

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

Summary of  
Actuarial Valuation Data and Results  
As of December 31, 2016

**Osborn, Carreiro & Associates, Inc.**

ACTUARIES • CONSULTANTS • ANALYSTS

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August 23, 2017

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 110 Fire and Police Pension Funds as of December 31, 2016. This report contains summary information from those valuations, as well as comparable information from the December 31, 2013, 2014 and 2015 valuations.

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

	<u>12/31/2013</u>	<u>12/31/2014</u>	<u>12/31/2015</u>	<u>12/31/2016</u>
Plans Valued	132	124	118	110
Number of Active Members	47	42	38	25
Number on DROP	21	14	6	3
Number of Recipients	2,381	2,257	2,124	1,989
Assets	243,407,142	240,211,713	228,544,607	215,023,728
Unfunded Actuarial Accrued Liability	189,793,222	181,807,414	153,647,693	145,250,252
Market Value of Assets	266,042,854	257,145,991	228,072,139	215,659,539
Unfunded AL on Market Value	167,157,510	164,873,136	154,120,161	144,614,441
Percent of Liability Funded:				
Police	57%	59%	63%	65%
Full Paid Fire	52%	52%	54%	53%
Volunteer & Part-Paid Fire	89%	90%	95%	92%
Reported Employer Contribution as a Percent of Actuarially Determined Contributions				
Police	37%	38%	43%	47%
Full Paid Fire	35%	36%	41%	43%
Volunteer & Part-Paid Fire	59%	71%	94%	79%

## **FORMAT OF REPORT**

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

- EXHIBIT 1 – Summarizes various information as of December 31, 2016, broken out by Police, Full Paid Fire, and Volunteer Fire.
- EXHIBIT 2 – Compares the December 31, 2016 valuation results with those of December 31, 2015, 2014 and 2013.
- 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, 2016.

## **PROGRESS OF FUNDING**

The percentage of actuarial accrued liabilities that are covered by assets had generally increased over the ten years before 2008 for police and full-paid fire funds, even after benefit increases. The market changes of 2008-2009 had a significant negative impact on the plans.

The following table shows how many plans improved/reduced their percentage of valuation assets to actuarial accrued liabilities since December 31, 2015:

	Number of Plans That <u>Improved</u>	Number of Plans That <u>Declined</u>
Police Plans	5	4
Paid/Mixed Fire Plans	14	16
Volunteer/Part Paid Fire	17	54

Overall, the actual employer contributions to the plans are still less than the actuarially required amounts for police and paid firefighter funds. Of course, some plans receive more contributions than required, while others receive less than required.

In the aggregate, the plans experienced investment returns in line with assumptions in 2016. The average investment return was 4.7%, though there was significant variation amongst the plans. The smaller plans continue to experience lower returns in favorable market environments.

## FUNDED STATUS

Exhibit 3 (pages 6 to 9) develops six categories of "funded status" and shows how many plans fall into each group. Last year we made some changes to the bottom three status definitions to align with the new initial risk indicator.

Funded status A and B currently meet the Board's definition of "actuarially sound." Funded status C plans do not currently meet the definition of "actuarially sound," but they are projected to be "actuarially sound" at some point in the future. Funded status D plans are not making the required contributions. Funded status E plans have an initial risk indicator showing depletion of funds in 10-20 years, these plans are "At Risk." Those plans with an initial risk indicator showing depletion of funds in less than ten year receive funded status F. There is not a separate notification to plans of the "At Risk" category this year; that notice is now given as part of the valuation report.

The following table shows how many plans improved/reduced their funded status since December 31, 2015:

	Number of Plans That <u>Improved</u>	Number of Plans That <u>Declined</u>
Police Plans	1	0
Paid/Mixed Fire Plans	2	3
Volunteer/Part Paid Fire	2	19

A review of Exhibit 3, and the graph on page 9, shows that the majority of the plans are in funded status D and below. The plans with a status of D and below have a total shortfall of \$21.6 million in contributions. In other words, the employer contributions to these plans are \$21.6 million less than the actuarially computed contributions. This difference is about \$2 million less than last year.

## INVESTMENT RETURNS

The PRB decided to return to a single valuation discount rate beginning with the 2013 valuations. That rate is 5%. Approximately half of the plans experienced market returns which met or surpassed the 5% assumption. However, as usual, there was significant variance between plans: 18 of the plans earned less than 1% on their assets.

Exhibit 5 shows the 2016 (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 more than 80% 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. 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 would be one new Projected Insolvent plan under ACA §24-11-208, Rector Fire, though we understand that Rector is currently in the process of consolidation with LOPFI.

## **VALUATION REPORT CHANGES**

There were no major changes in methodology or presentation in the valuation reports this year. 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 June 16<sup>th</sup>.

## **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 several plan reports because of missing or incorrect data. The PRB staff was extremely helpful in solving data issues and correcting demographic information. We had to disclose some concerns about the validity of historical financial data for Mount Ida Fire and Bull Shoals Fire, though to the best of our knowledge, their 2016 financial statements are now correct.

