116,783,006	118,860,273
Unfunded AL on Market Value	57,645,319	38,585,023	26,007,986	21,450,235
Percent of Liability Funded:				
Police	77%	80%	81%	84%
Full Paid Fire	58%	59%	62%	61%
Volunteer & Part-Paid Fire	95%	96%	101%	102%
Reported Employer Contribution as a Percent of Actuarially Determined Contributions				
Police	65%	58%	56%	61%
Full Paid Fire	54%	51%	54%	54%
Volunteer & Part-Paid Fire	103%	128%	148%	148%

FORMAT OF REPORT

Following this cover letter, our report contains the following exhibits:

- EXHIBIT 1 – Summarizes various information as of December 31, 2021, broken out by Police, Full Paid Fire, and Volunteer Fire.
- EXHIBIT 2 – Compares the December 31, 2021 valuation results with those of December 31, 2020, 2019 and 2018.
- EXHIBIT 3 – Develops a "funded status" and summarizes information for each "funded status".
- EXHIBIT 4 – Summarizes the number of plans by various funding criteria.
- EXHIBIT 5 – Summary of the Rates of Return.
- EXHIBIT 6 – Lists certain financial information and risk indicators for the plans valued December 31, 2021.
- EXHIBIT 7 – Review and Changes in Assumptions.

VALUATION REPORT CHANGES

There were no major changes in methodology or presentation in the valuation reports this year. The only change was in the mortality assumption as described in Exhibit 7 of this report. We continue to present the required GASB disclosures for all plans as appendices to the valuation report. We accommodated several requests for expedited valuations for locations which file GASB-compliant audits. All valuation reports were completed and submitted to the PRB by the end of May.

INVESTMENT RETURNS

The PRB decided to return to a single valuation discount rate beginning with the 2013 valuations. That single discount rate is 5%. 38 of the 51 plans exceeded the valuation rate of 5% in 2021 on a market value basis. However, as usual, there was significant variance between plans: five plans earned below 0% to a gain of over 16% based on market value of assets. The market value weighted average return for 2021 was 10.13%

Exhibit 5 shows the 2021 (market value) investment returns as well as the five year and ten year average returns. In general, the smallest plans had the worst history of investment earnings and most did not have professional investment advice. If plans do not achieve a long term average investment return of 5% or more, the ultimate cost of the plan will be greater than the value of the liabilities shown in the valuation report. We noted this information in the valuation reports at the end of the Exhibit 3 financial reports as well as included it as one of the plan's risk indicators.

OUTLOOK FOR INSOLVENT PLANS

Exhibit 6 lists some financial and actuarial information for each plan. We have disclosed both the Valuation Assets and the Market Value of Assets. One can see in detail the large number of plans in Status D and below, as well as the amount of unfunded liability associated with those plans. This is an area we have discussed with the Board in detail. This deserves continued attention as over 70% of the total liability is associated with plans with a status of D or lower. Beginning with the 2014 Summary Report, we aligned the projected years before assets are depleted (crossover point) with the status definitions discussed above. Therefore, all status E plans will show “10-20 years,” that is, indicated for At Risk designation. There is one (down from two last year) plans with Status E. Status F plans will show “Less than 10 years,” that is, indicated for Projected Insolvent designation. The status D plans all show “20+ years,” although there are varying levels of funding risk within that category.

We believe there are no new Projected Insolvent plans under ACA §24-11-208: Batesville (who recently added a millage) passed the cash flow test, but with such a low funded percentage can easily return to Projected Insolvent status. Marion Fire continues to meet the criteria. Fayetteville Fire, which tested not to deplete assets in 2019 due to good investment returns and some additional income, passed the cash flow test after failing last year. All three plans bear continued monitoring, but we have provided all with good information to help solve their issues.

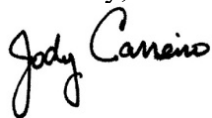
DATA RECEIVED FROM PLANS

The results of these valuations are based on the financial and participant data supplied by each plan through the PRB staff. We did not audit this data, although we did review it for reasonableness and consistency.

We returned a few plan reports because of missing or incorrect data. The PRB staff was extremely helpful in solving data issues and correcting demographic information.

If you have any questions or comments, please feel free to contact us.

Sincerely,



Jody Carreiro, ASA, MAAA, FCA, EA
Actuary
Contact: JodyC@oca-actuaries.com

EXHIBIT 1

Arkansas Municipal Police and Fire Pension and Relief Funds

Summary of Valuation Data and Results December 31, 2021

	<u>Police</u>	<u>Fire*</u>	<u>Volunteer Fire*</u>	<u>Total</u>
Plans Valued	6	14	45	51
Active Members	0	0	4	4
Active Payroll	\$ 0	\$ 64,639	\$ 0	\$ 64,639
DROP Members	0	0	0	0
DROP Annual Benefits	\$ 0	\$ 0	\$ 0	\$ 0
Retired Members and Beneficiaries	153	214	400	767
Annual Benefits	\$ 5,176,292	\$ 5,748,667	\$ 1,238,152	\$ 12,163,111
Retirant, Beneficiary & DROP Accrued Liability	\$ 61,563,119	\$ 66,339,698	\$ 12,211,417	\$ 140,114,234
Active Member Accrued Liability	\$ 0	\$ 0	\$ 196,274	\$ 196,274
Total Actuarial Accrued Liability	\$ 61,563,119	\$ 66,339,698	\$ 12,407,691	\$ 140,310,508
Assets Applied	51,911,720	40,318,173	12,716,695	104,946,588
Unfunded Actuarial Accrued Liability	\$ 9,651,399	\$ 26,021,525	\$ -309,004	\$ 35,363,920
% Funded	84%	61%	102%	75%
Based on the Market Value of Assets				
Total Actuarial Accrued Liability	\$ 61,563,119	\$ 66,339,698	\$ 12,407,691	\$ 140,310,508
Assets Applied	57,582,863	46,964,529	14,312,881	118,860,273
Unfunded Actuarial Accrued Liability	\$ 3,980,256	\$ 19,375,168	\$ -1,905,189	\$ 21,450,235
% Funded	94%	71%	115%	85%
Employer Contributions				
Computed	\$ 5,113,508	\$ 5,923,917	\$ 241,815	\$ 11,279,239
Reported	\$ 3,095,925	\$ 3,215,882	\$ 358,034	\$ 6,669,841
% Covered	61%	54%	148%	59%

* 14 fire plans covering both paid and volunteer members are included in the number of plans valued.
Some summary data in this report was prepared treating each mixed fund as two separate funds.

