GRS Gabriel Roeder Smith & Company
Consultants & Actuaries

ARKANSAS STATE POLICE RETIREMENT SYSTEM

GASB STATEMENT NOS. 67 AND 68 ACCOUNTING AND FINANCIAL REPORTING FOR PENSIONS

JUNE 30, 2016

GRS
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November 22, 2016

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

Ladies and Gentlemen:

This report provides information required by the Retirement System in connection with the Governmental Accounting Standards Board (GASB) Statement No. 67 "Financial Reporting for Pension Plans" and Governmental Account Standards Board (GASB) Statement No. 68 "Accounting and Financial Reporting for Pensions".

Our actuarial calculations for this report were prepared for the purpose of complying with the requirements of GASB Statement Nos. 67 and 68. These calculations have been made on a basis that is consistent with our understanding of these accounting standards.

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of satisfying the requirements of GASB Statement Nos. 67 and 68. The calculation of the plan's liability for this report may not be applicable for funding purposes of the plan. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statement Nos. 67 and 68 may produce significantly different results. This report may be provided to parties other than the Arkansas State Police Retirement System only in its entirety and only with the permission of the Board of Trustees. GRS is not responsible for unauthorized use of this report.

This report is based upon information, furnished to us by Retirement System staff, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. If your understanding of this information is different, please let us know. This information was checked for internal consistency, but it was not audited.

This information is presented in draft form for review by the plan's auditor. Please let us know if there are any items that the auditor changes so that we may maintain consistency with the plan's financial statements.

Please see the actuarial valuation report as of June 30, 2016 for additional discussions of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

To the best of our knowledge, this report is complete, accurate, and in accordance with generally recognized actuarial methods. Mita Drazilov is a Member of the American Academy of Actuaries and meets the Qualification Standards of the Academy of Actuaries to render the actuarial opinions herein. The signing individuals are independent of the plan sponsor.

Respectfully submitted,

Mita Drazilov

Mita Drazilov, ASA, MAAA

David L. Hoffman

David L. Hoffman

MD/DLH:ah

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SECTION A

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY
AS OF JUNE 30, 2016

Actuarial Valuation Date		June 30, 2016
Measurement Date of the Net Pension Liability		June 30, 2016
Employer's Fiscal Year Ending Date (Reporting Date)		June 30, 2016
Membership		
Number of		
- Retirees and Beneficiaries and DROP Members		692
- Inactive, Nonretired Members		76
- Active Members		496
- Total		1,264
Covered Payroll #	$	29,448,593
Net Pension Liability		
Total Pension Liability	$	413,882,894
Plan Fiduciary Net Position		272,920,012
Net Pension Liability	$	140,962,882
Plan Fiduciary Net Position as a Percentage of Total Pension Liability		65.94%
Net Pension Liability as a Percentage of Covered Payroll		478.67%
Development of the Single Discount Rate		
Single Discount Rate		7.50%
Long-Term Expected Rate of Investment Return		7.50%
Long-Term Municipal Bond Rate*		2.85%
Last year ending June 30 in the 2017 to 2116 projection period for which projected benefit payments are fully funded		2116
Total Pension Expense	$	23,187,171

Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	$ 1,402,728	$ 1,809,589
Changes in assumptions	5,068,012	-
Net difference between projected and actual earnings on pension plan investments	25,877,077	-
Total	$ 32,347,817	$ 1,809,589

* *Source: "20-Bond GO Index" is the Bond Buyer Index, general obligation, 20 years to maturity, mixed quality. In describing this index, the Bond Buyer notes that the bonds' average credit quality is roughly equivalent to Moody's Investors Service's Aa2 rating and Standard & Poor's Corp.'s AA. The rate shown is as of December 30, 2015, the most recent date available on or before the measurement date.*

\# *$67,241 was used as an estimate of average annual pay for DROP participants.*

DISCUSSION

Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability. Similarly, GASB Statement No. 68 establishes standards for state and local government employers (as well as non-employer contributing entities) to account for and disclose the net pension liability, pension expense, and other information associated with providing retirement benefits to their employees (and former employees) on their basic financial statements.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. A number of these disclosure items are provided in this report. However, certain information, such as notes regarding accounting policies and investments, is not included in this report and the retirement system and/or plan sponsor will be responsible for preparing and disclosing that information to comply with these accounting standards.

Financial Statements

GASB Statement No. 68 requires state or local governments to recognize the net pension liability and the pension expense on their financial statements. The net pension liability is the difference between the total pension liability and the plan's fiduciary net position. In traditional actuarial terms, this is analogous to the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Paragraph 57 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to ASPRS subsequent to the measurement date of June 30, 2016.

The pension expense recognized each fiscal year is equal to the change in the net pension liability from the beginning of the year to the end of the year, adjusted for deferred recognition of the liability and investment experience.

Pension plans that prepare their own, stand-alone financial statements are required to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position in accordance with GASB Statement No. 67. The *statement of fiduciary net position* presents the assets and liabilities of the pension plan at the end of the pension plan's reporting period. The *statement of changes in fiduciary net position* presents the additions, such as contributions and investment income, and deductions, such as benefit payments and expenses, and net increase or decrease in the fiduciary net position.

Notes to Financial Statements

GASB Statement No. 68 requires the notes of the employer's financial statements to disclose the total pension expense, the pension plan's liabilities and assets, and deferred outflows and inflows of resources related to pensions.

GASB Statement Nos. 67 and 68 require the notes of the financial statements for the employers and pension plans, to include certain additional information. The list of disclosure items should include:

- a description of benefits provided by the plan;
- the type of employees and number of members covered by the pension plan;
- a description of the plan's funding policy, which includes member and employer contribution requirements;
- the pension plan's investment policies;
- the pension plan's fiduciary net position, net pension liability, and the pension plan's fiduciary net position as a percentage of the total pension liability;
- the net pension liability using a discount rate that is 1% higher and 1% lower than used to calculate the total pension liability and net pension liability for financial reporting purposes;
- significant assumptions and methods used to calculate the total pension liability;
- inputs to the discount rates; and
- certain information about mortality assumptions and the dates of experience studies.

Retirement systems that issue stand-alone financial statements are required to disclose additional information in accordance with GASB Statement No. 67. This information includes:

- the composition of the pension plan's board and the authority under which benefit terms may be amended;
- a description of how fair value is determined;
- information regarding certain reserves and investments, which include concentrations of investments greater than or equal to 5%, receivables, and insurance contracts excluded from plan assets;
- annual money-weighted rate of return;
- a description of the terms of the plan's deferred retirement option program (DROP) and the total DROP balance for those members currently participating in the DROP.