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

Sincerely,



Jody Carreiro, ASA, MAAA, FCA, EA  
Actuary



Lawrence P. Watts, Jr., FSA, CFA, EA, MAAA  
Actuary

## EXHIBIT 1

### Arkansas Municipal Police and Fire Pension and Relief Funds

#### Summary of Valuation Data and Results December 31, 2016

	<u>Police</u>	<u>Fire*</u>	<u>Volunteer Fire*</u>	<u>Total</u>
Plans Valued	9	30	99	110
Active Members	0	6	19	25
Active Payroll	\$ 0	\$ 315,141	\$ 0	\$ 315,141
DROP Members	1	2	0	3
DROP Annual Benefits	\$ 19,236	\$ 72,169	\$ 0	\$ 91,405
Retired Members and Beneficiaries	283	684	1,022	1,989
Annual Benefits	\$ 8,019,175	\$ 17,921,155	\$ 2,381,210	\$ 28,321,540
Retirant, Beneficiary & DROP Accrued Liability	\$ 106,818,142	\$ 224,227,729	\$ 25,663,537	\$ 356,709,408
Active Member Accrued Liability	\$ 0	\$ 2,506,616	\$ 1,057,956	\$ 3,564,572
Total Actuarial Accrued Liability	\$ 106,818,142	\$ 226,734,345	\$ 26,721,492	\$ 360,273,980
Assets Applied	69,410,426	121,092,604	24,520,698	215,023,728
Unfunded Actuarial Accrued Liability	\$ 37,407,716	\$ 105,641,742	\$ 2,200,794	\$ 145,250,252
% Funded	65%	53%	92%	60%
Based on the Market Value of Assets				
Total Actuarial Accrued Liability	\$ 106,818,142	\$ 226,734,345	\$ 26,721,492	\$ 360,273,980
Assets Applied	72,871,762	117,759,780	25,027,997	215,659,539
Unfunded Actuarial Accrued Liability	\$ 33,946,380	\$ 108,974,566	\$ 1,693,496	\$ 144,614,441
% Funded	68%	52%	94%	60%
Employer Contributions				
Computed	\$ 10,049,820	\$ 23,935,385	\$ 887,416	\$ 34,872,621
Reported	\$ 4,731,650	\$ 10,182,439	\$ 699,135	\$ 15,613,224
% Covered	47%	43%	79%	45%

\* 28 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				2016
	<u>12/31/2013</u>	<u>12/31/2014</u>	<u>12/31/2015</u>	<u>12/31/2016</u>	<u>% Change</u>
Plans Valued	13	11	9	9	0%
Active Members	1	1	0	0	0%
Active Payroll	\$ 53,024	\$ 54,754	\$ 0	0	0%
DROP Members	4	1	1	1	0%
Retired Members and Beneficiaries	340	309	289	283	-2%
Retirant, Beneficiary & DROP Accrued Liability	\$ 131,049,314	\$ 123,269,551	\$ 109,907,276	\$ 106,818,142	-3%
Active Member Accrued Liability	\$ 389,983	\$ 431,974	\$ 0	0	0%
Total Actuarial Accrued Liability	\$ 131,439,297	\$ 123,701,525	\$ 109,907,276	\$ 106,818,142	-3%
Assets Applied	\$ 74,533,384	\$ 73,198,000	\$ 68,905,836	\$ 69,410,426	1%
% Funded	57%	59%	63%	65%	
Unfunded Actuarial Accrued Liability	\$ 56,905,913	\$ 50,503,525	\$ 41,001,440	\$ 37,407,716	-9%
Employer Contributions Computed	\$ 13,498,733	\$ 12,461,214	\$ 10,749,005	\$ 10,049,820	-7%
Reported	\$ 5,003,903	\$ 4,703,193	\$ 4,673,081	\$ 4,731,650	1%
% Covered	37%	38%	43%	47%	

## EXHIBIT 2

### Arkansas Municipal Police and Fire Pension and Relief Funds

#### Comparison of Valuation Results

##### FULL PAID FIRE FUNDS

	<u>12/31/2013</u>	<u>12/31/2014</u>	<u>12/31/2015</u>	<u>12/31/2016</u>	<u>2016 % Change</u>
Plans Valued	35	35	33	30	-9%
Active Members	8	7	7	6	-14%
Active Payroll	\$ 319,831	\$ 292,572	\$ 318,636	\$ 315,141	-1%
DROP Members	17	13	5	2	-60%
Retired Members and Beneficiaries	770	771	729	684	-6%
Retirant, Beneficiary & DROP Accrued Liability	\$ 266,440,227	\$ 264,928,888	\$ 241,154,428	\$ 224,227,729	-7%
Active Member Accrued Liability	\$ 2,366,814	\$ 2,239,120	\$ 2,934,718	\$ 2,506,616	-15%
Total Actuarial Accrued Liability	\$ 268,807,041	\$ 267,168,008	\$ 244,089,146	\$ 226,734,345	-7%
Assets Applied	\$ 139,625,097	\$ 138,961,579	\$ 132,728,941	\$ 121,092,604	-9%
% Funded	52%	52%	54%	53%	
Unfunded Actuarial Accrued Liability	\$ 129,181,944	\$ 128,206,429	\$ 111,360,205	\$ 105,641,742	-5%
Employer Contributions Computed	\$ 29,392,639	\$ 29,249,525	\$ 25,338,562	\$ 23,935,385	-6%
Reported	\$ 10,298,082	\$ 10,670,120	\$ 10,360,498	\$ 10,182,439	-2%
% Covered	35%	36%	41%	43%	