EXHIBIT 2

Arkansas Municipal Police and Fire Pension and Relief Funds

Comparison of Valuation Results

	POLICE FUNDS				2021
	<u>12/31/2018</u>	<u>12/31/2019</u>	<u>12/31/2020</u>	<u>12/31/2021</u>	<u>% Change</u>
Plans Valued	7	7	6	6	0%
Active Members	0	0	0	0	0%
Active Payroll	\$ 0	\$ 0	\$ 0	0	0%
DROP Members	0	0	0	0	
Retired Members and Beneficiaries	182	170	158	153	-3%
Retirant, Beneficiary & DROP Accrued Liability	\$ 70,766,407	\$ 68,588,224	\$ 61,930,949	\$ 61,563,119	-1%
Active Member Accrued Liability	\$ 0	\$ 0	\$ 0	0	0%
Total Actuarial Accrued Liability	\$ 70,766,407	\$ 68,588,224	\$ 61,930,949	\$ 61,563,119	-1%
Assets Applied	\$ 54,170,782	\$ 54,565,000	\$ 50,435,791	\$ 51,911,720	3%
% Funded	77%	80%	81%	84%	
Unfunded Actuarial Accrued Liability	\$ 16,595,626	\$ 14,023,224	\$ 11,495,158	\$ 9,651,399	-16%
Employer Contributions					
Computed	\$ 5,910,989	\$ 5,581,825	\$ 5,235,711	\$ 5,113,508	-2%
Reported	\$ 3,865,670	\$ 3,223,377	\$ 2,930,826	\$ 3,095,925	6%
% Covered	65%	58%	56%	61%	

EXHIBIT 2

Arkansas Municipal Police and Fire Pension and Relief Funds

Comparison of Valuation Results

FULL PAID FIRE FUNDS

	<u>12/31/2018</u>	<u>12/31/2019</u>	<u>12/31/2020</u>	<u>12/31/2021</u>	<u>2021 % Change</u>
Plans Valued	21	19	16	14	-13%
Active Members	3	2	1	0	-100%
Active Payroll	\$ 190,257	\$ 101,184	\$ 60,324	\$ 64,639	7%
DROP Members Retired Members and Beneficiaries	1 308	1 278	0 219	0 214	N/A -2%
Retirant, Beneficiary & DROP Accrued Liability	\$ 84,288,879	\$ 78,541,099	\$ 65,543,355	\$ 66,339,698	1%
Active Member Accrued Liability	\$ 1,568,773	\$ 940,810	\$ 595,256	0	-100%
Total Actuarial Accrued Liability	\$ 85,857,652	\$ 79,481,909	\$ 66,138,610	\$ 66,339,698	0%
Assets Applied	\$ 49,482,587	\$ 46,751,880	\$ 41,066,381	\$ 40,318,173	-2%
% Funded	58%	59%	62%	61%	
Unfunded Actuarial Accrued Liability	\$ 36,375,066	\$ 32,730,029	\$ 25,072,229	\$ 26,021,525	4%
Employer Contributions Computed	\$ 8,274,481	\$ 7,485,038	\$ 5,689,949	\$ 5,923,917	4%
Reported	\$ 4,432,084	\$ 3,813,921	\$ 3,046,203	\$ 3,215,882	6%
% Covered	54%	51%	54%	54%	

EXHIBIT 2

Arkansas Municipal Police and Fire Pension and Relief Funds

Comparison of Valuation Results

VOLUNTEER FIRE FUNDS

	<u>12/31/2018</u>	<u>12/31/2019</u>	<u>12/31/2020</u>	<u>12/31/2021</u>	<u>2021 % Change</u>
Plans Valued	64	58	54	45	-17%
Active Members	13	10	9	4	-56%
Active Payroll	\$ 0	\$ 0	\$ 0	0	
DROP Members Retired Members and Beneficiaries	0 637	0 517	0 490	0 400	N/A -18%
Retirant, Beneficiary & DROP Accrued Liability	\$ 16,423,844	\$ 14,821,064	\$ 14,147,621	\$ 12,211,417	-14%
Active Member Accrued Liability	\$ 720,585	\$ 613,792	\$ 573,812	\$ 196,274	-66%
Total Actuarial Accrued Liability	\$ 17,144,429	\$ 15,434,856	\$ 14,721,433	\$ 12,407,691	-16%
Assets Applied	\$ 16,310,131	\$ 14,819,680	\$ 14,825,151	\$ 12,716,695	-14%
% Funded	95%	96%	101%	102%	
Unfunded Actuarial Accrued Liability	\$ 834,298	\$ 615,176	\$ -103,718	\$ -309,004	198%
Employer Contributions Computed	\$ 449,789	\$ 322,627	\$ 270,151	\$ 241,815	-10%
Reported	\$ 463,111	\$ 413,052	\$ 399,844	\$ 358,034	-10%
% Covered	103%	128%	148%	148%	

