

**Arkansas State Police Retirement System**  
**Annual Financial Report**  
*For the year ending June 30, 2018*



# Arkansas State Police Retirement System

A Pension Trust Fund of the State of Arkansas



## Annual Financial Report

For the fiscal year ended June 30, 2018

Gail H. Stone, Executive Secretary  
Colonel Bill Bryant, Director of State Police

Prepared by  
Arkansas Public Employees Retirement System  
124 West Capitol Avenue, Suite 400  
Little Rock, AR 72201

# Table of Contents

## INTRODUCTION

|                                |    |
|--------------------------------|----|
| A Brief History of ASPRS       | 7  |
| System Highlights              | 8  |
| Troop Headquarters             | 9  |
| Letter of Transmittal          | 10 |
| Board of Trustees              | 13 |
| ASPRS Senior Staff             | 14 |
| Professional Service Providers | 15 |

## FINANCIAL SECTION

|   |    |
|---|----|
| Management's Discussion and Analysis                            | 19 |
| Statement of Fiduciary Net Position                             | 25 |
| Statement of Changes in Fiduciary Net Position                  | 26 |
| Notes to the Financial Statements                               | 27 |
| Note 1: Plan Description  | 27 |
| Note 2: Summary of Significant Accounting Policies              | 30 |
| Note 3: Deposits and Investments                                | 31 |
| Note 4: Legally Required Reserves                               | 52 |
| Note 5: Net Pension Liability                                   | 53 |
| Note 6: Deferred Retirement Option Plan                         | 56 |
| Required Supplementary Information                              | 57 |
| Schedule of Funding Progress                                    | 57 |
| Schedule of Employer Contributions                              | 58 |
| Schedule of Changes in Net Pension Liability and Related Ratios | 59 |
| Schedule of Net Pension Liability                               | 60 |
| Schedule of Investment Returns                                  | 60 |
| Notes to Required Supplementary Information                     | 61 |
| Schedule of Administrative Expenses                             | 61 |
| Schedule of Investment Expenses                                 | 61 |
| Payments for Professional Consultants                           | 61 |

## INVESTMENTS SECTION

|   |    |
|---|----|
| Chief Investment Officer's Report                     | 65 |
| Investment Policy Summary                             | 70 |
| Asset Allocation                                      | 71 |
| Schedule of Manager Distribution                      | 74 |
| Portfolio Characteristics                             | 75 |
| Schedule of Comparative Investment Results by Year    | 76 |
| Schedule of Comparative Annualized Investment Results | 77 |
| Ten Largest Holdings                                  | 78 |
| Schedule of Brokerage Commissions                     | 79 |
| Schedule of Investment Fees                           | 80 |

# Table of Contents

## ACTUARIAL SECTION

|  |    |
|--|----|
| Actuary's Certificate Letter   | 84 |
| Summary of Actuarial Assumptions                                     | 87 |
| Supplementary Information  | 89 |
| Single Life Retirement Values  | 90 |
| Separations from Active Employment Before Age and Service Retirement | 91 |
| Probabilities of Retirement for Members Eligible to Retire           | 92 |
| Active Members in Actuarial Valuation                                | 93 |
| Tier One and Tier Two Participants                                   | 94 |
| Short Condition Test   | 95 |
| Derivation of Experience Gain/(Loss)                                 | 97 |
| Analysis of Experience - Gains/(Losses) by Risk Area                 | 98 |
| Summary of Plan Provisions   | 99 |

## STATISTICAL SECTION

|  |     |
|--|-----|
| Schedule of Revenues By Source                 | 105 |
| Schedule of Expenses by Type                   | 106 |
| Schedule of Benefit Expenses by Type           | 107 |
| Schedule of Retired Members by Type of Benefit | 108 |
| Statistical Graphs                             | 109 |

# INTRODUCTION

A Brief History of ASPRS

System Highlights

Troop Headquarters

Letter of Transmittal

Board of Trustees

ASPRS Senior Staff

Professional Service Providers



## A BRIEF HISTORY OF ASPRS

With the passage of Act 311 on March 19, 1951, the Arkansas General Assembly created the State Police Retirement System (ASPRS or the System). This System provides for the retirement of police officer employees of the Department of Arkansas State Police.

In the beginning, all ASPRS members participated in a contributory plan whereby employers and employees made contributions to the System. However, in 1977, Act 793 was signed by then Governor David Pryor. This legislation offered a choice to employees who were currently under the contributory plan. They could remain under the contributory plan or change over to the new non-contributory plan in which only employers make contributions to the System. This choice was offered to employees who were ASPRS members at some previous time and returned to work for the System on or after January 1, 1978; however, anyone joining the System on or after, January 1, 1978 who was not previously an ASPRS member is automatically covered under the new non-contributory plan.

Act 1071 of 1997 created the Tier Two Benefit Plan for the State Police Retirement System (Tier II) for all officers hired on or after April 3, 1997. Members of the plan in effect before April 3, 1997 (Tier I) had one year from April 3, 1997 to elect participation in Tier II.

Act 1242 of 2009 merged the investable assets of ASPRS with those of the Arkansas Public Employees Retirement System (APERS). All authority over investment of the merged assets was granted to the Board of Trustees of the Arkansas Public Employees Retirement System (APERS Board). Investment schedules contained herein reflect the market values accruing to each system.

This annual financial report, which covers the period from July 1, 2017 through June 30, 2018, provides comprehensive information about the System including a description of the retirement plan; investment policies and objectives; financial statements; an actuarial report; and historical and statistical information on active members, annuitants, and benefit payments.



## SYSTEM HIGHLIGHTS

(as of June 30, 2018)

### Active Members (Excludes DROP participants)

| Tier I                 |          | Tier II                |          |
|------------------------|----------|------------------------|----------|
| Number                 | 43       | Number                 | 424      |
| Average Age (yrs.)     | 50       | Average Age (yrs.)     | 38.4     |
| Average Service (yrs.) | 22.3     | Average Service (yrs.) | 9.6      |
| Average Annual Salary  | \$69,197 | Average Annual Salary  | \$52,000 |

### Inactive Vested Members

|        |    |
|--------|----|
| Number | 84 |
|--------|----|

### 2018 Retirees (Includes DROP participants)

|                                 | Age and Service | Disability |
|---------------------------------|-----------------|------------|
| Retired Members                 | 35              | 4          |
| Average Age (yrs.)              | 53.63           | 46.50      |
| Average Credited Service (yrs.) | 20.14           | 8.25       |
| Average Monthly Benefit         | \$2,130.66      | \$1,238.75 |

### Total Retirees (Including DROP Participants, Disability Recipients, & Death-In-Service Beneficiaries)

|                         |            |
|-------------------------|------------|
| Retired Members         | 729        |
| Average Monthly Benefit | \$3,191.61 |

## TROOP HEADQUARTERS

**Troop "A"** 501-618-8282  
1 State Police Plaza Drive - Little Rock, AR 72209  
Captain Mike Hagar - Commander

**Troop "B"** 870-523-2701  
2000 Fairgrounds Rd - Newport, AR 72112  
Captain Todd Shaw - Commander

**Troop "C"** 870-935-7302  
2216 Browns Lane Access Rd - Jonesboro, AR 72403  
Captain John Carter - Commander

**Troop "D"** 870-633-1454  
3205 North Washington - Forrest City, AR 72335  
Captain Jackie Clark - Commander

**Troop "E"** 870-247-1483  
6816 Princeton Pike - Pine Bluff, AR 71602  
Captain Randall Dias - Commander

**Troop "F"** 870-226-3713  
1237 North Myrtle - Warren, AR 71671  
Captain Scott Woodward - Commander

**Troop "G"** 870-777-4641  
2501 North Hazel - Hope, AR 71801  
Captain Brady Gore - Commander

**Troop "H"** 479-783-5195  
5728 Kelly Highway - Fort Smith, AR 72914  
Captain Jason Aaron - Commander

**Troop "I"** 870-741-3455  
2724 Airport Road - Harrison, AR 72602  
Captain Wesley Smithee - Commander

**Troop "J"** 479-754-3096  
2700 West Main - Clarksville, AR 72830  
Captain Dale Saffold - Commander

**Troop "K"** 501-767-8550  
200 Karen Street - Hot Springs, AR 71901  
Captain Ron Casey - Commander

**Troop "L"** 479-751-6663  
900 South 48th St - Springdale, AR 72766  
Captain David Cooper - Commander



## LETTER OF TRANSMITTAL

Dear ASPRS Members:

The Arkansas State Police Retirement System (ASPRS or the System) is pleased to present the Annual Financial Report for the period ending June 30, 2018. The report is designed to provide a clear and concise picture of the financial conditions of the System. The report includes the following six sections:

- The Introduction contains the administrative organization, a letter of transmittal, and the chairman's report;
- The Financial Section contains the financial statements and required supplementary information;
- The Investments Section contains a report on investment activity, investment policies, investment results, and various investment schedules;
- The Actuarial Section contains the actuary's certification letter and the results of the annual actuarial valuation;
- The Statistical Section includes significant trend data pertaining to the System;
- The Appendix contains combined ASPRS and APERS financial statements.

### Accounting System

The accrual basis of accounting is used to record the assets, liabilities, revenues, and expenses of the ASPRS trust fund. Revenues are recognized in the accounting period in which they are earned, without regard to date of collection, and expenses are recorded when incurred, regardless of when payment is made. Investments are reported at market values determined by the custodial agent. The agent's determination of market value includes, among other things, using pricing services or prices quoted by independent brokers at current exchange rates.

### Revenues

The fiscal year 2018 revenue from employer contributions totaled \$6.5 million. This amount is \$98,327 more than the amount received in fiscal year 2017. Court fees and driver's license reinstatement fees for the fiscal year were \$2.58 million, an increase of \$441,222 from fiscal year 2017. In 2018, motor vehicle title fees totaling \$4.66 million were collected in accordance with Act 718 of 2011.

In addition to the funding provided in previous years, Act 1071 of 1997 provided for a transfer from insurance premium taxes to the State Police Retirement Fund. This transfer is equal to the difference between the actuarially computed contribution rate minus other funding sources (employer contributions and driver's license reinstatement fees). The fund received \$7.11 million from the insurance premium tax transfer during fiscal year 2018 and \$6.69 million in fiscal year 2017.

The System earned net investment income of \$28.82 million in fiscal year 2018 after expenses of just over \$1.5 million, a decrease of \$2.7 million from fiscal year 2017. Overall, the System's revenues decreased \$1.62 million over fiscal year 2017 due primarily to slightly lower investment returns.

### Expenses

Benefit payments for fiscal year 2018 were \$24.18 million, which is \$446,368 less than fiscal year 2017. Administrative expenses were \$228,430, of which \$62,700 was for professional fees and \$157,463 was transferred to APERS for indirect administrative costs.

### Funding

The System is funded through contributions from the state and from investment income. The general financial objective of the System is to establish and receive contributions which, expressed as a percent of active member payroll, will remain approximately level from generation to generation.

### Investments

Act 1242 of 2009 effectively merged the ASPRS investment program with that of APERS and granted the APERS Board all investment authority. In accordance with the Investment Code contained in the Arkansas Code Annotated, the APERS Board has established a policy which requires that the funds be invested in conformity with the "prudent investor rule." The Investment Code permits the fund to establish an investment policy based upon certain investment criteria and allows for delegation of investment authority to professional investment managers. The statement of investment policy outlines the responsibility for the investment of the fund and reflects the degree of risk that is deemed appropriate for the fund. Investment managers are to execute the investment policy in accordance with statutory authority and the policies and respective guidelines of the APERS Board, but they are free to use full discretion within those policies and guidelines. Compliance by the current investment managers is monitored on a continuing basis by the investment consulting firm Callan Associates Inc. and APERS staff. The investment managers retained by the APERS Board are listed on page 15 of this report.

### Professional Services

Professional services are provided to ASPRS by firms selected by the APERS Board to aid in the efficient and effective management of the System. A list of firms retained during the year can be found on page 15 of this report.

### Acknowledgments

This report is the result of the combined efforts of the APERS staff under the direction of the Board of Trustees of the State Police Retirement System. Its purpose is to provide complete and reliable information as a basis

for making management decisions, as a means for determining compliance with legal provisions, and as a means for determining responsible stewardship over the assets contributed by the members and employers.

Sincerely yours,

A stylized, handwritten signature in dark ink, appearing to read 'C. Hendrix III'.

Carl E. Hendrix III

A cursive, handwritten signature in dark ink, clearly legible as 'Gail H. Stone'.

Gail H. Stone

## BOARD OF TRUSTEES

Mr. Carl "Ned" Hendrix, Chair - Winthrop, AR, Citizen-At-Large  
Expiration of Term: July 1, 2019

Lt. Ben Cross, Vice Chair - Fort Smith, AR, Active Tier I member  
Expiration of Term: July 1, 2022

Lt. Brant Tosh, Chair - Jonesboro, AR, Active Tier II member  
Expiration of Term: July 1, 2020

Mr. Donnie Underwood - Marion, AR, Citizen-At-Large  
Expiration of Term: July 1, 2021

Commissioner Bob Burns - Little Rock, AR, Arkansas State Police Commissioner  
Expiration of Term: July 1, 2024

Mr. Phillip Milligan. Ft. Smith, AR, Citizen-At-Large  
Expiration of Term: July 1, 2025

Dr. John Shelnutt - Little Rock, AR - Chief Fiscal Officer of State or Designee  
Expiration of Term: Ex-Officio Member

## ASPRS SENIOR STAFF

Ms. Gail Stone  
Executive Director

Mr. Jay Wills  
Deputy Director

Mr. Jason Willett  
Chief Financial Officer

Mr. Carlos Borromeo  
Chief Investment Officer

Ms. Allison Woods  
Director of Benefits Administration

Mr. Phillip Norton  
Director of Information Technology

Ms. Becky Walker  
Director of Operations

Ms. Jacobia Twiggs  
Manager, Educational Outreach

Ms. Jennifer Taylor  
Manager, Member and Retiree Services Section

Mr. Jon Aucoin  
Manager, Communications Section

Ms. Jessica Middleton  
Legal Counsel

Mr. John Owens  
Internal Auditor

Ms. Usha Doolabh  
Accounting Operations Manager, Investments

## PROFESSIONAL SERVICE PROVIDERS

### Custodian Bank

**The Bank of New York Mellon**  
Pittsburgh, PA 15258

### Actuary

**Gabriel, Roeder, Smith & Co.**  
Southfield, MI 48076

### Investment Consultant

**Callan Associates, Inc.**  
Chicago, IL 60602

### Investment Managers

**AQR Capital Management**  
Greenwich, CT 06830

**Artisan Partners**  
Milwaukee, WI 53202

**Baillie Gifford Overseas Ltd.**  
Edinburgh, Scotland

**Blackstone Alternative Asset Mgmt., LP**  
New York, NY 10154

**CastleArk Management, LLC**  
Chicago, IL 60606

**Double Line Capital**  
Los Angeles, CA 90071

**Golden Capital Management**  
Charlotte, NC 28262

**Fidelity Institutional Asset Management**  
Smithfield, RI 02917

**Heitman America Real Estate**  
Chicago, IL 60606

**Horrell Capital Management**  
Little Rock, AR 72211

**INTECH**  
West Palm Beach, FL 33401

**Invesco Real Estate**  
Dallas, TX 75240

**LaSalle Investment Management**  
San Francisco, CA 94111

**Lazard Asset Management**  
New York, NY 10020

**LSV Asset Management**  
Chicago, IL

**MacKay Shields**  
New York, NY 10105

## Investment Managers (continued)

**Manning & Napier Advisors**

Dublin, OH 43017

**Mellon Capital Management**

Pittsburgh, PA 15258

**Newton Capital Management**

New York, NY 10166-0005

**Pinnacle Forest Investments, LLC**

Little Rock, AR 72211

**Prudential Investments, Inc.**

Newark, NJ 07102

**SSI Investment Management**

Beverly Hills, CA 90210

**Stephens Investment Management Group**

Houston, TX 77046

**TA Associates Realty**

Boston, MA 02109

**Wellington Management Company**

Boston, MA 02210

**Westwood Management Corp.**

Dallas, TX 75201



# FINANCIAL

Management's Discussion and Analysis

Statement of Fiduciary Net Position

Statement of Changes in Fiduciary Net Position

Notes to the Financial Statements

Note 1: Plan Description

Note 2: Significant Accounting Policies

Note 3: Deposits and Investments

Note 4: Legally Required Reserves

Note 5: Net Pension Liability

Note 6: Deferred Retirement Option Plan

Required Supplementary Information

Schedule of Funding Progress

Schedule of Employer Contributions

Schedule of Changes in Net Pension Liability

Schedule of Net Pension Liability

Schedule of Investment Returns

Notes to Required Supplementary Information

Schedule of Administrative Expenses

Schedule of Investment Expenses

Payments for Professional Consultants



## MANAGEMENT'S DISCUSSION AND ANALYSIS

To help facilitate a better understanding of the financial condition of the Arkansas State Police Retirement System (ASPRS or the System) as of June 30, 2018, the results of its operation for the fiscal year ended, and the fiscal policies that govern its significant business operations, management has prepared this narrative analysis. The narrative is intended to supplement the System's financial statements and, as such, should be read in conjunction with these statements, which are presented beginning on page 25 and page 26.

Act 1242 of 2009 effectively merged the ASPRS investment program with that of the Arkansas Public Employees Retirement System (APERS) and granted the Board of Trustees of the Arkansas Public Employees Retirement System (APERS Board) all investment authority. The figures referred to in this section are ASPRS figures unless specifically stated otherwise.

### Overview of the Financial Statements

This overview is intended to serve as an introduction to the System's financial reporting. Collectively, all the information contained in the Financial Section of this annual report presents the net assets held in trust for pension benefits as of June 30, 2018.

The basic financial statements contained in the Financial Section of the annual report consist of the following:

The Statement of Fiduciary Net Position reports the pension trust fund's assets, liabilities, and resulting net position such that assets – liabilities = net position at the end of the fiscal year. It is a snapshot of the financial position of the pension trust fund at that specific time. Below is a summary of total assets, total liabilities, and resulting net position for fiscal years 2017 and 2018:

### Summary of Fiduciary Net Position

|   | 2018                  | 2017                  |
|---|-----------------------|-----------------------|
| <b>Assets</b>                                       |                       |                       |
| Cash and Cash Equivalents                           | \$ 15,537,298         | \$ 13,650,486         |
| Receivables   | 3,336,641             | 2,443,529             |
| Investments   | 309,912,126           | 285,792,307           |
| Securities Lending Collateral                       | 35,616,267            | 26,898,979            |
| <b>Total Assets</b>                                 | <b>\$ 364,402,333</b> | <b>\$ 328,785,301</b> |
| <b>Liabilities</b>                                  |                       |                       |
| Other Liabilities                                   | \$ 532,415            | \$ 521,887            |
| Investment Principal Payable                        | 3,263,410             | 1,781,434             |
| Securities Lending Collateral                       | 35,668,257            | 26,956,862            |
| <b>Total Liabilities</b>                            | <b>39,464,082</b>     | <b>29,260,184</b>     |
| <b>Net Position Restricted For Pension Benefits</b> | <b>\$ 324,938,251</b> | <b>\$ 299,525,117</b> |

Totals may not add due to rounding.

### The Statement of Changes in Fiduciary Net Position

The Statement of Changes in Fiduciary Net Position summarizes the pension trust fund's financial transactions that have occurred during the fiscal year such that additions – deductions = net change in net position. It supports the change that has occurred to the prior year's net position value on the Statement of Fiduciary Net Position. Below is a summary of the financial transactions of the trust fund for fiscal years 2017 and 2018:

#### Summary of Changes in Fiduciary Net Position

|                                     | 2018                         | 2017                         |
|-------------------------------------|------------------------------|------------------------------|
| <b>Additions</b>                    |                              |                              |
| Employer Contributions              | \$ 6,515,063                 | \$ 6,416,736                 |
| Member Contributions                | 133,860                      | 43,037                       |
| Supplemental                        | 7,109,703                    | 6,693,915                    |
| Court                               | 974,516                      | 974,516                      |
| Driver's License Reinstatement Fees | 1,606,181                    | 1,164,959                    |
| Motor Vehicle Title Fees            | 4,664,316                    | 4,667,895                    |
| Net Investment Income               | 28,823,333                   | 31,484,250                   |
| Other Additions                     | 11                           | 8                            |
| <b>Total Additions</b>              | <b>\$ 49,826,983</b>         | <b>\$ 51,445,316</b>         |
| <b>Deductions</b>                   |                              |                              |
| Benefits                            | 24,185,419                   | 24,631,787                   |
| Administrative Expenses             | 228,430                      | 208,424                      |
| <b>Total Deductions</b>             | <b>\$ 24,413,849</b>         | <b>\$ 24,840,211</b>         |
| <b>Net Increase / (Decrease)</b>    | <b>\$ 25,413,134</b>         | <b>\$ 26,605,105</b>         |
| <b>Net Position</b>                 |                              |                              |
| Beginning of Year                   | 299,525,117                  | 272,920,012                  |
| End of Year                         | <u><u>\$ 324,938,251</u></u> | <u><u>\$ 299,525,117</u></u> |

Totals may not add due to rounding.

### Additions to Fiduciary Net Position

The reserves needed to finance retirement benefits are accumulated through the collection of employer and employee contributions and through earnings on investments. Accumulations for fiscal year 2018 totaled approximately \$49.8 million (see the following table):

| <b>Operating Additions</b>          | 2018                 | 2017                 |
|-------------------------------------|----------------------|----------------------|
| Employer Contributions              | \$ 6,515,063         | \$ 6,416,736         |
| Member Contributions                | 133,860              | 43,037               |
| Supplemental Contributions          | 7,109,703            | 6,693,915            |
| Court Fees                          | 974,516              | 974,516              |
| Driver's License Reinstatement Fees | 1,606,181            | 1,164,959            |
| Motor Vehicle Title Fees            | 4,664,316            | 4,667,895            |
| Net Investment Income               | 28,823,333           | 31,484,250           |
| Miscellaneous Additions             | 11                   | 8                    |
| <b>Total</b>                        | <u>\$ 49,826,983</u> | <u>\$ 51,445,316</u> |

The overall decrease in additions was approximately \$1.6 million when compared to fiscal year 2017 and was due to slightly lower investment returns. The Investments Section of this report reviews investment activity and the results of the investment portfolio for fiscal year 2018.

### Deductions to Fiduciary Net Position

The primary deductions from the System include the payment of benefits to members and beneficiaries, the refund of contributions to former members, and the cost of administering the System. Deductions for fiscal year 2018 totaled approximately \$24.4 million (see the following table):

| <b>Operating Deductions</b> | 2018                 | 2017                 |
|-----------------------------|----------------------|----------------------|
| Benefit Payments            | \$ 24,185,419        | \$ 24,631,787        |
| Administrative Expenses     | 228,430              | 208,424              |
| <b>Total</b>                | <u>\$ 24,413,849</u> | <u>\$ 24,840,211</u> |

Totals may not add due to rounding.

### The Notes to the Financial Statements

The Notes to the Financial Statements are provided to help explain in narrative form some of the more complex or less obvious elements of the statements. Further, the Notes to the Financial Statements provide additional information that is essential for a comprehensive understanding of the System's financial condition and the results of its operations.

- Note 1 provides a general description of the System, including information regarding membership and employers.
- Note 2 summarizes significant accounting policies, including the basis of accounting, management's use of estimates, and other accounting policies.
- Note 3 describes deposits, discloses investment risks, and addresses securities lending as well as derivative instruments.
- Note 4 provides information regarding legally required reserves.
- Note 5 provides information regarding the System's net pension liability.
- Note 6 describes the System's Deferred Retirement Option Plan.

The required supplementary information provides additional detail and historical information considered to be useful in evaluating the condition of the plan administered by APERS. The System provides certain required schedules and related note disclosures that collectively demonstrate the System's annual progress toward funding its actuarial accrued liability and disclose the annual employer contributions required and the percentage contributed.

The other supplementary schedules summarize the major categories of administrative and investment expenses and detail the amounts paid to professional consultants.

### Funding

The System's overall funding objective is to accumulate sufficient assets over time to meet its long term benefit obligations as they become due. Accordingly, collecting employer and member contributions and earning an adequate long term rate of return on its investments are essential components of the System's plan for accumulating the funds needed to finance future retirement benefits.

ASPRS overall pension fund net position increased during the fiscal year ended June 30, 2018 by \$25.4 million. This increase can be attributed to an increase in the value of investments and their associated income.

### System Investments as of June 30, 2018

The investments of the pension trust fund generated a 10.25% return for the fiscal year, which is lower than the prior year's return of 12.30%. The 10.25% return placed APERS in the 10th percentile when compared with a median return of 8.23% for large public plans. Investment results over time are compared with the System's benchmarks in the schedule of comparative investment results located in the Investments Section of this annual report. Below is a summary of the performance of the System's assets by class:

- Domestic Equity - The System had \$3.568 billion in U.S. domestic equity securities, which is approximately a 9.93% increase from fiscal year 2017. Domestic equity posted a return of 16.27% for the fiscal year. The Russell 3000 Index posted a return of 14.78%.
- International Equity - The System had \$2.183 billion in international equity securities which is approximately a 6.45% increase from fiscal year 2017. International equity posted a return of 7.22% for the fiscal year. The MSCI EAFE Index posted a return of positive 6.84%.
- Fixed Income - The System had \$1.342 billion in fixed income securities, which is approximately a 0.60% increase from fiscal year 2017. Fixed income posted a return of 0.79% for the fiscal year. The Barclays Aggregate Index posted a loss of 0.40%.
- Diversified Strategies - The System had \$413 million in diversified strategies, which is approximately a 5.81% increase from fiscal year 2017. Diversified strategies posted a return of 6.43% for the fiscal year.
- Real Assets - The System had \$1.366 billion in real assets, which is approximately a 9.93% increase from fiscal year 2017. Real assets posted a return of 11.34% for the fiscal year. CPIU+4% posted a return of 6.87%

### Securities Lending

The System earns additional investment income by lending investment securities to broker-dealers. This is done by the custodian bank, Bank of New York Mellon (BNYM). The broker-dealers provide collateral to BNYM and generally use the borrowed securities to cover short sales and failed trades for their clients. BNYM invests cash collateral to earn interest. For the fiscal year 2018, securities lending income to the System amounted to \$3.835 million.

### Actuarial Valuations and Funding Progress

The actuarial accrued liability and actuarial value of assets of the System as of June 30, 2018, amounted to \$442.93 million and \$319.79 million respectively.

As of June 30, 2018, the System experienced an increase in its funded status from 69% to 73% on a market value basis. On a funding basis, the System experienced an increase in its funded status from 71% to 72%.

### Requests for Information

This annual report is designed to provide a general overview of the finances of the System. Questions concerning any of the information provided in this report or requests for additional information should be addressed to the Arkansas Public Employees Retirement System, 124 W. Capitol, Suite 400, Little Rock, AR 72201.