## EXHIBIT 2

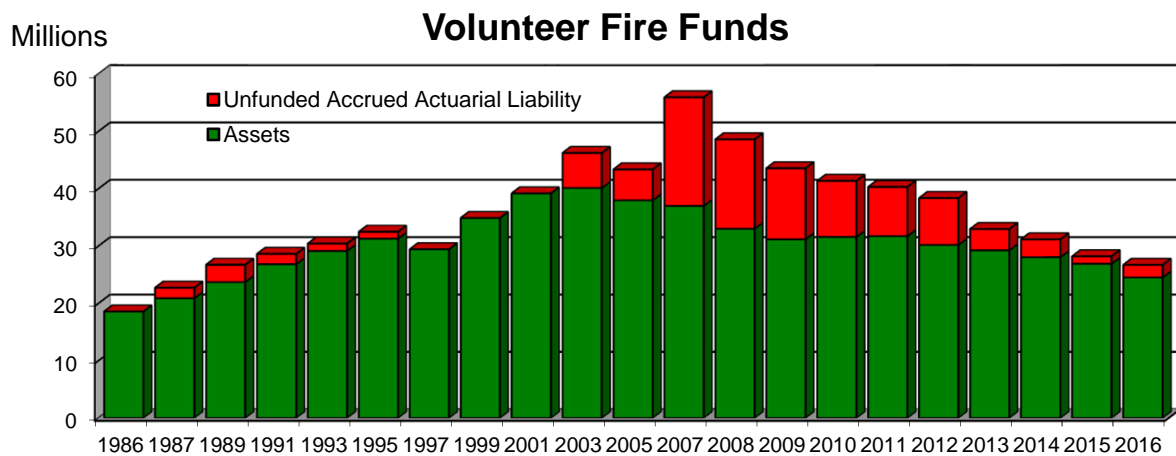
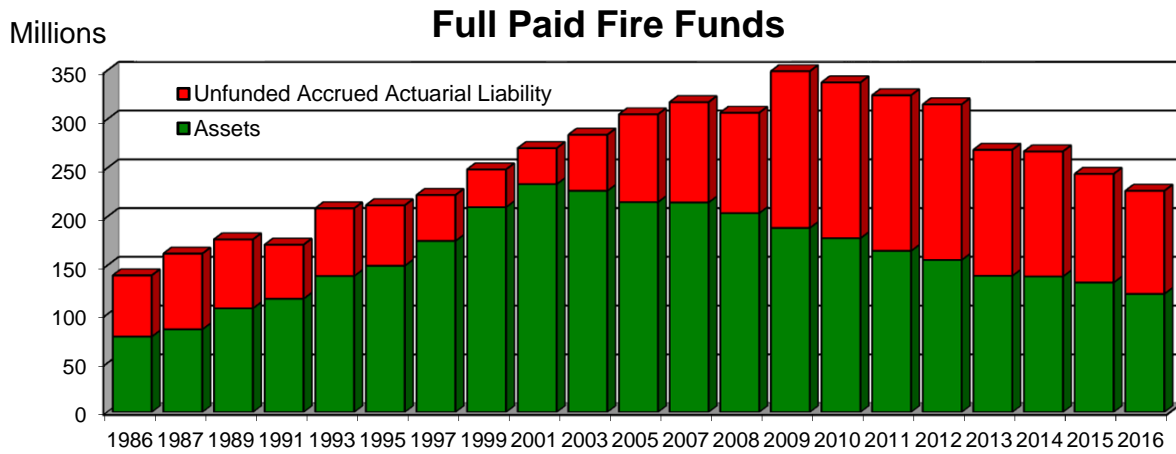
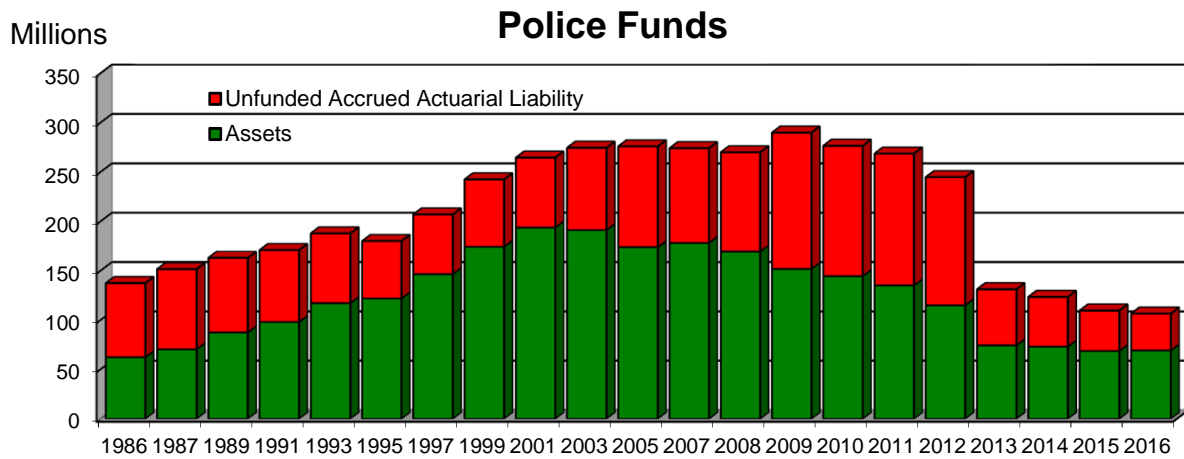
### Arkansas Municipal Police and Fire Pension and Relief Funds

#### Comparison of Valuation Results

##### VOLUNTEER FIRE FUNDS

	<u>12/31/2013</u>	<u>12/31/2014</u>	<u>12/31/2015</u>	<u>12/31/2016</u>	<u>2016 % Change</u>
Plans Valued	116	110	106	99	-7%
Active Members	38	34	31	19	-39%
Active Payroll	\$ 0	\$ 0	\$ 0	0	N/A
DROP Members Retired Members and Beneficiaries	0 1271	0 1177	0 1106	0 1,022	N/A -8%
Retirant, Beneficiary & DROP Accrued Liability	\$ 31,338,556	\$ 29,636,552	\$ 26,736,796	\$ 25,663,537	-4%
Active Member Accrued Liability	\$ 1,615,470	\$ 1,513,042	\$ 1,459,081	\$ 1,057,956	-27%
Total Actuarial Accrued Liability	\$ 32,954,026	\$ 31,149,594	\$ 28,195,877	\$ 26,721,492	-5%
Assets Applied	\$ 29,248,661	\$ 28,052,134	\$ 26,909,830	\$ 24,520,698	-9%
% Funded	89%	90%	95%	92%	
Unfunded Actuarial Accrued Liability	\$ 3,705,365	\$ 3,097,460	\$ 1,286,047	\$ 2,200,794	71%
Employer Contributions Computed	\$ 1,219,015	\$ 1,090,861	\$ 813,619	\$ 887,416	9%
Reported	\$ 716,334	\$ 773,843	\$ 762,506	\$ 699,135	-8%
% Covered	59%	71%	94%	79%	