EXHIBIT 2

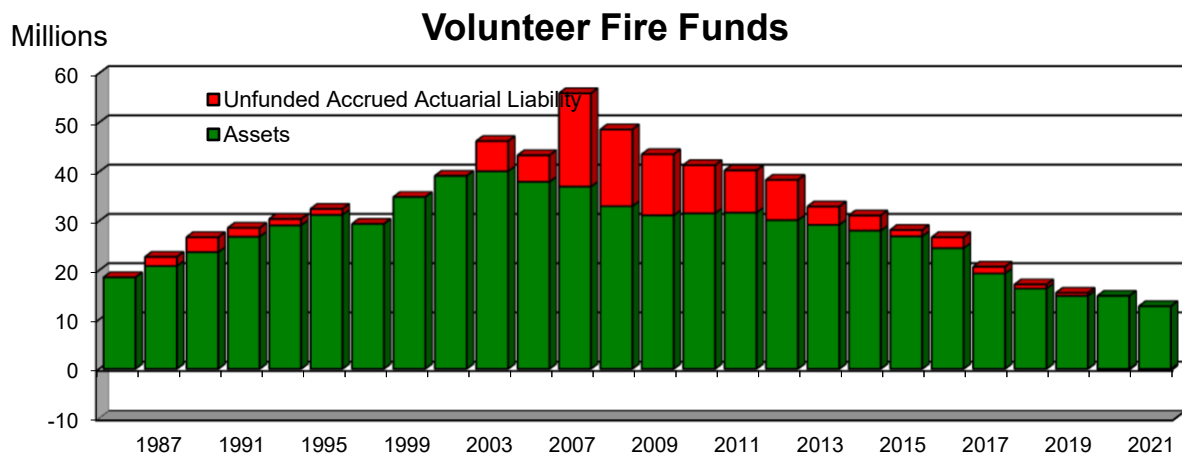
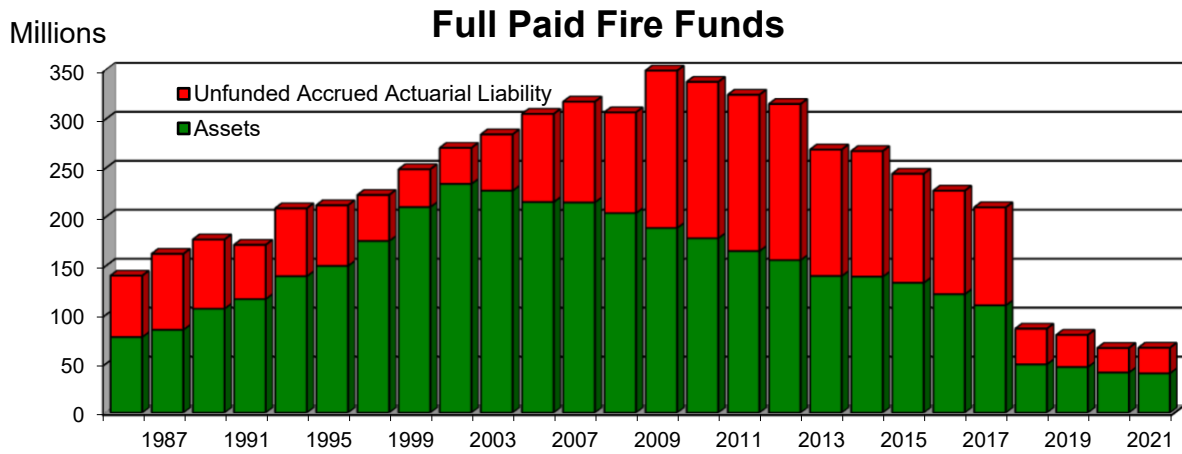
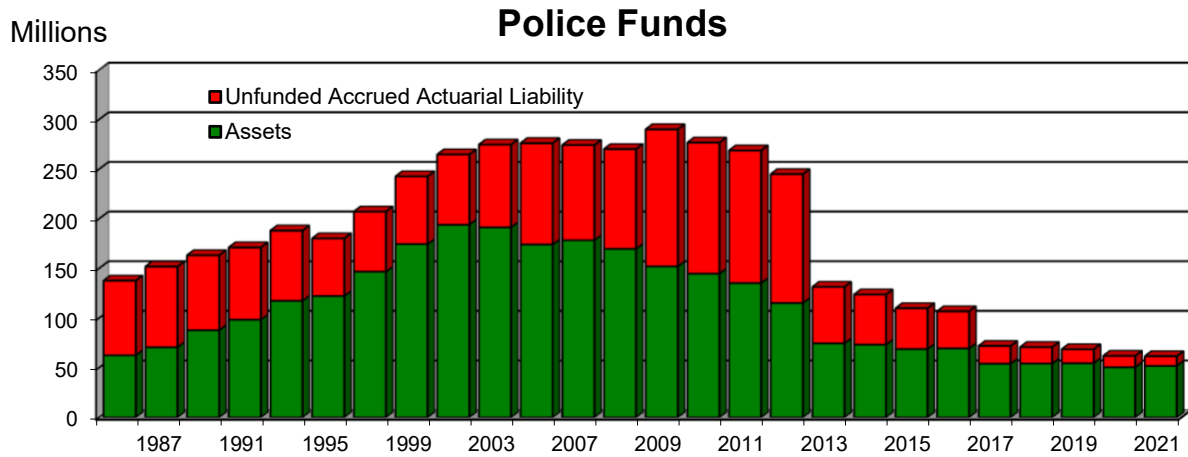
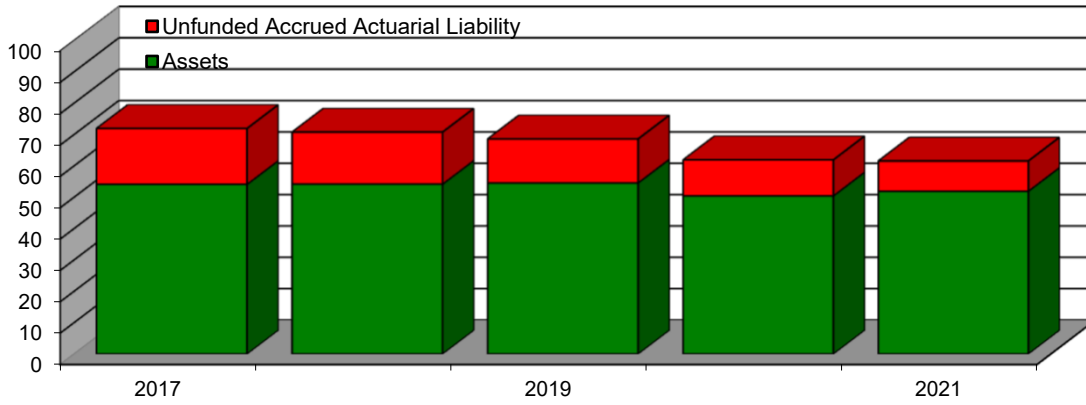