## STATEMENT OF FIDUCIARY NET POSITION

(as of June 30, 2018)

|   | 2018                  | 2017                  |
|---|-----------------------|-----------------------|
| <b>ASSETS</b>   |                       |                       |
| <b>Cash and Cash Equivalents</b>                                | \$ 15,537,298         | \$ 13,650,486         |
| <b>Receivables</b>  |                       |                       |
| Contributions & Retiree Receivables                             | 133,540               | 143,242               |
| Investment Principal Receivable                                 | 2,616,960             | 1,621,784             |
| Accrued Investment Income Receivable                            | 586,141               | 678,531               |
| <b>Total Receivables</b>  | 3,336,641             | 2,443,556             |
| <b>Investments, At Fair Value</b>                               |                       |                       |
| Government Securities   |                       |                       |
| U.S. Government Securities                                      | 6,122,256             | 7,735,692             |
| Futures   | (9,567)               | (3,508)               |
| Government Agency Securities                                    | 3,461,237             | 2,432,764             |
| Municipal   | 14,979                | 0                     |
| Corporate Securities  |                       |                       |
| Collateralized Obligations                                      | 4,207,668             | 4,063,898             |
| Corporate Bonds   | 8,983,087             | 8,734,771             |
| Convertible Bonds   | 8,437,513             | 7,049,013             |
| Convertible Preferred Stock                                     | 1,419,825             | 1,897,719             |
| Common Stock  | 100,882,069           | 87,683,375            |
| Equity Index Funds  | 21,619,815            | 30,978,911            |
| High Yield Income Fund  | 2,284,451             | 2,218,325             |
| International Securities  |                       |                       |
| Global Fixed Income Fund  | 42,152                | 21,323                |
| Corporate Fixed Income  | 1,733,053             | 1,574,411             |
| Equity Securities   | 36,331,839            | 41,131,418            |
| Global Preferred Stock  | 360,135               | 80,183                |
| Equity Pooled Fund Units  | 20,284,600            | 20,475,851            |
| International Equity Index Fund                                 | 13,627,073            | 0                     |
| Global Collateralized Obligations                               | 76,193                | 52,957                |
| Emerging Markets  | 975,050               | 1,163,394             |
| Forward Contracts   | 0                     | (14,655)              |
| Core Plus Bond Fund   | 16,499,363            | 16,187,869            |
| Real Estate   | 37,192,107            | 28,261,992            |
| Diversified Strategies  | 14,766,420            | 13,804,856            |
| Timberland  | 3,585,552             | 3,951,301             |
| Global Energy Fund  | 6,067,456             | 4,710,140             |
| Commercial Loans  | 947,800               | 1,600,280             |
| <b>Total Investments</b>  | 309,912,127           | 285,792,280           |
| <b>Securities Lending Collateral Investments, At Fair Value</b> |                       |                       |
| Receivables/Payables  | (371,278)             | (2,294)               |
| Repurchase Agreements   | 11,305,050            | 6,815,753             |
| Floating Rate Notes   | 16,506,966            | 13,242,837            |
| Asset Backed Securities   | 8,175,530             | 6,842,683             |
| <b>Total Securities Lending Collateral Investments</b>          | 35,616,267            | 26,898,979            |
| <b>TOTAL ASSETS</b>   | <u>364,402,333</u>    | <u>328,785,301</u>    |
| <b>LIABILITIES</b>  |                       |                       |
| Accrued Expenses and Other Liabilities                          | 532,415               | 521,887               |
| Investment Principal Payable                                    | 3,263,410             | 1,781,434             |
| Securities Lending Liability                                    | 35,668,257            | 26,956,862            |
| <b>TOTAL LIABILITIES</b>  | <u>39,464,082</u>     | <u>29,260,184</u>     |
| <b>NET POSITION RESTRICTED FOR PENSION BENEFITS</b>             | <u>\$ 324,938,251</u> | <u>\$ 299,525,117</u> |

Totals may not add due to rounding. The schedule of funding progress is on page 57.

## STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

(for the year ended June 30, 2018)

|   | 2018                  | 2017                  |
|---|-----------------------|-----------------------|
| <b>Additions</b>                                    |                       |                       |
| Contributions                                       |                       |                       |
| Employer  | \$ 6,515,063          | \$ 6,416,736          |
| Member  | 133,860               | 43,037                |
| Supplemental  | 7,109,703             | 6,693,915             |
| Court   | 974,515               | 974,516               |
| Drivers' License Reinstatement Fees                 | 1,606,180             | 1,164,959             |
| Motor Vehicle Title Fees                            | 4,664,316             | 4,667,895             |
| Total Contributions                                 | 21,003,638            | 19,961,058            |
| Investment Income                                   |                       |                       |
| Interest  | 1,447,107             | 2,614,165             |
| Dividends   | 2,940,294             | 2,921,991             |
| Investment Gain/(Loss)                              | 24,248,256            | 27,072,140            |
| Security Lending Income                             | 516,672               | 182,384               |
| Real Estate   | 1,238,832             | 0                     |
| Other   | 11,785                | 12,786                |
| Total Investment Income                             | 30,402,945            | 32,803,468            |
| Less: Investment Expense                            | 1,579,612             | 1,319,219             |
| Net Investment Income                               | 28,823,333            | 31,484,249            |
| Other Additions                                     | 11                    | 8                     |
| <b>Total Additions</b>                              | 49,826,982            | 51,445,315            |
| <b>Deductions</b>                                   |                       |                       |
| Benefits  | 24,185,419            | 24,631,787            |
| Administrative Expenses                             | 228,430               | 208,424               |
| <b>Total Deductions</b>                             | 24,413,849            | 24,840,211            |
| <b>Net Increase / (Decrease)</b>                    | 25,413,134            | 26,605,105            |
| <b>Net Position Restricted for Pension Benefits</b> |                       |                       |
| Beginning of Year                                   | 299,525,117           | 272,920,012           |
| End of Year   | <u>\$ 324,938,251</u> | <u>\$ 299,525,117</u> |

Totals may not add due to rounding.  
See Notes to the Financial Statements beginning on page 27.

## NOTES TO THE FINANCIAL STATEMENTS

### Note 1: Plan Description

#### General Information

The Arkansas State Police Retirement System (ASPRS or the System) is a single-employer, defined benefit pension plan that was established on March 19, 1951 with the passage of Act 311 of 1951. The System provides for the retirement of police officers employed by the Department of Arkansas State Police. The laws governing the operations of ASPRS are set forth in Arkansas Code Annotated (A.C.A.), Title 24, Chapters 2 and 6. Act 1071 of 1997 created a Tier II benefit plan for all police officers hired on or after April 3, 1997.

Effective July 1, 2009, Act 1242 of 2009 transferred the assets of ASPRS to the Arkansas Public Employees Retirement System (APERS) to hold in trust for ASPRS. Act 1242 of 2009 also states that the State Police Trust Fund shall not be treated as segregated funds but shall be commingled with the assets of APERS strictly for investment purposes and that the assets of ASPRS and APERS shall be invested as determined by the Board of Trustees of the Arkansas Public Employees Retirement System (APERS Board).

Act 1242 of 2009 also created the Arkansas State Police Officers' Tier II Deferred Retirement Option Plan (DROP), and it changed the composition of the Board of Trustees of the State Police Retirement System (ASPRS Board).

Arkansas Code Annotated § 24-6-204 states that the membership of the ASPRS Board shall be composed of seven members as follows:

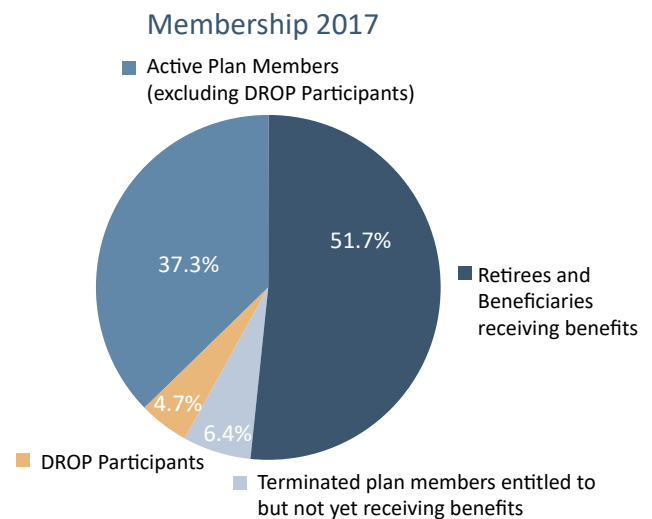
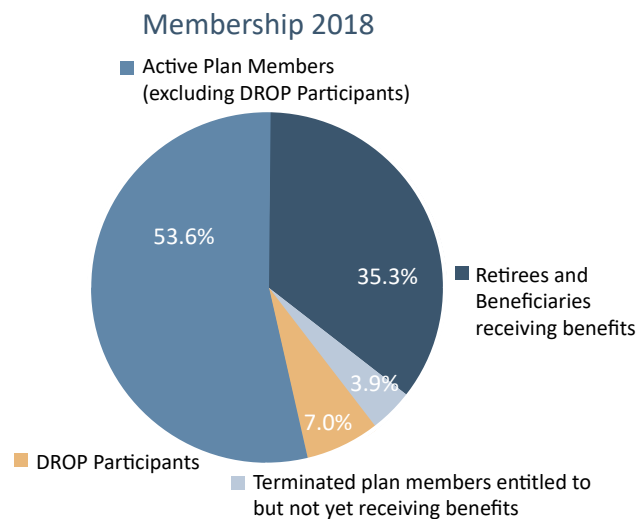
- One active member enrolled in the Tier I benefits program,
- One active, vested member enrolled in the Tier II benefits program,
- The State Police Commissioner who shall be appointed by the Governor,
- The Chief Fiscal Officer of State or his or her designee, and
- Three citizens at large who shall be appointed by the Governor.

The members of the ASPRS Board are listed on page 13 of this report.

### Membership

The membership as of the June 30 end of fiscal years 2017 and 2018 was as follows:

|  | 2018         | 2017         |
|--|--------------|--------------|
| Retirees and Beneficiaries Receiving Benefits                      | 668          | 650          |
| Terminated plan members entitled to but not yet receiving benefits | 84           | 80           |
| DROP Participants  | 61           | 59           |
| Active Plan Members (Excludes DROP Participants)                   | 467          | 469          |
|  | <u>1,280</u> | <u>1,258</u> |



### Contributions

As of June 30, 2017 and 2018, there were no contributory members of ASPRS. Plan member contributions presented in the financial statements are related to service purchase payments. For fiscal year 2018, the employer contribution rate was 22% of salaries paid (A.C.A. § 24-6-209). Contribution provisions are established by state law and may be amended only by the Arkansas General Assembly.

Act 1071 of 1997 provides for a transfer from insurance premium taxes to the State Police Retirement Fund (the ASPRS fund). The ASPRS fund received \$7.110 million of Act 1071 funds in fiscal year 2018 and \$6.694 million in fiscal year 2017. Additional funds are collected from motor vehicle title fees in accordance with Act 718 of 2011. The ASPRS fund received \$4.66 million of Act 718 funds in fiscal year 2018 and \$4.67 million in fiscal year 2017.

### Plan Administration

Costs of administering the plan are paid out of investment earnings.

### Benefits

Benefit provisions are established by state law and may be amended only by the Arkansas General Assembly. Members are eligible for full retirement benefits after meeting the following minimum age and service requirements:

- under the Tier I contributory plan at age 50 with five years of actual service,
- under the Tier I non-contributory plan at age 52 with five years of actual service,
- under either the Tier I or Tier II plan at any age with 30 years of actual service, or
- under the Tier II plan at age 65 with at least five actual years of service.

The normal retirement benefit, paid on a monthly basis, is determined based on (a) the member's final average salary and (b) the number of years of service. Under the contributory plan, a member may retire with a reduced benefit after 20 years of service regardless of age. Under the non-contributory plan, a member may retire with a reduced benefit with at least five years of actual service if the member is within 10 years of normal retirement age.

### Increases after Retirement

Retirees will receive a 3% cost of living adjustment (COLA) increase in their benefit each July 1. Eligibility for the COLA requires being retired from July 1 for a full 12 months.

## Note 2: Summary of Significant Accounting Policies

### Basis of Accounting

The System's accounts and records are maintained using fund accounting principles, and its financial statements are prepared using the accrual basis of accounting. Expenses are recorded when the liability is incurred, revenues are recorded in the accounting period in which they are earned and become measurable, and investment purchases and sales are recorded as of their trade dates. Member and employer contributions are established by statute as a percentage of salaries and are recognized when due, pursuant to legal requirements. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan.

### Use of Estimates

The preparation of the System's financial statements in conformity with accounting principles generally accepted in the U.S. requires the System administrator to make significant estimates and assumptions that affect various data in the report, including the following:

- The net position restricted for pensions at the date of the financial statements
- The net pension liability and other actuarial information presented in Note 5
- The required supplementary information as of the benefit information date
- The changes in fiduciary net position during the reporting period

Estimates may also be involved in formulating disclosures of contingent assets and liabilities at the date of the financial statements. Actual results could differ from these estimates.

### Cash and Cash Equivalents

Cash and cash equivalents include demand accounts, imprest accounts, cash in the state treasury, and short-term investment funds (STIF). The STIF accounts are created through daily sweeps of excess cash by the System's custodian bank into bank-sponsored commingled funds that are invested in U.S. Government and agency securities and other short-term investments. The STIF accounts had an average weighted maturity of 90 days or less and are stated at fair value.

### Note 3: Deposits and Investments

#### Deposits

Deposits are carried at cost and are included in “cash and cash equivalents.” Cash and cash equivalents include demand accounts, cash in state treasury, and short-term investment funds (STIF). As of June 30, 2018, these totals were \$19,642, \$750,858, and \$14,766,798 respectively. State Treasury Management Law governs the management of funds held in the State Treasury (cash in state treasury) and it is the responsibility of the Treasurer of State to ensure the funds are adequately insured and collateralized.

#### Custodial Credit Risk for Deposits

Custodial credit risk for deposits is the risk that, in the event of the failure of a depository financial institution, the System will not be able to recover deposits or collateral securities. The System’s policy is to place deposits only in collateralized or insured accounts. As of June 30, 2018, the System’s only deposits exposed to potential custodial credit risk were those holding its foreign currency balance of \$275,397. The System holds foreign currency in banks outside the United States as a result of transactions by international investment managers.

Act 1242 of 2009 merged the investable assets of ASPRS with those of APERS. All authority over investment of the merged assets was granted to the APERS Board. Investment schedules reflect the market values accrued to each system.

#### Investments

Arkansas Code Annotated §§ 24-2-601 – 24-2-619 authorize the APERS Board to have full power to invest and reinvest monies of the System and to hold, purchase, sell, assign, transfer, or dispose of any of the investments or proceeds of the investments in accordance with the prudent investor rule. Security transactions and any resulting gains or losses are accounted for on a trade basis. Net investment income includes net appreciation in the fair value of investments, interest income, dividend income, and total investment expense, which includes investment management, custodial fees, and all other significant investment related costs.

Arkansas Code Annotated § 24-2-608 also states the System shall seek to invest not less than 5% nor more than 10% of the System’s portfolio in Arkansas-related investments. The APERS Board recognizes a legal responsibility to seek to invest in the Arkansas economy, while realizing its primary, legal, and fiduciary commitment is to beneficiaries of the retirement system. As stated in A.C.A. § 24-2-608 (d), “nothing in this section shall in any way limit or impair the responsibility of a fiduciary to invest in accordance with the prudent investor rule set forth in §§ 24-2-610 – 24-2-619.”



## Statement of Invested Assets by Type (fair value\* as of June 30, 2018)

| Investment Type  | Combined                | ASPRS                 | APERS                   |
|--|-------------------------|-----------------------|-------------------------|
| <b>Investments at Fair Value</b>                               |                         |                       |                         |
| Government Securities  |                         |                       |                         |
| U.S. Government Securities                                     | \$ 171,510,594          | \$ 6,122,256          | \$ 165,388,338          |
| Futures  | (268,000)               | (9,567)               | (258,433)               |
| Agency Pooled Securities                                       | 96,964,078              | 3,461,237             | 93,502,841              |
| Municipal Bonds  | 419,622                 | 14,979                | 404,643                 |
| Corporate Securities   |                         |                       |                         |
| Collateralized Obligations                                     | 117,874,784             | 4,207,668             | 113,667,116             |
| Corporate Bonds  | 251,654,720             | 8,983,087             | 242,671,633             |
| Convertible Bonds  | 236,370,852             | 8,437,513             | 227,933,339             |
| Convertible Preferred Stock                                    | 39,775,388              | 1,419,825             | 38,355,563              |
| Common Stock   | 2,826,138,146           | 100,882,053           | 2,725,256,092           |
| U.S. Equity Index Funds  | 605,663,557             | 21,619,815            | 584,043,742             |
| Equity Co-Mingled  | 0                       | 0                     | 0                       |
| High Yield Income Bond Fund                                    | 63,997,247              | 2,284,451             | 61,712,796              |
| International Securities                                       |                         |                       |                         |
| Global Government Fixed  | 1,180,868               | 42,152                | 1,138,716               |
| Corporate Fixed Income   | 48,550,233              | 1,733,053             | 46,817,180              |
| Equity Securities  | 1,017,810,340           | 36,331,839            | 981,478,501             |
| Global Preferred Stock   | 10,088,925              | 360,135               | 9,728,790               |
| Global Co-Mingled Funds  | 568,258,485             | 20,284,600            | 547,973,885             |
| International Equity Index Fund                                | 381,752,633             | 13,627,073            | 368,125,560             |
| Global Collateralized Obligations                              | 2,134,490               | 76,193                | 2,058,297               |
| Emerging Markets   | 27,315,319              | 975,050               | 26,340,269              |
| Emerging Markets Collateralized Obligations                    | 0                       | 0                     | 0                       |
| Forward Contracts  | 0                       | 0                     | 0                       |
| Core Plus Bond Fund  | 462,217,787             | 16,499,363            | 445,718,424             |
| Real Estate  | 1,041,910,115           | 37,192,107            | 1,004,718,008           |
| Diversified Strategies   | 413,670,632             | 14,766,420            | 398,904,212             |
| Timberland   | 100,446,655             | 3,585,552             | 96,861,103              |
| Global Energy Fund   | 169,975,408             | 6,067,456             | 163,907,952             |
| Commercial Loans   | 26,551,921              | 947,800               | 25,604,121              |
| <b>Total Investments</b>                                       | <b>8,681,964,800</b>    | <b>309,912,110</b>    | <b>8,372,052,690</b>    |
| <b>Securities Lending Collateral Investments at Fair Value</b> |                         |                       |                         |
| Receivables/Payables   | (10,401,091)            | (371,278)             | (10,029,813)            |
| Repurchase Agreements  | 316,702,840             | 11,305,050            | 305,397,790             |
| Floating Rate Notes  | 462,430,773             | 16,506,966            | 445,923,807             |
| Asset Backed Securities  | 229,031,581             | 8,175,530             | 220,856,051             |
| <b>Total Securities Lending Collateral Investments</b>         | <b>997,764,103</b>      | <b>35,616,267</b>     | <b>962,147,835</b>      |
| <b>Total Invested Assets</b>                                   | <b>\$ 9,679,728,903</b> | <b>\$ 345,528,377</b> | <b>\$ 9,334,200,526</b> |

\* Principal only. Totals may not add due to rounding.

### Asset Allocation

Asset allocation guidelines have been established as follows:

| Asset Type             | Allocation Target | Lower and Upper Limits |
|------------------------|-------------------|------------------------|
| Equities               | 37%               | 32% - 42%              |
| International Equities | 24%               | 19% - 29%              |
| Fixed Income           | 18%               | 13% - 23%              |
| Diversified Strategies | 5%                | 0% - 10%               |
| Real Assets            | 16%               | 11% - 21%              |
|                        | 100%              |                        |

Investments are reported at fair value as determined by the custodian bank. The custodian bank's determination of fair values includes, among other things, using pricing services or quotes by major independent brokers at current exchange rates, as available. The schedule on page 37 reflects the fair value of investments.

### Custodial Credit Risk for Investments

Custodial credit risk for investments is the risk that, in the event of failure of the counterparty to a transaction, the System will not be able to recover the value of its investments or collateral securities that are in the possession of an outside party. Investment securities are exposed to custodial credit risk if the securities are (a) uninsured, (b) not registered in the name of the government, and (c) held by either the counterparty or the counterparty's trust department or agent but not in the System's name. Arkansas Code Annotated §24-2-606 addresses the custodianship of assets, and the investment policy states that "the custodian bank shall, by nominee agreement, hold any and all securities for the beneficial interest of the APERS fund." As of June 30, 2018, there were no investments exposed to custodial credit risk.

### Credit Risk for Investments

Credit risk of investments is the risk that the issuer or other counterparty will not fulfill its obligation to the holder of the investment. Credit risk exposure is dictated by each investment manager's agreement. This credit risk is measured by the credit quality of investment in debt securities as described by nationally recognized statistical rating organizations. Each portfolio is managed in accordance with investment guidelines that are specific as to permissible credit quality ranges, exposure levels within individual security quality rating tiers, and the average credit quality of the overall portfolio.

The System's exposure to credit risk as of June 30, 2018, was as follows:

#### Moody's Credit Rating Dispersion Detail by Credit Rating

| Investment Type and Fair Value      | Aaa                | Aa                | A                  |
|-------------------------------------|--------------------|-------------------|--------------------|
| <b>Government Securities</b>        |                    |                   |                    |
| U.S. Government Securities          | \$ 171,510,594     | 0                 | 0                  |
| Agency CMO                          | 17,701,406         | 0                 | 0                  |
| Agency Pooled                       | 80,293,801         | 0                 | 0                  |
| U.S. Futures                        | 0                  | 0                 | 0                  |
| <b>Corporate Securities</b>         |                    |                   |                    |
| Collateralized Obligations          | 13,478,510         | 7,166,907         | 6,184,300          |
| Convertible Bonds                   | 0                  | 2,406,140         | 9,364,464          |
| Corporate Bonds                     | 2,795,989          | 7,831,121         | 57,724,418         |
| <b>International Securities</b>     |                    |                   |                    |
| Emerging Markets                    | 980,920            | 1,761,822         | 7,112,845          |
| Global - Collateralized Obligations | 0                  | 0                 | 0                  |
| Global Government Fixed             | 0                  | 0                 | 979,368            |
| Global Corporate Fixed              | 0                  | 964,990           | 7,813,383          |
| <b>Floating Rate Fund</b>           | 0                  | 0                 | 0                  |
| <b>Global Bond Fund</b>             | 0                  | 0                 | 25,097,776         |
| <b>Core Plus Bond Fund</b>          | 0                  | 0                 | 462,217,787        |
| <b>Domestic Commercial Loans</b>    | 3,893,616          | 0                 | 2,925,024          |
| <b>High Yield Fund</b>              | 0                  | 0                 | 0                  |
| <b>Municipal Bonds</b>              | 0                  | 419,622           | 0                  |
|                                     | <u>290,654,835</u> | <u>20,130,980</u> | <u>579,419,365</u> |

#### S&P's Credit Rating Dispersion Detail by Credit Rating

| Investment Type and Fair Value       | AAA               | AA                 | A                  |
|--------------------------------------|-------------------|--------------------|--------------------|
| <b>Government Securities</b>         |                   |                    |                    |
| U.S. Government Securities           | \$ 0              | 171,510,594        | 0                  |
| Agency CMO                           | 17,701,406        | 0                  | 0                  |
| Agency Pooled                        | 0                 | 80,371,205         | 0                  |
| U.S. Futures                         | 0                 | 0                  | 0                  |
| <b>Corporate Securities</b>          |                   |                    |                    |
| Collateralized Obligations           | 1,078,440         | 1,068,971          | 8,926,594          |
| Convertible Bonds                    | 0                 | 0                  | 18,230,177         |
| Corporate Bonds                      | 4,317,897         | 9,412,708          | 53,491,722         |
| <b>International Securities</b>      |                   |                    |                    |
| Emerging Markets                     | 480,470           | 1,100,960          | 6,541,701          |
| Global - Collateralized Obligations  | 0                 | 0                  | 0                  |
| Global Government Fixed              | 0                 | 0                  | 979,368            |
| Global Corporate Fixed               | 0                 | 964,990            | 4,978,566          |
| <b>Floating Rate Fund</b>            | 0                 | 0                  | 0                  |
| <b>Global Bond Fund</b>              | 0                 | 0                  | 0                  |
| <b>Core Plus Bond Fund</b>           | 0                 | 0                  | 462,217,787        |
| <b>Domestic Commercial Loans</b>     | 0                 | 0                  | 0                  |
| <b>High Yield Fund</b>               | 0                 | 0                  | 0                  |
| <b>Municipal Bonds</b>               | 0                 | 419,622            | 0                  |
|                                      | <u>23,578,213</u> | <u>264,429,427</u> | <u>555,365,915</u> |
| <b>Securities Lending Collateral</b> | \$ 181,158,166    | 331,341,432        | 95,564,866         |

\*Principal only. Figures are APERS and ASPRS combined. Totals may not add due to rounding.

| Baa                | Ba                | B                 | Caa or below      | NR                 | Fair Value*          |
|--------------------|-------------------|-------------------|-------------------|--------------------|----------------------|
| 0                  | 0                 | 0                 | 0                 | 0                  | \$ 171,510,594       |
| 0                  | 0                 | 0                 | 0                 | 0                  | 17,701,406           |
| 0                  | 0                 | 0                 | 0                 | 16,670,277         | 96,964,078           |
| 0                  | 0                 | 0                 | 0                 | (268,000)          | (268,000)            |
| 6,447,257          | 1,921,715         | 7,228,919         | 17,141,441        | 40,604,329         | 100,173,378          |
| 15,598,742         | 8,657,327         | 5,493,886         | 0                 | 234,625,681        | 276,146,240          |
| 124,494,440        | 32,585,323        | 7,565,549         | 5,217,352         | 13,440,529         | 251,654,720          |
| 23,898,183         | 1,595,014         | 3,398,846         | 0                 | 7,924,629          | 46,672,257           |
| 1,284,041          | 0                 | 350,000           | 0                 | 500,449            | 2,134,490            |
| 201,500            | 0                 | 0                 | 0                 | 0                  | 1,180,868            |
| 8,939,284          | 9,539,039         | 0                 | 0                 | 1,936,600          | 29,193,295           |
| 0                  | 0                 | 21,363,337        | 0                 | 0                  | 21,363,337           |
| 0                  | 0                 | 0                 | 0                 | 38,848,575         | 63,946,350           |
| 0                  | 0                 | 0                 | 0                 | 0                  | 462,217,787          |
| 1,939,388          | 4,011,154         | 6,584,226         | 0                 | 7,198,513          | 26,551,921           |
| 0                  | 0                 | 25,148,672        | 0                 | 0                  | 25,148,672           |
| 0                  | 0                 | 0                 | 0                 | 0                  | 419,622              |
| <u>182,802,833</u> | <u>58,309,572</u> | <u>77,133,434</u> | <u>22,358,793</u> | <u>361,481,582</u> | <u>1,592,291,394</u> |

| BBB                | BB                 | B                 | CCC or below      | NR                 | Fair Value*          |
|--------------------|--------------------|-------------------|-------------------|--------------------|----------------------|
| 0                  | 0                  | 0                 | 0                 | 0                  | \$ 171,510,594       |
| 0                  | 0                  | 0                 | 0                 | 0                  | 17,701,406           |
| 0                  | 0                  | 0                 | 0                 | 16,592,873         | 96,964,078           |
| 0                  | 0                  | 0                 | 0                 | (268,000)          | (268,000)            |
| 4,063,337          | 1,194,395          | 457,835           | 18,994,348        | 64,389,458         | 100,173,378          |
| 30,676,231         | 30,780,291         | 9,876,339         | 1,875,656         | 184,707,547        | 276,146,240          |
| 138,153,790        | 26,634,291         | 5,624,255         | 4,093,996         | 9,926,062          | 251,654,720          |
| 24,924,287         | 2,092,472          | 3,636,588         | 469,500           | 7,426,281          | 46,672,257           |
| 783,139            | 0                  | 350,000           | 0                 | 1,001,351          | 2,134,490            |
| 201,500            | 0                  | 0                 | 0                 | 0                  | 1,180,868            |
| 16,974,869         | 6,274,871          | 0                 | 0                 | 0                  | 29,193,295           |
| 0                  | 0                  | 21,363,337        | 0                 | 0                  | 21,363,337           |
| 38,848,575         | 0                  | 0                 | 0                 | 25,097,776         | 63,946,350           |
| 0                  | 0                  | 0                 | 0                 | 0                  | 462,217,787          |
| 4,143,225          | 12,299,400         | 10,109,296        | 0                 | 0                  | 26,551,921           |
| 0                  | 25,148,672         | 0                 | 0                 | 0                  | 25,148,672           |
| 0                  | 0                  | 0                 | 0                 | 0                  | 419,622              |
| <u>258,768,953</u> | <u>104,424,391</u> | <u>51,417,649</u> | <u>25,433,499</u> | <u>308,873,347</u> | <u>1,592,291,394</u> |
| 0                  | 0                  | 0                 | 3,191,332         | 396,909,398        | \$ 1,008,165,194     |

### Concentration of Credit Risk for Investments

The concentration of credit risk is the risk of loss attributed to the magnitude of the System's investment in a single issuer (not including investments issued or guaranteed by the U.S. government or investments in mutual funds or external investment pools). The APERS Board has a formal investment policy for concentration of credit risk. None of the investments in any one issuer (other than those issued or guaranteed by the U.S. government) represented more than 5% of total investments.