## EXHIBIT 2



## 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%.

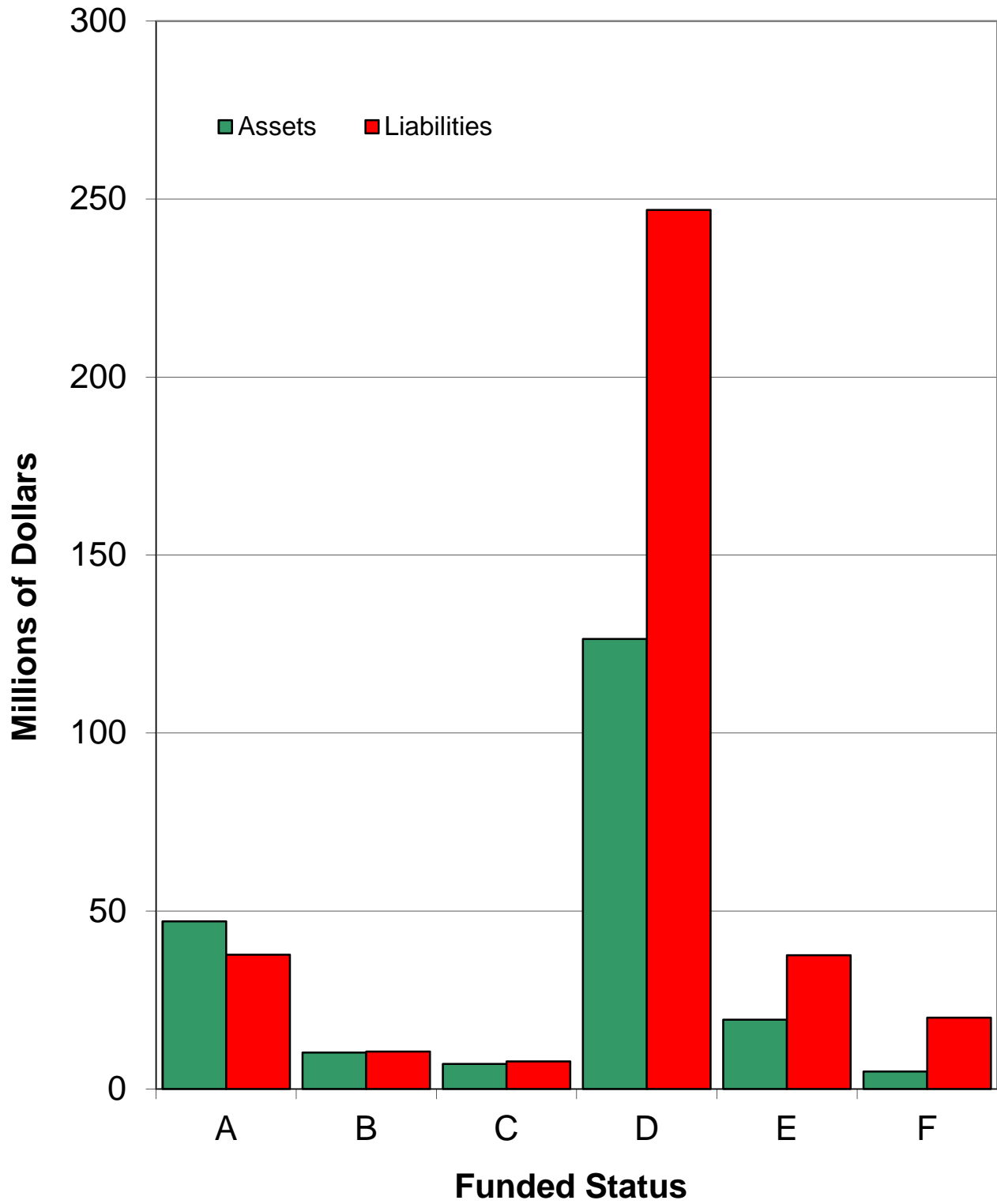
In order to further evaluate potential funding risks, we have assigned a "Funding Status" to each plan. The "Funding Status" for each plan is determined as follows:

- 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.

EXHIBIT 3

Arkansas Municipal Police and Fire Pension Funds  
Summary of Funded Status  
December 31, 2016 Valuations



### EXHIBIT 3

#### Summary of Funding Status

##### POLICE FUNDS

<b>Funding Status</b>	<b>Number of Plans</b>	<b>Total Actives &amp; Retirees</b>	<b>Actuarial Accrued Liability</b>	<b>Assets</b>	<b>Unfunded Actuarial Accrued Liability</b>	<b>Contribution Shortfall</b>
A	3	52	23,530,129	30,694,106	-7,163,977	0
B	0	0	0	0	0	0
C	0	0	0	0	0	0
D	5	160	56,531,969	25,525,236	31,006,733	4,118,606
E	1	72	26,756,045	13,191,084	13,564,960	2,562,855
F	0	0	0	0	0	0
Total	9	284	106,818,142	69,410,426	37,407,716	6,681,461

##### PAID/MIXED FIRE FUNDS

<b>Funding Status</b>	<b>Number of Plans</b>	<b>Total Actives &amp; Retirees</b>	<b>Actuarial Accrued Liability</b>	<b>Assets</b>	<b>Unfunded Actuarial Accrued Liability</b>	<b>Contribution Shortfall</b>
A	3	41	5,123,781	5,693,058	-569,277	0
B	2	60	8,683,078	8,443,616	239,462	0
C	5	86	5,949,418	5,496,201	453,218	0
D	13	594	186,453,521	97,861,063	88,592,458	11,390,458
E	5	81	7,172,449	3,566,599	3,605,850	678,261
F	2	64	19,073,724	4,411,843	14,661,882	2,421,788
Total	30	926	232,455,973	125,472,380	106,983,593	14,490,508

### 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	26	321	9,014,695	10,693,832	-1,679,137	0
B	5	66	1,806,173	1,764,594	41,579	0
C	7	88	1,764,886	1,519,274	245,613	0
D	15	147	3,925,131	3,027,608	897,523	100,805
E	15	151	3,597,195	2,652,965	944,230	193,759
F	3	34	891,784	482,648	409,136	85,679
Total	71	807	20,999,865	20,140,921	858,943	380,243

##### ALL FUNDS

Funding Status	Number of Plans	Total Actives & Retirees	Actuarial Accrued Liability	Assets	Unfunded Actuarial Accrued Liability	Contribution Shortfall
A	32	414	37,668,605	47,080,996	-9,412,392	0
B	7	126	10,489,251	10,208,210	281,041	0
C	12	174	7,714,305	7,015,474	698,830	0
D	33	901	246,910,622	126,413,908	120,496,714	15,609,868
E	21	304	37,525,689	19,410,649	18,115,041	3,434,876
F	5	98	19,965,508	4,894,490	15,071,018	2,507,468
Total	110	2,017	360,273,980	215,023,728	145,250,252	21,552,212