EXHIBIT 2
Most Recent Five Years

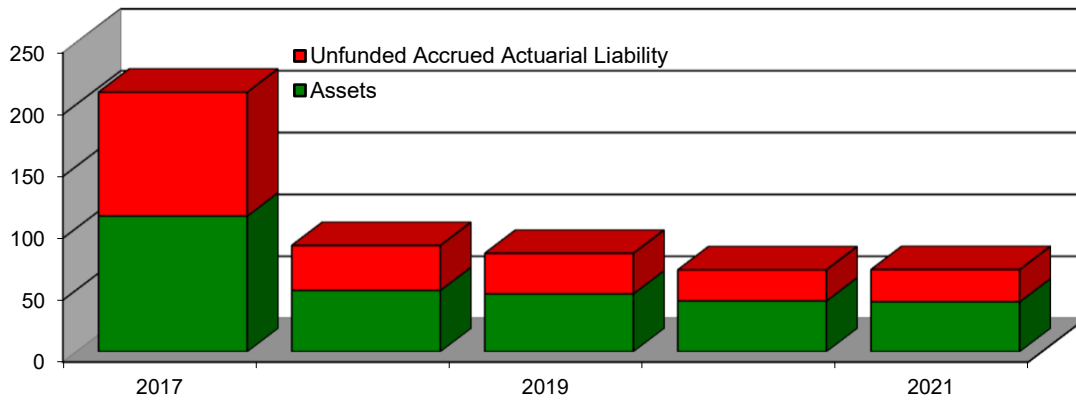
Millions

Police Funds



Millions

Full Paid Fire Funds



Millions

Volunteer Fire Funds

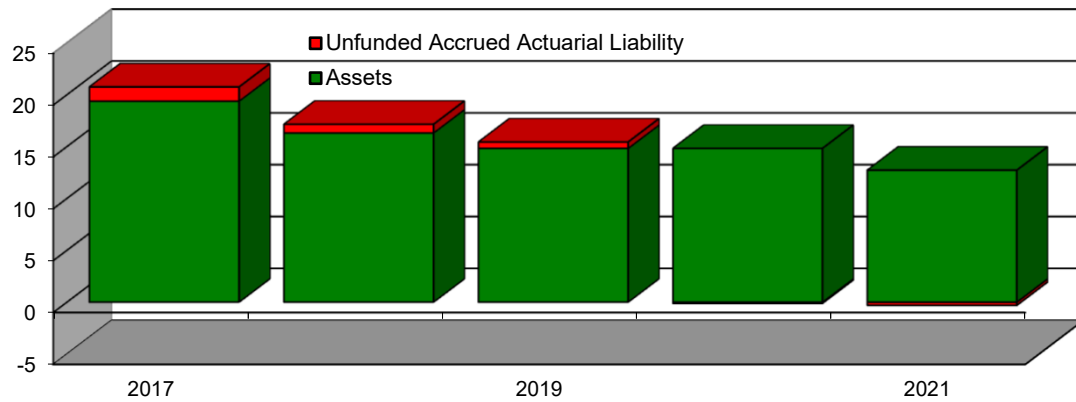


EXHIBIT 3

Arkansas Municipal Police and Fire Pension and Relief Funds

Summary by Funding Status

This exhibit gives a summary of certain plan information classified by a funding status which is based on standards of actuarial soundness. Funding Status is defined here for use by the board in understanding the risks facing the various plans. We changed definitions for status D and below beginning with the December 31, 2015 report.

The Board has adopted a definition of actuarial soundness, which is based on two tests:

1. Contribution Test: The actual contributions for the previous year exceeded the actuarially calculated contribution (fully funded in five years).
2. Ratio Tests: The assets allocated to cover accrued actuarial liabilities for active participants (i.e. the "short condition test" for category (3)) must be greater than 100% OR the "funded percentage" (total assets divided by total Actuarial Accrued Liabilities) must be at least 97%.

In order to further evaluate potential funding risks, we have assigned a "Funding Status" to each plan. The "Funding Status" for each plan is determined as follows:

- A. (Fully Funded) The calculated contribution amount is \$0. A plan in this classification should remain adequately funded even with no further contributions.
- B. (Actuarially Sound) A plan in this classification meets both the contribution test and the ratio test of the definition of actuarial soundness. These plans meet the Boards' definition of actuarial soundness.
- C. (On Track) The plans in this classification pass the contribution test, but do NOT pass the ratio tests, which are defined above. A plan in this classification should *eventually* meet both standards of actuarial soundness.
- D. (Not Actuarially Sound) The plans in this category did NOT pass the contribution test. (They may or may not have passed the ratio tests.) These plans will likely require more contributions in order to pay promised benefits.
- E. (At Risk) These plans are projected to deplete their assets in the next *ten to twenty years*. The initial risk indicator suggests that these plans should be considered for the At Risk designation.
- F. (Projected Insolvent) These plans are projected to deplete their assets in the *next ten years*. The initial risk indicator suggests that these plans should be considered for the Projected Insolvent designation.

The Board Rule which defines actuarial soundness has an alternative definition for some plans. The plan may prove actuarial soundness through a cash flow or alternate cash flow study defined in the Rule. These statuses are based on the initial risk indicator and do not reflect any of these cash flow studies.

Arkansas Municipal Police and Fire Pension Funds
Summary of Funded Status
December 31, 2021 Valuations

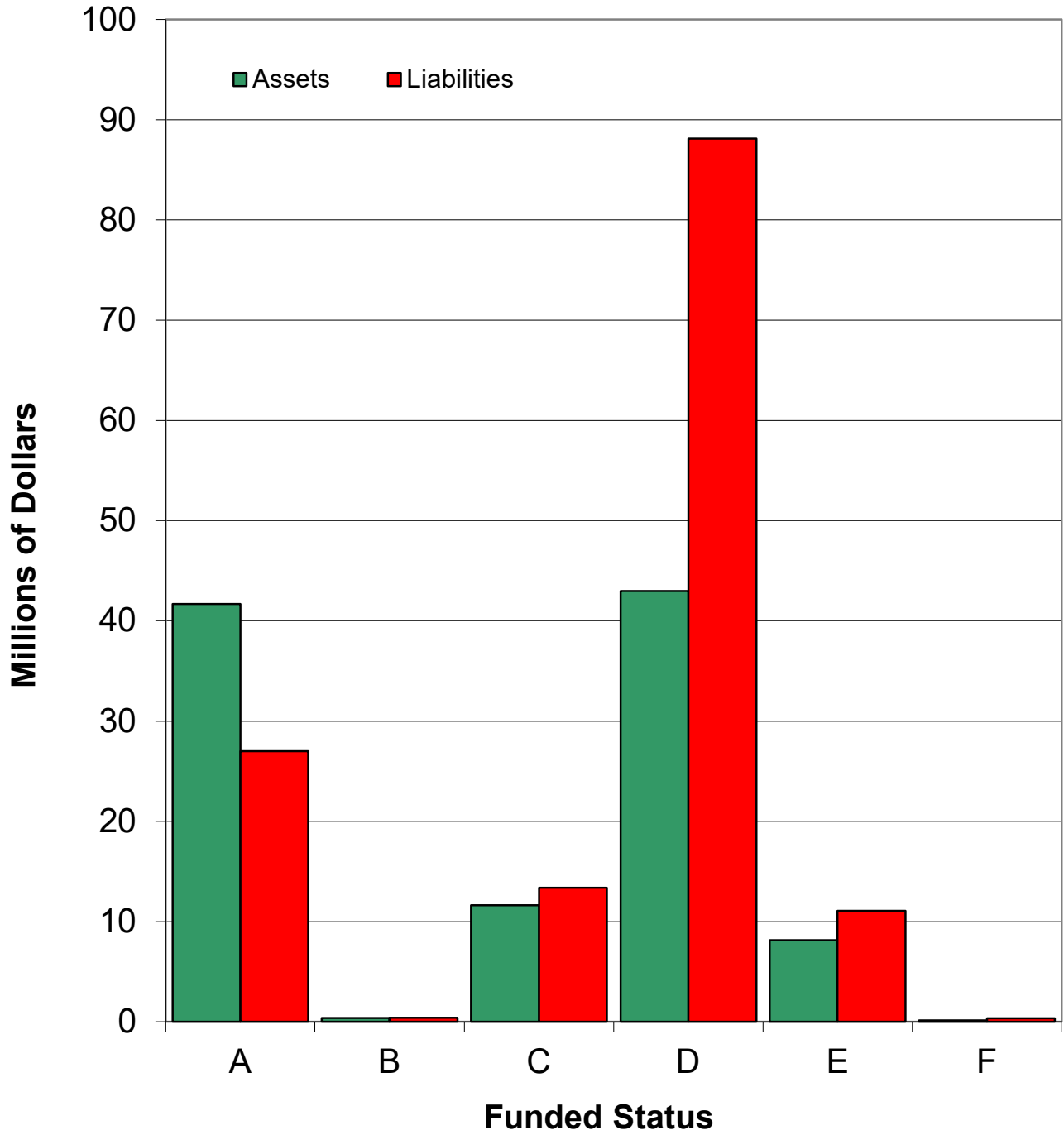


EXHIBIT 3

Summary of Funding Status

POLICE FUNDS

Funding Status	Number of Plans	Total Actives & Retirees	Actuarial Accrued Liability	Assets	Unfunded Actuarial Accrued Liability	Contribution Shortfall
A	2	32	17,352,910	30,380,295	-13,027,385	0
B	0	0	0	0	0	0
C	1	10	3,011,153	2,841,330	169,823	0
D	3	111	41,199,056	18,690,095	22,508,960	2,552,827
E	0	0	0	0	0	0
F	0	0	0	0	0	0
Total	6	153	61,563,119	51,911,720	9,651,399	2,552,827