### Interest Rate Risk for Investments

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of investments. Investments can be highly sensitive to changes in interest rates due to their terms or characteristics. Interest rate risk is the greatest risk faced by an investor in the debt securities market since the price of a debt security will often move in the opposite direction of the change in interest rates.

The System's external fixed income investment managers use the measurement of effective duration to mitigate the interest rate risk of the fixed income investments. Each fixed income investment manager monitors and reports the effective duration on a monthly basis. The effective duration of the investment portfolio is required to be +/- 10% of the benchmark's duration. The benchmark for the U.S. fixed income markets is the Barclays Capital U.S. Aggregate Bond Index.

As of June 30, 2018, the System had the following debt security investments and maturities:

| Investment Type                      | Investment Maturity (In Years) |                       |                       |                       |                       |
|--------------------------------------|--------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|                                      | Fair Value*                    | Less than 1           | 1 - 5                 | 6 - 10                | More than 10          |
| <b>Government Securities</b>         |                                |                       |                       |                       |                       |
| U.S. Government Securities           | \$ 171,510,594                 | \$ 3,487,132          | \$ 67,102,027         | \$ 42,616,970         | \$ 58,304,464         |
| Agency CMO                           | 17,701,406                     | 0                     | 0                     | 0                     | 17,701,406            |
| Agency Pooled                        | 96,964,078                     | 16,822,137            | 34,619                | 222,905               | 79,884,418            |
| U.S. Futures                         | (268,000)                      | 0                     | 36,656                | (68,656)              | (236,000)             |
| <b>Corporate Securities</b>          |                                |                       |                       |                       |                       |
| Collateralized Obligations           | 100,173,378                    | 35,065,954            | 960,292               | 0                     | 64,147,131            |
| Convertible Bonds                    | 276,146,240                    | 32,969,182            | 154,605,406           | 39,504,514            | 49,067,138            |
| Corporate Bonds                      | 251,654,720                    | 28,222,850            | 55,416,175            | 111,909,430           | 56,106,265            |
| <b>International Securities</b>      |                                |                       |                       |                       |                       |
| Emerging Markets                     | 46,672,257                     | 4,051,903             | 12,411,982            | 21,248,187            | 8,960,185             |
| Global Collateralized Obligations    | 2,134,490                      | 1,501,800             | 0                     | 632,690               | 0                     |
| Global Government Fixed              | 1,180,868                      | 0                     | 410,124               | 770,744               | 0                     |
| Global Corporate Fixed               | 29,193,295                     | 2,634,586             | 10,684,456            | 14,284,185            | 1,590,069             |
| <b>Floating Rate Fund</b>            | 21,363,337                     | 0                     | 0                     | 21,363,337            | 0                     |
| <b>Global Bond Fund</b>              | 63,946,350                     | 0                     | 63,946,350            | 0                     | 0                     |
| <b>Core Plus Bond Fund</b>           | 462,217,787                    | 0                     | 0                     | 462,217,787           | 0                     |
| <b>Commercial Loans</b>              | 26,551,921                     | 0                     | 7,786,663             | 18,765,258            | 0                     |
| <b>High Yield Income Fund</b>        | 25,148,672                     | 0                     | 25,148,672            | 0                     | 0                     |
| <b>Municipal Bonds</b>               | 419,622                        | 0                     | 0                     | 146,814               | 272,808               |
|                                      | <u>\$ 1,592,711,017</u>        | <u>\$ 124,755,544</u> | <u>\$ 398,543,423</u> | <u>\$ 733,614,166</u> | <u>\$ 335,797,884</u> |
| <b>Securities Lending Collateral</b> |                                |                       |                       |                       |                       |
| Asset Backed Floating Rate Notes     | 229,031,581                    | 126,257,120           | 99,583,129            | 0                     | 3,191,332             |
| Floating Rate Notes                  | 462,430,773                    | 336,150,462           | 126,280,311           | 0                     | 0                     |
| Repurchase Agreements                | 316,702,840                    | 316,702,840           | 0                     | 0                     | 0                     |
|                                      | <u>\$ 1,008,165,194</u>        | <u>\$ 779,110,422</u> | <u>\$ 225,863,440</u> | <u>\$ 0</u>           | <u>\$ 3,191,332</u>   |

\*Principal only.  
Figures are APERS and ASPRS combined. Totals may not add due to rounding.

### Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment. The System's currency risk resides within the international equity investments as well as within the fixed income investments and the fixed income managers. The System's policy is to allow the external investment managers to decide what action to take regarding their respective portfolio's foreign currency exposure using currency forward contracts. The System has a formal investment policy for foreign currency risk which limits foreign currency exposure to 10 % of the investment manager's respective portfolio.

The System's exposure to foreign currency risk on June 30, 2018, was as follows:

| Currency               | %       | Fair Value |               | Equities         | Cash       | Forward Contracts |
|------------------------|---------|------------|---------------|------------------|------------|-------------------|
| Australian Dollar      | 2.07    | \$         | 22,034,770    | \$ 22,034,770    | \$ 0       | \$ 0              |
| Brazilian Real         | 1.60    |            | 16,966,116    | 16,966,116       | 0          | 0                 |
| British Pound Sterling | 0.00    |            | 11,295        | 0                | 1          | 11,294            |
| Canadian Dollar        | 6.09    |            | 64,712,514    | 64,712,203       | 311        | 0                 |
| Chinese Yuan Renminbi  | 6.28    |            | 66,690,204    | 66,067,814       | 0          | 622,390           |
| Danish Krone           | 3.51    |            | 37,316,682    | 37,316,527       | 0          | 155               |
| Euro Currency          | 30.68   |            | 326,075,619   | 326,053,920      | (4)        | 21,703            |
| Hong Kong Dollar       | 1.91    |            | 20,271,161    | 20,271,164       | 0          | (3)               |
| Indian Ruphia          | 0.67    |            | 7,105,307     | 7,105,307        | 0          | 0                 |
| Israeli Shekel         | 1.51    |            | 16,029,404    | 16,029,404       | 0          | 0                 |
| Japanese Yen           | 13.55   |            | 144,041,501   | 143,766,285      | 162,924    | 112,291           |
| Malaysian Ringgit      | 0.46    |            | 4,862,836     | 4,862,836        | 0          | 0                 |
| Mauritian Rupee        | 0.21    |            | 2,220,044     | 2,220,044        | 0          | 0                 |
| Mexican New Peso       | 0.26    |            | 2,782,926     | 2,782,926        | 0          | 0                 |
| Norwegian Krone        | 1.26    |            | 13,380,918    | 13,379,609       | 4          | 1,305             |
| New Zealand Dollar     | 0.56    |            | 5,926,589     | 5,926,589        | 0          | 0                 |
| Papua New Guinea Kina  | 0.07    |            | 773,047       | 773,047          | 0          | 0                 |
| Philippines Peso       | 0.17    |            | 1,771,180     | 1,771,180        | 0          | 0                 |
| Russian Ruble          | 0.00    |            | 0             | 0                | 0          | 0                 |
| Singapore Dollar       | 1.57    |            | 16,734,296    | 16,734,253       | 0          | 43                |
| South African Rand     | 1.92    |            | 20,380,682    | 20,380,975       | 0          | (293)             |
| South Korean Won       | 8.03    |            | 85,285,230    | 85,285,230       | 0          | 0                 |
| Swedish Krone          | 3.77    |            | 40,084,090    | 40,079,774       | 0          | 4,317             |
| Swiss Franc            | 12.02   |            | 127,737,279   | 127,730,768      | 3,752      | 2,759             |
| Taiwan Dollar          | 1.53    |            | 16,240,219    | 16,240,219       | 0          | 0                 |
| Thailand Baht          | 0.31    |            | 3,264,672     | 3,264,672        | 0          | 0                 |
|                        | 100.00% | \$         | 1,062,698,581 | \$ 1,061,755,632 | \$ 166,990 | \$ 775,959        |

\*Principal only.

Figures are APERS and ASPRS combined. Totals may not add due to rounding.

### Asset-Backed Securities

Asset-backed securities (ABSs) are bonds or notes backed by loan paper or accounts receivable originated by banks, credit card companies, or other credit providers. The originator of the loan or accounts receivable paper sells it to a specially created trust, which repackages it as securities. ABSs have been structured as pass-through securities and as structures with multiple bond classes. The System's ability to recover the amount of principal invested in these securities depends on the performance and quality of the trust assets.

### Mortgage-Backed Securities

A mortgage-backed security (MBS) is a type of asset-backed security that is secured by a mortgage or collection of mortgages. MBSs depend on the underlying pool of mortgage loans to provide cash flow to make principal and interest payments on the security to its holders. The payments are usually periodic, similar to coupon payments.

MBSs are subject to credit risk, the risk that the borrower will be unable to meet its obligations. They are also subject to risks created by significant changes in interest rates. Prepayment risk refers to the possibility that interest rates may decline and remain low, encouraging borrowers to refinance their existing loans and thereby cause MBS holders to be repaid more quickly than originally anticipated. Prepayments reduce the weighted average life of the security. Alternatively, extension risk acknowledges the possibility that interest rates could rise and remain high for long periods of time, reducing the number of borrowers seeking to refinance their mortgages. As a result, MBS holders are repaid over longer periods of time. This extension of the mortgage increases the weighted average life of the security.

A collateralized mortgage obligation (CMO) is an MBS that comprises classes of bonds created by prioritizing the cash flows of the underlying mortgage pool. This approach redistributes prepayment risk and credit risk among the various bond classes in the CMO structure. Income is derived from payments and prepayments of principal and interest generated from collateral mortgages. CMOs may be collateralized by whole-loan mortgages, mortgage pass-through securities, or stripped mortgage-backed securities.

The System invests in MBSs and CMOs for diversification and to enhance fixed income returns. These instruments are reported at fair value in the Statement of Fiduciary Net Position



### Corporate Bonds

Corporate bonds are a debt security issued by a corporation. The backing for the bond is usually the payment ability of the company, which is typically money to be earned from future operations. In some cases, the company's physical assets may be used as collateral for bonds. They usually have a fixed term maturity and can have either a fixed or variable interest rate. Variable interest rate bonds have adjustments that are made periodically and vary directly with movements in interest rates.

### Convertible Corporate Bonds

Convertible bonds convey an option to the bondholders to be exchanged for another asset, generally a fixed number of shares of common stock at a pre-stated price.

### Pooled Funds

Pooled funds are funds from many individual investors that are aggregated for the purposes of investment and benefit from economies of scale. The System could be indirectly exposed to credit and market risks associated with forward currency contracts to the extent that these pooled funds hold forward currency contracts for purposes of managing exposure to fluctuations in foreign exchange rates. APERS and ASPRS have approximately \$568 million invested in international pooled funds.

### Securities Lending

Arkansas Code Annotated § 24-2-602 and the APERS Board's investment policy permit the System to participate in a securities lending program to augment investment income. The System lends its securities to brokers-dealers and other entities with a simultaneous agreement to return the collateral for the same securities in the future. The System has entered into an agreement with BNY Mellon to act as agent in securities lending transactions. BNY Mellon serves as the custodian and is therefore the counterparty to securities lending transactions. The legal and contractual authorization for the securities lending program is contained in the Securities Lending Discretionary Agency Agreement executed between APERS and the custodian.

Whoever borrows the securities provides collateral in the form of cash and cash equivalents, U.S. Treasury or government agency securities, or letters of credit (for the marginal percentage collateralization only). U.S. securities are loaned versus collateral valued at 102.29% of the market value of the securities plus any accrued interest for domestic loans. Non-U.S. securities are loaned versus collateral valued at 114.07% of the market value of the securities plus any accrued interest. Collateral is marked-to-market daily if price movements exceed certain minimal thresholds.

The custodian provides for full indemnification to the System funds for any losses that might occur in the program due to the failure of a broker to return a security that was borrowed (and if the collateral is inadequate to replace the securities lent) or failure to pay the trust funds for income of the securities

while on loan. The collateral securities received cannot be pledged or sold unless the borrower defaults. Cash collateral received is invested in APERS' name; accordingly, investments made with cash collateral appear as an asset on the Statement of Fiduciary Net Position. A corresponding liability is recorded because APERS must return the cash collateral to the borrower upon expiration of the loan. The loan maturity dates generally do not match the maturity dates of the investments made with cash collateral received.

As of June 30, 2018, the cash collateral investments had an average weighted maturity of 26 days, whereas the weighted average loan maturity was 1 day. Investments with cash collateral were approximately \$997 million (market value).

### Derivative Instruments

The System adheres to GASB Statement No. 53, Accounting and Financial Reporting for Derivative Instruments, which addresses the recognition, measurement, and disclosure of information regarding derivative instruments entered into by state and local governments.

Derivative instruments are financial contracts or agreements whose values depend on the values of one or more underlying assets, reference rates, or financial indexes. Derivative instruments include futures contracts, forward contracts, swap contracts, options contracts, and forward foreign currency exchange. APERS, through its external investment managers, could hold such instruments. The external investment managers may enter these certain investments on behalf of APERS primarily to enhance the performance and reduce the volatility of its portfolio. The external investment managers could enter into swaps and futures contracts to gain or hedge exposure to certain markets and to manage interest rate risk. They primarily use forward foreign exchange contracts to hedge foreign currency exposure. APERS could be exposed to risk if the counterparties to the contracts are unable to meet the terms of the contracts. APERS' external investment managers seek to control this risk through counterparty credit evaluations and approvals, counterparty credit limits, and procedures for monitoring exposure. APERS' external investment managers anticipate that the counterparties will be able to satisfy their obligations under the contracts. Investments in limited partnerships and commingled funds may include derivatives that are not shown in any derivative totals.

### Swaps

APERS' investment managers have entered into various swaps, including interest rate swaps, credit default swaps, and foreign currency swaps.

### Interest Rate Swaps

An interest rate swap is the exchange of one set of cash flows based on interest rate specifications for another based on a specified principal amount over a period in the future. Interest rate swaps typically exchange a fixed payment for a floating payment. The floating payment is usually the London Interbank Offering Rate

(LIBOR). In the most common interest rate swap arrangement, one party agrees to pay fixed interest rate payments on designated dates to a counterparty who, in turn, agrees to make return interest rate payments that float with a specified reference rate. Long swap positions (receive fixed) increase exposure to long-term interest rates, and short positions (pay fixed) decrease exposure to interest rate risk. The System had no interest rate swaps at June 30, 2018.

#### Credit Default Swap

A credit default swap is a contract whereby the credit risk associated with an investment is transferred by entering into an agreement with another party, who in exchange for periodic fees, agrees to make payments in the event of a default or predetermined credit event. The System had no credit default swaps at June 30, 2018.

#### Foreign Currency Swap

A foreign currency swap is an agreement to swap principal and interest payments on a loan made in one currency for principal and interest payments of a loan of equal value in another currency. The System had no foreign currency swaps at June 30, 2018.

#### Foreign Currency Forward Contracts

A foreign currency forward is a contractual agreement between two parties to pay or receive specific amounts of foreign currency at a future date in exchange for another currency at an agreed upon exchange rate. Forward commitments are not standardized and carry credit risk due to the possible nonperformance by one of the counterparties. The maximum potential loss is the aggregate face value in U.S. dollars at the time the contract was opened. These transactions are entered in order to hedge risks from foreign currency rate fluctuation and to facilitate trade settlement of foreign security transactions. Forwards carry foreign currency risk resulting from adverse fluctuations in foreign exchange rates.

The System had the following foreign currency forwards at June 30, 2018:

|                       | Pay | Receive | Notional Value | Market Value   | Unrealized Gain/Loss |
|-----------------------|-----|---------|----------------|----------------|----------------------|
| Japanese Yen          | JPY | USD     | \$ (6,933,290) | \$ (6,811,304) | \$ (121,986)         |
| Chinese Yuan Renminbi | CNY | USD     | (14,527,810)   | (13,905,419)   | (622,390)            |
|                       |     |         |                |                | <u>\$ (744,376)</u>  |

Figures are APERS and ASPRS combined. Totals may not add due to rounding.

### Financial Futures

A financial future is an agreement to purchase or sell a specific amount of an asset at a specified delivery or maturity date for an agreed upon price. These derivative securities are used to improve yield, adjust duration of the portfolio, circumvent changes in interest rates, or to replicate an index. Futures contracts are standardized and traded on organized exchanges, thereby reducing credit risk.

The System had the following financial futures at June 30, 2018:

| Futures Contracts          | Expiration | Notional Value       | Fair Value           | Unrealized Gain/(Loss) |
|----------------------------|------------|----------------------|----------------------|------------------------|
| U.S. 2-year Treasury Note  | Sept 2018  | \$ 20,362,594        | \$ 20,335,500        | \$ (27,094)            |
| U.S. 5-year Treasury Note  | Sept 2018  | 10,843,500           | 10,907,250           | 63,750                 |
| U.S. 10-year Treasury Note | Sept 2018  | 18,232,031           | 18,163,375           | (68,656)               |
| U.S. Long Bond Treasury    | Sept 2018  | (9,044,000)          | (9,280,000)          | (236,000)              |
|                            |            | <u>\$ 40,394,125</u> | <u>\$ 40,126,125</u> | <u>\$ (268,000)</u>    |

### Mortgage-Backed To Be Announced (TBA)

The phrase "to be announced" (TBA) is used to describe forward MBS trades. The term is derived from the fact that the actual mortgage-backed security that will be delivered to fulfill a TBA trade is not designated at the time the trade is made. The securities are announced 48 hours prior to the established trade settlement date.

The System had the following mortgage-backed TBA at June 30, 2018:

| Mortgage-Backed TBA     | CUSIP     | Notional             | Fair Market Value    | Duration | Credit Rating |
|-------------------------|-----------|----------------------|----------------------|----------|---------------|
| FGLMC 3.500% 07/01/2048 | 02R032679 | \$ 2,078,344         | \$ 2,088,975         | 5.70     | Aaa/AA+       |
| FGLMC 3.500% 07/01/2048 | 02R030673 | 2,191,294            | 2,206,744            | 6.40     | Aaa/AA+       |
| FNMA 4.000% 07/01/2048  | 01F040677 | 6,273,661            | 6,290,315            | 5.10     | Aaa/AA+       |
| FNMA 3.500% 07/01/2048  | 01F032674 | 4,210,955            | 4,230,025            | 5.70     | Aaa/AA+       |
| G2SF 3.50% 07/20/2048   | 21H032670 | 1,767,788            | 1,776,815            | 5.10     | Aaa/AA+       |
|                         |           | <u>\$ 16,522,042</u> | <u>\$ 16,592,873</u> |          |               |

Figures are APERS and ASPRS combined. Totals may not add due to rounding.

### Fair Value Measurements

The Arkansas Public Employees Retirement System categorizes its fair value measurements within the fair value hierarchy by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset and give the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lower priority to unobservable inputs (Level 3 measurements).

- Level 1 – Unadjusted quoted prices for identical instruments in active markets.
- Level 2 – Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable.
- Level 3 – Valuations derived from valuation techniques in which significant inputs are unobservable.

Investments that are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient are not classified in the fair value hierarchy.

In instances where inputs used to measure fair value fall into different levels in the fair value hierarchy, fair value measurements in their entirety are categorized based on the lowest level input that is significant to the valuation. The Arkansas Public Employees Retirement System's assessment of the significance of particular inputs to these fair value measurements requires judgment and considers factors specific to each asset or liability. The table(s) on the following pages shows the fair value levelling of the investments for the System.

Assets classified in Level 1 of the fair value hierarchy are valued directly from a predetermined primary external pricing vendor. Assets classified in Level 2 are subject to pricing by an alternative pricing source due to lack of information available by the primary vendor. Real estate, timberland, and partnership assets classified in Level 3, due to lack of an independent pricing source, are valued using an internal fair value as provided by the investment manager.

The categorization of investments within the hierarchy is based upon the pricing transparency of the instrument(s) and should not be perceived as the particular investment's risk.

## Investments and Derivative Instruments Measured at Fair Value (as of June 30, 2018)

|  | Fair Value            | Level 1               | Level 2              | Level 3           |
|--|-----------------------|-----------------------|----------------------|-------------------|
| <b>Investments at Fair Value</b>                               |                       |                       |                      |                   |
| U.S. Domestic Equities   | \$ 89,603,950         | \$ 89,603,950         | \$ 0                 | \$ 0              |
| Convertible Securities   | 8,849,835             | 774,547               | 8,075,288            | 0                 |
| Preferred Securities   | 83,449                | 0                     | 83,449               | 0                 |
| International Equities   | 51,078,565            | 51,078,565            | 0                    | 0                 |
| Lazard   | 0                     | 0                     | 0                    | 0                 |
| Convertible Securities   | 1,007,503             | 0                     | 1,007,503            | 0                 |
| Preferred Securities   | 498,419               | 498,419               | 0                    | 0                 |
| Fixed Income   | 3,880,336             | 0                     | 3,880,336            | 0                 |
| Loans/JV interest  | 0                     | 0                     | 0                    | 0                 |
| Domestic Fixed Income  | 0                     | 0                     | 0                    | 0                 |
| Global Bond Fund   | 895,892               | 895,892               | 0                    | 0                 |
| Infrastructure Fund  | 0                     | 0                     | 0                    | 0                 |
| U.S. Government Securities                                     | 6,884,843             | 6,884,843             | 0                    | 0                 |
| Futures  | (9,567)               | (9,567)               | 0                    | 0                 |
| Equity Securities  | 0                     | 0                     | 0                    | 0                 |
| Corporate Bonds  | 15,529,634            | 0                     | 15,529,634           | 0                 |
| Loans/JV interest  | 947,799               | 0                     | 0                    | 947,799           |
| Total Investments  | 179,250,660           | 149,726,650           | 28,576,210           | 947,799           |
| <b>Securities Lending Collateral Investments at Fair Value</b> |                       |                       |                      |                   |
| Repo   | 11,305,050            | 0                     | 11,305,050           | 0                 |
| Floating Rate Notes  | 16,506,966            | 0                     | 16,506,966           | 0                 |
| Asset Backed Floating Securities                               | 8,175,530             | 0                     | 8,175,530            | 0                 |
| Total Securities Lending Collateral                            | 35,987,545            | 0                     | 35,987,545           | 0                 |
| <b>Total Investments at Fair Value</b>                         | <b>\$ 215,238,205</b> | <b>\$ 149,726,650</b> | <b>\$ 64,563,756</b> | <b>\$ 947,799</b> |
| <b>Investments at the Net Asset Value (NAV)</b>                |                       |                       |                      |                   |
| High Yield Core Fund   | 897,709               |                       |                      |                   |
| Defensive Bond Fund  | 1,386,742             |                       |                      |                   |
| Domestic Equity Index Funds                                    | 20,760,493            |                       |                      |                   |
| Core Plus Bond Fund  | 16,499,363            |                       |                      |                   |
| Timberland   | 3,585,552             |                       |                      |                   |
| Global Energy Plus Fund  | 6,067,456             |                       |                      |                   |
| Global Equity Pooled Funds                                     |                       |                       |                      |                   |
| MCM REIT Index   | 5,787,180             |                       |                      |                   |
| MCM ACWI ex-US Index   | 13,627,073            |                       |                      |                   |
| Pyramis  | 15,019,562            |                       |                      |                   |
| Real Estate  |                       |                       |                      |                   |
| Invesco Core   | 15,536,320            |                       |                      |                   |
| Heitman  | 11,432,096            |                       |                      |                   |
| TA Fund X  | 673,901               |                       |                      |                   |
| TA Fund XI   | 1,835,692             |                       |                      |                   |
| LaSalle Fund Fund VI   | 502,025               |                       |                      |                   |
| LaSalle Fund Fund VII  | 1,295,804             |                       |                      |                   |
| Diversified Strategies   |                       |                       |                      |                   |
| AQR Global Risk Premium  | 4,554,794             |                       |                      |                   |
| Newton Global Real Return                                      | 3,961,887             |                       |                      |                   |
| Blackstone   | 6,249,739             |                       |                      |                   |
| <b>Total Investments at the NAV</b>                            | <b>\$ 129,673,387</b> |                       |                      |                   |

Investments Classified as Level 1 in the preceding table are exchange-traded securities whose values are based on published market prices and quotations from either national security exchanges or active markets for those securities.