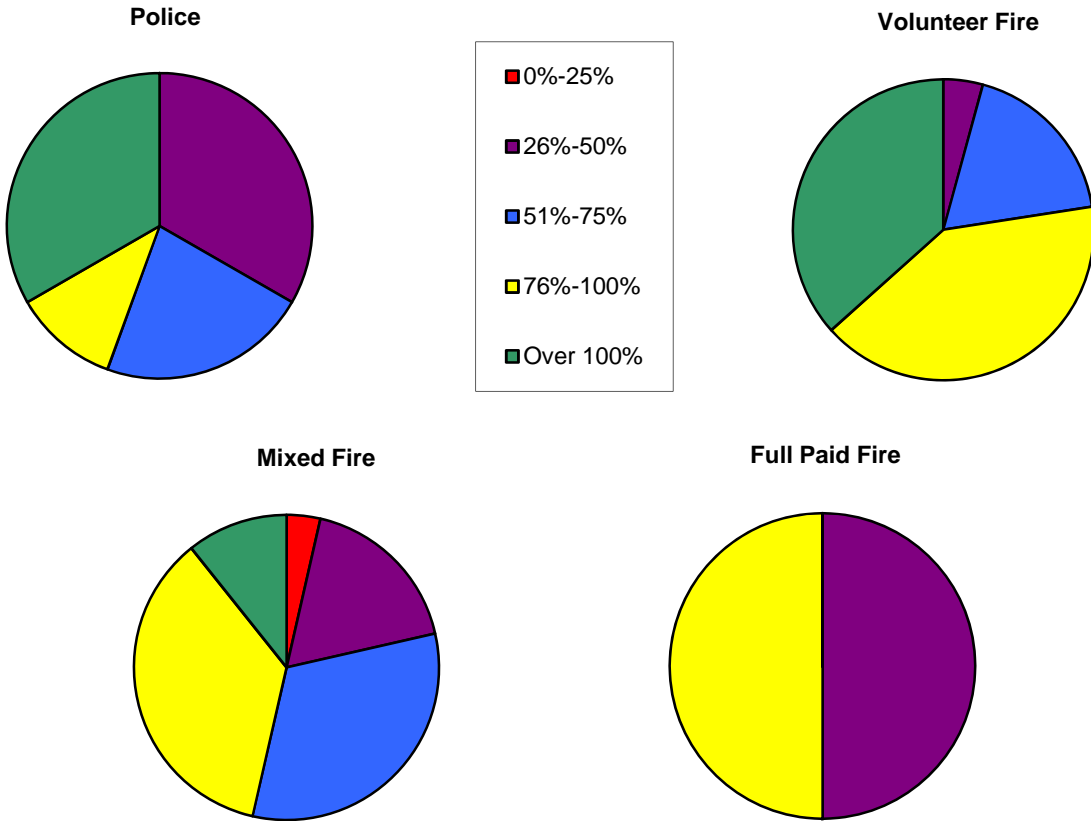
## EXHIBIT 4

### Arkansas Municipal Police and Fire Pension and Relief Funds 12/31/2016

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	3	2	1	3
Fire (Volunteer Only)	0	3	13	29	26
Fire (Mixed)	1	5	9	10	3
Fire (Full Paid)	0	1	0	1	0



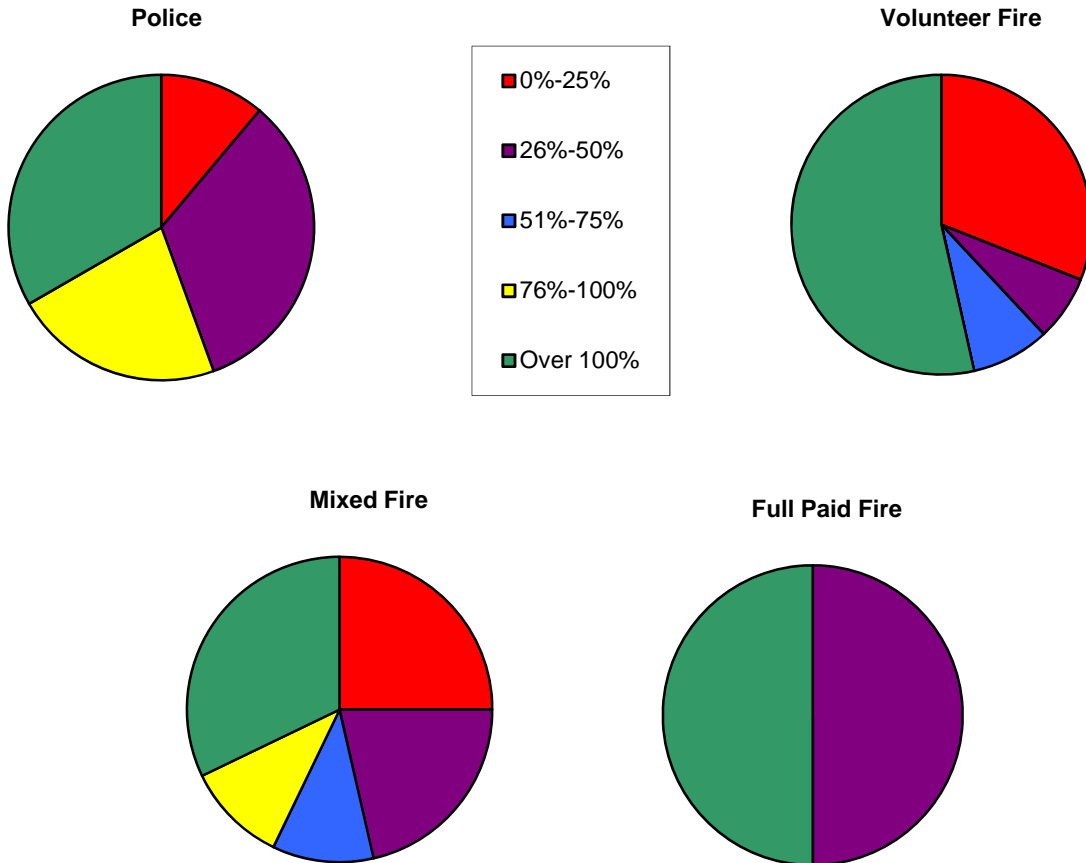
**EXHIBIT 4**

**Arkansas Municipal Police and Fire Pension and Relief Funds  
12/31/2016**

2016 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	1	3	0	2	3
Fire (Volunteer Only)	22	5	6	0	38
Fire (Mixed)	7	6	3	3	9
Fire (Full Paid)	0	1	0	0	1