PAID/MIXED FIRE FUNDS

Funding Status	Number of Plans	Total Actives & Retirees	Actuarial Accrued Liability	Assets	Unfunded Actuarial Accrued Liability	Contribution Shortfall
A	3	32	3,741,513	4,039,377	-297,864	0
B	1	13	389,534	376,459	13,075	0
C	3	53	8,951,293	7,529,988	1,421,305	0
D	6	159	44,330,226	22,122,027	22,208,199	2,318,409
E	1	36	11,075,330	8,158,222	2,917,108	622,083
F	0	0	0	0	0	0
Total	14	293	68,487,895	42,226,073	26,261,823	2,940,492

EXHIBIT 3

Summary of Funding Status

VOLUNTEER FIRE FUNDS

Funding Status	Number of Plans	Total Actives & Retirees	Actuarial Accrued Liability	Assets	Unfunded Actuarial Accrued Liability	Contribution Shortfall
A	17	173	5,915,148	7,250,235	-1,335,087	0
B	0	0	0	0	0	0
C	5	56	1,416,766	1,255,169	161,597	0
D	8	82	2,574,522	2,169,216	405,306	44,537
E	0	0	0	0	0	0
F	1	10	353,058	134,175	218,883	49,353
Total	31	321	10,259,494	10,808,795	-549,301	93,890

ALL FUNDS

Funding Status	Number of Plans	Total Actives & Retirees	Actuarial Accrued Liability	Assets	Unfunded Actuarial Accrued Liability	Contribution Shortfall
A	22	237	27,009,571	41,669,907	-14,660,336	0
B	1	13	389,534	376,459	13,075	0
C	9	119	13,379,212	11,626,487	1,752,725	0
D	17	352	88,103,803	42,981,338	45,122,465	4,915,773
E	1	36	11,075,330	8,158,222	2,917,108	622,083
F	1	10	353,058	134,175	218,883	49,353
Total	51	767	140,310,508	104,946,588	35,363,920	5,587,209

EXHIBIT 4

Arkansas Municipal Police and Fire Pension and Relief Funds 12/31/2021

Percentage of Actuarial Accrued Liabilities
Covered by Reported Allocated Assets
(Funded Percentage)

Number of Plans

<u>Type of Plan</u>	<u>0%-25%</u>	<u>26%-50%</u>	<u>51%-75%</u>	<u>76%-100%</u>	<u>Over 100%</u>
Police	0	2	1	1	2
Fire (Volunteer Only)	0	1	1	12	17
Fire (Mixed)	2	1	3	5	3
Fire (Full Paid)	0	0	0	0	0

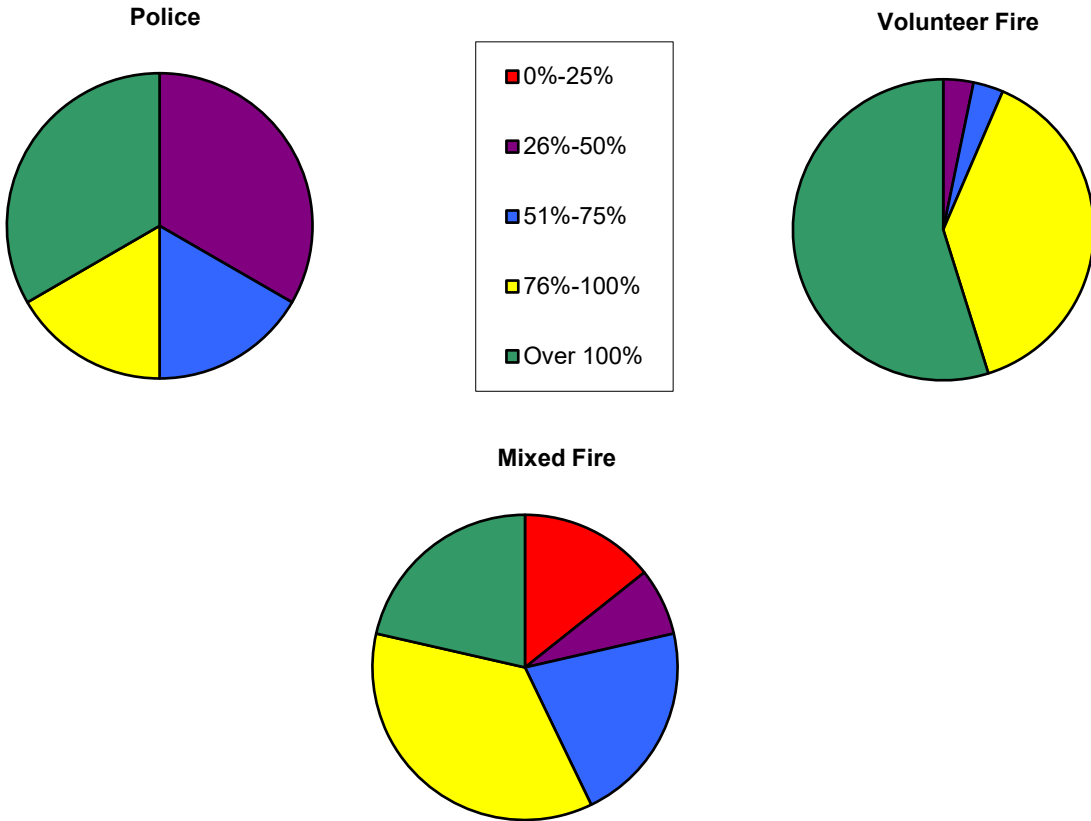


EXHIBIT 4

Arkansas Municipal Police and Fire Pension and Relief Funds 12/31/2021

2021 Reported Contributions
as Percentages of
Computed Contributions

Number of Plans

<u>Type of Plan</u>	<u>0%-25%</u>	<u>26%-50%</u>	<u>51%-75%</u>	<u>76%-100%</u>	<u>Over 100%</u>
Police	0	2	0	1	3
Fire (Volunteer Only)	4	1	3	1	22
Fire (Mixed)	1	1	4	1	7
Fire (Full Paid)	0	0	0	0	0

