

**ARKANSAS STATE HIGHWAY  
EMPLOYEES RETIREMENT  
SYSTEM (ASHERS)**

GASB 67/68 DISCLOSURES  
AS OF JUNE 30, 2019

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

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December 11, 2019

Board of Trustees  
Arkansas State Highway Employees  
Retirement System (ASHERS)  
P. O. Box 2261  
Little Rock, AR 72203

RE: GASB 67/68 Disclosures as of June 30, 2019

Ladies and Gentlemen:

This report presents the results of our actuarial valuation of the assets and liabilities of the Arkansas State Highway Employees Retirement System (ASHERS) as of June 30, 2019. This valuation is for the purposes of determining the GASB 67 and 68 disclosures for accounting purposes. This report should not be used for other determinations or with review of the actuarial funding valuation report upon which it is based.

This report is a supplement to the December 10, 2019 Actuarial Valuation Report. It should be reviewed with that report. There is additional information in the valuation report that be explanatory to the information in this report.

## **Organization of Report**

Following this cover letter and a table of contents, there is an Executive Summary of the results of the valuation as well as a discussion of the highlights. The Exhibits then show the details of the calculations. The Appendices then disclose the plan provisions and assumptions used.

|            |   |
|------------|---|
| Appendix A | Discussion of GASB Disclosures          |
| Appendix B | Net Pension Expense                     |
| Appendix C | Details of Outflow/Inflows of Resources |
| Appendix D | Notes to Financial Statements           |
| Appendix E | Required Supplementary Information      |
| Appendix F | Calculation of Single Discount Rate     |

**Statement of Qualifications**

This report has been prepared by actuaries who have experience valuing public employee retirement systems, with the undersigned taking the primary responsibility. To the best of our knowledge, this report is complete and accurate and was completed in accordance with standards of practice promulgated by the Actuarial Standards Board and in conformance with applicable Arkansas law. The actuaries are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report.

The actuaries know of no significant conflicts of interest with the plan sponsor. We have previously disclosed that we also serve the Bureau of Legislative Research by preparing reports for the Joint Retirement Committee. We do not view this relationship as a significant conflict.

We look forward to discussing this report with you in detail. Please let us know if you have any questions or comments.

Sincerely,

A handwritten signature in cursive script that reads "Jody Carreiro".

Jody Carreiro, FCA, ASA, EA, MAAA  
Actuary

## **APPENDIX A**

### **DISCUSSION OF GASB DISCLOSURES**

#### **Accounting Standard**

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67, “Financial Reporting for Pension Plans,” (GASB 67) replaces Statements No. 25 and No. 50. GASB 67 establishes standards of financial reporting and specifies the required approach for measuring the pension liability of employers for benefits provided through the pension plan.

This discussion provides a summary of the information that is required to be disclosed under GASB 67. A number of these disclosure items are provided. However, certain information, such as notes regarding accounting policies and investments, is not included in this report, and your internal staff will be responsible for preparing that information to fully comply with this accounting standard.

#### **Financial Statements**

GASB 67 requires defined benefit plans to present two financial statements: a statement of fiduciary plan net position and a statement of changes in fiduciary plan net position. Based on the information that was provided to our firm, we compiled the Financial Statements that are included in the actuarial valuation report as Exhibit 3 and summarized in Appendix D of this report..

#### **Notes to Financial Statements**

Paragraph 30 of GASB 67 is an extensive list of notes to the plan’s financial statements that are required to provide additional disclosure. Many of these notes concern the plan provisions and the actuarial assumptions used in making the calculations under this standard. Those items are included in Appendices 1 and 3 of the actuarial valuation report.

Please note that several items mentioned in Paragraph 30 are beyond the scope of the included information. Your internal staff will be responsible for preparing those notes. In particular, this plan has Deferred Retirement Option Plan (DROP) provisions. Those are described in Appendix 1 of the actuarial valuation and a footnote will be needed.