Investments Classified as Level 2 in the preceding table include publicly traded debt securities and exchange traded stocks in inactive markets. Investments in this category are sourced from reputable pricing vendors using pricing matrix models and techniques. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices. Fair value is defined as the quoted market value on the last trading day of the period. These prices are obtained from various pricing sources by the APERS' custodian bank which maintains the book of record for all investments.

Investments Classified as Level 3 in the preceding table are unobservable, meaning that the assets lack an independent pricing source. Values are provided by the investment manager or an external pricing source such as an independent appraiser.

#### Investments Measured at the Net Asset Value (NAV)

The fair value of investments that are organized as commingled funds or limited partnerships have no readily ascertainable fair value. The value is determined by using the net asset value per share or its equivalent. Commingled fund values are based on each investor's proportionate share of the total underlying assets in the fund less any liabilities for client withdrawals, investment purchases or other accrued expenses. Limited partnership values are based on the capital account balance the general partner reports at the end of each reporting period, adjusted by subsequent contributions, distributions, management fees, and changes in values of foreign currency and published market prices for certain securities. Even though the limited partnerships and commingled funds issue annual financial statements audited by independent auditors, the year-end for the State and these entities do not always agree. There are inherent uncertainties in estimating fair values for these types of investments, and it is possible that the estimates will change in the near-term or that the subsequent sale of assets will be different from the reported net asset value. With certain exceptions, mainly the equity and the fixed income funds, these investments cannot be redeemed, or, have certain restrictions regarding redemption. The real estate investments distributions are through the liquidation of the underlying assets or net operating cash flows. Each investment has a different redemption frequency and notice period as noted in the following table:

## Investments Measured at the Net Asset Value (NAV)

|  | Fair Value     | Strategy Type                  | Fund Life<br>of Non-<br>redeemable<br>Mandates | Unfunded<br>Commitments | Redemption<br>Frequency<br>(if currently<br>eligible) | Redemption<br>Notice Period | Other<br>Redemption<br>Restrictions         | Restriction Time<br>Remaining                                 |
|--|----------------|--------------------------------|--|-------------------------|---|-----------------------------|---|---|
| <b>High Yield Core Fund</b>              | \$ 897,709     | Active High Yield Fixed Income | N/A  | none                    | monthly   | T + 3                       | N/A   | N/A   |
| <b>Defensive Bond Fund</b>               | 1,386,742      | Income Oriented                | N/A  | none                    | daily   | T + 1                       | N/A   | N/A   |
| <b>Domestic Equity Index Funds</b>       | 20,760,493     | S & P 500 Index                | N/A  | none                    | daily   | T + 3                       | N/A   | N/A   |
| <b>Core Plus Bond Fund</b>               | 16,499,363     | Active Global Fixed Income     | N/A  | none                    | daily   | T + 3                       | N/A   | N/A   |
| <b>Timberland</b>                        | 3,585,552      | Timber                         | N/A  | none                    | none  | N/A                         | N/A   | partnership terminates in December 2027                       |
| <b>Global Energy Fund</b>                | 6,067,456      | Global Energy stocks           | N/A  | none                    | daily   | T + 3                       | N/A   | N/A   |
| <b>International Equity Pooled Funds</b> |                |                                |  |                         |   |                             |   |   |
| MCM REIT Index                           | 5,787,180      | Global Real Estate securities  | N/A  | none                    | daily   | T + 1                       | N/A   | N/A   |
| MCM ACWI ex-US Index                     | 13,627,073     |                                | N/A  |                         |   |                             |   |   |
| Fidelity                                 | 15,019,562     | International Equities         | N/A  | none                    | daily   | T + 1                       | N/A   | N/A   |
| <b>Real Estate</b>                       |                |                                |  |                         |   |                             |   |   |
| Invesco                                  | 15,536,320     | Core Real Estate               | N/A  | none                    | quarterly   | T + 45                      | N/A   | N/A   |
| Heitman                                  | 11,432,096     | Core Real Estate               | N/A  | none                    | quarterly   | T + 90                      | N/A   | N/A   |
| TA Fund X                                | 673,901        | Value Add Real Estate          | N/A  | none                    | 7-year lock up  | N/A                         | N/A   | currently in capital redistribution phase                     |
| TA Fund XI                               | 1,835,692      | Value Add Real Estate          | N/A  | none                    | 7-year lock up  | N/A                         | N/A   | the lock up period starts on the day of the last capital call |
| LaSalle Fund Fund VI                     | 502,025        | Value Add Real Estate          | N/A  | none                    | 7-year lock up  | N/A                         | N/A   | currently in capital redistribution phase                     |
| LaSalle Fund Fund VII                    | 1,295,804      | Value Add Real Estate          | N/A  | \$ 698,851              | 7-year lock up  | N/A                         | N/A   | the lock up period starts on the day of the last capital call |
| Heitman Value Partners IV                | 0              | Value Add Real Estate          | N/A  | 2,677,206               | 7-year lock up  | N/A                         | N/A   | the lock up period starts on the day of the last capital call |
| TA Fund XII                              | 0              | Value Add Real Estate          | N/A  | 2,677,206               | 7-year lock up  | N/A                         | N/A   | the lock up period starts on the day of the last capital call |
| <b>Diversified Strategies</b>            |                |                                |  |                         |   |                             |   |   |
| AQR Global Risk Premium                  | 4,554,794      | Risk Premia                    | N/A  | none                    | weekly and monthly                                    | T + 2                       | N/A   | N/A   |
| Newton Global Real Return                | 3,961,887      | Global Real Return             | N/A  | none                    | daily   | T + 3                       | N/A   | N/A   |
| Blackstone                               | 6,249,739      | Fund of Funds                  | N/A  | none                    | last day of each quarter                              | 1yr; 2yrs; 3yrs; >3yrs      | 55% liquidity; then 20%; then 15%; then 10% | N/A   |
| <b>Total</b>                             | \$ 129,673,387 |                                |  | \$ 6,053,263            |   |                             |   |   |



### High Yield Core Fund

The High Yield Active Core philosophy is centered on the belief that the best risk-adjusted returns and, ultimately, the best absolute returns are generated by a strategy of yield capture and error avoidance.

### Defensive Bond Fund

The investment objective is to exploit different sources of return available in high yield corporate securities in a way that generates risk-adjusted returns superior to those available from conventional high yield securities. The investment strategy is based on the assumption and observation that numerous market inefficiencies exist throughout the capital markets (particularly in the high yield bond markets) and that the prudent, active and systematic exploitation of these inefficiencies can generate returns consistent with these objectives.

### Domestic Equity Index Funds

This is an S&P 500 Index fund.

### Core Plus Bond Fund

The Core Plus Fixed Income Strategy seeks excess return from multiple sources, including sector allocation and subsector and security selection. Duration, yield curve, and currency positioning is moderate. The largest component of the Core Plus Fixed Income risk budget is allocated to portfolio strategies that have consistently generated the highest return for the lowest unit of risk over time, such as sector allocation and subsector/security selection. The Core Plus Fixed Income portfolios may emphasize spread product in the sector allocation process and therefore may hold larger-than-benchmark allocations to corporate bonds, structured product, high yield bonds, and emerging markets debt. As a result, the strategy would likely outperform in a 'risk on' environment where corporate bonds, for example, are outperforming. The reverse would also likely be true. The Core Plus Fixed Income portfolios take an actively-managed, relative-value driven approach. The Strategy is expected to perform best in markets with excess spread dislocations that it can capitalize on through relative value trading.

### Timberland

An objective of a timber investment is to provide the fund with diversification from traditional asset classes. The goal of the timber investment is to get a stable core-type return with very low or little volatility.

### Global Energy Fund

The fund seeks to invest globally in opportunities found in the energy industry. The fund invests, both long and short, in the equity securities, and related instruments, of energy and energy related businesses, including companies that are not in the Benchmark, which are expected to outperform the energy sector as a whole.

### International Equity Pooled Funds

- The MCM EB DV Non-SL REIT Index Fund— This REIT Index Fund seeks to match the performance and the characteristics of the Dow Jones U.S. Select REIT Index which tracks the performance of publicly traded REITs and REIT-like securities and designed to serve as a proxy for direct real estate investments.
- MCMACWI ex-US Index— The MSCI ACWI ex USA Index captures large and mid-cap representation across 22 of 23 Developed Markets (DM) countries (excluding the US) and 24 Emerging Markets (EM) countries\*. With 2,166 constituents, the index covers approximately 85% of the global equity opportunity set outside the US.
- Fidelity Select International Strategy — The Select International strategy utilizes a disciplined investment approach that capitalizes on fundamental research by combining qualitative stock selection with quantitative risk control. The available investment universe is comprised of stocks in Japan, the United Kingdom, Europe ex UK, and Asia Pacific ex Japan rated attractive by Fidelity's analysts. The strategy uses a quantitative model to match the regional weights of the portfolio to the index. This approach is designed to diversify specific risk, reduces tracking error and factor risk, and controls transaction costs.

### Real Estate

This asset class provides diversification to the total portfolio and strives to reduce total fund volatility while also enhancing the total return of the portfolio. Real estate has a low, and in some cases, negative, correlation with other major investment asset classes. The following are the strategies that comprise the Real Estate asset class and are explained in greater detail:

- Invesco Core Real Estate (ICRE) — The ICRE strategy is a portfolio of U.S. properties diversified by property type and geographic location, with an emphasis on attractive current income returns and the opportunity for both income and capital growth. It is based on top-down economic fundamentals combined with bottom-up local market intelligence.
- Heitman America Real Estate Trust (HART) — The HART strategy creates a high-quality, low-risk portfolio of stabilized, income-producing assets diversified by property type and economic exposure through acquiring assets in infill locations within major metropolitan areas, focusing on strong site attributes such as proximity to amenities and transportation networks, and ensuring that assets are well constructed with features that will appeal to tenants over long periods of time.
- TA Realty Funds X, XI, and XII — TA Realty has managed value-add, commingled real estate funds for approximately 30 years. They have investments in 35 markets, and 4 property types (office, industrial, multifamily, and retail). The firm has developed and refined a consistent approach focused on creating diversified real estate portfolios that can generate strong cash flow, benefit from an intensive asset management approach and result in the long-term creating of value of the life of the fund(s).

- LaSalle Funds VI and VII — The Funds pursue non-core properties that exhibit strong fundamentals and are expected to generate both income and appreciation. The sectors that are focused on are office, multifamily, retail, industrial, and specialty.
- Heitman Value Partners IV (“HPV IV”) is the fourth offering in Heitman’s North American value-add series. It is a closed-end, commingled fund that will pursue a diverse set of real estate opportunities with value-added business plans. The objective is to provide investors with attractive risk-adjusted returns. The strategy seeks to benefit from Heitman’s extensive research, real estate, and capital markets expertise to identify emerging investment opportunities and trends before they are fully appreciated by the broader market. The Fund will execute investment strategies that capitalize on those opportunities.

### Diversified Strategies

This asset class provides diversification to the total portfolio and strives to reduce total fund volatility while also enhancing the total return of the portfolio. The following are the strategies that comprise the Diversified Strategies asset class and are explained in greater detail:

- Global Risk Premium Tactical Fund (GRPT) — The AQR Global Risk Premium Tactical Fund seeks to efficiently deliver exposure to a broadly diversified set of global risk premia. In many institutional portfolios, equity risk is the predominant risk, a concentration driven by the need for high expected return that cannot be satisfied in a traditionally constrained, well-diversified portfolio. Rather than diversifying by capital, this strategy seeks to diversify based on risk across global equities, global nominal bonds, inflation sensitive assets, and credit/default related assets. Starting from this strategic risk-parity base, GRPT then employs modest tactical tilts across sub-sectors and across individual exposures, attempting to exploit temporary opportunities which may arise within markets. Following basic financial theory, AQR designed its Risk Parity strategies based on what they believe to be the most optimal liquid portfolio of global market betas, and AQR offers that same portfolio at various levels of leverage to target a desired amount of risk as approximated by ex-ante volatility. AQR’s approach employs modest leverage to scale up a lower-risk, broadly-diversified portfolio.
- Newton Global Real Return (US\$) — Newton’s global real return US\$ strategy is an actively managed, unconstrained, multi-asset strategy, which aims to achieve a return of one-month USD LIBOR +4 % p.a. over rolling five-year periods. The strategy seeks to add value through security selection and asset type flexibility and it also has an emphasis on capital preservation. The strategy is long only, does not use leverage or short securities and is daily valued.
- Blackstone (Fund of Funds) — The System hired Blackstone to manage a fund-of-funds strategy. As the name suggests Blackstone invests APERS funds in other hedge funds. The number of funds that APERS invests in varies on market conditions. The types of strategies that are contained within the APERS portfolio also vary. For full disclosure purposes on June 30 there were fundamental

equity strategies, event driven strategies, fundamental credit strategies, credit trading strategies, distressed credit strategies, RMBS strategies, structured ABS strategies, multi-strat strategies, commodity strategies, macro rates strategies, thematic macro strategies, quantitative strategies, CTA strategies, and special situation strategies in the portfolio.

#### Note 4: Legally Required Reserves

A description of reserve accounts and their balances for the year ended June 30, 2018, are as follows:

The Member Deposit Account (MDA) represents members' contributions held in trust until their retirement, at which time contributions are transferred to the Retirement Reserve Account.

The MDA Interest Reserve represents the accumulated interest paid on the MDAs held in trust. As members retire, the interest on their contributions is transferred to the Retirement Reserve Account.

The Employers' Accumulation Account accumulates employers' contributions to be used in providing the reserves required for transfer to the Retirement Reserve Account as members retire or become eligible for disability benefits.

The Retirement Reserve Account is the account to which member contributions, interest on those contributions, and employer contributions are transferred upon member retirement.

The DROP Reserve Account is the account established for the accumulation of balances paid to members who have been approved by the ASPRS Board to participate in the DROP. When a member retires, these amounts can be paid to the member as a lump sum, transferred to an authorized account, or be received as an annuity.

The Deferred Annuity Account is the account established to cover estimated retirement benefits to inactive vested members who are not currently receiving benefit payments.

The Outlawed Warrants Reserve is a cumulative total of warrants not cashed in prior years that have been outlawed. These amounts will be paid if members request payment from the Arkansas State Claims Commission and the commission approves payment.

| As of June 30, 2018*           | Totals                |
|--------------------------------|-----------------------|
| Member Deposit Account Reserve | \$ 623,642            |
| MDA Interest Reserve           | (28,620)              |
| Employer Accumulation Account  | 37,332,929            |
| Retirement Reserve Account     | 274,292,829           |
| DROP Reserve Account           | 9,019,946             |
| Deferred Annuity Reserve       | 3,696,429             |
| Outlawed Warrants Reserve      | 1,095                 |
| Total                          | <u>\$ 324,938,251</u> |

\*Before recommended actuarial transfers. Totals may not add due to rounding.

**Note 5: Net Pension Liability**

The components of the net pension liability of the System as of the June 30 end of fiscal years 2017 and 2018 were as follows:

|   | FY 2018        | FY 2017        |
|---|----------------|----------------|
| Total Pension Liability   | \$ 446,878,220 | \$ 437,870,023 |
| Fiduciary Net Position  | \$ 324,938,251 | \$ 299,525,117 |
| Net Pension Liability   | \$ 121,939,969 | \$ 138,344,906 |
| Fiduciary Net Position as a Percentage of Total Pension Liability | 72.71%         | 68.41%         |

**Actuarial Assumptions**

The total pension liability was determined by an actuarial valuation as of June 30, 2018, using the following actuarial assumptions, applied to all periods included in the measurement:

| Valuation Date   | June 30, 2018                  |
|--|--------------------------------|
| Actuarial Cost Method  | Entry Age Normal Cost          |
| Amortization Method  | Level Percent-of-Payroll       |
| Remaining Amortization Period                                      | 21-Year Closed                 |
| Asset Valuation Method   | 4-Year Smoothed Market         |
| Actuarial Assumptions:   |                                |
| Investment Rate of Return  | 7.15%                          |
| Projected Salary Increases   | 3.55% - 7.75%                  |
| Including Price Inflation at                                       | 3.25%                          |
| Cost-of-Living Increases   | 3.0% Annual Compound Increases |
| Retirees and Beneficiaries Receiving Benefits                      | 668                            |
| Terminated Plan Members Entitled to But Not Yet Receiving Benefits | 84                             |
| DROP Members   | 61                             |
| Active Plan Members  | 467                            |
| Total  | 1,280                          |

### Long-Term Expected Return on Plan Assets

The System's policy in regard to the allocation of invested assets was established by the APERS Board and is reviewed at least annually to determine if the asset allocation is consistent with an acceptable level of risk and volatility.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the current asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for the 10-year period from 2018 to 2025 were based upon capital market assumptions provided by the investment consultants. For each major asset class that is included in the Systems' current asset allocation as of June 30, 2018, these best estimates are summarized in the following table:

| Asset Class                                  | Current Allocation | Long-Term Expected Real Rate of Return |
|--|--------------------|--|
| Broad Domestic Equity                        | 37%                | 5.97%                                  |
| International Equity                         | 24                 | 6.07                                   |
| Real Assets                                  | 16                 | 4.59                                   |
| Absolute Return                              | 5                  | 3.15                                   |
| Domestic Fixed                               | 18                 | 0.83                                   |
| Total  | 100%               |  |
| Total Real Rate of Return                    |                    | 4.71%                                  |
| Plus: Price Inflation - Actuary's Assumption |                    | 2.50                                   |
| Less: Investment Expenses (Passive)          |                    | 0.00                                   |
| Net Expected Return                          |                    | 7.21%                                  |

For the year ended June 30, 2018, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 9.82%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

### Discount Rate

A single discount rate of 7.15% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 7.15%. The projection of cash flows used to determine this single discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

### Sensitivity of the Net Pension Liability

The following presents the net pension liability of the System, calculated using the discount rate of 7.15%, as well as what the System's net pension liability would be if it were calculated using a discount rate that is one percentage point lower (6.15%) or one percentage point higher (8.15%) than the current rate:

|             | 1% Decrease | Current Discount Rate | 1% Increase      |
|-------------|-------------|-----------------------|------------------|
|             | 6.15%       | 7.15%                 | 8.15%            |
| ASPRS    \$ | 175,872,328 | \$    121,939,969     | \$    77,117,511 |



### Note 6: Deferred Retirement Option Plan

A Deferred Retirement Option Plan (DROP) is available to members of the System as authorized by A.C.A. §§ 24-4-801 - 24-4-806. In lieu of terminating employment and accepting a retirement benefit under the System, any member who has at least 28 years of actual service in the System can elect to participate in the DROP. The DROP allows a member to defer the receipt of retirement benefits for a maximum of seven years. During that time, a percentage of a member's chosen benefit is deposited into an account that accrues interest at a rate of 3.25% annually. The System had a balance of \$9,019,946 in the DROP reserve as of June 30, 2018.

## REQUIRED SUPPLEMENTARY INFORMATION

The following data on historical trends indicate the System's progress in accumulating sufficient assets to pay benefits when due. It is required supplemental information.

## Schedule of Funding Progress

(dollars in millions)

| Actuarial<br>Valuation<br>Date | Actuarial<br>Valuation of<br>Assets<br>(a) | Entry Age<br>AAL<br>(b) | UAAL<br>(b)-(a) | Funded<br>Ratio<br>(a)/(b) | Annual<br>Covered<br>Payroll<br>(c) | UAAL as a<br>Percentage<br>of Covered Payroll<br>[(b-a)/(c)] |
|--------------------------------|--|-------------------------|-----------------|----------------------------|-------------------------------------|--|
| 6/30/2009#@                    | \$ 206.32                                  | \$ 325.94               | \$ 119.62       | 63.3%                      | \$ 26.80                            | 446.4%   |
| 6/30/2010                      | 211.07                                     | 333.60                  | 122.53          | 63.3                       | 28.51                               | 429.7  |
| 6/30/2011                      | 208.05                                     | 343.21                  | 135.16          | 60.6                       | 28.06                               | 481.6  |
| 6/30/2012                      | 215.01                                     | 355.30                  | 140.29          | 60.5                       | 28.43                               | 493.5  |
| 6/30/2013@                     | 233.15                                     | 361.46                  | 128.31          | 64.5                       | 28.01                               | 458.1  |
| 6/30/2014@                     | 259.46                                     | 381.86                  | 122.40          | 67.9                       | 28.55                               | 428.7  |
| 6/30/2015@                     | 274.83                                     | 398.96                  | 124.14          | 68.9                       | 29.93                               | 414.8  |
| 6/30/2016                      | 289.24                                     | 408.74                  | 119.50          | 70.8                       | 29.45                               | 405.8  |
| 6/30/2017                      | 305.85                                     | 431.88                  | 126.03          | 70.8                       | 29.08                               | 433.4  |
| 6/30/2017@                     | 305.85                                     | 429.05                  | 123.21          | 71.3                       | 29.08                               | 423.7  |
| 6/30/2018                      | \$ 319.79                                  | \$ 442.93               | \$ 123.14       | 72.2%                      | \$ 29.59                            | 416.1%   |

# After legislated changes in benefit provisions; @ After changes in actuarial assumptions or methods.  
Please note that differences between columns designated (a) and (b) may not add to UAAL due to rounding.

## Schedule of Employer Contributions

(dollars in millions)

| Year Ended<br>June 30 | Actuarially<br>Determined<br>Contribution | Actual<br>Contribution* | Contribution<br>Deficiency<br>(Excess) | Covered<br>Payroll | Actual Contribution as<br>% of Covered Payroll |
|-----------------------|---|-------------------------|--|--------------------|--|
| 2009                  | \$ 10.5                                   | \$ 12.1                 | \$ (1.6)                               | \$ 27.6            | 43.84%   |
| 2010                  | 12.7                                      | 20.5                    | (7.8)                                  | 28.5               | 71.93  |
| 2011                  | 12.6                                      | 14.1                    | (1.5)                                  | 28.2               | 50.00  |
| 2012                  | 14.1                                      | 19.7                    | (5.6)                                  | 29.5               | 66.78  |
| 2013                  | 13.6                                      | 19.5                    | (5.9)                                  | 28.1               | 69.40  |
| 2014                  | 14.0                                      | 19.5                    | (5.5)                                  | 29.1               | 67.01  |
| 2015                  | 14.2                                      | 19.8                    | (5.6)                                  | 29.9               | 66.22  |
| 2016                  | 14.3                                      | 19.7                    | (5.4)                                  | 29.4               | 67.01  |
| 2017                  | 14.1                                      | 20.0                    | (5.9)                                  | 29.1               | 68.73  |
| 2018                  | \$ 15.6                                   | \$ 21.0                 | \$ (5.4)                               | \$ 30.0            | 70.00%   |

\*Actual contributions are based on covered payroll at the time of the contribution. This payroll is not reported to the actuary. The covered payroll shown in the schedule above is the valuation payroll. Based on the limitations of this schedule, the final column cannot be compared to the contribution rates actually charged to the employer.

## Schedule of Changes in Net Pension Liability and Related Ratios

| Year Ended June 30   | 2018           | 2017           | 2016           | 2015           | 2014           |
|--|----------------|----------------|----------------|----------------|----------------|
| <b>Total Pension Liability</b>   |                |                |                |                |                |
| Service Cost   | \$ 6,577,148   | \$ 5,473,626   | \$ 5,488,445   | \$ 6,101,608   | \$ 4,866,199   |
| Interest   | 30,678,211     | 30,322,786     | 29,469,678     | 29,218,802     | 28,558,511     |
| Benefit Changes  | 0              | 0              | 0              | 0              | 0              |
| Differences Between Expected And Actual Experience                           | 467,389        | (3,052,763)    | 1,757,687      | (3,107,531)    | (454,349)      |
| Assumption Changes   | (4,529,133)    | 15,875,267     | 0              | 8,703,080      | 8,970,858      |
| Benefit Payments   | (24,185,418)   | (24,631,787)   | (26,035,466)   | (23,358,801)   | (21,688,239)   |
| Refunds  | 0              | 0              | 0              | 0              | 0              |
| <b>Net Change In Total Pension Liability</b>                                 | \$ 9,008,197   | \$ 23,987,129  | \$ 10,680,344  | \$ 17,557,158  | \$ 20,252,980  |
| <b>Total Pension Liability, Beginning of Year</b>                            | 437,870,023    | 413,882,894    | 403,202,550    | 385,645,392    | 365,392,412    |
| <b>Total Pension Liability, End of Year (A)</b>                              | \$ 446,878,220 | \$ 437,870,023 | \$ 413,882,894 | \$ 403,202,550 | \$ 385,645,392 |
| <b>Fiduciary Net Position</b>  |                |                |                |                |                |
| Contributions - Employer   | \$ 21,003,650  | \$ 19,961,066  | \$ 19,713,295  | \$ 19,784,130  | \$ 19,501,684  |
| Contributions - Member   | 0              | 0              | 0              | 94,814         | 0              |
| Net Investment Income  | 28,823,333     | 31,484,250     | (210,045)      | 6,131,684      | 43,307,746     |
| Benefit Payments   | (24,185,419)   | (24,631,787)   | (26,035,466)   | (23,358,801)   | (21,688,239)   |
| Refunds  | 0              | 0              | 0              | 0              | 0              |
| Administrative Expense   | (228,430)      | (208,424)      | (205,342)      | (196,231)      | (189,658)      |
| Other Additions  | 0              | 0              | 0              | 6              | 0              |
| <b>Net Change In Fiduciary Net Position</b>                                  | 25,413,134     | 26,605,105     | (6,737,558)    | 2,455,602      | 40,931,533     |
| <b>Fiduciary Net Position, Beginning of Year</b>                             | \$ 299,525,117 | \$ 272,920,012 | \$ 279,657,570 | \$ 277,201,968 | \$ 236,270,435 |
| <b>Fiduciary Net Position, End of Year (B)</b>                               | \$ 324,938,251 | \$ 299,525,117 | \$ 272,920,012 | \$ 279,657,570 | \$ 277,201,968 |
| <b>Net Pension Liability, End of Year (A) - (B)</b>                          | \$ 121,939,969 | \$ 138,344,906 | \$ 140,962,882 | \$ 123,544,980 | \$ 108,443,424 |
| <b>Fiduciary Net Position as a Percentage of the Total Pension Liability</b> | 72.71%         | 68.41%         | 65.94%         | 69.36%         | 71.88%         |
| <b>Covered-Employee Payroll</b>  | \$ 29,593,145  | \$ 29,076,764  | \$ 29,448,593  | \$ 29,929,358  | \$ 28,548,873  |
| <b>Net Pension Liability as a Percentage of Covered-Employee Payroll</b>     | 412.05%        | 475.79%        | 478.67%        | 412.79%        | 379.85%        |

Totals may not add due to rounding.