Required Supplementary Information

GASB Statement No. 67 requires a 10-year fiscal history of:

- sources of changes in the net pension liability;
- information about the components of the net pension liability and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability, and the net pension liability as a percent of covered-employee payroll; and
- a comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

Timing of the Valuation

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. The net pension liability and pension expense should be measured as of the pension plan's fiscal year end (measurement date) on a date that is within the employer's prior fiscal year. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The total pension liability shown in this report is based on an actuarial valuation performed as of June 30, 2016 and a measurement date of June 30, 2016.

Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating (which is published by the Federal Reserve) as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.50%; the municipal bond rate is 2.85% (based on the weekly rate closest to but not later than the measurement date of the "state & local bonds" rate from Federal Reserve statistical release (H.15)); and the resulting Single Discount Rate is 7.50%.

SECTION B

FINANCIAL STATEMENTS

PENSION EXPENSE UNDER GASB STATEMENT NO. 68
FISCAL YEAR ENDED JUNE 30, 2016

Total Pension Expense

1. Service Cost	$ 5,488,445
2. Interest on the Total Pension Liability	29,469,678
3. Current-Period Benefit Changes	-
4. Employee Contributions (made negative for addition here)	-
5. Projected Earnings on Plan Investments (made negative for addition here)	(20,729,536)
6. Pension Plan Administrative Expense	205,342
7. Other Changes in Plan Fiduciary Net Position	0
8. Recognition of Outflow (Inflow) of Resources due to Liabilities	1,523,522
9. Recognition of Outflow (Inflow) of Resources due to Assets	7,229,720
10. Total Pension Expense	**$ 23,187,171**

Statement of Outflows and Inflows Arising from Current Reporting Period
Fiscal Year Ended June 30, 2016

A. Outflows (Inflows) of Resources due to Liabilities		
1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	$	1,757,687
2. Assumption Changes (gains) or losses	$	-
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}		4.9518
4. Outflow (Inflow) of Resources to be recognized in the current pension expense for the difference between expected and actual experience of the Total Pension Liability	$	354,959
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	$	-
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	$	354,959
7. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for the difference between expected and actual experience of the Total Pension Liability	$	1,402,728
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	$	-
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	$	1,402,728
B. Outflows (Inflows) of Resources due to Assets		
1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	$	20,939,581
2. Recognition period for Assets {in years}		5.0000
3. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Assets	$	4,187,916
3. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	$	16,751,665

STATEMENT OF OUTFLOWS AND INFLOWS ARISING FROM CURRENT AND PRIOR REPORTING PERIODS
FISCAL YEAR ENDED JUNE 30

A. Outflows and Inflows of Resources due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	$ 2,172,493	$ 648,971	$ 1,523,522
2. Due to Assets	7,229,720	-	7,229,720
3. Total	$ 9,402,213	$ 648,971	$ 8,753,242

B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	$ 354,959	$ 648,971	$ (294,012)
2. Assumption Changes	1,817,534	-	1,817,534
3. Net Difference between projected and actual earnings on pension plan investments	7,229,720	-	7,229,720
4. Total	$ 9,402,213	$ 648,971	$ 8,753,242

C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	$ 1,402,728	$ 1,809,589	$ (406,861)
2. Assumption Changes	5,068,012	-	5,068,012
3. Net Difference between projected and actual earnings on pension plan investments	25,877,077	-	25,877,077
4. Total	$ 32,347,817	$ 1,809,589	$ 30,538,228

D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

Year Ending June 30	Net Deferred Outflows of Resources
2017	$ 8,753,242
2018	8,753,242
2019	8,505,976
2020	4,525,768
2021	-
Thereafter	-
Total	$ 30,538,228

STATEMENT OF FIDUCIARY NET POSITION
AS OF JUNE 30, 2016

Any Additional Required Information to be Provided by System

	2016
Assets	
Cash and Deposits	$ -
Receivables	
Contributions	-
Accounts Receivable - Other	-
Total Receivables	$ -
Investments	
Securities Lending Collateral	$ -
Investment Assets	-
Other	-
Total Investments	$ -
Total Assets	$ -
Liabilities	
Payables	
Accrued Expense and Other Liabilities	$ -
Investment Principal Payable	-
Securities Lending Liability	-
Total Liabilities	$ -
Net Position Restricted for Pensions	$ 272,920,012

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION FOR YEAR ENDED JUNE 30, 2016

	2016
Additions	
Contributions	
Employer	$ 19,713,295
Employee	-
Other	-
Total Contributions	$ 19,713,295
Investment Income	
Net Appreciation in Fair Value of Investments	$ 906,361
Interest and Dividends	-
Less Investment Expense	(1,116,406)
Net Investment Income	$ (210,045)
Other	$ -
Total Additions	$ 19,503,250
Deductions	
Benefit payments, including refunds of employee contributions	$ 26,035,466
Pension Plan Administrative Expense	205,342
Other	-
Total Deductions	$ 26,240,808
Net Increase in Net Position	$ (6,737,558)
Net Position Restricted for Pensions	
Beginning of Year	$ 279,657,570
End of Year	$ 272,920,012

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Schedules of Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios
Current Period
Fiscal Year Ended June 30, 2016

A. Total pension liability		
1. Service Cost	$	5,488,445
2. Interest on the Total Pension Liability		29,469,678
3. Changes of benefit terms		-
4. Difference between expected and actual experience of the Total Pension Liability		1,757,687
5. Changes of assumptions		0
6. Benefit payments, including refunds of employee contributions		(26,035,466)
7. Net change in total pension liability	$	10,680,344
8. Total pension liability – beginning		403,202,550
9. Total pension liability – ending	**$**	**413,882,894**
B. Plan fiduciary net position		
1. Contributions – employer	$	19,713,295
2. Contributions – employee		-
3. Net investment income		(210,045)
4. Benefit payments, including refunds of employee contributions		(26,035,466)
5. Pension Plan Administrative Expense		(205,342)
6. Other		-
7. Net change in plan fiduciary net position	$	(6,737,558)
8. Plan fiduciary net position – beginning		279,657,570
9. Plan fiduciary net position – ending	**$**	**272,920,012**
C. Net pension liability	**$**	**140,962,882**
D. Plan fiduciary net position as a percentage of the total pension liability		**65.94%**
E. Covered-employee payroll #	**$**	**29,448,593**
F. Net pension liability as a percentage of covered employee payroll		**478.67%**

 # $67,241 was used as an estimate of average annual pay for DROP participants.

Schedules of Required Supplementary Information

Schedule of Changes in Net Pension Liability and Related Ratios Multiyear

Ultimately 10 Fiscal Years will be displayed (which may be built prospectively)