**EXHIBIT 4 (continued)**

Comparison of Percentages of Accrued Liabilities Covered by Assets and  
2016 Reported Contributions as Percent of Computed Contributions

Total of All Plans

Number of Plans

Funded Percentage

<u>Contribution Ratio</u>	<u>0%-25%</u>	<u>26%-50%</u>	<u>51%-75%</u>	<u>76%-100%</u>	<u>Over 100%</u>
0%-25%	0	5	11	14	0
26%-50%	1	5	5	4	0
51%-75%	0	2	4	3	0
76%-100%	0	0	4	1	0
Over 100%	0	0	0	19	32

## EXHIBIT 5

### Arkansas Municipal Police and Fire Funds

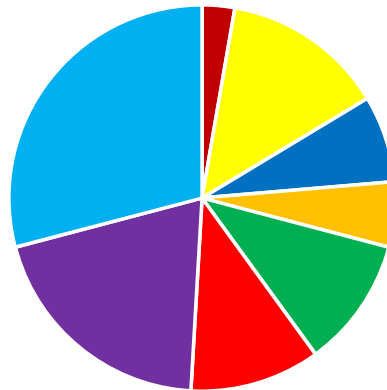
Average Market Rates of Returns 2007-2016

Based on Summary Results of the

December 31, 2016 Actuarial Valuations

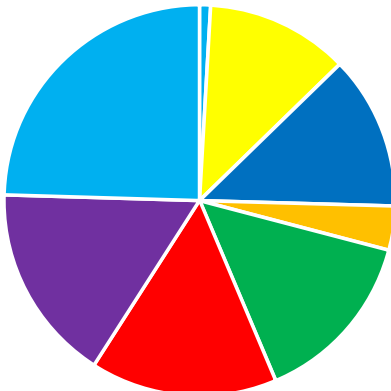
	<u>2016 Rate of Return</u>	<u>5-year Average</u>	<u>10-year Average</u>
Less than 0%	3	1	1
Less than 1%, greater than 0%	15	13	7
Less than 2%, greater than 1%	8	14	25
Less than 3%, greater than 2%	6	4	15
Less than 4%, greater than 3%	12	16	27
Less than 5%, greater than 4%	12	17	16
Less than 6%, greater than 5%	22	18	9
Greater than 6%	32	27	10

2016 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, 2016. The mixed fire plans are shown on a single line this year.

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 2016 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, 2016 Actuarial Valuation

	Type of Plan	Market Value	Valuation	Unfunded	Number of	Actuarially	Actual	Funded	Projected Years	Risk			
		Assets as of 12/31/2016	Assets as of 12/31/2016	Actuarial Liability	Individuals Covered	Computed Contribution	2016 Contribution			until all Assets Depleted	Indicators a b c d		
Alma	Volunteer Fire	704,178	677,783	231,024	15	52,090	38,584	D	*	4	1	3	2
Amity	Volunteer Fire	193,155	188,754	4,994	11	1,126	309	D	*	2	4	4	2
Arkadelphia	Mixed Fire	514,469	412,406	783,110	20	176,572	75,922	D	*	5	4	4	2
Ashdown	Volunteer Fire	663,147	657,842	(206,113)	12	0	0	A	*	1	1	1	1
Augusta	Volunteer Fire	153,435	156,196	7,807	11	1,760	0	E	10-20	2	2	5	3
Batesville	Mixed Fire	805,522	993,045	2,356,507	17	531,334	99,879	F	Less than 10	5	5	5	5
Beebe	Mixed Fire	391,807	393,601	189,631	6	42,757	6,872	E	10-20	4	5	5	4
Benton	Mixed Fire	1,917,692	2,008,249	4,566,073	30	1,029,537	553,720	D	*	5	5	3	2
Berryville	Volunteer Fire	350,296	313,510	(3,008)	18	0	12	A	*	2	4	1	1
Blytheville	Mixed Fire	2,185,955	2,162,018	2,943,556	27	663,699	120,559	E	10-20	5	4	5	4
Booneville	Volunteer Fire	250,505	250,505	97,026	12	21,877	13,108	D	*	4	5	3	2
Bradford	Volunteer Fire	102,566	77,213	153,048	14	34,508	7,294	E	10-20	5	5	5	4
Bradley	Volunteer Fire	89,977	88,604	63,585	7	14,337	1,538	E	10-20	5	5	5	4
Brinkley	Mixed Fire	602,051	669,782	26,253	13	5,919	11,257	C	*	2	5	1	2
Bull Shoals	Volunteer Fire	122,622	90,784	78,036	9	17,595	424	E	10-20	5	2	5	4
Cabot	Mixed Fire	2,756,307	2,525,652	(413,798)	8	0	7,138	A	*	1	5	1	1
Carlisle	Volunteer Fire	210,311	217,218	28,443	16	6,413	11,179	C	*	3	5	1	2
Centerton	Mixed Fire	843,857	873,096	374,179	10	84,368	66,027	D	*	4	1	2	2
Charleston	Volunteer Fire	425,464	315,982	(127,609)	14	0	13,330	A	*	1	1	1	1
Clarendon	Volunteer Fire	291,066	288,893	44,072	8	9,937	3,676	D	*	3	1	4	2
Clarksville	Volunteer Fire	1,182,767	1,182,767	(350,351)	18	0	45,985	A	*	1	5	1	1
Corning	Volunteer Fire	188,400	188,400	33,575	16	7,570	513	E	10-20	3	4	5	4
Crawfordsville	Volunteer Fire	160,900	163,564	(452)	10	0	0	A	*	2	2	1	3
Crossett	Mixed Fire	2,423,920	2,467,648	719,306	24	162,186	55,793	D	*	3	4	4	2
Dardanelle	Volunteer Fire	591,305	578,030	(58,429)	13	0	36,714	A	*	1	5	1	1
De Queen	Volunteer Fire	360,734	303,413	70,961	12	16,000	23,355	C	*	3	5	1	2
Decatur	Volunteer Fire	164,721	154,262	30,443	5	6,864	0	D	20+	3	5	5	3