This report includes some notes that are actuarial in nature written in the format we understand is desired by GASB 67. These are only selected notes and not intended to be a complete compilation of notes to the financial statements.

## **Appendix A (continued)**

### **Required Supplementary Information**

GASB 67 requires a 10-fiscal year history of various information about the pension liability. These schedules may be built prospectively since the presentation is not the same as all previous years under previous standards. The four schedules are:

- Schedule of changes in the net pension liability.
- Schedule of the components of net pension liability along with related ratios.
- Comparison of actual employer contributions to the actuarially determined contributions based on the plan's funding policy.
- Schedule of the annual money-weighted rate of return on pension plan investments.

These compilations can be found in Appendix E of this report. Please note that the money-weighted rate of return schedule is based on all transactions occurring at mid-year. The standard calls for a monthly calculation of the weighted, but we do not have the data sufficient to make that calculation.

### **Single Discount Rate**

Projected benefit payments are required to be discounted to 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) a tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the plan's net position with contributions associated with current plan members and the long-term expected rate of return are not sufficient to pay benefits). We used the Fidelity Municipal General Obligation Bond 20 Year AA Index to obtain the municipal bond rate. This is the same as the previous year. See Appendix F for the calculation of the single discount rate.

### **Valuation Date and Measurement Date**

GASB 67 is effective for fiscal years beginning after June 15, 2013. GASB 68 is effective for sponsor fiscal years beginning after June 15, 2014.

This report covers the employer fiscal year, which is also the plan fiscal year, ended June 30, 2019 (the measurement date). The corresponding financial statement covers the fiscal year from July 1, 2018 to June 30, 2019. The actuarial valuation date is as of June 30, 2019 (the valuation date). The calculations included in this report are not projected and there is no "roll forward" of a prior valuation. We understand that these disclosures may be used for a June 30, 2020 reporting date and would be adjusted accordingly.

Your plan is a "single-employer" plan under GASB 67/68.

**APPENDIX B**

**PENSION EXPENSE/(INCOME) UNDER GASB 68**

**Collective Pension Expense/(Income)**

|  | <u>July 1, 2018-<br/>June 30, 2018</u> |
|--|--|
| 1. Service Cost                                | \$ 19,699,067                          |
| 2. Interest on Total Pension Liability         | 128,527,434                            |
| 3. Current Period Benefit Changes              | 0                                      |
| 4. Offset for Employee Contributions           | (9,249,680)                            |
| 5. Projected Earnings on Plan Assets           | (114,159,618)                          |
| 6. Administrative Expenses                     | 74,348                                 |
| 7. Other Changes in Plan Net Position          | 0                                      |
| 8. Rec. of outflow (inflow) due to liabilities | 55,612,643                             |
| 9. Rec. of outflow (inflow) due to assets      | 48,178,637                             |
| 10. Total Pension Expense/(Income)             | <u>\$ 128,682,831</u>                  |