Fiscal year ending June 30,	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Total Pension Liability										
Service Cost	$ 5,488,445	$ 6,101,608	$ 4,866,199							
Interest on the Total Pension Liability	29,469,678	29,218,802	28,558,511							
Benefit Changes	-	-	-							
Difference between Expected and Actual Experience	1,757,687	(3,107,531)	(454,349)							
Assumption Changes	-	8,703,080	8,970,858							
Benefit Payments	(26,035,466)	(23,358,801)	(21,688,239)							
Refunds	-	-	-							
Net Change in Total Pension Liability	10,680,344	17,557,158	20,252,980							
Total Pension Liability - Beginning	403,202,550	385,645,392	365,392,412							
Total Pension Liability - Ending (a)	$ 413,882,894	$ 403,202,550	$385,645,392							
Plan Fiduciary Net Position										
Employer Contributions	$ 19,713,295	$ 19,784,130	$ 19,501,684							
Employee Contributions	-	94,814	-							
Pension Plan Net Investment Income	(210,045)	6,131,684	43,307,746							
Benefit Payments	(26,035,466)	(23,358,801)	(21,688,239)							
Refunds	-	-	-							
Pension Plan Administrative Expense	(205,342)	(196,231)	(189,658)							
Other	-	6	-							
Net Change in Plan Fiduciary Net Position	(6,737,558)	2,455,602	40,931,533							
Plan Fiduciary Net Position - Beginning	279,657,570	277,201,968	236,270,435							
Plan Fiduciary Net Position - Ending (b)	$ 272,920,012	$ 279,657,570	$277,201,968							
Net Pension Liability - Ending (a) - (b)	140,962,882	123,544,980	108,443,424							
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	65.94 %	69.36 %	71.88 %							
Covered Employee Payroll #	$ 29,448,593	$ 29,929,358	$ 28,548,873							
Net Pension Liability as a Percentage of Covered Employee Payroll	478.67 %	412.79 %	379.85 %							
Notes to Schedule:	N/A	N/A	N/A							

 # In 2016, $67,241 was used as an estimate of average annual pay for DROP participants. In 2015, $75,000 was used as an estimate of average annual pay for DROP participants.

SCHEDULES OF REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF THE NET PENSION LIABILITY MULTIYEAR
ULTIMATELY 10 FISCAL YEARS WILL BE DISPLAYED

FY Ending June 30,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll	Net Pension Liability as a % of Covered Payroll
2014	$385,645,392	$277,201,968	$ 108,443,424	71.88%	$28,548,873	379.85%
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%

In 2016, $67,241 was used as an estimate of average annual pay for DROP participants. In 2015, $75,000 was used as an estimate of average annual pay for DROP participants.

SCHEDULE OF CONTRIBUTIONS MULTIYEAR
($ IN MILLIONS)

Last 10 Fiscal Years

FY Ending June 30,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll	Actual Contribution as a % of Covered Payroll
2006	$ 10.0	$ 9.6	$ 0.4	$ 24.2	39.67%
2007	9.9	11.5	(1.6)	24.6	46.75%
2008	10.0	11.7	(1.7)	26.4	44.32%
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%

\# *In 2016, $67,241 was used as an estimate of average annual pay for DROP participants. In 2015, $75,000 was used as an estimate of average annual pay for DROP participants.*

NOTES TO SCHEDULE OF CONTRIBUTIONS

Valuation Date:	June 30, 2016

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	23 years
Asset Valuation Method	4-Year smoothed market
Inflation	2.50% price inflation
Salary Increases	3.25% to 10.25% including inflation
Investment Rate of Return	7.50%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition.
Mortality	Based on RP-2000 Combined Healthy mortality table, projected to 2020 using Projection Scale BB, set-forward 2 years for males and 1 year for females, with an approximate 14% margin for future mortality improvement.

Other Information:

Notes	There were no benefit changes during the year.

Schedule of Investment Returns Multiyear

To be Provided by System

Last 10 Fiscal Years

FY Ending June 30,	Annual Return[1]
2007	
2008	
2009	
2010	
2011	
2012	
2013	
2014	
2015	
2016	

[1] *Annual money-weighted rate of return, net of investment expenses.*

SECTION D

NOTES TO FINANCIAL STATEMENTS

Long-Term Expected Return on Plan Assets

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 price inflation. Best estimates of arithmetic real rates of return for the 10-year period from 2016 to 2025 were based upon capital market assumptions provided by plan's investment consultant(s). For each major asset class that is included in the pension plan's current asset allocation as of June 30, 2016, these best estimates are summarized in the following table:

Asset Class	Current Allocation	Long-Term Expected Real Rate of Return
Broad Domestic Equity	38%	6.82%
International Equity	24%	6.88%
Real Assets	16%	3.07%
Absolute Return	5%	3.35%
Domestic Fixed	17%	0.83%
Total	100%	
Total Real Rate of Return		5.04%
Plus: Price Inflation - Actuary's Assumption		2.50%
Less: Investment Expenses (Passive)		0.00%
Net Expected Return		7.54%

Single Discount Rate

A Single Discount Rate of 7.50% 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 7.50%. 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.

Regarding the sensitivity of the net pension liability to changes in the Single Discount Rate, the following presents the plan's net pension liability, calculated using a Single Discount Rate of 7.50%, as well as what the plan's net pension liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

	1% Decrease 6.50%	Current Single Discount Rate 7.50%	1% Increase 8.50%
Total Pension Liability (TPL)	$ 461,202,201	$ 413,882,894	$ 374,191,524
Net Position Restricted for Pensions	272,920,012	272,920,012	272,920,012
Net Pension Liability (NPL)	$ 188,282,189	$ 140,962,882	$ 101,271,512

Disclosure Regarding the Deferred Retirement Option Program

To be provided by System

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	692
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	76
Active Plan Members	496
Total Plan Members	1,264

SECTION E

SUMMARY OF BENEFITS

SUMMARY OF NON-CONTRIBUTORY BENEFIT PROVISIONS (LAST CHANGED AS OF 7-1-2009)

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 & 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 & 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 I (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 II (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.

SECTION F

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

SUMMARY OF ACTUARIAL ASSUMPTIONS USED FOR STATE POLICE ACTUARIAL VALUATIONS ASSUMPTIONS ADOPTED BY BOARD OF TRUSTEES AFTER CONSULTING WITH ACTUARY

In accordance with Section 24-6-204 of the Arkansas Code, the Board of Trustees adopts the actuarial assumptions used for actuarial valuation purposes.