EXHIBIT 6 (Continued)

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

Based on the December 31, 2016 Actuarial Valuation

Type of Plan	Market Value	Valuation	Unfunded	Number of	Actuarially	Actual	Funded	Projected Years	Risk				
	Assets as of 12/31/2016	Assets as of 12/31/2016	Actuarial Liability	Individuals Covered	Computed Contribution	2016 Contribution			Status	until all Assets Depleted	Indicators a b c d		
Dermott	Volunteer Fire	351,374	348,292	3,987	15	899	7,108	B	*	2	4	1	1
Des Arc	Volunteer Fire	345,486	336,286	(88,924)	15	0	9,800	A	*	1	4	1	1
DeWitt	Mixed Fire	259,161	263,720	91,564	12	20,645	0	E	10-20	4	5	5	4
Dumas	Volunteer Fire	523,024	555,196	96,958	13	21,862	36	E	10-20	3	5	5	4
Earle	Volunteer Fire	306,797	325,958	(46,744)	12	0	48	A	*	1	4	1	1
Elaine	Volunteer Fire	211,213	214,046	24,521	11	5,529	3,503	D	*	3	2	3	2
Elkins	Volunteer Fire	352,328	342,680	(22,812)	13	0	0	A	*	2	1	1	1
Eureka Springs	Mixed Fire	752,157	759,131	77,009	24	17,364	32,613	C	*	2	1	1	2
Fayetteville	Mixed Fire	3,408,026	3,418,798	12,305,374	47	2,774,559	784,226	F	Less than 10	5	3	4	5
Fayetteville	Paid Police	6,079,152	5,797,295	12,096,972	42	2,727,570	871,161	D	*	5	4	4	2
Flippin	Volunteer Fire	223,287	220,365	6,396	13	1,442	5,576	B	*	2	4	1	1
Fordyce	Volunteer Fire	580,096	568,890	(896)	15	0	13,070	A	*	2	3	1	1
Foreman	Volunteer Fire	187,135	179,793	10,856	9	2,448	79	D	20+	2	3	5	3
Gassville	Volunteer Fire	110,194	114,563	145,694	8	32,850	4,326	F	Less than 10	5	5	5	4
Gentry	Mixed Fire	761,919	768,098	190,522	10	42,958	21,130	D	*	3	3	4	2
Glenwood	Volunteer Fire	203,169	203,480	46,831	10	10,559	0	E	10-20	3	1	5	4
Grady	Volunteer Fire	122,305	123,122	(3,128)	7	0	7,290	A	*	2	5	1	1
Gravette	Volunteer Fire	128,795	127,556	24,452	7	5,513	1,000	D	20+	3	5	5	3
Greenwood	Volunteer Fire	179,866	169,762	46,248	12	10,428	557	E	10-20	3	5	5	4
Greers Ferry	Volunteer Fire	167,722	179,757	(67,889)	7	0	0	A	*	1	3	1	1
Gurdon	Volunteer Fire	257,368	258,670	(38,211)	8	0	4,928	A	*	1	2	1	1
Hamburg	Volunteer Fire	256,397	245,683	(22,058)	14	0	0	A	*	2	5	1	1
Harrison	Mixed Fire	3,144,344	3,048,539	1,258,927	20	283,857	241,173	D	*	4	3	2	2
Harrison	Paid Police	2,556,030	2,513,154	494,674	11	111,537	104,221	D	*	3	3	2	2
Hazen	Volunteer Fire	242,495	242,495	(39,970)	14	0	11,020	A	*	1	5	1	1
Heber Springs	Mixed Fire	623,912	521,488	227,010	15	51,185	0	E	10-20	4	4	5	3
Hickory Ridge	Volunteer Fire	321,002	323,507	(29,380)	8	0	3,016	A	*	2	5	1	1

EXHIBIT 6 (Continued)

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

Based on the December 31, 2016 Actuarial Valuation

Type of Plan	Market Value	Valuation	Unfunded	Number of	Actuarially	Actual	Funded	Projected Years	Risk				
	Assets as of 12/31/2016	Assets as of 12/31/2016	Actuarial Liability	Individuals Covered	Computed Contribution	2016 Contribution			Status	until all Assets Depleted	Indicators a b c d		
Hope	Mixed Fire	2,079,471	2,027,691	49,682	15	11,202	82,557	B	*	2	4	1	1
Horatio	Volunteer Fire	141,843	141,843	(11,738)	6	0	0	A	*	2	4	1	1
Hughes	Volunteer Fire	181,308	181,472	25,983	11	5,859	0	D	20+	3	5	5	3
Huntington	Volunteer Fire	68,183	68,183	37,721	5	8,505	2,330	D	*	4	5	4	2
Huttig	Volunteer Fire	201,269	201,269	(27,224)	12	0	8,917	A	*	1	5	1	1
Jacksonville	Mixed Fire	6,448,710	6,053,319	3,639,130	38	820,534	418,220	D	*	4	5	3	2
Jacksonville	Paid Police	5,804,861	6,028,408	(45,254)	20	0	341,668	A	*	2	4	1	1
Judsonia	Volunteer Fire	198,058	198,104	10,438	12	2,353	359	D	20+	2	3	5	3
Keiser	Volunteer Fire	56,346	56,346	52,001	8	11,725	3,381	E	10-20	5	5	4	4
Kensett	Volunteer Fire	79,342	79,342	33,138	10	7,472	4,992	D	*	4	5	3	2
Lepanto	Volunteer Fire	164,243	174,231	19,836	14	4,472	5,403	C	*	3	5	1	2
Lewisville	Volunteer Fire	78,232	78,232	8,666	5	1,954	132	E	10-20	2	5	5	3
Little Rock	Paid Fire	54,410,753	58,648,222	63,499,833	292	14,317,650	5,424,494	D	*	5	4	4	2
Lonoke	Volunteer Fire	521,755	568,344	(113,700)	13	0	18,673	A	*	1	4	1	1
Malvern	Mixed Fire	1,901,482	1,737,146	123,290	16	27,799	104,519	C	*	2	4	1	2
Mammoth Spring	Volunteer Fire	83,438	83,438	49,207	6	11,095	1,285	E	10-20	4	5	5	4
Manila	Volunteer Fire	320,054	316,984	59,392	15	13,392	13,478	C	*	3	5	1	2
Marianna	Mixed Fire	862,959	837,169	184,454	16	41,590	10,205	D	20+	3	4	5	3
Marion	Volunteer Fire	257,399	247,142	174,025	11	39,238	0	F	Less than 10	5	4	5	4
Marmaduke	Volunteer Fire	48,126	48,126	54,372	8	12,260	7,021	D	*	5	5	3	2
Mc Crory	Volunteer Fire	228,617	228,617	(54,717)	9	0	5,444	A	*	1	5	1	1
Monticello	Mixed Fire	1,074,477	987,607	49,288	15	11,113	38,288	C	*	2	5	1	2
Morrilton	Volunteer Fire	1,439,263	1,388,561	(11,628)	23	0	41,304	A	*	2	3	1	1
Mount Ida	Volunteer Fire	481,011	466,425	(351)	10	0	5,918	A	*	2	3	1	1
Mountainburg	Volunteer Fire	148,798	148,798	1,059	10	239	2,864	B	*	2	5	1	1
Mulberry	Volunteer Fire	196,482	192,397	39,808	7	8,976	0	E	10-20	3	3	5	4
Nashville	Volunteer Fire	429,136	425,676	89,382	17	20,153	0	E	10-20	3	1	5	4