### Schedule of Net Pension Liability

| FY Ending<br>June 30 | Total Pension<br>Liability | Fiduciary Net<br>Position | Net Pension<br>Liability | Fiduciary Net<br>Position as a %<br>of Total Pension<br>Liability | Covered Payroll | Net Pension<br>Liability as a<br>% of Covered<br>Payroll |
|----------------------|----------------------------|---------------------------|--------------------------|---|-----------------|--|
| 2015                 | \$403,202,550              | \$279,657,570             | \$123,544,980            | 69.36%  | \$29,929,358    | 412.79%  |
| 2016                 | \$413,882,894              | \$272,920,012             | \$140,962,882            | 65.94%  | \$29,448,593    | 478.67%  |
| 2017                 | \$437,870,023              | \$299,525,117             | \$138,344,906            | 68.41%  | \$29,076,764    | 475.79%  |
| 2018                 | \$446,878,220              | \$324,938,251             | \$121,939,969            | 72.71%  | \$29,593,145    | 412.05%  |

### Schedule of Investment Returns

Annual money-weighted rate of return, net of investment expense

|      |         |
|------|---------|
| 2015 | 2.26%   |
| 2016 | (0.08)% |
| 2017 | 11.82%  |
| 2018 | 9.82%   |

## NOTES TO REQUIRED SUPPLEMENTARY INFORMATION

## Schedule of Administrative Expenses

(for the fiscal year ended June 30, 2018)

|  | 2018              | 2017              |
|--|-------------------|-------------------|
| <b>Communications</b>                                |                   |                   |
| Printing and Advertising                             | \$ 2,061          | \$ 2,458          |
| <b>Services and Charges</b>                          |                   |                   |
| Professional Fees and Services                       | 62,700            | 42,300            |
| Conference Fees and Travel                           | 817               | 469               |
| Bank and Federal Service Charges                     | 5,389             | 5,734             |
| IRS Penalties  | 0                 | 0                 |
| <b>Total Services and Charges</b>                    | 68,906            | 48,503            |
| <b>Transfer to APERS for Administrative Expenses</b> | 157,463           | 157,463           |
| <b>Total Administrative Expenses</b>                 | <u>\$ 228,430</u> | <u>\$ 208,424</u> |

## Schedule of Investment Expenses

(for the fiscal year ended June 30, 2018)

|                                   | 2018                | 2017                |
|-----------------------------------|---------------------|---------------------|
| Investment Consultant Fee         | \$ 2,584            | \$ 9,526            |
| Money Manager Fees*               | 1,182,956           | 1,134,765           |
| Custodian Bank Fees               | 13,540              | 13,428              |
| Other Investment Expenses         | 380,532             | 161,500             |
| <b>Total Investment Expenses#</b> | <u>\$ 1,579,612</u> | <u>\$ 1,319,219</u> |

\*See the schedule of investment fees shown on page 80 in the Investments Section of this report.

#Total investment expenses include international withholding taxes, which are not included in the schedule of investment fees referenced above.

## Payments for Professional Consultants

(for the fiscal year ended June 30, 2018)

|                                  | 2018      | 2017      |
|----------------------------------|-----------|-----------|
| Gabriel, Roeder, Smith & Company | \$ 62,700 | \$ 42,300 |

Totals may not add due to rounding.

# INVESTMENTS

Chief Investment Officer's Report

Investment Policy Summary

Asset Allocation

Schedule of Manager Distribution

Portfolio Characteristics

Schedule of Comparative Investment Results by Year

Schedule of Comparative Annualized Investment Results

Ten Largest Holdings

Schedule of Brokerage Commissions

Schedule of Investment Fees



## CHIEF INVESTMENT OFFICER'S REPORT

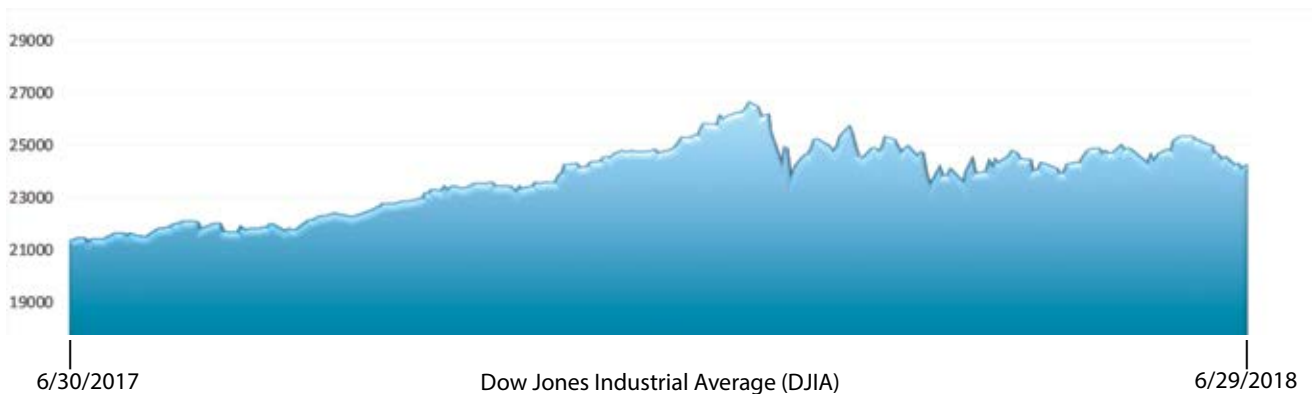
Dear Members,

On behalf of the APERS' Investment Department, it is my pleasure to present the Investment Section of the APERS' Annual Financial Report for the fiscal year ended June 30, 2018.

### Performance and Stability

For fiscal year 2018, the ASPRS investment portfolio closed with total investments of \$8,904,393,859, of which \$324,626,784 are State Police investments. The investment return for the fiscal year was 10.25%.

The strength of the return was largely driven by the exposure to domestic equities as you will read in my Financial Market Recap which follows. Domestic Equities as an asset class contributed 16.27% to the total performance of the investment fund as the Dow Jones set a new record high in January 2018 of 26,616.

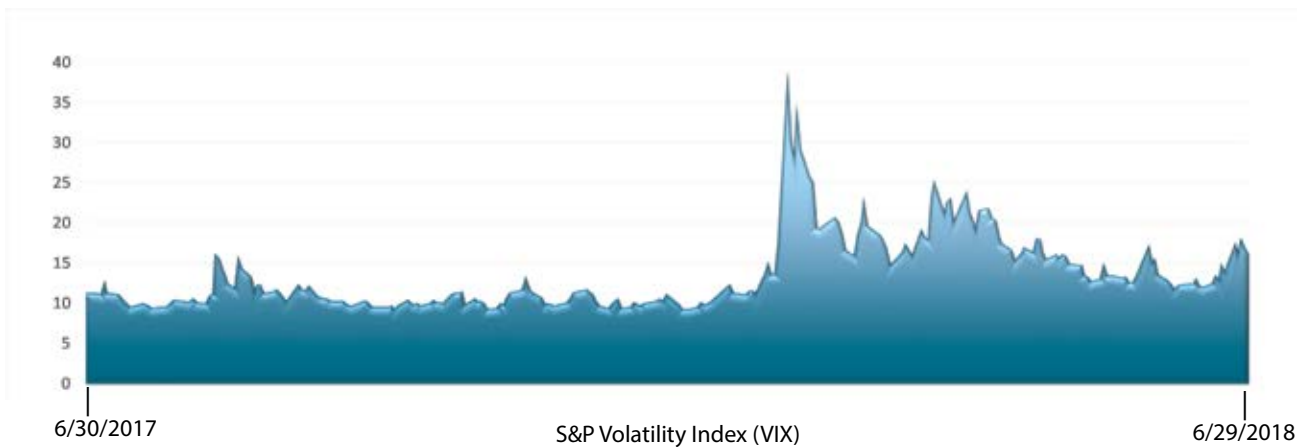


Domestic fixed income as an asset class contributed 0.79% to the total performance of the investment fund. Interest rates grinding higher muted fixed income returns.





The S&P VIX Index (a measurement of volatility) not only crept higher during the fiscal year, but it spiked higher in the third quarter of the fiscal year (February 2018).



#### Fiscal Year 2018 Global Financial Market Recap

The first quarter of fiscal year 2018 (3Q of 2017) saw almost all assets benefit from the proposed Republican tax plan, an increase in crude prices, a very buoyant job market, and continued positive global economic background. The Organization for Economic Cooperation and Development (OECD) announced that all of the 45 countries that it tracks were growing economically in 2017. This was the first instance of simultaneous economic growth since 2007. However weather, geopolitics, and presidential tweets were not as friendly for risk assets. Hurricane Harvey devastated Houston. The Caribbean and Florida also saw devastation due to Hurricanes Irma and Maria. Tensions in the Korean peninsula escalated as North Korea continued to expand and test its nuclear arsenal and fired a missile over Japan which prompted President Trump to threaten "dire consequences."

Despite all the previously mentioned events, U.S. stock market volatility hit record lows. Energy did see a surge in oil prices to end the quarter, the best quarterly gain in over a year. The Federal Reserve announced that it will begin to taper its program which will reduce the Fed's holdings of US Treasuries by \$6 billion a month and agency mortgage-backed securities by \$4 billion a month. The FOMC left rates unchanged in the month of September.

German elections resulted in a surprise uptick in parliamentary seats for the far-right Alternative für Deutschland (AfD) party fueled in part by anti-immigration sentiments. Angela Merkel will remain chancellor and may eclipse Helmut Kohl as the longest-serving chancellor during the post-war period. Japan's Prime Minister Shinzo Abe called a snap election near the end of the quarter. He sought to take advantage of his popularity in the most recent polls.

The second quarter of fiscal year 2018 (4Q 2017) saw continued optimism in the financial markets. U.S. stocks were helped by robust earnings growth as well as richer valuations. President Trump and Congress tried unsuccessfully to repeal the Affordable Care Act. The calendar year was a slow steady progression

of new highs for the S&P 500 with records set 60 times, something which had not been seen in over two decades.

Yields on US Treasuries rose in the front-end of the curve. The 2-year note saw its yield increase 40 basis points, while the 30-year treasury bond actually saw its yield decrease 12 basis points. The FOMC raised rates as expected in December, and Fed Chair Jerome Powell was confirmed by the Senate to replace Janet Yellen.

Mario Draghi of the European Central Bank (ECB) mentioned a “strong pace of economic expansion and a significant improvement in the growth outlook.” U.S. 3Q2017 GDP came in at 3.0% following a 3.1% for 2Q2017. Global manufacturing continued to expand. U.S. unemployment hit 4.1% as the U.S. continued to show evidence of steady growth. Outgoing Fed Chairwoman Janet Yellen noted that “the committee expects the labor market to remain strong, with sustained job creation, ample opportunities for workers and rising wages.” Rating agencies declared \$60 billion of Venezuelan debt in default after Caracas failed to pay interest on some of its sovereign debt and the country’s beleaguered economy, sanctions, and civil strife remain problematic.

The third quarter of fiscal year 2018 (1Q of 2018) began as the previous quarter ended: with strong market gains. The quarter experienced volatile equity markets (particularly in February), outflows in ETFs, potential trade wars and tariffs, and increased borrowing needs by the Federal government due to a tax bill that was passed and a proposed infrastructure program.

Investor concerns over rising inflation and interest rates were blamed for triggering the volatility. I disagreed with that explanation. I have never known the equity markets to predict inflation before the treasury markets. It seemed that a more likely reason was that the increase in hourly earnings could eat into corporate profits.

President Trump announced 25% tariffs on \$60 billion of Chinese imports. This move was not well received by the global equity markets or by the People’s Republic of China. China retaliated with a variety of potential trade sanctions against U.S. exports produced in states that supported Trump in the election. The new Chair of the Federal Reserve, Jay Powell, hiked rates to 1.75%.

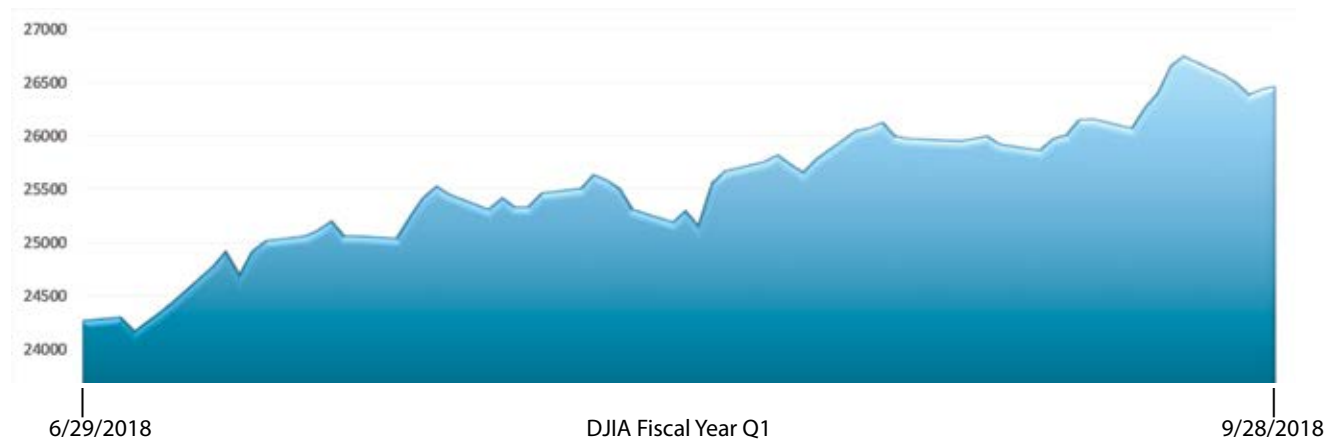
Despite all the background noise, the U.S. economy continued to do well. Unemployment continued to remain extremely low at 4.1%. The trade gap continued to widen which became a focal point of the administration. Elsewhere around the globe, Yi Gang was appointed as the new chief of the PBoC, and the ECB removed its “easing bias” language from its policy statement.

The final quarter of fiscal year 2018 (2Q of 2018) could be called a lot of things, but boring is not one of them. The potential for a trade war between China and the United States heated up as Trump continued to threaten tariffs on a range of imports from China, Mexico, Canada, and Europe. China responded by issuing the same tariffs of the same magnitude on American exports.

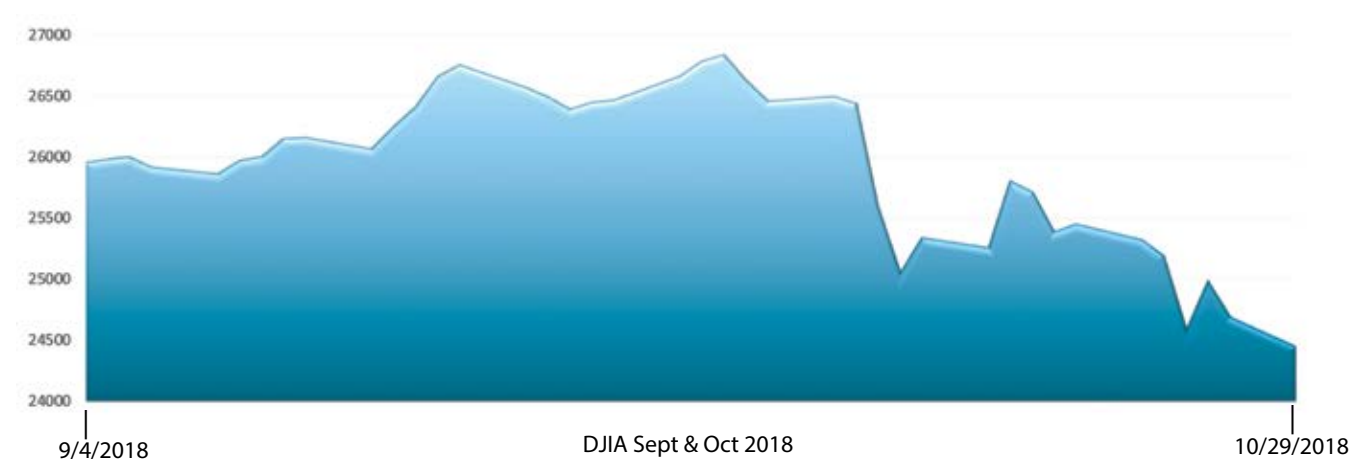
Political elections in Italy along with divisions within Germany’s ruling coalition government further rattled

market sentiment as populist anti-establishment, anti-immigrations movements threatened the stability of the Euro. Mexico elected Lopez Obrador in a landslide vote. Turkey saw President Erdogan consolidate power, and the markets braced for authoritarian rule. Domestically, the Federal Reserve raised rates by 25bps again, to 2.00%, and maintained its hawkish stance.

As I write this CIO letter, the first quarter of fiscal year 2019 just closed. It was a strong quarter for domestic equities. The markets continued to receive favorable economic indicators and encouraging corporate earnings reports.



However, towards the end of September there was a new round of reciprocal tariffs. Neither the U.S. or China is ready to flinch, so there's an economic stand-off between the two largest economies in the world. The U.S. imposed an additional \$200 billion in tariffs on Chinese goods and, in return, China imposed \$60 billion in tariffs on U.S. products. The stock market reacted in kind.



Interest rates continue to move higher because of the rising debt load and increasingly pessimistic projections for inflation.



Volatility continues to increase, which is a concern.



With the DJIA within a 9-iron of the all-time high, my opinion of the markets has changed from cautiously optimistic to cautious concern. Did the Federal Reserve hike rates too many times? Does the jawboning about tariffs cease? Do higher interest rates slow down housing? Are stock buy backs the only thing propping up the equity markets? Do emerging market economies improve? Does the U.S. dollar strengthen or not? There are too many unknowns that could tip the scale either way.

I would like to thank each of the Board of Trustees, the ultimate fiduciaries of APERS, for embracing the current investment structure that allowed APERS to achieve strong results for our members and the Arkansas taxpayers. APERS' staff is committed to placing the system in the best position to continue to face the challenges of the global financial markets and to ensure that the APERS assets are positioned to provide long-term financial stability for you, the members.

Respectfully yours,

Carlos Borrromeo  
Chief Investment Officer

## INVESTMENT POLICY SUMMARY

The investment objective of the Arkansas Public Employees Retirement System (APERS) shall be to

1. to protect the the fund so that its assets are preserved for providing benefits to participants and their beneficiaries, and
2. to maximize total return - either in the form of income or capital appreciation or both - in a manner that is consistent with prudent risk taking on the amounts available to provide such benefits.

For this purpose, short-term fluctuations in value shall be considered secondary to long-term investment results. The long-term return objective for the fund shall be to achieve a real rate of return of 4.5%. This is the return over the rate of inflation (as measured by the Consumer Price Index). This objective is not to be a goal from year to year but is intended as a long-term guideline to those involved in investing the fund's assets.

An additional overall investment objective will be to achieve a total fund return of at least the actuarial rate of 7.15%. The investments of the fund shall be so diversified as to minimize the risk of large losses, unless under particular circumstances it is clearly prudent not to do so. Investments will be further diversified by hiring an appropriate number of managers whose investment styles are varied enough to provide a balance to the overall risk of the fund.

## ASSET ALLOCATION

To avoid extreme exposure to investment risk, the following percentages represent the minimum and maximum portion at market of the portfolio that may be invested by types:

### Market Value Exposure

| Asset Allocation       | Target | Lower and Upper Limits |
|------------------------|--------|------------------------|
| Equities               | 37%    | 32% - 42%              |
| International Equities | 24%    | 19% - 29%              |
| Fixed Income           | 18%    | 13% - 23%              |
| Diversified Strategies | 5%     | 0% - 10%               |
| Real Assets            | 16%    | 11% - 21%              |
|                        | 100%   |                        |

The Board of Trustees of the Arkansas Public Employees Retirement System (the APERS Board) shall review its asset allocation at least annually to determine if the asset allocation is consistent with an acceptable level of risk and volatility.

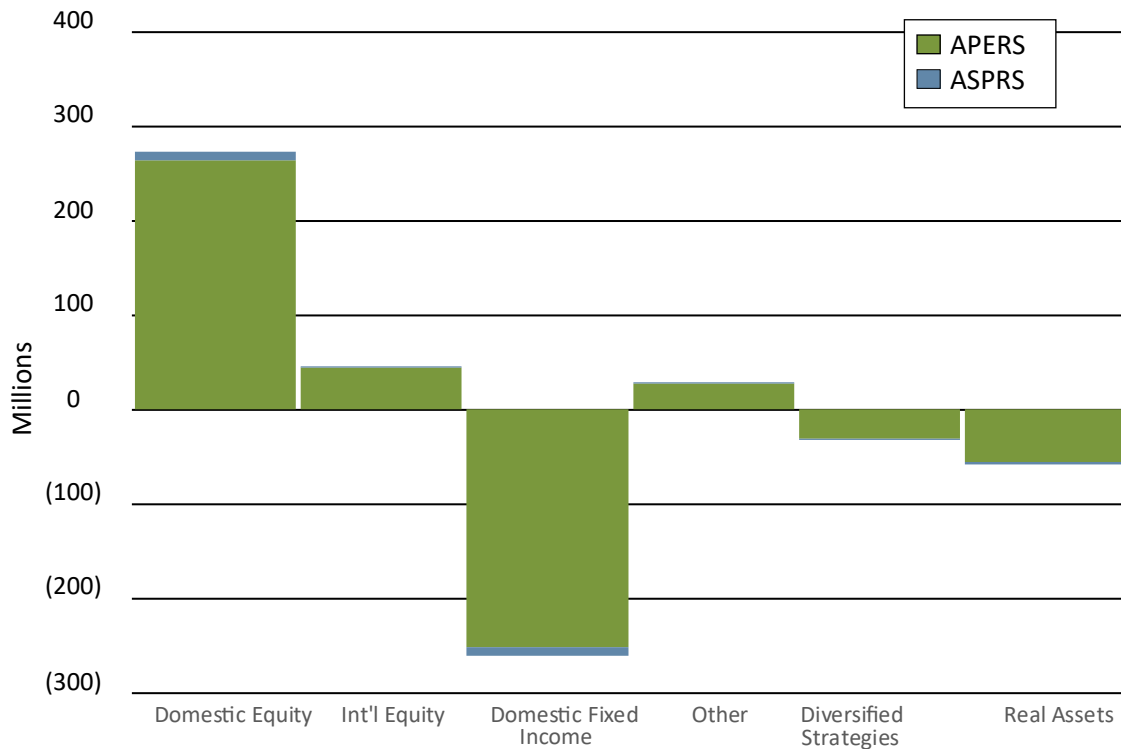
### Review of Investment Process

1. On a timely basis, at least twice a year, the APERS Board will review actual results achieved by the investment managers (with a perspective toward a three to five-year period or a peak-to-peak or trough-to-trough market cycle) to determine whether their performance
  - a. followed the APERS' investment philosophy and policy guidelines,
  - b. achieved the investment objectives, and
  - c. compared satisfactorily with the performance of other similarly managed funds.
2. In addition to reviewing each investment manager's results, the APERS Board will periodically re-evaluate its progress in achieving its objectives for the total fund and its equity, fixed-income, and international equity segments.
3. The periodic re-evaluation will also consider the continuing appropriateness of
  - a. the manager structure,
  - b. the allocation of assets among the managers, and
  - c. the investment objectives for the fund's assets.
4. The APERS Board may appoint investment consultants to assist in the ongoing evaluation process. These consultants are expected to be familiar with the investment practices of other similar retirement plans and will be responsible for suggesting appropriate changes in the fund's investment program over time.

### ASSET ALLOCATION

Actual vs. Target Allocation (as of June 30, 2018)

The current target and new target are as follows:

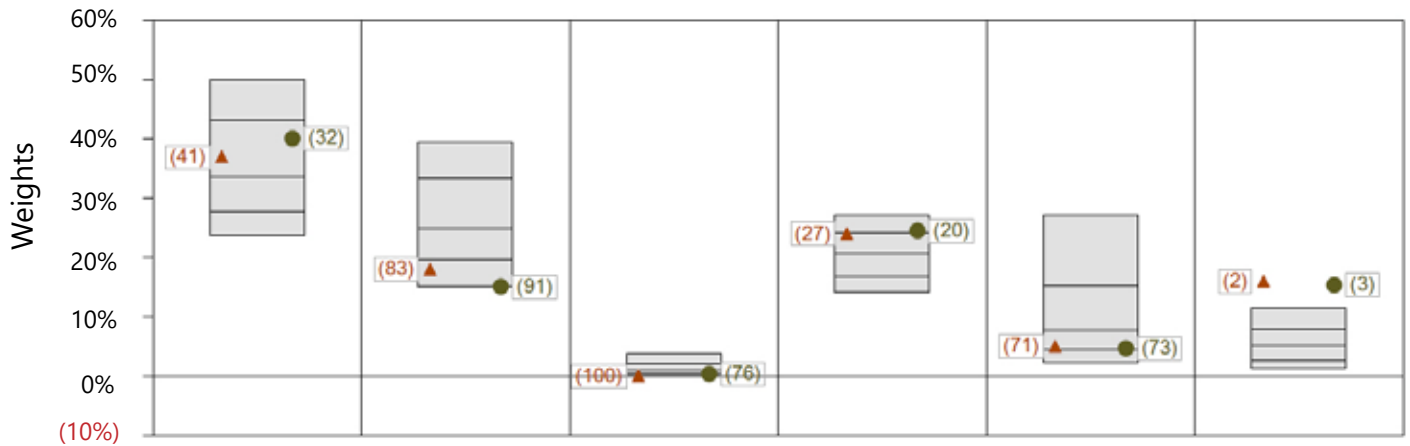


| Asset Class            | \$000s              |                   |             |             |            |    | ASPRS      |
|------------------------|---------------------|-------------------|-------------|-------------|------------|----|------------|
|                        | Actual              | ASPRS             | Actual      | Target      | Difference |    | Difference |
| Domestic Equity        | \$ 3,568,488        | \$ 127,381        | 40.1%       | 37.0%       | 3.1%       | \$ | 9,776      |
| Int'l Equity           | 2,183,643           | 77,947            | 24.5        | 24.0        | 0.5        |    | 1,663      |
| Domestic Fixed Income  | 1,342,655           | 47,928            | 15.1        | 18.0        | (2.9)      |    | (9,286)    |
| Other                  | 29,146              | 1,040             | 0.3         | 0.0         | 0.3        |    | 1,040      |
| Diversified Strategies | 413,671             | 14,766            | 4.6         | 5.0         | (0.4)      |    | (1,126)    |
| Real Assets            | 1,366,791           | 48,789            | 15.3        | 16.0        | (0.7)      |    | (2,067)    |
| Total                  | <u>\$ 8,904,394</u> | <u>\$ 317,852</u> | <u>100%</u> | <u>100%</u> |            |    |            |

| Asset Class            | \$000s              |                     |             |             |            |    | APERS      |
|------------------------|---------------------|---------------------|-------------|-------------|------------|----|------------|
|                        | Actual              | APERS               | Actual      | Target      | Difference |    | Difference |
| Domestic Equity        | \$ 3,568,488        | \$ 3,441,107        | 40.1%       | 37.0%       | 3.1%       | \$ | 264,086    |
| Int'l Equity           | 2,183,643           | 2,105,696           | 24.5        | 24.0        | 0.5        |    | 44,926     |
| Domestic Fixed Income  | 1,342,655           | 1,294,727           | 15.1        | 18.0        | (2.9)      |    | (250,850)  |
| Other                  | 29,146              | 28,106              | 0.3         | 0.0         | 0.3        |    | 28,106     |
| Diversified Strategies | 413,671             | 398,905             | 4.6         | 5.0         | (0.4)      |    | (30,423)   |
| Real Assets            | 1,366,791           | 1,318,002           | 15.3        | 16.0        | (0.7)      |    | (55,845)   |
| Total                  | <u>\$ 8,904,394</u> | <u>\$ 8,586,542</u> | <u>100%</u> | <u>100%</u> |            |    |            |

Totals may not add due to rounding.