The actuarial assumptions used in the valuation are shown in this section. Assumptions were established based upon an Experience Study covering the period July 1, 2006 through June 30, 2012 (please see our report dated February 26, 2013). Economic assumptions have been subsequently updated based on an Experience Study completed for APERS (please see our report dated February 13, 2013) and the results of the Economic Assumption review performed for the Arkansas Judicial Retirement System (please see our report dated August 6, 2015). The actuarial assumptions represent estimates of future payroll.

Economic Assumptions

The investment return rate used in making the valuation was 7.50% per year, compounded annually (net after administrative and 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 7.50% investment return rate translates to an effective assumed real rate of return of 4.25%. The wage inflation assumption was revised for the June 30, 2015 valuation and the investment assumption was revised for the June 30, 2015 valuation.

Pay increase assumptions for individual active members are shown on page 28. 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, 2014 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-2000 Combined Healthy mortality table, Projected to 2020 using Projection Scale BB, set-forward 2 years for males and 1 year for females. Related values are shown on page 26. Disability post-retirement mortality was assumed to be the same as standard post-retirement mortality set forward an additional 10 years. Based upon the experience observed during the most recent experience study, it appears that at the time of the study, the current table provides for an approximate 14% margin for future mortality improvement. Pre-retirement mortality rates are assumed to be 50% of post-retirement mortality rates. The mortality assumption was revised for the June 30, 2013 valuation.

The probabilities of retirement for members eligible to retire are shown on page 27. The assumption was revised for the June 30, 2013 valuation.

The probabilities of death-in-service, disability and withdrawal from service are shown for sample ages on page 28. The assumption for death-in-service was revised for the June 30, 2013 valuation.

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

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).

SINGLE LIFE RETIREMENT VALUES
RP-2000 COMBINED HEALTHY PROJECTED TO 2020 MORTALITY
MALE RATES SET-FORWARD 2 YEARS
FEMALE RATES SET-FORWARD 1 YEAR
AND 7.50% INTEREST

Sample Ages	Single Life Retirement Values: Present Value of $1 Monthly for Life Increasing 3% Annually — Men	Women	Future Life Expectancy (Years) — Men	Women
50	$195.44	$205.97	31.13	34.64
55	179.30	191.41	26.58	29.98
60	161.13	174.51	22.23	25.44
65	141.22	155.67	18.14	21.14
70	119.72	135.45	14.35	17.16
75	97.62	114.39	10.95	13.56
80	76.00	92.98	8.02	10.35

Sample Attained Ages	$100 Benefit Increasing 3% Yearly
55	$100.00
60	115.93
65	134.39
70	155.79
75	180.60
80	209.36

PROBABILITIES OF RETIREMENT FOR MEMBERS ELIGIBLE TO RETIRE

Retirement Ages	Percent of Eligible Active Members Retiring Within Next Year		Years of Service	Percent of Eligible Active Members Retiring Within Next Year
	Tier One	Tier Two		Tier Two
47	2%	-		
48	2%	-		
49	2%	-		
50	6%	2%	30	25%
51	6%	2%	31	15%
52	10%	2%	32	15%
53	10%	6%	33	20%
54	10%	6%	34	35%
55	10%	25%	35	40%
56	10%	20%	36 & Over	100%
57	15%	18%		
58	20%	18%		
59	35%	20%		
60	40%	25%		
61	50%	30%		
62	60%	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 percents shown for service based retirement (30 or more years) take precedence over the percents 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.

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

	Percent of Active Members Separating Within the Next Year				Pay Increase Assumptions for Active Members		
Sample	Death				Merit &	Base	Increase
Ages	Male	Female	Disability	Other	Seniority	(Economic)	Next Year
20	0.02%	0.01%	0.06%	5.50%	6.29%	3.25%	9.54%
25	0.02%	0.01%	0.09%	5.50%	5.39%	3.25%	8.64%
30	0.03%	0.01%	0.19%	5.50%	4.01%	3.25%	7.26%
35	0.04%	0.02%	0.31%	4.18%	2.29%	3.25%	5.54%
40	0.06%	0.04%	0.43%	2.64%	1.50%	3.25%	4.75%
45	0.08%	0.06%	0.55%	1.43%	1.10%	3.25%	4.35%
50	0.13%	0.09%	0.67%	0.55%	0.80%	3.25%	4.05%
55	0.22%	0.14%	0.79%	0.00%	0.60%	3.25%	3.85%

MISCELLANEOUS AND TECHNICAL ASSUMPTIONS
JUNE 30, 2016

Marriage Assumption:	95% of males and 95% of females are assumed to be married for purposes of death-in-service benefits. 90% of males and 90% of females are assumed to be married for purposes of death-after-retirement benefits. Male spouses are assumed to be three years older than female spouses for active member valuation purposes.
Pay Increase Timing:	Beginning of year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
Decrement Timing:	Decrements are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Decrement Operation:	Disability and withdrawal decrements do not operate during the period a member is assumed to be eligible for an unreduced benefit.
DROP Participants:	For members participating in the DROP, reported payroll is multiplied by 3.7 to estimate present value of future salaries. Payroll data was provided for the month of June June 30, 2016 and included additional pay items that did not allow for annualization of pay. $67,241 was used as an estimate of average annual pay for DROP participants.
Incidence of Contributions:	Contributions are assumed to be received continuously throughout the year.
Benefit Service:	Exact fractional service is used to determine the amount of benefit payable.
Tier One DROP Interest Credit:	Interest is assumed to be credited at 3.25%.
Tier Two DROP Interest Credit:	Interest is assumed to be credited at 3.25%.
Other Liability Adjustments:	Active member non-refund normal costs and actuarial accrued liabilities were increased by 1.5% to reflect non-reported reciprocal service.
Administrative Expenses	The normal cost was increased by 0.70% of payroll to fund administrative expenses.

SECTION G

CALCULATION OF THE SINGLE DISCOUNT RATE

CALCULATION OF THE SINGLE DISCOUNT RATE

GASB Statement No. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

The Single Discount Rate (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating (which is published by the Federal Reserve) as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 7.50%; the municipal bond rate is 2.85%; and the resulting Single Discount Rate is 7.50%.

The tables in this section provide background for the development of the Single Discount Rate.

The **Projection of Contributions** table shows the development of expected contributions in future years. Normal Cost contributions for future hires are not included (nor are their liabilities).

The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels in future years.