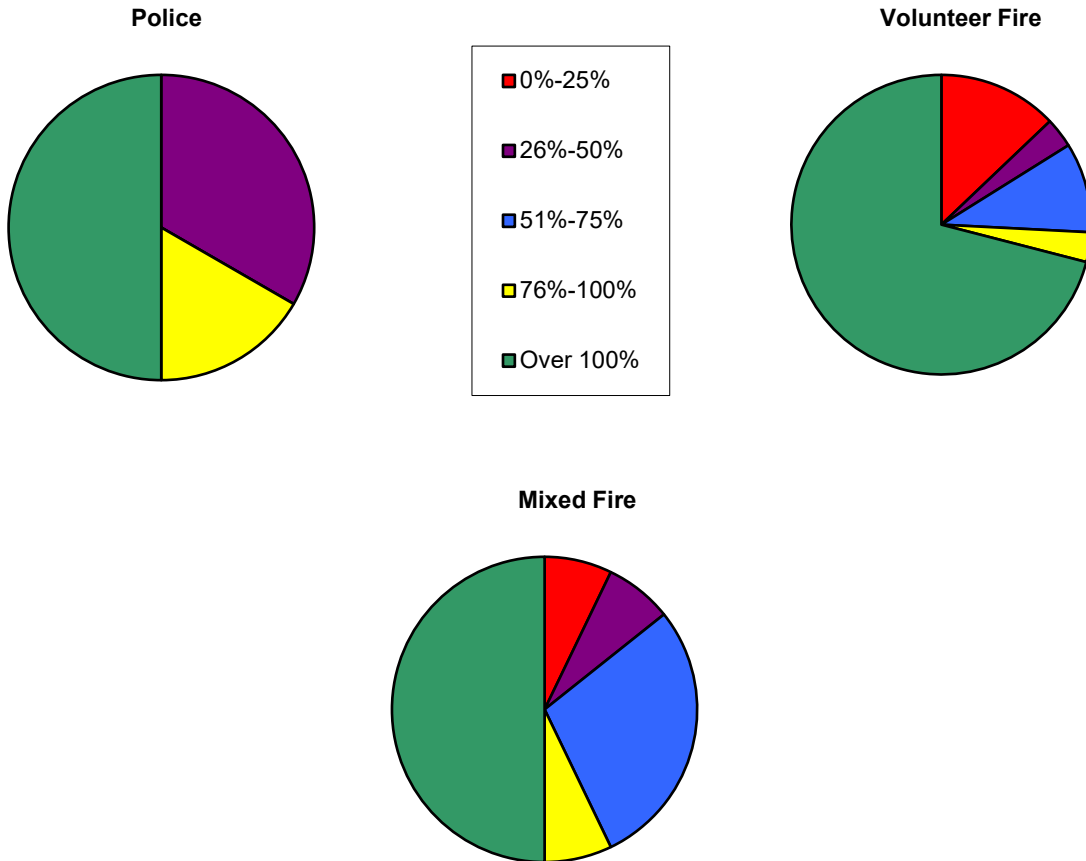


EXHIBIT 4 (continued)

Comparison of Percentages of Accrued Liabilities Covered by Assets and
2021 Reported Contributions as Percent of Computed Contributions

Total of All Plans

Number of Plans

<u>Contribution Ratio</u>	<u>Funded Percentage</u>				
	<u>0%-25%</u>	<u>26%-50%</u>	<u>51%-75%</u>	<u>76%-100%</u>	<u>Over 100%</u>
0%-25%	0	1	1	3	0
26%-50%	1	2	1	0	0
51%-75%	1	1	1	4	0
76%-100%	0	0	2	1	0
Over 100%	0	0	0	10	22

EXHIBIT 5

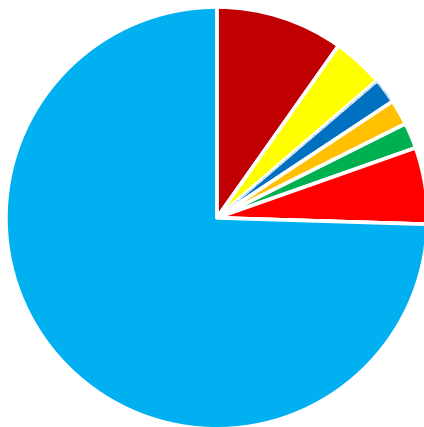
Arkansas Municipal Police and Fire Funds

Average Market Rates of Returns 2012-2021

Based on Summary Results of the
December 31, 2021 Actuarial Valuations

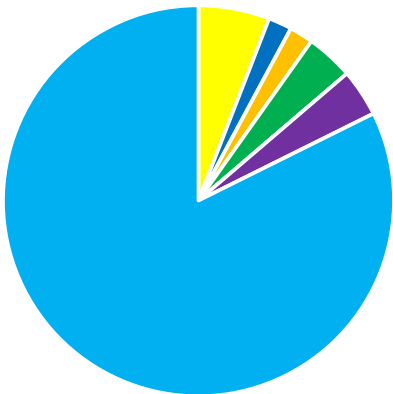
	<u>2021 Rate of Return</u>	<u>5-year Average</u>	<u>10-year Average</u>
Less than 0%	5	0	0
Less than 1%, greater than 0%	2	3	1
Less than 2%, greater than 1%	1	1	3
Less than 3%, greater than 2%	1	1	2
Less than 4%, greater than 3%	1	2	0
Less than 5%, greater than 4%	3	0	4
Less than 6%, greater than 5%	0	2	5
Greater than 6%	38	42	36

2021 Market Investment Returns



- Less than 0%
- Less than 1%, greater than 0%
- Less than 2%, greater than 1%
- Less than 3%, greater than 2%
- Less than 4%, greater than 3%
- Less than 5%, greater than 4%
- Less than 6%, greater than 5%
- Greater than 6%

Five Year Average Return



Ten Year Average Return

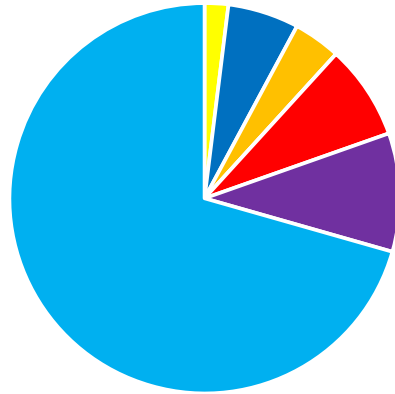


EXHIBIT 6

Arkansas Municipal Police and Fire Pension and Relief Funds

Selected Financial Information by Plan

This exhibit contains selected financial and actuarial information for each plan that reported for December 31, 2021. The mixed fire plans are shown as one plan on a single line.