The illustration below shows the average percentage of asset allocations by asset type for the Public Plan Sponsor Database. Due to different asset allocations of public plans, percentages will not equal 100%.



|                  | Domestic Equity | Domestic Fixed-Income | Other  | Intl Equity | Other Alternatives | Real Assets |
|------------------|-----------------|-----------------------|--------|-------------|--------------------|-------------|
| 10th Percentile  | 50.00           | 39.49                 | 3.66   | 27.12       | 27.21              | 11.45       |
| 25th Percentile  | 43.24           | 33.40                 | 2.06   | 24.09       | 15.20              | 7.88        |
| Median           | 33.62           | 24.83                 | 0.93   | 20.65       | 7.75               | 5.13        |
| 75th Percentile  | 27.78           | 19.56                 | 0.37   | 16.68       | 4.46               | 2.64        |
| 90th Percentile  | 23.70           | 15.15                 | 0.05   | 14.08       | 2.18               | 1.19        |
| Fund             | 40.08           | 15.08                 | 0.33   | 24.52       | 4.65               | 15.35       |
| Target           | 37.00           | 18.00                 | .00    | 24.00       | 5.00               | 16.00       |
| % Group Invested | 98.50%          | 96.24%                | 72.18% | 96.24%      | 43.07%             | 26.32%      |



## SCHEDULE OF MANAGER DISTRIBUTION

As of June 30, 2018

| Asset Allocation                   | Market Value            | Percent of Total | ASPRS                 | APERS                   |
|------------------------------------|-------------------------|------------------|-----------------------|-------------------------|
| <b>Domestic Equity</b>             |                         |                  |                       |                         |
| MCM S&P 500 Index Fund             | \$ 605,663,556          | 6.80%            | \$ 21,619,815         | \$ 584,043,741          |
| LSV Asset Mgmt.                    | 208,558,986             | 2.34             | 7,444,738             | 201,114,248             |
| CastleArk Mgmt.                    | 544,417,622             | 6.11             | 19,433,575            | 524,984,047             |
| Golden Capital Mgmt.               | 192,040,299             | 2.16             | 6,855,086             | 185,185,213             |
| INTECH                             | 454,001,729             | 5.10             | 16,206,082            | 437,795,647             |
| Wellington Mgmt. Co.               | 308,017,612             | 3.46             | 10,995,021            | 297,022,591             |
| Westwood Mgmt.                     | 178,535,972             | 2.01             | 6,373,034             | 172,162,938             |
| Lazard Asset Mgmt.                 | 332,138,248             | 3.73             | 11,856,033            | 320,282,215             |
| SSI Investment Mgmt.               | 284,469,718             | 3.19             | 10,154,454            | 274,315,264             |
| Horrell Capital Mgmt.              | 121,134,735             | 1.36             | 4,324,035             | 116,810,700             |
| Stephens Inv. Mgmt. Group          | 339,509,283             | 3.81             | 12,119,151            | 327,390,132             |
|                                    | <u>\$ 3,568,487,760</u> | <u>40.08%</u>    | <u>\$ 127,381,025</u> | <u>\$ 3,441,106,735</u> |
| <b>International Equity</b>        |                         |                  |                       |                         |
| Mellon ACWI ex-US Fund             | \$ 381,752,639          | 4.29%            | \$ 13,627,073         | \$ 368,125,566          |
| Lazard Asset Mgmt.                 | 469,386,426             | 5.27             | 16,755,255            | 452,631,171             |
| Artisan Partners                   | 446,280,409             | 5.01             | 15,930,461            | 430,349,948             |
| Baillie Gifford                    | 464,296,458             | 5.21             | 16,573,564            | 447,722,894             |
| Manning & Napier                   | 1,164,971               | 0.01             | 41,585                | 1,123,386               |
| Fidelity                           | 420,762,217             | 4.73             | 15,019,562            | 405,742,655             |
|                                    | <u>\$ 2,183,643,120</u> | <u>24.52%</u>    | <u>\$ 77,947,500</u>  | <u>\$ 2,105,695,620</u> |
| <b>Fixed Income</b>                |                         |                  |                       |                         |
| Doubleline Capital                 | \$ 429,500,876          | 4.82%            | \$ 15,331,498         | \$ 414,169,378          |
| MacKay Shields                     | 450,935,988             | 5.06             | 16,096,647            | 434,839,341             |
| Prudential Investments             | 462,217,787             | 5.19             | 16,499,363            | 445,718,424             |
|                                    | <u>\$ 1,342,654,651</u> | <u>15.08%</u>    | <u>\$ 47,927,508</u>  | <u>\$ 1,294,727,143</u> |
| <b>Real Assets</b>                 |                         |                  |                       |                         |
| INVESCO Real Estate                | \$ 438,855,155          | 4.93%            | \$ 15,665,409         | \$ 423,189,746          |
| MCM REIT Index Fund                | 162,123,675             | 1.82             | 5,787,180             | 156,336,495             |
| TA Associates Realty Fund X        | 18,878,863              | 0.21             | 673,901               | 18,204,962              |
| TA Associates Realty Fund XI       | 51,425,598              | 0.58             | 1,835,692             | 49,589,906              |
| CastleArk Mgmt.                    | 54,459,115              | 0.61             | 1,943,977             | 52,515,138              |
| CastleArk Mgmt. Global Energy Fund | 169,975,408             | 1.91             | 6,067,456             | 163,907,952             |
| Pinnacle Forest Investments        | 100,446,655             | 1.13             | 3,585,552             | 96,861,103              |
| Heitman Real Estate Trust LP       | 320,261,954             | 3.60             | 11,432,096            | 308,829,858             |
| LaSalle Inc. & Growth VI LP        | 14,063,860              | 0.16             | 502,025               | 13,561,835              |
| LaSalle Inc. & Growth VII LP       | 36,301,010              | 0.41             | 1,295,804             | 35,005,206              |
|                                    | <u>\$ 1,366,791,293</u> | <u>15.35%</u>    | <u>\$ 48,789,091</u>  | <u>\$ 1,318,002,202</u> |
| <b>Diversified Strategies</b>      |                         |                  |                       |                         |
| AQR Capital                        | \$ 127,599,278          | 1.43%            | \$ 4,554,794          | \$ 123,044,484          |
| Blackstone Hedge                   | 175,081,935             | 1.97             | 6,249,739             | 168,832,196             |
| Newton Capital                     | 110,989,420             | 1.25             | 3,961,887             | 107,027,533             |
|                                    | <u>\$ 413,670,633</u>   | <u>4.65%</u>     | <u>\$ 14,766,420</u>  | <u>\$ 398,904,213</u>   |
| <b>Short-term Investment Fund</b>  | <u>\$ 29,146,403</u>    | <u>0.33%</u>     | <u>\$ 7,815,241</u>   | <u>\$ 21,331,162</u>    |
| <b>Composite Fund</b>              | <u>\$ 8,904,393,860</u> | <u>100.00%</u>   | <u>\$ 324,626,784</u> | <u>\$ 8,579,767,076</u> |

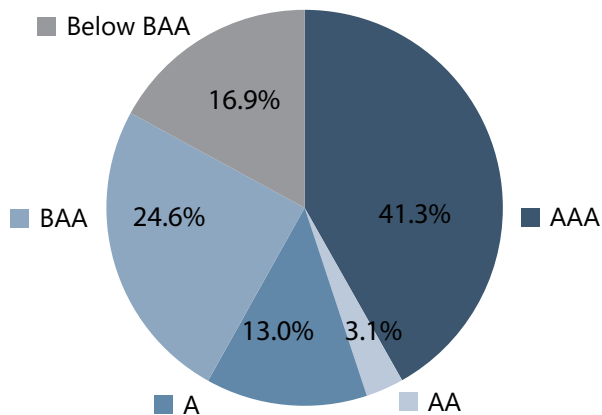
Totals may not add due to rounding.

## PORTFOLIO CHARACTERISTICS

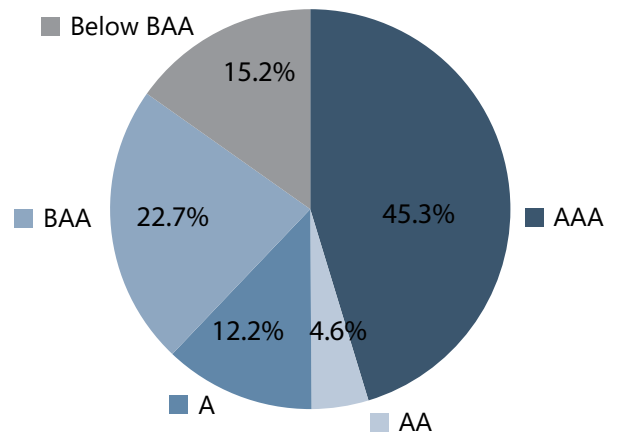
(for fiscal years ended June 30, 2017 - 2018)

|   | 2018      | 2017      |
|---|-----------|-----------|
| <b>Selected Bond Characteristics</b>          |           |           |
| Yield to Maturity (Market)                    | 4.03%     | 3.29%     |
| Current Yield                                 | 3.40%     | 3.51%     |
| Average Coupon Rate                           | 3.69%     | 3.46%     |
| Average Maturity                              | 7.86 yrs. | 7.72 yrs. |
| <b>Quality Breakdown</b>                      |           |           |
| AAA (includes Govts & Agencies)               | 41.34%    | 45.30%    |
| AA  | 3.06%     | 4.60%     |
| A   | 13.03%    | 12.20%    |
| BAA   | 24.56%    | 22.70%    |
| Below BAA                                     | 16.86%    | 15.20%    |
| <b>Selected Stock Characteristics</b>         |           |           |
| Average P/E Ratio                             | 24.90x    | 25.96x    |
| Estimated Earnings Growth Rate (Next 5 Years) | 17.38%    | 14.09%    |
| Current Yield                                 | 1.51%     | 1.60%     |

Quality Breakdown 2018



Quality Breakdown 2017



## SCHEDULE OF COMPARATIVE INVESTMENT RESULTS BY YEAR

(for fiscal years ended on June 30, 2014 - 2018)

|  | 2018   | 2017   | 2016    | 2015    | 2014   |
|--|--------|--------|---------|---------|--------|
| <b>Total Fund</b>                              |        |        |         |         |        |
| Arkansas Public Employees Retirement System    | 10.25% | 12.30% | 0.30%   | 2.67%   | 19.68% |
| Callan Total Public Fund Median                | 8.23   | 12.42  | 0.54    | 3.24    | 16.30  |
| Inflation (Consumer Price Index)               | 2.87   | 1.50   | 0.64    | (0.38)  | 2.04   |
| <b>Equities</b>                                |        |        |         |         |        |
| Arkansas Public Employees Retirement System    | 16.27% | 17.52% | (0.38)% | 7.25%   | 24.48% |
| Callan Total Equity Database Median            | 15.02  | 19.48  | (1.58)  | 7.17    | 25.26  |
| Russell 3000 Index                             | 14.78  | 18.51  | 2.14    | 7.29    | 25.22  |
| <b>International Equities</b>                  |        |        |         |         |        |
| Arkansas Public Employees Retirement System    | 7.22%  | 18.39% | (6.88)% | (2.38)% | 24.43% |
| Callan Total Non-U.S. Equities Database Median | 8.05   | 20.86  | (8.20)  | (1.80)  | 23.34  |
| MSCI-EAFE Index                                | 6.84   | 20.27  | (10.16) | (4.22)  | 23.57  |
| <b>Fixed Income</b>                            |        |        |         |         |        |
| Arkansas Public Employees Retirement System    | 0.79%  | 3.04%  | 5.06%   | 1.32%   | 7.03%  |
| Callan Total Fixed Income Database Median      | 0.26   | 1.16   | 4.48    | 1.59    | 5.54   |
| Bloomberg Aggregate Index                      | (0.40) | (0.31) | 6.00    | 1.86    | 4.37   |
| <b>Diversified Strategies</b>                  |        |        |         |         |        |
| Arkansas Public Employees Retirement System    | 6.43%  | 5.51%  | 2.86%   | 1.97%   | 13.91% |
| Callan Int'l/Global Balanced Database Median   | 6.53   | 7.54   | (1.73)  | 0.59    | 13.59  |
| <b>Real Assets</b>                             |        |        |         |         |        |
| Arkansas Public Employees Retirement System    | 11.34% | 3.27%  | 8.29%   | 0.19%   | 14.51% |
| Consumer Price Index - U + 4%                  | 6.87   | 5.63   | 5.01    | 4.13    | 6.07   |

**SCHEDULE OF COMPARATIVE ANNUALIZED INVESTMENT RESULTS**

(for the fiscal year ended June 30, 2018 and the preceding 3-year and 5-year rates of return)

|  | 2018   | 3-Year<br>Annualized | 5-Year<br>Annualized |
|--|--------|----------------------|----------------------|
| <b>Total Fund</b>                                    |        |                      |                      |
| Arkansas Public Employees Retirement System          | 10.25% | 7.49%                | 8.82%                |
| Callan Total Public Fund Median                      | 8.23   | 6.96                 | 7.87                 |
| Inflation (Consumer Price Index)                     | 2.87   | 1.83                 | 1.54                 |
| <b>Equities</b>                                      |        |                      |                      |
| Arkansas Public Employees Retirement System          | 16.27% | 10.83%               | 12.69%               |
| Callan Total Equity Database Median                  | 15.02  | 11.41                | 13.14                |
| Russell 3000 Index                                   | 14.78  | 11.58                | 13.29                |
| <b>International Equities</b>                        |        |                      |                      |
| Arkansas Public Employees Retirement System          | 7.22%  | 5.73%                | 7.50%                |
| Callan Total Non-U.S. Equities Database Median       | 8.05   | 6.22                 | 7.12                 |
| MSCI-EAFE Index                                      | 6.84   | 4.90                 | 6.44                 |
| <b>Fixed Income</b>                                  |        |                      |                      |
| Arkansas Public Employees Retirement System          | 0.79%  | 2.95%                | 3.42%                |
| Callan Total Fixed Income Database Median            | 0.26   | 2.39                 | 2.82                 |
| Bloomberg Aggregate Index                            | (0.40) | 1.72                 | 2.27                 |
| <b>Diversified Strategies</b>                        |        |                      |                      |
| Arkansas Public Employees Retirement System          | 6.43%  | 4.92%                | 6.05%                |
| Callan International/Global Balanced Database Median | 6.53   | 4.70                 | 5.65                 |
| <b>Real Assets</b>                                   |        |                      |                      |
| Arkansas Public Employees Retirement System          | 11.34% | 7.58%                | 7.39%                |
| Consumer Price Index - U + 4%                        | 6.87   | 5.83                 | 5.54                 |

Source: Callan Associates Inc. (CAI database contains returns of over 115 Public retirement funds.)  
Returns are reported gross of fees.

### TEN LARGEST HOLDINGS\*

(as of June 30, 2018)

| <b>Domestic Fixed Income Holdings</b> | Par Value     | Market Value         | ASPRS               | APERS                |
|---------------------------------------|---------------|----------------------|---------------------|----------------------|
| U.S. Treasury 2.00% 08/31/2021        | \$ 15,734,940 | \$ 15,119,464        | \$ 539,706          | \$ 14,579,759        |
| FNMA 2.50% 07/01/2046                 | 9,919,996     | 9,777,022            | 349,001             | 9,428,020            |
| U.S. Treasury 2.50% 05/15/2046        | 9,495,599     | 9,672,792            | 345,281             | 9,327,511            |
| FHLMC 3.00% 03/01/2042                | 9,058,274     | 8,873,315            | 316,743             | 8,556,572            |
| FHLMC 3.50% 11/01/2046                | 9,124,602     | 8,809,580            | 314,467             | 8,495,112            |
| U.S. Treasury 3.00% 02/15/2047        | 7,878,697     | 7,787,858            | 277,996             | 7,509,862            |
| Washington Mutual VAR RT 08/25/2036   | 7,559,664     | 7,750,773            | 276,672             | 7,474,100            |
| FNMA 3.00 05/01/2043                  | 7,757,378     | 7,603,675            | 271,421             | 7,332,254            |
| U.S. Treasury 3.75% 11/15/2043        | 7,378,038     | 7,446,302            | 265,804             | 7,180,498            |
| U.S. Treasury 2.75% 11/15/2042        | 6,951,169     | 6,998,186            | 249,808             | 6,748,378            |
| <b>Total</b>                          |               | <u>\$ 89,838,967</u> | <u>\$ 3,206,899</u> | <u>\$ 86,632,068</u> |

| <b>Domestic Equity Holdings</b> | Shares    | Market Value          | ASPRS                | APERS                 |
|---------------------------------|-----------|-----------------------|----------------------|-----------------------|
| Apple Inc.                      | 333,204   | \$ 61,679,392         | \$ 2,201,713         | \$ 59,477,680         |
| Microsoft Corp.                 | 545,763   | 53,817,689            | 1,921,081            | 51,896,609            |
| Bank of America Corp.           | 1,367,517 | 44,370,880            | 1,583,866            | 42,787,013            |
| Amazon.Com Inc.                 | 22,480    | 38,211,504            | 1,364,001            | 36,847,503            |
| Mcdonald's Corp.                | 150,022   | 23,506,947            | 839,106              | 22,667,841            |
| Abiomed Inc                     | 57,388    | 23,474,561            | 837,950              | 22,636,612            |
| Facebook Inc                    | 114,089   | 22,169,774            | 791,374              | 21,378,400            |
| Paypal Holdings Inc             | 259,830   | 21,636,044            | 772,322              | 20,863,722            |
| Boeing Co., The                 | 64,237    | 21,552,156            | 769,327              | 20,782,828            |
| Alphabet Inc. CI A              | 18,768    | 21,192,638            | 756,494              | 20,436,144            |
| <b>Total</b>                    |           | <u>\$ 331,611,587</u> | <u>\$ 11,837,234</u> | <u>\$ 319,774,353</u> |

| <b>International Equity Holdings</b> | Shares    | Market Value          | ASPRS               | APERS                 |
|--------------------------------------|-----------|-----------------------|---------------------|-----------------------|
| Medtronic PLC                        | 433,189   | \$ 37,085,310         | \$ 1,323,800        | \$ 35,761,510         |
| Samsung Electronics Co. Ltd.         | 659,045   | 27,585,857            | 984,707             | 26,601,150            |
| Compass Group PLC                    | 1,176,678 | 25,143,545            | 897,526             | 24,246,019            |
| Baidu Inc.                           | 97,547    | 23,703,921            | 846,137             | 22,857,784            |
| RELX PLC                             | 902,802   | 19,338,972            | 690,326             | 18,648,647            |
| AON PLC                              | 140,941   | 19,332,877            | 690,108             | 18,642,769            |
| CIE Financiere Richemont SA          | 215,589   | 18,264,109            | 651,957             | 17,612,152            |
| ING Groep NV                         | 1,189,034 | 17,114,428            | 610,918             | 16,503,510            |
| UBS Group AG                         | 1,098,826 | 16,959,070            | 605,372             | 16,353,698            |
| Vivendi SA                           | 676,467   | 16,585,990            | 592,055             | 15,993,935            |
| <b>Total</b>                         |           | <u>\$ 221,114,079</u> | <u>\$ 7,892,906</u> | <u>\$ 213,221,173</u> |

\*By market value.  
Totals may not add due to rounding.

## SCHEDULE OF BROKERAGE COMMISSIONS

for the fiscal year ended of June 30, 2018)

| Brokerage Firm                              | Number of<br>Shares Traded | Total<br>Commission | Commission<br>Per Share | ASPRS            | APERS               |
|---|----------------------------|---------------------|-------------------------|------------------|---------------------|
| Merrill Lynch Pierce Fenner Smith Inc., NY  | 11,824,338                 | \$ 193,050          | \$ 0.02                 | \$ 6,891         | \$ 186,159          |
| Citibank, NY                                | 3,778,775                  | 171,265             | 0.05                    | 6,114            | 165,152             |
| Credit Suisse, NY                           | 4,722,460                  | 133,423             | 0.03                    | 4,763            | 128,661             |
| Morgan Stanley & Co. Inc., NY               | 6,347,692                  | 115,108             | 0.02                    | 4,109            | 110,999             |
| National Financial Services Corp., NY       | 4,151,510                  | 109,950             | 0.03                    | 3,925            | 106,025             |
| Goldman Sachs & Co., NY                     | 5,283,087                  | 107,834             | 0.02                    | 3,849            | 103,985             |
| J.P. Morgan Securities Inc., NY             | 3,674,985                  | 106,650             | 0.03                    | 3,807            | 102,843             |
| MacQuarie Capital Ltd., London              | 1,964,521                  | 90,805              | 0.05                    | 3,241            | 87,563              |
| Sanford Bernstein & Co., NY                 | 3,882,899                  | 70,919              | 0.02                    | 2,532            | 68,387              |
| Citigroup/Salomon Global Markets, NY        | 2,591,255                  | 65,380              | 0.03                    | 2,334            | 63,046              |
| Jefferies & Co. Inc., NY                    | 2,817,480                  | 61,269              | 0.02                    | 2,187            | 59,082              |
| Deutsche Bank Securities Inc., NY           | 2,575,040                  | 58,354              | 0.02                    | 2,083            | 56,271              |
| J.P. Morgan Clearing Corp., NY              | 2,013,258                  | 56,557              | 0.03                    | 2,019            | 54,538              |
| UBS Securities LLC, Stamford                | 2,245,838                  | 54,552              | 0.02                    | 1,947            | 52,605              |
| Credit Suisse, London                       | 2,367,874                  | 50,965              | 0.02                    | 1,819            | 49,146              |
| Carclays Capital LE, NY/NJ                  | 1,770,158                  | 49,043              | 0.03                    | 1,751            | 47,292              |
| Instinet Clearing Services Inc., NY         | 1,369,039                  | 45,872              | 0.03                    | 1,637            | 44,235              |
| ICBC Financial Services, NY                 | 1,456,094                  | 44,539              | 0.03                    | 1,590            | 42,949              |
| Weeden & Co., NY                            | 1,212,251                  | 42,798              | 0.04                    | 1,528            | 41,270              |
| Pershing LLC, Jersey City                   | 1,217,311                  | 37,677              | 0.03                    | 1,345            | 36,332              |
| Investment Tech Group Inc., NY              | 1,780,003                  | 37,447              | 0.02                    | 1,337            | 36,111              |
| SG Americas Securities LLC, NY              | 760,400                    | 32,843              | 0.04                    | 1,172            | 31,670              |
| Stifel Nicolaus                             | 1,057,913                  | 32,648              | 0.03                    | 1,165            | 31,482              |
| Raymond James & Assoc. Inc., St. Petersburg | 981,221                    | 31,099              | 0.03                    | 1,110            | 29,989              |
| Instinet Corp., NY                          | 1,112,513                  | 30,770              | 0.03                    | 1,098            | 29,672              |
| Others (including 155 brokerage firms)      | 44,132,534                 | 835,806             | 0.02                    | 29,835           | 805,971             |
|   | <u>117,090,449</u>         | <u>\$ 2,666,624</u> |                         | <u>\$ 95,188</u> | <u>\$ 2,571,436</u> |

Totals may not add due to rounding.