The **Present Values of Projected Benefit Payments** table shows the development of the Single Discount Rate (SDR). It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF CONTRIBUTIONS ENDING JUNE 30, 2066

Fiscal Year Ending 6/30	Contributions from Current Employees	Normal Cost and Expense Contributions	UAL Contributions	Total Contributions
2017	$ -	$ 6,491,606	$ 8,102,487	$ 14,594,093
2018	-	6,418,404	8,554,340	14,972,744
2019	-	6,235,797	9,549,937	15,785,734
2020	-	6,006,695	10,333,494	16,340,189
2021	-	5,802,979	10,669,332	16,472,311
2022	-	5,628,620	11,016,084	16,644,705
2023	-	5,483,810	11,374,107	16,857,917
2024	-	5,363,682	11,743,766	17,107,448
2025	-	5,189,320	12,125,439	17,314,759
2026	-	4,964,820	12,519,515	17,484,335
2027	-	4,742,015	12,926,400	17,668,415
2028	-	4,515,720	13,346,507	17,862,227
2029	-	4,278,292	13,780,268	18,058,559
2030	-	4,043,352	14,228,128	18,271,480
2031	-	3,829,461	14,690,542	18,520,003
2032	-	3,635,307	15,167,984	18,803,292
2033	-	3,427,149	15,660,944	19,088,093
2034	-	3,190,475	16,169,924	19,360,399
2035	-	2,950,554	16,695,446	19,646,000
2036	-	2,728,464	17,238,048	19,966,512
2037	-	2,514,517	17,798,285	20,312,803
2038	-	2,321,971	18,376,729	20,698,700
2039	-	2,154,357	18,973,972	21,128,329
2040	-	1,976,029	0	1,976,029
2041	-	1,758,178	0	1,758,178
2042	-	1,527,605	0	1,527,605
2043	-	1,312,270	0	1,312,270
2044	-	1,103,937	0	1,103,937
2045	-	906,678	0	906,678
2046	-	723,690	0	723,690
2047	-	567,487	0	567,487
2048	-	441,608	0	441,608
2049	-	335,573	0	335,573
2050	-	233,306	0	233,306
2051	-	141,702	0	141,702
2052	-	65,480	0	65,480
2053	-	14,818	0	14,818
2054	-	-	0	0
2055	-	-	0	0
2056	-	-	0	0
2057	-	-	0	0
2058	-	-	0	0
2059	-	-	0	0
2060	-	-	0	0
2061	-	-	0	0
2062	-	-	0	0
2063	-	-	0	0
2064	-	-	0	0
2065	-	-	0	0
2066	-	-	0	0

SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF PLAN FIDUCIARY NET POSITION ENDING JUNE 30, 2066

Fiscal Year Ending 6/30	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.50%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2017	$ 272,920,012	$ 14,594,093	$ 34,325,932	$ 211,422	$ 19,734,649	$ 272,711,400
2018	272,711,400	14,972,744	26,729,208	209,272	20,012,752	280,758,416
2019	280,758,416	15,785,734	27,198,971	203,699	20,629,122	289,770,601
2020	289,770,601	16,340,189	27,761,461	196,673	21,304,998	299,457,654
2021	299,457,654	16,472,311	28,437,488	190,420	22,011,730	309,313,786
2022	309,313,786	16,644,705	29,284,819	185,052	22,726,285	319,214,905
2023	319,214,905	16,857,917	30,188,501	180,626	23,443,607	329,147,302
2024	329,147,302	17,107,448	31,137,051	176,851	24,162,937	339,103,785
2025	339,103,785	17,314,759	32,179,575	171,392	24,879,120	348,946,695
2026	348,946,695	17,484,335	33,271,735	164,366	25,583,625	358,578,555
2027	358,578,555	17,668,415	34,295,032	157,344	26,275,371	368,069,965
2028	368,069,965	17,862,227	35,339,137	150,140	26,956,183	377,399,098
2029	377,399,098	18,058,559	36,533,897	142,492	27,619,385	386,400,654
2030	386,400,654	18,271,480	37,624,552	134,865	28,262,463	395,175,179
2031	395,175,179	18,520,003	38,513,944	127,936	28,897,209	403,950,511
2032	403,950,511	18,803,292	39,309,572	121,680	29,536,724	412,859,275
2033	412,859,275	19,088,093	40,211,268	114,974	30,182,413	421,803,539
2034	421,803,539	19,360,399	41,029,156	107,323	30,833,425	430,860,884
2035	430,860,884	19,646,000	42,331,493	99,442	31,475,578	439,551,528
2036	439,551,528	19,966,512	42,303,446	92,067	32,140,482	449,263,010
2037	449,263,010	20,312,803	42,851,239	84,934	32,861,686	459,501,325
2038	459,501,325	20,698,700	42,783,747	78,548	33,646,490	470,984,220
2039	470,984,220	21,128,329	43,185,449	72,974	34,508,941	483,363,068
2040	483,363,068	1,976,029	43,528,733	66,984	34,719,707	476,463,087
2041	476,463,087	1,758,178	44,567,916	59,627	34,156,193	467,749,914
2042	467,749,914	1,527,605	44,736,838	51,825	33,488,282	457,977,138
2043	457,977,138	1,312,270	45,221,572	44,518	32,729,815	446,753,133
2044	446,753,133	1,103,937	45,035,421	37,410	31,887,459	434,671,699
2045	434,671,699	906,678	44,935,207	30,692	30,978,026	421,590,504
2046	421,590,504	723,690	44,753,198	24,486	29,997,129	407,533,638
2047	407,533,638	567,487	44,906,274	19,180	28,931,671	392,107,342
2048	392,107,342	441,608	44,139,597	14,890	27,798,452	376,192,914
2049	376,192,914	335,573	43,400,172	11,283	26,628,325	359,745,357
2050	359,745,357	233,306	42,688,017	7,816	25,417,344	342,700,173
2051	342,700,173	141,702	41,523,413	4,726	24,178,579	325,492,315
2052	325,492,315	65,480	40,448,020	2,175	22,924,875	308,032,475
2053	308,032,475	14,818	38,537,555	488	21,683,931	291,193,181
2054	291,193,181	-	36,709,972	-	20,487,752	274,970,961
2055	274,970,961	-	35,375,477	-	19,320,224	258,915,708
2056	258,915,708	-	33,988,470	-	18,167,152	243,094,390
2057	243,094,390	-	32,562,738	-	17,033,052	227,564,704
2058	227,564,704	-	31,164,159	-	15,919,824	212,320,369
2059	212,320,369	-	29,741,856	-	14,828,871	197,407,383
2060	197,407,383	-	28,293,455	-	13,763,730	182,877,658
2061	182,877,658	-	26,826,394	-	12,728,021	168,779,285
2062	168,779,285	-	25,348,506	-	11,725,062	155,155,841
2063	155,155,841	-	23,867,722	-	10,757,829	142,045,948
2064	142,045,948	-	22,392,460	-	9,828,909	129,482,397
2065	129,482,397	-	20,930,645	-	8,940,470	117,492,223
2066	117,492,223	-	19,489,612	-	8,094,269	106,096,880