The information shown in this exhibit:

- (1) City or fire protection district.
- (2) Type of plan - i.e., police officers, full-paid firefighters, volunteer/part paid firefighters, or a mixed plan covering both volunteers and full-paid firefighters.
- (3) Assets. We have shown both the Valuation Assets and the Market Value of Assets.
- (4) Unfunded Actuarial Accrued Liability, which is based on the Valuation Assets.
- (5) Number of individuals included. This number includes active members as well as retirees, beneficiaries, and participants on DROP.
- (6) Actuarially Computed Contribution. This is the calculated contribution amount from each valuation report.
- (7) Actual 2021 Contribution. These are the actual amounts contributed by the city from its sources; generally: millage, premium tax, employer match, and percentage of fines, for police plans.
- (8) Funded Status. See Exhibit 3 for a complete description of the six "grades".
- (9) Projected Years until all Assets Depleted. Based on the projection used to determine whether a "crossover point" exists for GASB purposes. This is the number of years until the plan depletes its assets. These categories are related to the Funded Status and are used to identify plans which may need further attention.
- (10) Risk Indicators. These four indicators are included in the cover letters of the valuation reports. They range from 1 (least risk) to 5 (most risk); in order, a, b, c, and d correspond to: funding percentage risk, market-return risk, contribution risk, and future crossover risk, respectively.

Risk Level	Funded Percentage	10-year Market Rate of Return	Contribution Actual/Recommend	Crossover Point
5	<60%	<3%	<25%	<10 yrs.
4	60%-75%	3%-4%	25%-50%	10-20 yrs.
3	75%-90%	4%-5%	50%-75%	>20 yrs.
2	90%-110%	5%-6%	75%-100%	No Crossover
1	>110%	>6%	>100%	And Act. Sound

EXHIBIT 6 (Continued)

Arkansas Municipal Police and Fire Pension and Relief Funds

Based on the December 31, 2021 Actuarial Valuation

	Type of Plan	Market Value Assets as of 12/31/2021	Valuation Assets as of 12/31/2021	Unfunded Actuarial Liability	Number of Individuals Covered	Actuarially Computed Contribution	Actual 2021 Contribution	Funded Status	Projected Years until all Assets Depleted	Risk Indicators			
										a	b	c	d
Alma	Volunteer Fire	861,779	681,722	96,889	10	21,846	15,085	D	*	3	1	3	2
Amity	Volunteer Fire	201,754	167,373	(35,855)	8	0	0	A	*	1	3	1	1
Arkadelphia	Mixed Fire	626,391	404,730	532,621	17	120,093	79,595	D	*	5	1	3	2
Ashdown	Volunteer Fire	800,594	745,506	(272,796)	12	0	100	A	*	1	1	1	1
Batesville	Mixed Fire	408,267	352,687	2,489,220	15	561,258	284,245	D	*	5	1	3	2
Booneville	Volunteer Fire	140,689	140,689	134,650	11	30,360	13,625	D	*	5	5	4	2
Brinkley	Mixed Fire	631,838	665,290	(26,346)	8	0	12,023	A	*	2	1	1	1
Carlisle	Volunteer Fire	160,405	163,747	29,017	13	6,543	11,606	C	*	3	5	1	2
Centerton	Mixed Fire	1,604,986	1,464,253	(171,329)	11	0	107,628	A	*	1	1	1	1
Crawfordsville	Volunteer Fire	143,471	133,200	2,579	10	581	314	D	*	2	1	3	2
Dardanelle	Volunteer Fire	743,690	635,486	(64,235)	11	0	38,625	A	*	1	1	1	1
Dermott	Volunteer Fire	406,655	338,448	(9,807)	13	0	8,579	A	*	2	1	1	1
Dumas	Volunteer Fire	506,694	564,759	(107,937)	10	0	36	A	*	1	1	1	1
Earle	Volunteer Fire	260,474	239,243	3,159	8	712	0	D	*	2	3	5	2
Elaine	Volunteer Fire	216,514	206,344	(78,354)	6	0	1,797	A	*	1	2	1	1
Eureka Springs	Mixed Fire	832,518	719,324	111,441	19	25,127	36,337	C	*	3	1	1	2
Fayetteville	Mixed Fire	1,930,020	2,232,300	11,621,365	40	2,620,332	1,032,949	D	*	5	3	4	2
Fayetteville	Paid Police	6,560,436	5,436,960	9,865,035	39	2,224,323	1,014,448	D	*	5	1	4	2
Flippin	Volunteer Fire	260,982	216,420	(46,045)	8	0	7,927	A	*	1	1	1	1
Fordyce	Volunteer Fire	669,622	580,225	24,260	14	5,470	14,054	C	*	2	1	1	2
Foreman	Volunteer Fire	235,989	223,374	(45,197)	9	0	110	A	*	1	1	1	1
Gassville	Volunteer Fire	204,950	181,016	53,124	8	11,978	18,360	C	*	3	1	1	2
Glenwood	Volunteer Fire	219,222	181,844	42,021	9	9,475	0	D	20+	3	1	5	3
Hamburg	Volunteer Fire	288,990	273,472	(65,312)	13	0	120	A	*	1	1	1	1
Harrison	Mixed Fire	4,827,870	3,842,387	1,017,568	18	229,436	243,861	C	*	3	1	1	2
Harrison	Paid Police	3,390,881	2,841,330	169,823	10	38,291	115,336	C	*	2	1	1	2
Hope	Mixed Fire	2,028,567	1,909,834	(100,190)	13	0	86,410	A	*	2	5	1	1

EXHIBIT 6 (Continued)