## SCHEDULE OF INVESTMENT FEES

(as of June 30, 2018)

|                                     | Market Value     | Fee           | Basis Points | ASPRS          |              | APERS            |               |
|-------------------------------------|------------------|---------------|--------------|----------------|--------------|------------------|---------------|
|                                     |                  |               |              | Market Value   | Fee          | Market Value     | Fee           |
| Domestic Equity                     |                  |               |              |                |              |                  |               |
| MCM S&P 500 Index Fund              | \$ 605,663,556   | \$ 132,582    | 2            | \$ 21,619,815  | \$ 4,733     | \$ 584,043,741   | \$ 127,849    |
| MCM RU2000 Value Fund               | 0                | 7,319         | 2            | 0              | 261          | 0                | 7,058         |
| LSV Asset Mgmt.                     | 208,558,986      | 923,057       | 60           | 7,444,738      | 32,950       | 201,114,248      | 890,107       |
| CastleArk Mgmt.                     | 544,417,622      | 1,598,880     | 35           | 19,433,575     | 57,074       | 524,984,047      | 1,541,806     |
| Golden Capital Mgmt.                | 192,040,299      | 421,750       | 22.5         | 6,855,086      | 15,055       | 185,185,213      | 406,695       |
| INTECH                              | 454,001,729      | 1,699,517     | 48           | 16,206,082     | 60,666       | 437,795,647      | 1,638,851     |
| Wellington Mgmt. Co.                | 308,017,612      | 914,456       | 30           | 10,995,021     | 32,642       | 297,022,591      | 881,814       |
| Westwood Mgmt.                      | 178,535,972      | 917,537       | 25           | 6,373,034      | 32,752       | 172,162,938      | 884,784       |
| Lazard Asset Mgmt.                  | 332,138,248      | 960,815       | 30           | 11,856,033     | 34,297       | 320,282,215      | 926,517       |
| SSI Investment Mgmt.                | 284,469,718      | 1,097,204     | 40           | 10,154,454     | 39,166       | 274,315,264      | 1,058,038     |
| Horrell Capital Mgmt.               | 121,134,735      | 199,458       | 20           | 4,324,035      | 7,120        | 116,810,700      | 192,338       |
| Stephens Inv. Mgmt. Group           | 339,509,283      | 2,008,244     | 77           | 12,119,151     | 71,686       | 327,390,132      | 1,936,557     |
|                                     | \$ 3,568,487,760 | \$ 10,880,817 |              | \$ 127,381,025 | \$ 388,403   | \$ 3,441,106,735 | \$ 10,492,415 |
| International Equity                |                  |               |              |                |              |                  |               |
| Mellon ACWI ex-US Fund              | \$ 381,752,639   | \$ 198,817    | 5            | \$ 13,627,073  | \$ 7,097     | \$ 368,125,566   | \$ 191,720    |
| Lazard Asset Mgmt.                  | 469,386,426      | 1,429,615     | 65           | 16,755,255     | 51,032       | 452,631,171      | 1,378,583     |
| Artisan Partners                    | 446,280,409      | 2,488,791     | 55           | 15,930,461     | 88,840       | 430,349,948      | 2,399,950     |
| Baillie Gifford                     | 464,296,458      | 1,855,111     | 44           | 16,573,564     | 66,220       | 447,722,894      | 1,788,890     |
| * Manning & Napier                  | 1,164,971        | 140,949       | 50           | 41,585         | 5,031        | 1,123,386        | 135,917       |
| + Fidelity                          | 420,762,217      | 859,469       | 20           | 15,019,562     | 30,680       | 405,742,655      | 828,789       |
|                                     | \$ 2,183,643,120 | \$ 6,972,751  |              | \$ 77,947,500  | \$ 248,900   | \$ 2,105,695,620 | \$ 6,723,851  |
| Fixed Income                        |                  |               |              |                |              |                  |               |
| Doubleline Capital                  | \$ 429,500,876   | \$ 799,904    | 20           | \$ 15,331,498  | \$ 28,553    | \$ 414,169,378   | \$ 771,351    |
| MacKay Shields CP II                | 450,935,988      | 902,889       | 20           | 16,096,647     | 32,230       | 434,839,341      | 870,660       |
| Prudential Investments              | 462,217,787      | 926,567       | 20           | 16,499,363     | 33,075       | 445,718,424      | 893,492       |
|                                     | \$ 1,342,654,651 | \$ 2,629,361  |              | \$ 47,927,508  | \$ 93,858    | \$ 1,294,727,143 | \$ 2,535,503  |
| Real Assets                         |                  |               |              |                |              |                  |               |
| INVESCO Real Estate                 | \$ 438,855,155   | \$ 1,394,060  | 33           | \$ 15,665,409  | \$ 49,762    | \$ 423,189,746   | \$ 1,344,297  |
| * INVESCO Global REITs              | 0                | 641,519       | 59           | 0              | 22,900       | 0                | 618,619       |
| MCM REIT Index Fund                 | 162,123,675      | 24,048        | 5            | 5,787,180      | 858          | 156,336,495      | 23,189        |
| + TA Associates Realty Fund X       | 18,878,863       | 1,000,775     | 200+         | 673,901        | 35,724       | 18,204,962       | 965,051       |
| + TA Associates Realty Fund XI      | 51,425,598       | 745,204       | 145          | 1,835,692      | 26,601       | 49,589,906       | 718,603       |
| CastleArk Mgmt. Global Energy Fund  | 54,459,115       | 495,731       | 100          | 1,943,977      | 17,696       | 52,515,138       | 478,036       |
| CastleArk Mgmt Global Energy Plus   | 169,975,408      | 1,608,900     | 100          | 6,067,456      | 57,431       | 163,907,952      | 1,551,469     |
| Pinnacle Forest Investments         | 100,446,655      | 916,176       | 90           | 3,585,552      | 32,704       | 96,861,103       | 883,472       |
| Heitman Real Estate Trust LP        | 320,261,954      | 2,193,276     | 69           | 11,432,096     | 78,291       | 308,829,858      | 2,114,985     |
| + LaSalle Inc & Growth VI LP        | 14,063,860       | 156,755       | 111          | 502,025        | 5,596        | 13,561,835       | 151,159       |
| + LaSalle Inc & Growth VII LP       | 36,301,010       | 207,093       | 58           | 1,295,804      | 7,392        | 35,005,206       | 199,700       |
|                                     | \$ 1,366,791,293 | \$ 9,383,536  |              | \$ 48,789,091  | \$ 334,955   | \$ 1,318,002,202 | \$ 9,048,580  |
| Diversified Strategies              |                  |               |              |                |              |                  |               |
| AQR Capital                         | \$ 127,599,278   | \$ 847,497    | 72           | \$ 4,554,794   | \$ 30,252    | \$ 123,044,484   | \$ 817,245    |
| Blackstone Hedge                    | 175,081,935      | 1,719,836     | 100          | 6,249,739      | 61,391       | 168,832,196      | 1,658,445     |
| Newton Capital                      | 110,989,420      | 684,015       | 70           | 3,961,887      | 24,417       | 107,027,533      | 659,598       |
|                                     | \$ 413,670,633   | \$ 3,251,349  |              | \$ 14,766,420  | \$ 116,060   | \$ 398,904,213   | \$ 3,135,288  |
| Other Investment Service Fees       |                  |               |              |                |              |                  |               |
| Bank of New York Mellon (Custodian) |                  | \$ 509,304    |              |                | \$ 18,180    |                  | \$ 491,124    |
| Callan Associates (Consultant)      |                  | 289,505       |              |                | 0            |                  | 279,171       |
| Total Investment Service Fees       |                  | \$ 33,916,622 |              |                | \$ 1,200,356 |                  | \$ 32,705,932 |

\* Terminated manager / + management fee is base fee plus performance fee



# ACTUARIAL

Actuary's Certification Letter

Summary of Actuarial Assumptions

Supplementary Information

Single Life Retirement Values

Separations from Active Employment Before  
Age and Service Retirement

Pay Increase Assumptions for Active Members

Probabilities of Retirement for Members  
Eligible to Retire

Active Members in Actuarial Valuation

Tier One and Tier Two Participants

Short Condition Test

Derivation of Experience Gain/(Loss)

Gains and Losses by Risk Area

Summary of Plan Provisions





## ACTUARY'S CERTIFICATE LETTER



800.521.0498 | P: 248.799.9000 | F: 248.799.9020 | [www.grsconsulting.com](http://www.grsconsulting.com)

November 20, 2018

Board of Trustees  
Arkansas State Police Retirement System  
Little Rock, Arkansas

Dear Board Members:

***The basic financial objective of the Arkansas State Police Retirement System (ASPRS) as provided in the Arkansas Code is to establish and receive contributions which, expressed as percents of active member payroll, will remain approximately level from generation to generation of Arkansas citizens and when combined with present assets and future investment return will be sufficient to meet the financial obligations of ASPRS to present and future benefit recipients.*** The progress towards meeting this financial objective is illustrated in the Schedule of Funding Progress and the Schedule of Employer Contributions.

We performed an actuarial valuation and issued an actuarial valuation report for ASPRS as of June 30, 2018. The purpose of the June 30, 2018 annual actuarial valuation was to determine the contribution requirements for the fiscal year ending June 30, 2019 and to measure the System's funding progress. The actuarial valuation report should not be relied upon for any other purpose. The valuation process develops contribution rates that are sufficient to fund the plan's normal cost (i.e., the cost assigned by the valuation method to the year of service about to be rendered) as well as to fund unfunded actuarial accrued liabilities as a level percent of active member payroll over a period of up to thirty years. The most recent valuations were completed based upon population data, asset data, and plan provisions as of June 30, 2018. In addition, a separate report will be issued to provide actuarial information for GASB Statement No. 67 and GASB Statement No. 68.

The ASPRS administrative staff provides the actuary with data for the actuarial valuation. The actuary relies on the data after reviewing it for internal and year-to-year consistency. The actuary summarizes and tabulates population data in order to analyze longer term trends. We are not responsible for the accuracy or completeness of the data provided by staff.

The actuarial valuation report and GASB Statement Nos. 67 and 68 report contain the following supporting schedules for use in the Actuarial and Financial Sections of the Comprehensive Annual Financial Report:

### Actuarial Section

- Summary of Assumptions Used
- Summary of Actuarial Methods and Assumptions
- Active Member Valuation Data
- Short Condition Test
- Analysis of Financial Experience
- Analysis of Financial Experience – Gains and Losses by Risk Area

Board of Trustees  
November 20, 2018  
Page 2

**Financial Section**

Schedule of Funding Progress  
Schedule of Changes in Net Pension Liability and Related Ratios  
Schedule of the Net Pension Liability  
Schedule of Contributions  
Notes to Schedule of Contributions

For actuarial valuation purposes, assets are valued on a market related basis that recognizes each year's difference between actual and assumed investment return over a closed four-year period.

Actuarial valuations are based upon assumptions regarding future activity in specific risk areas including the rates of investment return and payroll growth, eligibility for the various classes of benefits, and longevity among retired lives. These assumptions are adopted by the Board after considering the advice of the actuary and other professionals. The assumptions and the methods comply with the requirements of the Actuarial Standards of Practice. Each actuarial valuation takes into account all prior differences between actual and assumed experience in each risk area and adjusts the contribution rates as needed. The June 30, 2018 valuations were based upon assumptions that were recommended in connection with a study of experience covering the period 2012-2017. The investment return assumption was changed for the June 30, 2017 valuation and the demographic assumptions were changed for the June 30, 2018 valuation.

**The computed employer contribution rate to satisfy the statutory funding requirements set forth in Section 24-6-209 of the Arkansas Code is 51.43% of covered payroll for the year beginning July 1, 2018. Actual revenues were greater than the statutory requirement for the last 10 years. *ASPRS' on-going ability to satisfy statutory funding requirements is dependent upon its access to sufficient annual transfers from the remainder of insurance premium taxes enumerated in A.C.A.19-6-301(27) to finance unfunded actuarial accrued liabilities over a closed period of 21 years.***

Future actuarial measurements may differ significantly from those presented in the annual valuations due to such factors as experience differing from that anticipated by actuarial assumptions, or changes in plan provisions, actuarial assumption/methods or applicable law. Due to the limited scope of the assignment, we did not perform an analysis of the potential range of future measurements.

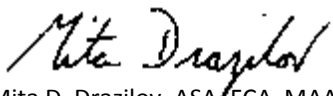
The signing individuals are independent of the plan sponsor.



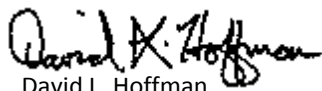
Board of Trustees  
November 20, 2018  
Page 3

Mita D. Drazilov is a Member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,



Mita D. Drazilov, ASA, FCA, MAAA



David L. Hoffman

MDD/DLH:ah



## SUMMARY OF ACTUARIAL ASSUMPTIONS<sup>\*</sup>

### Economic Assumptions

The investment return rate used in making the valuation was 7.15% per year, compounded annually (net after investment expenses). The assumed real rate of return is the portion of investment return which is more than the wage inflation rate. Considering assumed wage inflation of 3.25%, the 7.15% investment return rate translates to an effective assumed real rate of return of 3.90%. The wage inflation assumption was revised for the June 30, 2015 valuation and the investment assumption was revised for the June 30, 2018 valuation.

Pay increase assumptions for individual active members are shown on page D-5. Part of the assumption for each age is for a merit and/or seniority increase, and the other 3.25% recognizes wage inflation. The wage inflation assumption consists of 2.5% for price inflation and 0.75% for real wage growth. The pay increase assumption for individual active members was revised for the June 30, 2018 valuation.

Total active member payroll is assumed to increase 3.25% a year, which is the portion of the individual pay increase assumptions recognizing wage inflation.

The number of active members is assumed to continue at the present number.

### Non-Economic Assumptions

The mortality tables used to measure retired life mortality were the RP-2006 Healthy Annuitant benefit weighted generational mortality tables for males and females. The disability post-retirement mortality tables used were the RP-2006 Disabled Retiree benefit weighted generational mortality tables for males and females. The death-in-service mortality tables used were the RP-2006 Employee benefit weighted generational mortality tables for males and females. Mortality rates are multiplied by 135% for males and 125% for females and are adjusted for fully generational mortality improvements using Scale MP-2017. This assumption was first used for the June 30, 2018 valuation.

The probabilities of retirement for members eligible to retire are shown on page D-4. The assumption was revised for the June 30, 2018 valuation.

The probabilities of death-in-service, disability and withdrawal from service are shown for sample ages on page D-5. The assumption for death-in-service was revised for the June 30, 2018 valuation.

The individual entry-age normal actuarial cost method of the valuation was used in determining liabilities and normal cost.

<sup>\*</sup>The data referenced in this section is taken from the actuary's report, *Arkansas State Police Retirement System Actuarial Valuation and the Gain/(Loss) Analysis of Experience, June 30, 2018*, prepared by Gabriel Roeder Smith & Co. A PDF copy of the report is available for download at [www.apers.org](http://www.apers.org).

Differences in the past between assumed experience and actual experience ("actuarial gains and losses") become part of actuarial accrued liabilities.

Unfunded actuarial accrued liabilities are amortized to produce contribution amounts (principal & interest) which are level percent-of-payroll contributions.

Present assets (cash & investments) were valued on a market related basis in which differences between actual and assumed returns are phased-in over a four year period.

The data about persons now covered and about present assets was furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the actuary.

The actuarial valuation computations were made by or under the supervision of a member of the American Academy of Actuaries (MAAA).

## SUPPLEMENTARY INFORMATION

The information presented in the required supplementary schedules was determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest valuation date follows:

| Valuation Date   | June 30, 2018                  |
|--|--------------------------------|
| Actuarial Cost Method  | Entry Age Normal Cost          |
| Amortization Method  | Level Percent-of-Payroll       |
| Remaining Amortization Period                                      | 21-Year Closed                 |
| Asset Valuation Method   | 4-Year Smoothed Market         |
| Actuarial Assumptions:   |                                |
| Investment Rate of Return  | 7.15%                          |
| Projected Salary Increases   | 3.55% - 7.75%                  |
| Including Wage Inflation at  | 3.25%                          |
| Cost-of-Living Adjustments   | 3.0% Annual Compound Increases |
| Retirees and Beneficiaries Receiving Benefits                      | 688                            |
| Terminated Plan Members Entitled to But Not Yet Receiving Benefits | 84                             |
| DROP Members   | 61                             |
| Active Plan Members  | 467                            |
| Total  | 1,280                          |

## SINGLE LIFE RETIREMENT VALUES

| Sample Attained Ages | Present Value of \$1.00<br>Monthly for Life |           | Present Value of<br>\$1.00 Monthly for Life<br>Increasing 3% Annually |           | Future Life<br>Expectancy (Years) |       |
|----------------------|---|-----------|---|-----------|-----------------------------------|-------|
|                      | Men   | Women     | Men   | Women     | Men                               | Women |
| 40                   | \$ 155.86                                   | \$ 159.76 | \$ 228.83   | \$ 238.62 | 40.85                             | 44.56 |
| 45                   | 150.67                                      | 155.71    | 215.75  | 227.14    | 35.96                             | 39.59 |
| 50                   | 144.07                                      | 150.25    | 200.67  | 213.41    | 31.19                             | 34.66 |
| 55                   | 135.97                                      | 143.05    | 183.75  | 197.25    | 26.62                             | 29.83 |
| 60                   | 126.16                                      | 134.08    | 165.01  | 179.03    | 22.29                             | 25.20 |
| 65                   | 114.46                                      | 123.16    | 144.61  | 158.86    | 18.22                             | 20.82 |
| 70                   | 100.62                                      | 109.76    | 122.59  | 136.46    | 14.43                             | 16.66 |
| 75                   | 84.59                                       | 93.92     | 99.31   | 112.42    | 10.95                             | 12.82 |
| 80                   | 67.26                                       | 76.39     | 76.15   | 88.07     | 7.90                              | 9.42  |
| 85                   | 50.25                                       | \$ 58.64  | \$ 55.03  | \$ 65.27  | 5.41                              | 6.59  |

| Sample Attained Ages | \$100 Benefit<br>Increasing 3% Yearly |
|----------------------|---------------------------------------|
| 55                   | \$ 100.00                             |
| 60                   | 115.93                                |
| 65                   | 134.39                                |
| 70                   | 155.79                                |
| 75                   | 180.60                                |
| 80                   | \$ 209.36                             |

SEPARATIONS FROM ACTIVE EMPLOYMENT BEFORE AGE AND SERVICE RETIREMENT  
AND INDIVIDUAL PAY INCREASES

(as of June 30, 2018)

| Sample<br>Ages | Percentage of Active Members<br>Separating Within the Next Year |       |            |       | Pay Increase Assumptions<br>for Active Members |                    |                       |
|----------------|---|-------|------------|-------|--|--------------------|-----------------------|
|                | Death   |       | Disability | Other | Merit &<br>Seniority                           | Base<br>(Economic) | Increase<br>Next Year |
|                | Men   | Women |            |       |  |                    |                       |
| 20             | 0.05%   | 0.02% | 0.06%      | 5.50% | 4.50%  | 3.25%              | 7.75%                 |
| 25             | 0.07  | 0.02  | 0.09       | 5.50  | 3.90   | 3.25               | 7.15                  |
| 30             | 0.07  | 0.03  | 0.19       | 5.50  | 2.90   | 3.25               | 6.15                  |
| 35             | 0.08  | 0.04  | 0.31       | 4.18  | 1.90   | 3.25               | 5.15                  |
| 40             | 0.09  | 0.06  | 0.43       | 2.64  | 1.38   | 3.25               | 4.63                  |
| 45             | 0.13  | 0.08  | 0.55       | 1.43  | 1.10   | 3.25               | 4.35                  |
| 50             | 0.23  | 0.14  | 0.67       | 0.55  | 0.80   | 3.25               | 4.05                  |
| 55             | 0.38%   | 0.22% | 0.79%      | 0.00% | 0.60%  | 3.25%              | 3.85%                 |



## PROBABILITIES OF RETIREMENT FOR MEMBERS ELIGIBLE TO RETIRE (as of June 30, 2018)

| Retirement<br>Ages | Percent of Eligible<br>Active Members<br>Retiring<br>Within Next Year |          | Years of<br>Service | Percent of Eligible<br>Active Members Retiring<br>Within Next Year |
|--------------------|---|----------|---------------------|--|
|                    | Tier One  | Tier Two |                     | Tier Two   |
| 47                 | 1%  |          |                     |  |
| 48                 | 1   |          |                     |  |
| 49                 | 1   |          |                     |  |
| 50                 | 6   | 1%       | 30                  | 25%  |
| 51                 | 6   | 1        | 31                  | 15   |
| 52                 | 8   | 1        | 32                  | 15   |
| 53                 | 8   | 6        | 33                  | 20   |
| 54                 | 8   | 6        | 34                  | 35   |
| 55                 | 10  | 25       | 35                  | 40   |
| 56                 | 10  | 20       | 36 & Over           | 100%   |
| 57                 | 10  | 18       |                     |  |
| 58                 | 25  | 18       |                     |  |
| 59                 | 40  | 20       |                     |  |
| 60                 | 50  | 25       |                     |  |
| 61                 | 60  | 30       |                     |  |
| 62                 | 80  | 100      |                     |  |
| 63                 | 80  | 100      |                     |  |
| 64                 | 100   | 100      |                     |  |
| 65                 | 100%  | 100%     |                     |  |

A member is assumed to be eligible to retire at age 52 (55 for Tier Two) with 17 years of service, or at any age with 30 years of service (Tier Two). A member is assumed to be eligible to retire early at age 47 (50 for Tier 2) with 17 years of service. For a Tier 2 member with 30 or more years of service at the beginning of a year, the percentages shown for service based retirement (30 or more years) take precedence over the percentages associated with age based retirement.

It was assumed that members eligible to enter the DROP will do so to maximize the value of their benefits.

**ACTIVE MEMBERS IN ACTUARIAL VALUATION**

(as of June 30, 2018)

| June 30 | Number* | Group Averages |         |           |
|---------|---------|----------------|---------|-----------|
|         |         | Age            | Service | Pay       |
| 2009    | 539     | 42.0           | 15.0    | \$ 49,714 |
| 2010    | 545     | 42.0           | 14.3    | 52,318    |
| 2011    | 530     | 42.0           | 14.4    | 52,950    |
| 2012    | 534     | 41.6           | 13.9    | 53,236    |
| 2013    | 525     | 41.6           | 13.9    | 53,344    |
| 2014    | 530     | 41.6           | 13.9    | 53,866    |
| 2015    | 558     | 41.0           | 13.0    | 53,637    |
| 2016    | 554     | 40.9           | 13.1    | 53,156    |
| 2017    | 528     | 41.7           | 13.8    | 55,070    |
| 2018    | 528     | 41.4           | 12.7    | \$ 56,048 |

\* Includes DROP participants.

### TIER ONE AND TIER TWO PARTICIPANTS

(as of June 30, 2018)

|                 | Number | Group Averages |         |           |
|-----------------|--------|----------------|---------|-----------|
|                 |        | Age            | Service | Pay       |
| Tier One        | 43     | 50.0           | 22.3    | \$ 69,197 |
| Tier One - DROP | 61     | 56.0           | 28.0    | 74,910    |
| Tier Two        | 424    | 38.4           | 9.6     | 52,000    |
| Total           | 528    | 41.4           | 12.7    | \$ 56,048 |

## SHORT CONDITION TEST

The Arkansas SPRS funding objective is to meet long-term benefit promises through contributions that remain approximately level from year-to-year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the System will pay all promised benefits when due -- the ultimate test of financial soundness. Testing for level contribution rates is the long-term test.

A short condition test is one means of checking a system's progress under its funding program. In a short condition test, the system's present assets (cash and investments) are compared with

- Member accumulated contributions;
- The liabilities for future benefits to present retired lives; and
- The employer financed portion of liabilities for service already rendered by nonretired members.

In a system that has been following the discipline of level percent-of-payroll financing, active member contributions (liability 1) and the liabilities for future benefits to present retired lives (liability 2) will be fully covered by valuation assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (liability 3) will be partially covered by the remainder of valuation assets. The larger the funded portion of liability 3, the stronger the condition of the system.

### Ten-Year Comparative Statement (dollars in millions)

| Entry Age Accrued Liability |                                    |                                   |   |                  | Portion of Present Values Covered By Valuation Assets |      |     |       |
|-----------------------------|------------------------------------|-----------------------------------|---|------------------|---|------|-----|-------|
| Valuation Date:<br>June 30  | (1)<br>Active Member Contributions | (2)<br>Retirees and Beneficiaries | (3)<br>Active Members (Employer Financed Portion) | Valuation Assets | (1)   | (2)  | (3) | Total |
| (\$ in Millions)            |                                    |                                   |   |                  |   |      |     |       |
| 2009#@                      | \$ 0.45                            | \$ 169.43                         | \$ 156.06   | \$ 206.32        | 100%  | 100% | 23% | 63%   |
| 2010                        | 0.35                               | 179.38                            | 153.87  | 211.07           | 100   | 100  | 20  | 63    |
| 2011                        | 0.28                               | 205.40                            | 137.53  | 208.05           | 100   | 100  | 2   | 61    |
| 2012                        | 0.31                               | 217.64                            | 137.35  | 215.01           | 100   | 99   | 0   | 61    |
| 2013@                       | 0.53                               | 227.80                            | 133.13  | 233.15           | 100   | 100  | 4   | 65    |
| 2014@                       | 0.50                               | 237.17                            | 144.19  | 259.46           | 100   | 100  | 15  | 68    |
| 2015*                       | 0.37                               | 252.79                            | 145.80  | 274.83           | 100   | 100  | 15  | 69    |
| 2016                        | 0.57                               | 260.49                            | 147.68  | 297.91           | 100   | 100  | 19  | 71    |
| 2017                        | 0.57                               | 277.14                            | 154.17  | 305.85           | 100   | 100  | 18  | 71    |
| 2017@                       | 0.57                               | 273.86                            | 154.62  | 305.85           | 100   | 100  | 20  | 71    |
| 2018                        | \$ 0.62                            | \$ 284.61                         | \$ 157.70   | \$ 319.79        | 100%  | 100% | 22% | 72%   |

# After legislated changes in benefit provisions

@ After changes in actuarial assumptions and/or methods

\* (1) was estimated based on reported member contribution balances received by the actuary from ASPRS.

**DERIVATION OF EXPERIENCE GAIN/(LOSS)**

(as of June 30, 2018)

Actual experience will not (except by coincidence) match assumed experience. Gains and losses often cancel each other over a period of years, but sizable year-to-year fluctuations are common. Detail on the derivation of the experience gain/loss is shown below.

|   | (dollar figures in<br>1000's) |
|---|-------------------------------|
| 1. UAAL* at Start of Year (after adoption of new assumptions)                 | \$ 123,208                    |
| 2. Normal Cost from Last Valuation  | 6,568                         |
| 3. Employer Contributions   | 21,004                        |
| 4. Interest accrual: $(1) \times 0.0715 + ((2) - (3)) \times 0.03575$         | 8,293                         |
| 5. Expected UAAL Before Changes: $(1) + (2) - (3) + (4)$                      | 117,065                       |
| 6. Change for Revised Actuarial Assumptions and/or Valuation Methods          | 0                             |
| 7. Change from Benefit Changes  | 0                             |
| 8. Expected UAAL After Changes: $(5) + (6) + (7)$                             | 117,065                       |
| 9. Actual UAAL at End of Year   | 123,140                       |
| 10. Gain/loss: $(8) - (9)$  | \$ (6,075)                    |
| 11. Gain/Loss as Percentage of Actuarial Accrued Liabilities at Start of Year | (1.4)%                        |

\* Unfunded Actuarial Accrued Liability

## ANALYSIS OF EXPERIENCE - GAINS/(LOSSES) BY RISK AREA

(during the period July 1, 2017 to June 30, 2018)

| Type of Risk Area   | Gain/Loss in Period       |                                |
|---|---------------------------|--------------------------------|
|   | Total<br>(\$ in millions) | % of<br>Accrued<br>Liabilities |
| <b>Economic Risk Areas</b>  |                           |                                |
| Pay Increases: If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.  | \$ (1.0)                  | (0.2)%                         |
| Investment Return: If there is greater recognized investment return than assumed, there is a gain. If less return, a loss.  | (4.4)                     | (1.0)                          |
| <b>Non-Economic Risk Areas</b>  |                           |                                |
| Age & Service Retirements: If members retire at older ages or with lower final average pays than assumed, there is a gain. If they retire at younger ages or higher average pays, a loss. | (0.7)                     | (0.2)                          |
| Disability Retirements: If there are fewer disabilities than assumed, there is a gain. If more, a loss.   | 0.1                       | 0.0                            |
| Death-in-Service Benefits: If there are fewer claims than assumed, there is a gain. If more, a loss.  | (0.2)                     | 0.0                            |
| Withdrawal: If more liabilities are released by other separations than assumed, there is a gain. If smaller releases, a loss.   | 0.3                       | 0.1                            |
| <b>Actuarial Gains/(Losses)</b>   | <b>\$ (5.9)</b>           | <b>(1.3)</b>                   |
| <b>Other</b> (gains and losses resulting from group size change, data adjustments, timing of financial transactions, and retiree mortality)   | (0.2)                     | (0.2)                          |
| <b>Total Actuarial Gains/Losses</b>   | <b>\$ (6.1)</b>           | <b>(1.4)%</b>                  |

## SUMMARY OF PLAN PROVISIONS

(Last changed as of July 1, 2009)

The Non-Contributory Plan was created by Act 793 of 1977 and was effective January 1, 1978. All non-retired members are now covered by non-contributory benefits. Act 1071 of 1997 created a Tier Two benefit plan for all officers hired on or after April 3, 1997. Existing members of the plan in effect prior to this date (Tier One) had one year to elect coverage under Tier Two.