SINGLE DISCOUNT RATE DEVELOPMENT
PROJECTION OF PLAN FIDUCIARY NET POSITION ENDING JUNE 30, 2116
(CONCLUDED)

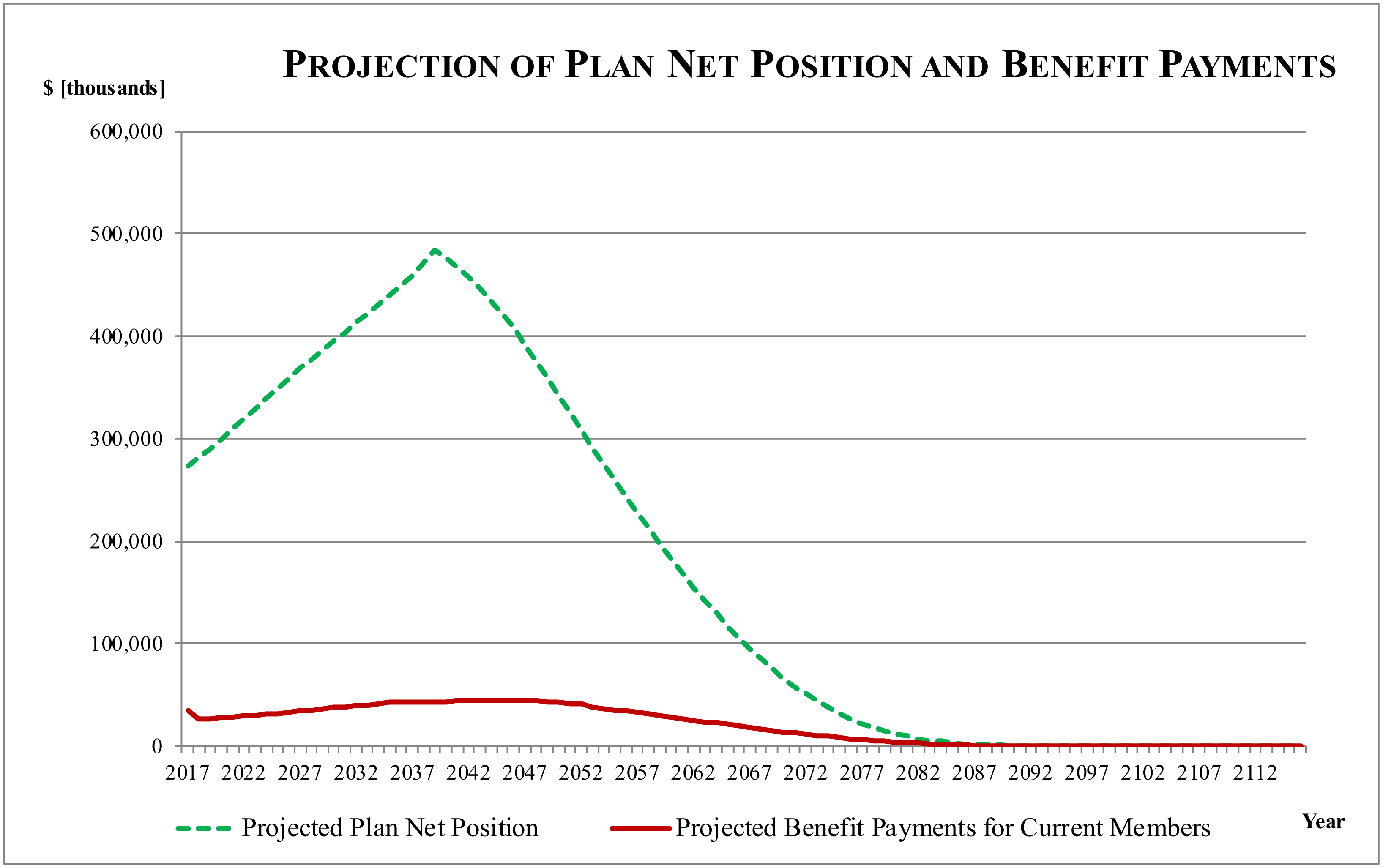
Fiscal Year Ending 6/30	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.50%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2067	$ 106,096,880	$ -	$ 18,075,712	$ -	$ 7,291,681	$ 95,312,849
2068	95,312,849	-	16,694,481	-	6,533,738	85,152,106
2069	85,152,106	-	15,350,467	-	5,821,172	75,622,811
2070	75,622,811	-	14,047,218	-	5,154,463	66,730,056
2071	66,730,056	-	12,787,471	-	4,533,893	58,476,478
2072	58,476,478	-	11,573,488	-	3,959,576	50,862,566
2073	50,862,566	-	10,407,772	-	3,431,457	43,886,251
2074	43,886,251	-	9,293,324	-	2,949,269	37,542,196
2075	37,542,196	-	8,233,620	-	2,512,486	31,821,062
2076	31,821,062	-	7,232,522	-	2,120,263	26,708,804
2077	26,708,804	-	6,293,945	-	1,771,404	22,186,263
2078	22,186,263	-	5,421,778	-	1,464,329	18,228,814
2079	18,228,814	-	4,619,479	-	1,197,062	14,806,397
2080	14,806,397	-	3,889,858	-	967,247	11,883,786
2081	11,883,786	-	3,234,905	-	772,168	9,421,049
2082	9,421,049	-	2,655,368	-	608,803	7,374,484
2083	7,374,484	-	2,150,248	-	473,910	5,698,146
2084	5,698,146	-	1,716,827	-	364,144	4,345,463
2085	4,345,463	-	1,350,985	-	276,164	3,270,641
2086	3,270,641	-	1,047,447	-	206,729	2,429,924
2087	2,429,924	-	800,100	-	152,783	1,782,607
2088	1,782,607	-	602,219	-	111,521	1,291,908
2089	1,291,908	-	446,761	-	80,442	925,590
2090	925,590	-	326,839	-	57,384	656,134
2091	656,134	-	236,035	-	40,519	460,619
2092	460,619	-	168,448	-	28,344	320,514
2093	320,514	-	118,910	-	19,660	221,265
2094	221,265	-	83,130	-	13,534	151,668
2095	151,668	-	57,632	-	9,253	103,290
2096	103,290	-	39,670	-	6,286	69,906
2097	69,906	-	27,132	-	4,244	47,017
2098	47,017	-	18,449	-	2,847	31,415
2099	31,415	-	12,471	-	1,897	20,840
2100	20,840	-	8,380	-	1,254	13,714
2101	13,714	-	5,596	-	823	8,941
2102	8,941	-	3,706	-	534	5,769
2103	5,769	-	2,432	-	343	3,680
2104	3,680	-	1,578	-	218	2,320
2105	2,320	-	1,012	-	137	1,444
2106	1,444	-	643	-	85	885
2107	885	-	406	-	51	531
2108	531	-	251	-	31	311
2109	311	-	150	-	18	179
2110	179	-	89	-	10	100
2111	100	-	53	-	6	52
2112	52	-	30	-	3	25
2113	25	-	16	-	1	11
2114	11	-	7	-	1	4
2115	4	-	3	-	0	2
2116	2	-	2	-	0	0