Arkansas Municipal Police and Fire Pension and Relief Funds

Based on the December 31, 2021 Actuarial Valuation

	Type of Plan	Market Value	Valuation	Unfunded	Number of	Actuarially	Actual	Funded	Projected Years	Risk	Indicators				
		Assets as of 12/31/2021	Assets as of 12/31/2021	Actuarial Liability	Individuals Covered	Computed Contribution	2021 Contribution				Status	until all Assets Depleted	a	b	c
Hughes	Volunteer Fire	191,328	187,392	(24,300)	10	0	356	A	*		1	1	1	1	
Huttig	Volunteer Fire	191,001	191,001	(63,379)	9	0	9,110	A	*		1	5	1	1	
Jacksonville	Mixed Fire	6,814,435	5,761,371	2,302,401	32	519,135	465,720	D	*		4	2	2	2	
Jacksonville	Paid Police	6,717,617	6,527,407	(561,688)	15	0	370,790	A	*		2	2	1	1	
Judsonia	Volunteer Fire	197,744	181,917	(16,588)	10	0	0	A	*		1	1	1	1	
Lepanto	Volunteer Fire	133,148	126,981	21,433	12	4,833	5,027	C	*		3	5	1	2	
Lonoke	Volunteer Fire	564,596	570,267	(21,704)	10	0	20,062	A	*		2	1	1	1	
Manila	Volunteer Fire	400,072	339,121	68,255	13	15,390	14,530	D	*		3	1	2	2	
Marion	Volunteer Fire	150,272	134,175	218,883	10	49,353	0	F	Less than 10		5	3	5	5	
Morrilton	Volunteer Fire	1,914,796	1,555,566	(100,385)	18	0	44,709	A	*		2	1	1	1	
Mountainburg	Volunteer Fire	109,105	109,105	24,776	10	5,586	3,295	D	*		3	5	3	2	
Nashville	Volunteer Fire	395,978	344,292	32,977	11	7,435	0	D	*		2	1	5	2	
Osceola	Mixed Fire	3,314,625	2,968,277	292,296	16	65,906	83,784	C	*		2	1	1	2	
Paris	Volunteer Fire	204,011	203,200	33,763	9	7,613	13,397	C	*		3	2	1	2	
Prairie Grove	Volunteer Fire	372,139	293,645	(46,354)	8	0	0	A	*		1	1	1	1	
Rogers	Mixed Fire	9,062,331	8,158,222	2,917,108	36	657,736	35,653	E	10-20		4	2	5	4	
Rogers	Paid Police	26,243,562	23,852,889	(12,465,697)	17	0	87,409	A	*		1	1	1	1	
Siloam Springs	Mixed Fire	4,107,798	3,253,792	1,038,540	14	234,165	132,718	D	*		3	1	3	2	
Springdale	Mixed Fire	12,480,609	10,117,146	4,224,052	41	952,420	693,767	D	*		4	1	3	2	
Springdale	Paid Police	9,682,654	8,833,060	4,743,206	33	1,069,476	810,121	D	*		4	1	2	2	
Texarkana	Paid Police	4,987,713	4,420,075	7,900,719	39	1,781,418	697,821	D	*		5	1	4	2	
Waldron	Volunteer Fire	267,017	227,292	(67,947)	8	0	8,100	A	*		1	1	1	1	
Warren	Mixed Fire	430,591	376,459	13,075	13	2,948	15,290	B	*		2	1	1	2	
Yellville	Volunteer Fire	762,883	671,973	(268,890)	10	0	15,012	A	*		1	1	1	1	
Totals:		118,860,273	104,946,588	35,363,920	767	11,279,239	6,669,841		Key:		Least Risk			1	
															2
															3
															4
															Most Risk
															5

Note: Risk Indicators are the metrics included in the cover letter of the Annual Actuarial Valuation for each Local Plan.

- a) Funding Percentage Risk
- b) 10-Year Market Return Risk
- c) Recommended Contribution Risk
- d) Future Crossover Point Risk

EXHIBIT 7

Arkansas Municipal Police and Fire Pension and Relief Funds

Review and Change in Assumptions

All of the participants in these plans have retired. There are only 4 exceptions. Therefore, the only assumptions that effect the actuarial valuations are the discount rate and the mortality assumption. We reviewed these assumptions again this year and have made some changes that are discussed in this section.

Discount Rate

We decided after much discussion with the board to use a single discount rate for all plans beginning with the December 31, 2013 valuations. That single rate was 5%. This was based on several considerations. First, a generalized portfolio allocation should be income-focused and moving in a more conservative, income-focused as the plans entered the payout phase. There is not a recommended or required allocation of funds, but this was to be used as a measurement. Also, as time progresses, there is a higher cash requirement on the plans which reduces long term earnings. We also agreed we wanted a single set of assumptions to better be able to monitor the progress of funds. Another consideration at that time was that the LOPFI assumption was 8% and a 5% discount rate would be similar to a LOPFI consolidation value with a 3% COLA. Please note that for the December 31, 2020 LOPFI valuations a discount rate of 7.5% was used and 7.0% for the GASB reporting.

The considerations in the last paragraph are still valid. Most of the plans, as you will see in this review, have experienced at or above this rate over the last ten years. But, in our opinion, the long-term expectation is still well expressed at 5% for all of the reasons discussed with a slight lean toward conservatism. Therefore, we do not propose and did not include any change in the discount assumption.

Mortality

We did include a change in mortality tables. Our group of plans and number of participants continues to shrink. The number of lives needed for a credible study of the actual mortality experienced is much larger than what we have available now. Let me explain what I mean with an example. We now have about 800 participants and if they were all about 68 then the expected mortality rate is 1% for the next year. That would produce an expected number of deaths of 8. But, as we know, this could easily be 1 person off, either 7 or 9. So that if I used our example data to predict future mortality, begin 1 death off could change the rate by 12.5% ($9/800=1.125\%$). This is why it is appropriate to depend on nationally produced tables and studies of larger groups of similar retirees.

The Society of Actuaries mortality table group produced a table in the last couple of years that was based purely on the experience of public employees. This group of tables is usually referred to as Pub-2010 with various suffixes. This is the group of tables that outside observers would consider to be the most recent available table for public plans.

We reviewed two recent studies of Arkansas public employee mortality rates to determine what variation of this table would be most appropriate. Our firm did a study of the Arkansas State Highway Employees Retirement System (ASHERS) and the actuaries for APERS completed a study on their experience which they decided was best to use for LOPFI as well. A review of both found that the results were very close. Therefore, for consistency with the LOPFI system we chose the variation used by APERS and LOPFI system.

EXHIBIT 7 (Continued)

Therefore, deaths have been projected on the basis of the Pub-2010 Amount Weighted General Employee Below Median Income Healthy Retiree Table. This table was set forward one year for males and two years for females. This table is projected using the fully generational mortality improvements using Scale MP-2020.

Some sample life expectancies for the previous table and the new table projected as of 2020 and 2025 are as follows:

<u>Age</u>	<u>Previous Table-83 GAM</u>		<u>Pub-2010 as described Projected to 2020</u>		<u>Pub-2010 as described Projected to 2025</u>	
	<u>Males</u>	<u>Females</u>	<u>Males</u>	<u>Females</u>	<u>Males</u>	<u>Females</u>
55	24.87	29.23	26.90	30.44	27.39	30.87
65	18.74	20.68	18.67	21.31	19.03	21.63
75	11.12	13.01	11.31	12.99	11.55	13.24

Effect of Mortality Change

As we know, any assumption change does not change the ultimate experience and liability of a pension plan, but it allows us to calculate a best estimate of that liability. The change in this calculated liability for this group of 51 plans was an increase in the liability of about 3%. The individual plans showed an increase of up to 4% down to a decrease in liabilities of about 1%. This is because, as partially illustrated in the table above, the new table has improved mortality for younger retirees (ages 55-80) and slightly worse mortality for retirees after age 80.

The new table is described in Exhibit 6 of the individual valuation reports. The amount of the change is most easily seen in Appendix D (Changes in Net Pension Liability).