### Voluntary Retirement

With a full benefit, after 30 years of actual service, regardless of age, or at age 65 with 5 actual years of service for Tier One and Tier Two. The age requirement is reduced by 1 month for every 2 months of Public Safety service credit, but not below age 52 for Tier One or age 55 for Tier Two members.

Public Safety service credit is granted at the rate of 1.5 months of credit for each month of actual Public Safety employment for Tier One. Service is credited at a rate of one for one in Tier Two.

With a reduced benefit, once a member's age is within 10 years of becoming eligible for full benefits. The reduction for Tier One is equal to 1/2 of 1% for each month retirement precedes Normal Retirement Age. The reduction for Tier Two is equal to 3/4 of 1% for each month retirement precedes Normal Retirement Age.

### Final Average Pay (FAP)

Average of the highest 60 calendar months' pays for Tier One or 48 calendar months for Tier Two.

### Full Age and Service Retirement Benefit

Tier One: 1.55% of FAP times years and months of credited service. Tier Two: 2.475% of FAP times credited service. If retirement is prior to age 62, an additional .322% of FAP times credited service will be paid until the retiree attains age 62 for Tier One or .513% of FAP times credited service for Tier Two.

Public Safety service credit is granted at the rate of 1.5 months of credit for each month of actual Public Safety employment for Tier One. Service is credited at a rate of one for one in Tier Two.

For Tier One, the portion of the SPRS benefit based on service before 1978 cannot be less than the amount provided by contributory provisions in effect at time of retirement; and if there is credited service for time prior to July 1, 1991, the benefit cannot be less than under the provisions in effect July 1, 1990, (using Social Security offset), plus increases granted since that date.

For Tier One, the minimum monthly benefit is \$150 minus any age and beneficiary option reductions.



### Vested and Reduced Early Retirement Benefits

5 years of actual service, and leaving System-covered employment before full retirement age.

Deferred full retirement benefit, based on service and pay at termination, begins when full retirement age would have been reached by continuing covered employment.

In place of a deferred full benefit, a qualifying member may elect an immediate reduced benefit, provided the member is within 10 years of full retirement age. The reduced amount is the full amount reduced by 1/2 of 1% for Tier One and/or 3/4 of 1% for Tier Two for each month of difference in benefit commencement ages.

### Death While in System Covered Employment

Member's accumulated contributions before 1978 are refundable.

If the deceased member has 5 or more years of service and has qualifying dependents, monthly benefits are payable instead. A surviving spouse receives a benefit as if the member had retired and elected the joint and 75% survivor option. Payment begins immediately if the member was eligible for a full age and service benefit or had 20 years of service; or payment begins at the spouse's age 50 if the member had 15 or more years of service; or payment begins at the spouse's age 62 if the member had less than 15 years of service.

If a member is killed while in the official line of duty and the surviving spouse is eligible for a deferred benefit, then the surviving spouse may elect to receive a reduced benefit immediately. The reduction of the benefit shall be 1/2 of 1% per month for each of the first 60 months that the benefit commences before when it would have otherwise commenced, plus; 1/4 of 1% per month for each month more than 60 months that the benefit commences before when it would have otherwise commenced. However, the total reduction shall not be more than 50%.

Each dependent child receives a benefit of 10% of annual pay (maximum of 25% of annual pay for all children).

Dependent parents' benefits are payable if neither spouse nor children's benefits are payable.

### Total and Permanent Disability

Tier One eligibility: Disabled after 5 years of service.

Tier Two eligibility: Disabled after 5 years of service.

Amount is computed as an age and service benefit, based on service and pay to the time of disability.

### Death after Retirement

Retiring member can provide protection for a beneficiary by electing an option which provides beneficiary protection by reducing the retired employee's benefit amount.

Under Tier One, if a straight life annuity is paid, upon the retiree's death, 50% of the retiree's benefit is continued to a surviving spouse. If the deceased retiree leaves children under age 18, 75% of the retiree's benefit is continued to the surviving spouse. If there is no surviving spouse, the 75% will be divided among the children under age 18.

Under Tier Two, if a straight life annuity is elected, no survivor benefit is payable.

### Benefit Increases after Retirement

Annually, there is a cost-of-living adjustment equal to 3% of the current benefit amount.

### Member Contributions

None.

### Arkansas State Police Officers Deferred Retirement Option Plan – Tier One (Act 967 of 1995)

Tier One members with 30 years of credited service and who are eligible to receive a service retirement pension may participate.

Participating members may continue in employment for up to 7 years and have their accrued monthly benefit (at date of participation) credited to an individual account in the Deferred Retirement Option Plan in lieu of any further benefit accruals.

The Deferred Retirement Option Plan accounts accumulate with interest and are paid to the member at termination of active membership in either a lump sum or as an annuity of equivalent value. Interest is credited annually at a rate established by the Board of Trustees.

### Arkansas State Police Officers Deferred Retirement Option Plan – Tier Two (Act 1242 of 2009)

Tier two members with at least 30 years of actual service and are eligible to receive a service retirement pension may participate.

Participating members may continue in employment for up to 7 years and have seventy-two percent (72%) of their accrued monthly benefit (at date of participation) credited to an individual account in the Deferred Retirement Option Plan in lieu of any further benefit accruals.

The Deferred Retirement Option Plan accounts accumulate with interest and are paid to the member at termination of active membership in either a lump sum or as an annuity of equivalent value. Interest is credited annually to participant accounts at a rate established by the Arkansas State Police Retirement System Board of Trustees that shall not be greater than five percent (5%) nor less than one percent (1%) per annum.

# STATISTICAL

Schedule of Revenues by Source

Schedule of Expenses by Type

Schedule of Benefit Expenses by Type

Schedule of Retired Members by Type of Benefit

Schedule of Average Benefit Payments

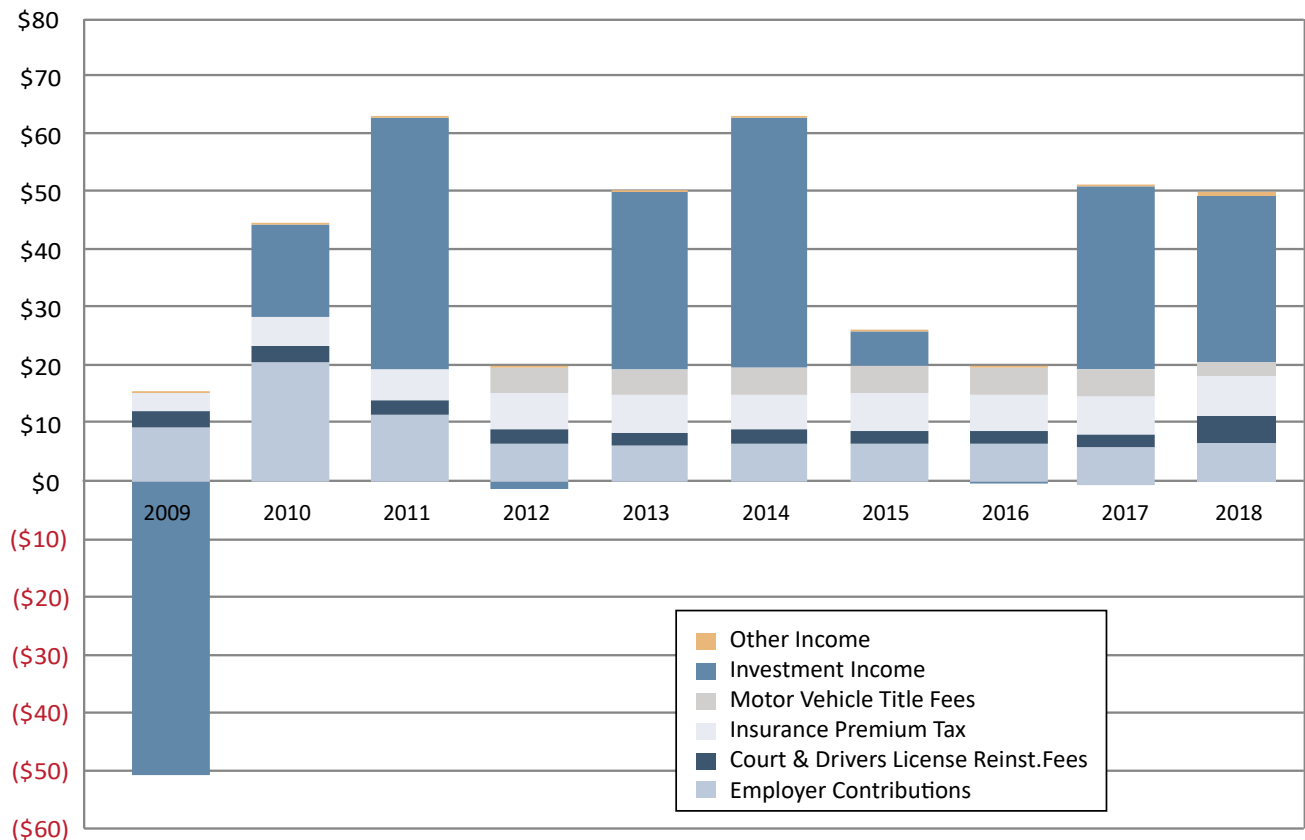
Statistical Graphs



## SCHEDULE OF REVENUES BY SOURCE

(for the fiscal year ended June 30, 2018)

|      | Employer<br>Contributions | Court & Driver's<br>License Reinst.<br>Fees | Insurance<br>Premium Tax | Motor<br>Vehicle Title<br>Fees | Investment<br>Income | Other<br>Income | Total           |
|------|---------------------------|---|--------------------------|--------------------------------|----------------------|-----------------|-----------------|
| 2009 | \$ 9,416,710              | \$ 2,606,871                                | \$ 3,343,844             | \$ 0                           | \$ (50,964,780)      | \$ 118,479      | \$ (38,822,720) |
| 2010 | 20,547,457                | 2,682,529                                   | 5,285,153                | 0                              | 15,965,604           | 63,621          | 39,259,211      |
| 2011 | 11,434,257                | 2,675,335                                   | 5,232,634                | 0                              | 43,395,542           | 18,470          | 57,523,604      |
| 2012 | 6,525,196                 | 2,525,594                                   | 6,250,117                | 4,246,637                      | (1,302,063)          | 118,334         | 18,363,815      |
| 2013 | 6,183,721                 | 2,111,570                                   | 6,697,200                | 4,356,659                      | 30,531,555           | 124,067         | 50,004,772      |
| 2014 | 6,405,887                 | 2,657,952                                   | 5,957,541                | 4,442,806                      | 43,307,745           | 37,499          | 62,809,430      |
| 2015 | 6,409,752                 | 2,234,350                                   | 6,574,376                | 4,565,652                      | 6,131,684            | 94,820          | 26,010,634      |
| 2016 | 6,581,580                 | 2,206,082                                   | 6,233,769                | 4,661,683                      | (210,045)            | 30,181          | 19,503,250      |
| 2017 | 6,416,736                 | 2,139,475                                   | 6,693,915                | 4,667,895                      | 31,484,250           | 43,045          | 51,445,316      |
| 2018 | \$ 6,515,063              | \$ 2,580,695                                | \$ 7,109,703             | \$ 4,664,315                   | \$ 28,823,333        | \$ 133,871      | \$ 49,826,982   |

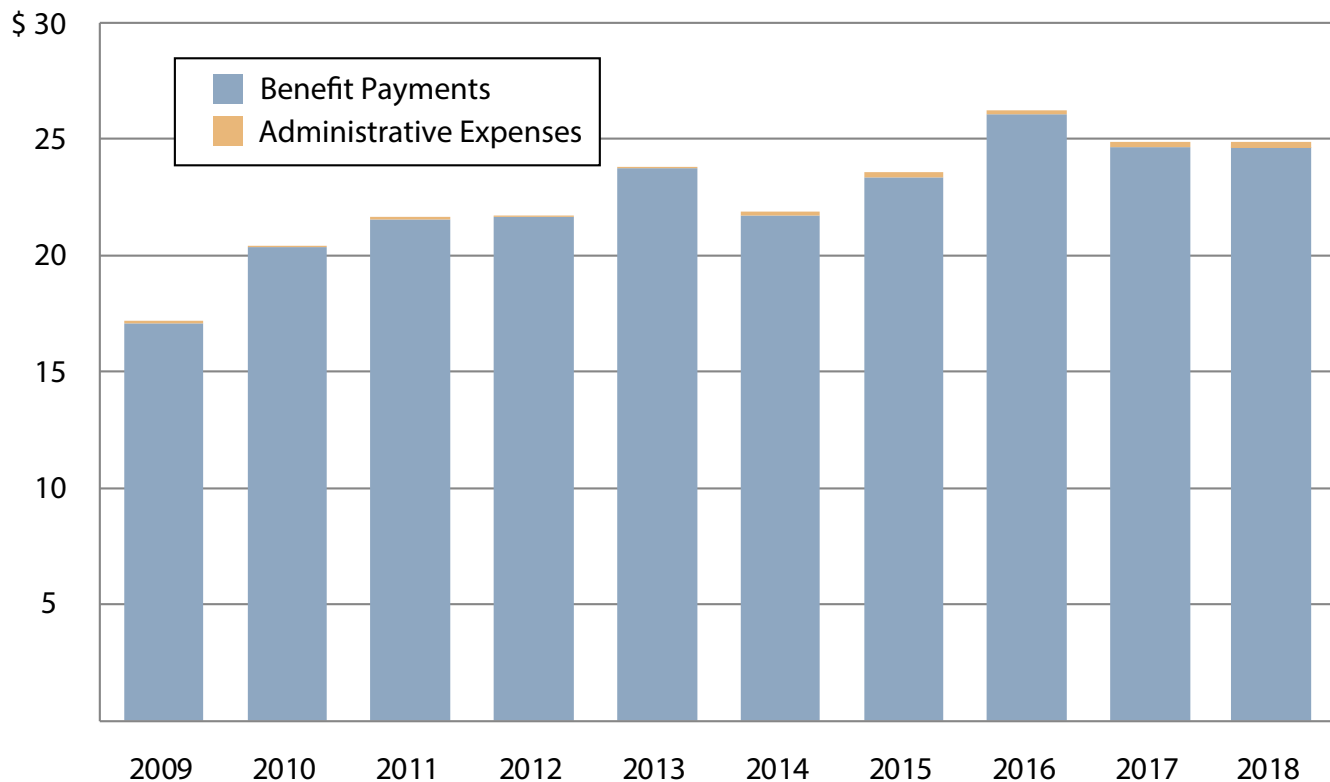
Schedule of Revenue by Source  
(Millions)

## SCHEDULE OF EXPENSES BY TYPE

(for the fiscal year ended June 30, 2018)

| Year Ended<br>June 30 | Benefit<br>Payments* | Administrative<br>Expenses | Total         |
|-----------------------|----------------------|----------------------------|---------------|
| 2009                  | \$ 17,082,320        | \$ 89,011                  | \$ 17,171,331 |
| 2010                  | 20,319,683           | 79,878                     | 20,399,561    |
| 2011                  | 21,560,127           | 83,234                     | 21,643,361    |
| 2012                  | 21,649,158           | 80,842                     | 21,730,000    |
| 2013                  | 23,717,503           | 97,181                     | 23,814,684    |
| 2014                  | 21,688,239           | 189,658                    | 21,877,896    |
| 2015                  | 23,358,801           | 196,231                    | 23,555,032    |
| 2016                  | 26,035,466           | 205,342                    | 26,240,808    |
| 2017                  | 24,631,787           | 208,424                    | 24,840,211    |
| 2018                  | \$ 24,185,419        | \$ 228,430                 | \$ 24,413,849 |

\*Includes DROP and PAW distributions.

Schedule of Expenses by Type  
(Millions)

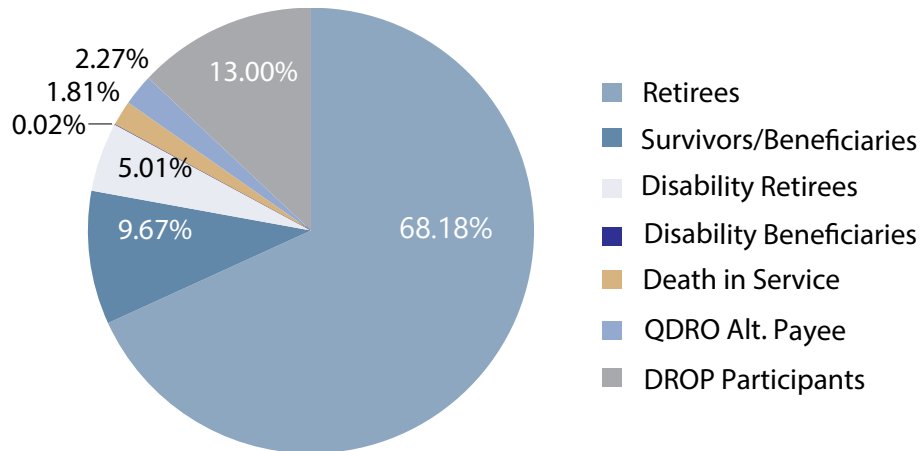
## SCHEDULE OF BENEFIT EXPENSES BY TYPE<sup>\*</sup>

(for the fiscal year ended June 30, 2018)

| Year<br>Ended<br>June<br>30 | Age and Service |               | Disability    |               | Death in<br>Service | QDRO<br>Alternative<br>Payees | DROP<br>Participants |
|-----------------------------|-----------------|---------------|---------------|---------------|---------------------|-------------------------------|----------------------|
|                             | Retirees        | Beneficiaries | Retirees      | Beneficiaries |                     |                               |                      |
| 2009                        | \$ 12,878,923   | \$ 958,545    | \$ 17,426,148 |               | \$ 87,696           |                               |                      |
| 2010                        | 13,646,899      | 1,113,108     | 18,793,560    |               | 90,312              |                               |                      |
| 2011                        | 14,905,638      | 1,708,748     | 20,302,152    |               | 93,024              |                               |                      |
| 2012                        | 16,106,010      | 1,803,169     | 21,950,568    |               | 91,092              |                               |                      |
| 2013                        | 16,901,590      | 1,950,945     | 26,158,872    |               | 93,828              |                               |                      |
| 2014                        | 17,368,858      | 2,034,215     | 27,648,624    |               | 74,640              |                               |                      |
| 2015                        | 17,963,207      | 2,325,900     | 1,016,556     | \$ 13,944     | 76,872              | \$ 471,880                    | \$ 3,126,156         |
| 2016                        | 18,805,319      | 2,355,686     | 1,064,772     | 14,364        | 79,188              | 532,792                       | 3,434,940            |
| 2017                        | 18,769,461      | 2,320,702     | 1,350,504     | 7,140         | 491,004             | 607,318                       | 3,281,616            |
| 2018                        | \$ 19,037,338   | \$ 2,702,300  | \$ 1,400,784  | \$ 7,368      | \$ 508,092          | \$ 634,167                    | \$ 3,630,132         |

\*Expenses are based on annualized June 30 benefits amounts.

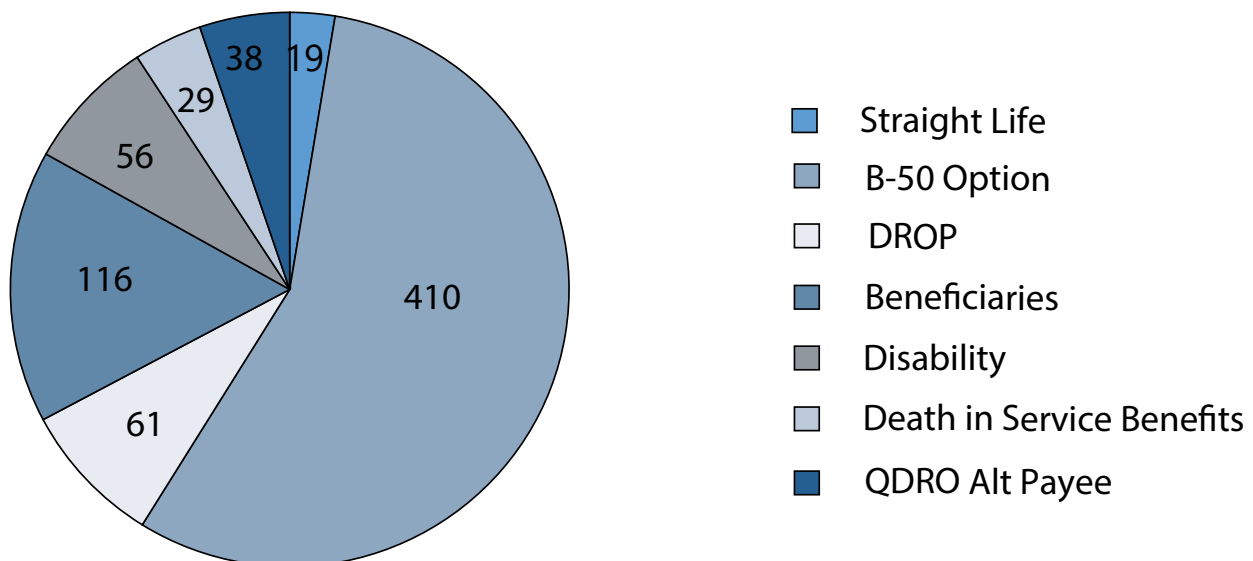
Prior to 2015, disability beneficiaries were reported in the same category as death-in-service beneficiaries.



## SCHEDULE OF RETIRED MEMBERS BY TYPE OF BENEFIT

(as of June 30, 2018)

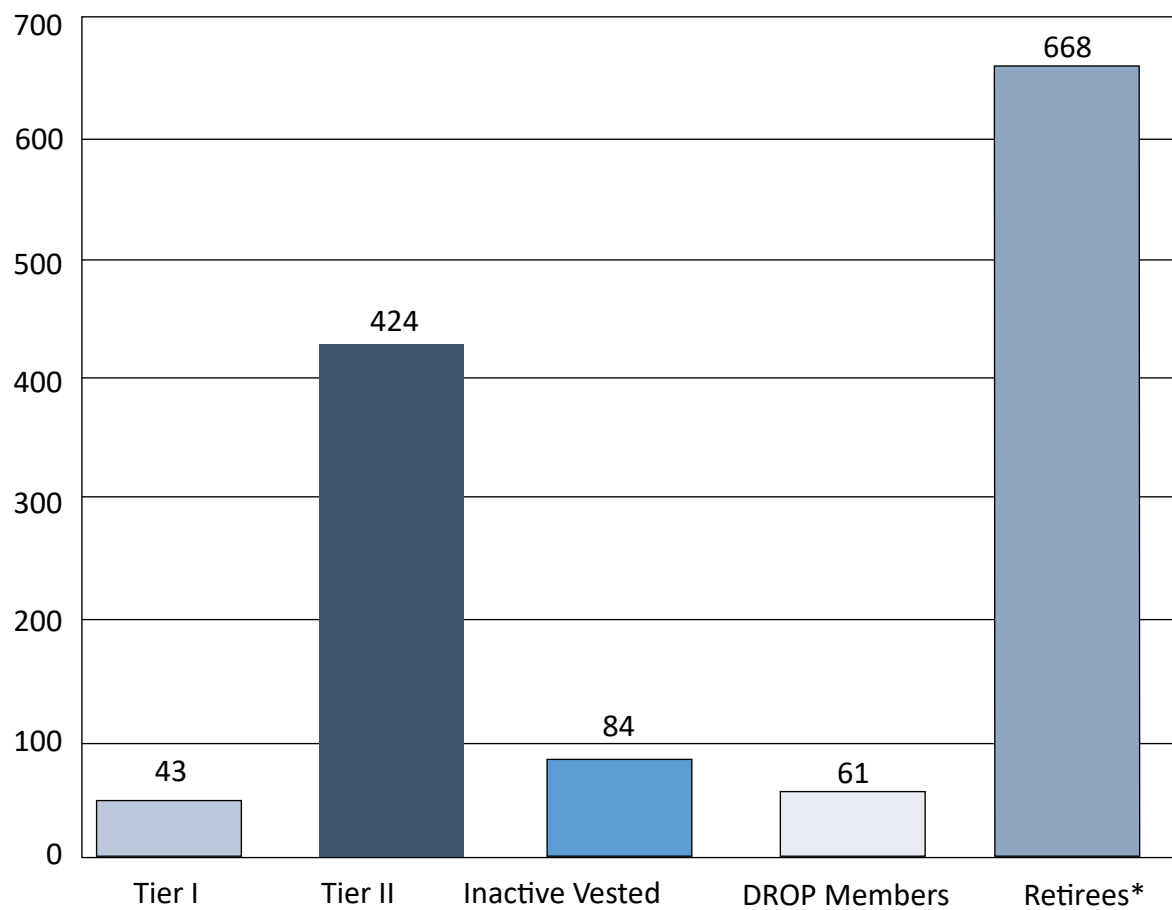
| Type of Benefit Being Paid                                 | Number | Annual Pensions | Actuarial<br>Accrued Liability |
|--|--------|-----------------|--------------------------------|
| <b>Age &amp; Service Retirees</b>                          |        |                 |                                |
| Life   | 19     | \$ 330,816      | \$ 4,404,766                   |
| B-50   | 410    | 18,706,522      | 224,847,259                    |
| Totals   | 429    | 19,037,338      | 229,252,025                    |
| <b>Beneficiaries of Age &amp; Service Retirees</b>         |        |                 |                                |
| B-50   | 116    | 2,702,300       | 24,737,474                     |
| <b>Total Age &amp; Service Retirees</b>                    | 545    | 21,739,638      | 253,989,499                    |
| <b>Disability Retirees</b>                                 |        |                 |                                |
| Life   | 17     | 254,988         | 3,286,282                      |
| B-50   | 38     | 1,145,796       | 13,807,997                     |
| Totals   | 55     | 1,400,784       | 17,094,279                     |
| <b>Beneficiaries of Disability Retirees</b>                | 1      | 7,368           | 84,030                         |
| <b>Total Disability Retirees &amp; Beneficiaries</b>       | 56     | 1,408,152       | 17,178,309                     |
| <b>Death-in-Service Beneficiaries</b>                      | 29     | 508,092         | 5,486,067                      |
| <b>QDRO Alternate Payees</b>                               | 38     | 634,167         | 7,960,059                      |
| <b>Total Retirees &amp; Beneficiaries</b>                  | 668    | 24,290,049      | 284,613,934                    |
| <b>DROP Participants (excluding DROP reserve)</b>          | 61     | 3,630,132       | 57,641,208                     |
| <b>Total Retirees, Beneficiaries and DROP Participants</b> | 729    | \$ 27,920,181   | \$ 342,255,142                 |





## STATISTICAL GRAPHS

Comparison of Membership by Type



*\*Including Retirees, Disability Recipients, & Death-In-Service Beneficiaries.*

**Arkansas State Police Retirement System**

**124 West Capitol Ave., Suite 400**

**Little Rock, AR 72201**

**[www.apers.org/asprs](http://www.apers.org/asprs)**