SINGLE DISCOUNT RATE DEVELOPMENT
PRESENT VALUES OF PROJECTED BENEFITS ENDING JUNE 30, 2066

Fiscal Year Ending 6/30	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=((c)/(1+sdr)^(a-.5)
2017	$ 272,920,012	$ 34,325,932	$ 34,325,932	$ -	$ 33,106,868	$ -	$ 33,106,868
2018	272,711,400	26,729,208	26,729,208	-	23,981,337	-	23,981,337
2019	280,758,416	27,198,971	27,198,971	-	22,700,285	-	22,700,285
2020	289,770,601	27,761,461	27,761,461	-	21,553,247	-	21,553,247
2021	299,457,654	28,437,488	28,437,488	-	20,537,764	-	20,537,764
2022	309,313,786	29,284,819	29,284,819	-	19,674,151	-	19,674,151
2023	319,214,905	30,188,501	30,188,501	-	18,866,291	-	18,866,291
2024	329,147,302	31,137,051	31,137,051	-	18,101,476	-	18,101,476
2025	339,103,785	32,179,575	32,179,575	-	17,402,369	-	17,402,369
2026	348,946,695	33,271,735	33,271,735	-	16,737,672	-	16,737,672
2027	358,578,555	34,295,032	34,295,032	-	16,048,792	-	16,048,792
2028	368,069,965	35,339,137	35,339,137	-	15,383,622	-	15,383,622
2029	377,399,098	36,533,897	36,533,897	-	14,794,156	-	14,794,156
2030	386,400,654	37,624,552	37,624,552	-	14,172,846	-	14,172,846
2031	395,175,179	38,513,944	38,513,944	-	13,495,695	-	13,495,695
2032	403,950,511	39,309,572	39,309,572	-	12,813,481	-	12,813,481
2033	412,859,275	40,211,268	40,211,268	-	12,192,931	-	12,192,931
2034	421,803,539	41,029,156	41,029,156	-	11,572,960	-	11,572,960
2035	430,860,884	42,331,493	42,331,493	-	11,107,261	-	11,107,261
2036	439,551,528	42,303,446	42,303,446	-	10,325,490	-	10,325,490
2037	449,263,010	42,851,239	42,851,239	-	9,729,485	-	9,729,485
2038	459,501,325	42,783,747	42,783,747	-	9,036,429	-	9,036,429
2039	470,984,220	43,185,449	43,185,449	-	8,484,905	-	8,484,905
2040	483,363,068	43,528,733	43,528,733	-	7,955,677	-	7,955,677
2041	476,463,087	44,567,916	44,567,916	-	7,577,308	-	7,577,308
2042	467,749,914	44,736,838	44,736,838	-	7,075,375	-	7,075,375
2043	457,977,138	45,221,572	45,221,572	-	6,653,059	-	6,653,059
2044	446,753,133	45,035,421	45,035,421	-	6,163,416	-	6,163,416
2045	434,671,699	44,935,207	44,935,207	-	5,720,652	-	5,720,652
2046	421,590,504	44,753,198	44,753,198	-	5,299,982	-	5,299,982
2047	407,533,638	44,906,274	44,906,274	-	4,947,079	-	4,947,079
2048	392,107,342	44,139,597	44,139,597	-	4,523,366	-	4,523,366
2049	376,192,914	43,400,172	43,400,172	-	4,137,294	-	4,137,294
2050	359,745,357	42,688,017	42,688,017	-	3,785,493	-	3,785,493
2051	342,700,173	41,523,413	41,523,413	-	3,425,319	-	3,425,319
2052	325,492,315	40,448,020	40,448,020	-	3,103,822	-	3,103,822
2053	308,032,475	38,537,555	38,537,555	-	2,750,903	-	2,750,903
2054	291,193,181	36,709,972	36,709,972	-	2,437,624	-	2,437,624
2055	274,970,961	35,375,477	35,375,477	-	2,185,126	-	2,185,126
2056	258,915,708	33,988,470	33,988,470	-	1,952,978	-	1,952,978
2057	243,094,390	32,562,738	32,562,738	-	1,740,516	-	1,740,516
2058	227,564,704	31,164,159	31,164,159	-	1,549,545	-	1,549,545
2059	212,320,369	29,741,856	29,741,856	-	1,375,651	-	1,375,651
2060	197,407,383	28,293,455	28,293,455	-	1,217,357	-	1,217,357
2061	182,877,658	26,826,394	26,826,394	-	1,073,707	-	1,073,707
2062	168,779,285	25,348,506	25,348,506	-	943,772	-	943,772
2063	155,155,841	23,867,722	23,867,722	-	826,642	-	826,642
2064	142,045,948	22,392,460	22,392,460	-	721,439	-	721,439
2065	129,482,397	20,930,645	20,930,645	-	627,295	-	627,295
2066	117,492,223	19,489,612	19,489,612	-	543,356	-	543,356

Single Discount Rate Development
Present Values of Projected Benefits Ending June 30, 2116 (Concluded)