EXHIBIT 6 (Continued)

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

Based on the December 31, 2016 Actuarial Valuation

Type of Plan	Market Value	Valuation	Unfunded	Number of	Actuarially	Actual	Funded	Projected Years	Risk				
	Assets as of 12/31/2016	Assets as of 12/31/2016	Actuarial Liability	Individuals Covered	Computed Contribution	2016 Contribution			Status	until all Assets Depleted	Indicators a b c d		
Newark	Volunteer Fire	105,989	105,989	6,868	8	1,549	5,561	C	*	2	5	1	2
Newport	Mixed Fire	1,361,914	1,342,535	177,378	18	39,994	60,666	C	*	3	4	1	2
Ola	Volunteer Fire	255,375	273,407	(18,862)	13	0	8,249	A	*	2	4	1	1
Oppelo	Volunteer Fire	92,438	92,438	24,114	8	5,437	3,662	D	*	3	5	3	2
Osceola	Mixed Fire	2,780,641	2,785,363	(131,581)	17	0	64,376	A	*	2	5	1	1
Ozark	Volunteer Fire	859,049	851,338	28,049	16	6,324	45,863	B	*	2	5	1	2
Pangburn	Volunteer Fire	220,648	194,765	10,153	12	2,289	3,856	C	*	2	5	1	2
Paris	Volunteer Fire	209,145	206,674	49,959	11	11,265	13,573	C	*	3	5	1	2
Piggott	Volunteer Fire	358,022	358,022	(35,936)	18	0	13,287	A	*	1	5	1	1
Pine Bluff	Paid Police	14,917,852	13,191,084	13,564,960	72	3,058,565	495,710	E	10-20	5	2	5	4
Prairie Grove	Volunteer Fire	313,205	316,889	(52,574)	8	0	0	A	*	1	3	1	1
Rector	Volunteer Fire	120,135	120,943	89,417	15	20,161	2,245	F	Less than 10	5	5	5	4
Rogers	Paid Police	20,062,660	20,216,122	(6,993,972)	22	0	769,807	A	*	1	2	1	1
Rogers	Mixed Fire	8,568,856	9,082,683	3,493,277	39	787,648	747,579	D	*	4	5	2	2
Russellville	Mixed Fire	2,522,092	2,184,494	2,891,965	27	652,067	268,546	D	*	5	4	4	2
Russellville	Paid Police	4,585,297	4,449,576	(124,751)	10	0	251,815	A	*	2	2	1	1
Salem	Volunteer Fire	116,316	116,316	74,472	7	16,792	0	E	10-20	4	5	5	4
Siloam Springs	Mixed Fire	3,304,335	3,131,491	865,738	21	195,203	108,897	D	*	3	3	3	2
Springdale	Mixed Fire	8,445,594	8,345,649	6,125,943	43	1,381,250	593,256	D	*	5	3	4	2
Springdale	Paid Police	8,307,385	8,413,252	6,986,966	34	1,575,389	665,814	D	*	5	4	4	2
Stamps	Mixed Fire	223,688	225,772	154,090	20	34,743	7,338	E	10-20	5	5	5	4
Star City	Volunteer Fire	326,475	278,351	244,370	15	55,099	22,942	D	*	5	5	4	2
Texarkana	Paid Police	4,816,002	4,967,318	8,873,791	43	2,000,822	794,945	D	*	5	4	4	2
Waldron	Volunteer Fire	195,288	195,801	2,088	12	471	12,568	B	*	2	3	1	1
Warren	Mixed Fire	383,886	382,043	(23,898)	16	0	0	A	*	2	1	1	1
Weiner	Volunteer Fire	175,624	170,925	104,605	9	23,586	3,982	E	10-20	4	3	5	4
West Memphis	Paid Fire	6,486,300	6,415,925	189,781	44	42,791	338,826	B	*	2	4	1	1

EXHIBIT 6 (Continued)

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

Based on the December 31, 2016 Actuarial Valuation

Type of Plan	Market Value	Valuation	Unfunded	Number of	Actuarially	Actual	Funded	Projected Years	Risk			
	Assets as of 12/31/2016	Assets as of 12/31/2016	Actuarial Liability	Individuals Covered	Computed Contribution	2016 Contribution			until all Assets Depleted	Indicators		
							Status		a	b	c	d
West Memphis Paid Police	5,742,523	3,834,216	2,554,329	30	575,938	436,508	D	*	4	4	2	2
Yellville Volunteer Fire	595,304	591,712	(246,434)	11	0	12,832	A	*	1	2	1	1

**Totals:** 215,659,539 215,023,728 145,250,252 2,011 34,872,621 15,613,224

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

**Key:**

Least Risk	1
	2
	3
	4
Most Risk	5