Fiscal Year Ending 6/30	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^((a)-.5)	(g)=(e)*vf ^((a)-.5)	(h)=((c)/(1+sdr)^(a-.5)
2067	$ 106,096,880	$ 18,075,712	$ 18,075,712	$ -	$ 468,779	$ -	$ 468,779
2068	95,312,849	16,694,481	16,694,481	-	402,751	-	402,751
2069	85,152,106	15,350,467	15,350,467	-	344,490	-	344,490
2070	75,622,811	14,047,218	14,047,218	-	293,250	-	293,250
2071	66,730,056	12,787,471	12,787,471	-	248,327	-	248,327
2072	58,476,478	11,573,488	11,573,488	-	209,071	-	209,071
2073	50,862,566	10,407,772	10,407,772	-	174,896	-	174,896
2074	43,886,251	9,293,324	9,293,324	-	145,273	-	145,273
2075	37,542,196	8,233,620	8,233,620	-	119,728	-	119,728
2076	31,821,062	7,232,522	7,232,522	-	97,833	-	97,833
2077	26,708,804	6,293,945	6,293,945	-	79,197	-	79,197
2078	22,186,263	5,421,778	5,421,778	-	63,463	-	63,463
2079	18,228,814	4,619,479	4,619,479	-	50,300	-	50,300
2080	14,806,397	3,889,858	3,889,858	-	39,400	-	39,400
2081	11,883,786	3,234,905	3,234,905	-	30,480	-	30,480
2082	9,421,049	2,655,368	2,655,368	-	23,274	-	23,274
2083	7,374,484	2,150,248	2,150,248	-	17,532	-	17,532
2084	5,698,146	1,716,827	1,716,827	-	13,021	-	13,021
2085	4,345,463	1,350,985	1,350,985	-	9,532	-	9,532
2086	3,270,641	1,047,447	1,047,447	-	6,875	-	6,875
2087	2,429,924	800,100	800,100	-	4,885	-	4,885
2088	1,782,607	602,219	602,219	-	3,420	-	3,420
2089	1,291,908	446,761	446,761	-	2,360	-	2,360
2090	925,590	326,839	326,839	-	1,606	-	1,606
2091	656,134	236,035	236,035	-	1,079	-	1,079
2092	460,619	168,448	168,448	-	716	-	716
2093	320,514	118,910	118,910	-	470	-	470
2094	221,265	83,130	83,130	-	306	-	306
2095	151,668	57,632	57,632	-	197	-	197
2096	103,290	39,670	39,670	-	126	-	126
2097	69,906	27,132	27,132	-	80	-	80
2098	47,017	18,449	18,449	-	51	-	51
2099	31,415	12,471	12,471	-	32	-	32
2100	20,840	8,380	8,380	-	20	-	20
2101	13,714	5,596	5,596	-	12	-	12
2102	8,941	3,706	3,706	-	8	-	8
2103	5,769	2,432	2,432	-	5	-	5
2104	3,680	1,578	1,578	-	3	-	3
2105	2,320	1,012	1,012	-	2	-	2
2106	1,444	643	643	-	1	-	1
2107	885	406	406	-	1	-	1
2108	531	251	251	-	0	-	0
2109	311	150	150	-	0	-	0
2110	179	89	89	-	0	-	0
2111	100	53	53	-	0	-	0
2112	52	30	30	-	0	-	0
2113	25	16	16	-	0	-	0
2114	11	7	7	-	0	-	0
2115	4	3	3	-	0	-	0
2116	2	2	2	-	-	-	-
				Totals	$ 464,986,116	$ -	$ 464,986,116


PROJECTION OF PLAN NET POSITION AND BENEFIT PAYMENTS
$ [thousands]
600,000
500,000
400,000
300,000
200,000
100,000
0
2017 2022 2027 2032 2037 2042 2047 2052 2057 2062 2067 2072 2077 2082 2087 2092 2097 2102 2107 2112
Year
Projected Plan Net Position
Projected Benefit Payments for Current Members

SECTION H

GLOSSARY OF TERMS

GLOSSARY OF TERMS

Actuarial Accrued Liability (AAL)	The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability."
Actuarial Assumptions	These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation.
Accrued Service	Service credited under the system which was rendered before the date of the actuarial valuation.
Actuarial Equivalent	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.
Actuarial Cost Method	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.
Actuarial Gain (Loss)	The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.
Actuarial Present Value (APV)	The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future payments at predetermined rates of interest and probabilities of payment.
Actuarial Valuation	The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions.
Actuarial Valuation Date	The date as of which an actuarial valuation is performed.
Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)	A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the Actuarially Determined Contribution has a normal cost payment and an amortization payment.

GLOSSARY OF TERMS

Amortization Payment The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.

Amortization Method The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be "open" (meaning, reset each year) or "closed" (the number of years remaining will decline each year).

Cost-of-Living Adjustments Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.

Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan) A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.

Covered-Employee Payroll The payroll of employees that are provided with pensions through the pension plan.

Deferred Retirement Option Program (DROP) A program that permits a plan member to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The plan member continues to provide service to the employer and is paid for the service by the employer after the DROP entry date; however, the pensions that would have been paid to the plan member are credited to an individual member account within the defined benefit pension plan until the end of the DROP period. Other variations for DROP exist and will be more fully detailed in the plan provision section of the valuation report.

Deferred Inflows and Outflows The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.

Discount Rate For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically:

1. The benefit payments to be made while the pension plan's fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and
2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.

GLOSSARY OF TERMS

Entry Age Actuarial Cost Method (EAN)	The EAN is a cost method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit ages(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.
GASB	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
Fiduciary Net Position	The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.
Long-Term Expected Rate of Return	The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.
Money-Weighted Rate of Return	The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.
Multiple-Employer Defined Benefit Pension Plan	A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.
Municipal Bond Rate	The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.
Net Pension Liability (NPL)	The NPL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.
Non-Employer Contributing Entities	Non-employer contributing entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB accounting statements, plan members are not considered non-employer contributing entities.
Normal Cost	The portion of the actuarial present value allocated to a valuation year is called the normal cost. For purposes of application to the requirements of this Statement, the term normal cost is the equivalent of service cost.

GLOSSARY OF TERMS

Other Postemployment Benefits (OPEB) — All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other post-employment benefits do not include termination benefits.

Real Rate of Return — The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.

Service Cost — The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.

Total Pension Expense — The total pension expense is the sum of the following items that are recognized at the end of the employer's fiscal year:

1. Service Cost
2. Interest on the Total Pension Liability
3. Current-Period Benefit Changes
4. Employee Contributions (made negative for addition here)
5. Projected Earnings on Plan Investments (made negative for addition here)
6. Pension Plan Administrative Expense
7. Other Changes in Plan Fiduciary Net Position
8. Recognition of Outflow (Inflow) of Resources due to Liabilities
9. Recognition of Outflow (Inflow) of Resources due to Assets

Total Pension Liability (TPL) — The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.

Unfunded Actuarial Accrued Liability (UAAL) — The UAAL is the difference between actuarial accrued liability and valuation assets.

Valuation Assets — The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement Nos. 67 and 68, the valuation assets are equal to the market value of assets.

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November 22, 2016

Ms. Gail H. Stone, Executive Director
Arkansas State Police Retirement System
One Union National Plaza
124 West Capitol, Suite 400
Little Rock, Arkansas 72201

Dear Gail,

Please find enclosed copies of the June 30, 2016 GASB Statements Nos. 67 and No. 68 Accounting and Financial Reporting for Pensions report of the Arkansas State Police Retirement System.

We will be happy to meet with the Board to discuss the results of this report.

Sincerely,

David L. Hoffman

DLH:ah
Enclosures