**APPENDIX C**

**GASB 68 PENSION EXPENSE – DETAIL OF OUTFLOW/INFLOW OF RESOURCES**

| Description                  | Year | Original<br>Amount | Recognition<br>Period | Outflow<br>(Inflow)<br>In Current<br><u>Expense</u> | Deferred<br>Outflow<br>(Inflow)<br><u>6/30/2019</u> |
|------------------------------|------|--------------------|-----------------------|---|---|
| (1) Actual vs Expected       | 2015 | 20,790,869         | 4.76                  | 3,319,550   | 0   |
| (2) Assumption change        | 2015 | 91,940,822         | 4.76                  | 14,679,627  | 0   |
| (3) Proj vs Actual earnings  | 2015 | 91,124,770         | 5.00                  | 18,224,954  | 0   |
| (4) Actual vs Expected       | 2016 | 20,925,790         | 4.73                  | 4,424,057   | 3,229,562   |
| (5) Assumption change        | 2016 | 790,989,712        | 4.73                  | 167,228,269   | 122,076,636   |
| (6) Proj vs Actual earnings  | 2016 | 172,809,930        | 5.00                  | 34,561,986  | 34,561,986  |
| (7) Actual vs Expected       | 2017 | -31,506,816        | 4.77                  | -6,605,203  | -11,691,207   |
| (8) Assumption change        | 2017 | -137,435,476       | 4.77                  | -28,812,469   | -50,998,069   |
| (9) Proj vs Actual earnings  | 2017 | -31,996,325        | 5.00                  | -6,399,265  | -12,798,530   |
| (10) Actual vs Expected      | 2018 | 49,165,072         | 5.00                  | 9,833,014   | 29,499,044  |
| (11) Assumption change       | 2018 | -331,139,733       | 5.00                  | -66,227,947   | -198,683,839  |
| (12) Proj vs Actual earnings | 2018 | -100,645,786       | 5.00                  | -20,129,157   | -60,387,472   |
| (13) Actual vs Expected      | 2019 | 26,324,123         | 5.00                  | 5,264,825   | 21,059,298  |
| (14) Assumption change       | 2019 | -216,056,489       | 5.00                  | -43,211,298   | -172,845,191  |
| (15) Proj vs Actual earnings | 2019 | 109,600,593        | 5.00                  | 21,920,119  | 87,680,474  |
| (16) Benefit Change          | 2019 | -21,398,912        | 5.00                  | -4,279,782  | -17,119,130   |
| <b>TOTAL</b>                 |      |                    |                       | <b>103,791,280</b>                                  | <b>-226,416,438</b>                                 |
| Due to Liabilities           |      |                    |                       | 55,612,643  | -275,472,896  |
| Due to Assets                |      |                    |                       | 48,178,637  | 49,056,458  |
| Total                        |      |                    |                       | 103,791,280   | -226,416,438  |
| Inflows of Resources         |      |                    |                       | -175,665,121  | -524,523,438  |
| Outflows of Resources        |      |                    |                       | 279,456,401   | 298,107,000   |
| Total                        |      |                    |                       | 103,791,280   | -226,416,438  |

**Appendix C (continued)**

**GASB 68 Pension Expense and Deferred Outflows/Inflows**

For the year ended June 30, 2019, ASHERS recognized pension expense of \$128,682,831. At June 30, 2019, ASHERS reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

|  | Deferred<br>Outflows<br>Of Resources | Deferred<br>Inflows<br>Of Resources | Net<br>Outflows<br>(Inflows) |
|--|--------------------------------------|-------------------------------------|------------------------------|
| Difference between expected and actual experience                                | 53,787,904                           | 11,691,207                          | 42,096,697                   |
| Changes of assumptions   | 122,076,636                          | 422,527,099                         | -300,450,463                 |
| Net difference between projected and actual earnings on pension plan investments | 122,242,460                          | 73,186,002                          | 49,056,458                   |
| Change in Benefits   | 0                                    | 17,119,130                          | -17,119,130                  |
| Subtotal   | 298,107,000                          | 524,523,438                         | -226,416,438                 |
| Contributions subsequent to measurement date                                     | 0                                    |                                     | 0                            |
| Total  | 298,107,000                          | 524,523,438                         | -226,416,438                 |

Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

| Year ending<br>June 30: | Net Deferred<br>Outflow of<br>Resources |
|-------------------------|---|
| 2020                    | 21,221,021                              |
| 2021                    | (130,501,095)                           |
| 2022                    | (96,830,223)                            |
| 2023                    | (20,306,141)                            |
| Total thereafter        | 0                                       |
| Total                   | (226,416,438)                           |



## **APPENDIX D**

### **GASB 67 NOTES TO THE FINANCIAL STATEMENTS**

#### **Cost of Living Adjustment (COLA)**

Effective July 1 2017, the benefit increase will be the lesser of 3% or the percentage change in the Consumer Price Index for Urban Wage Earners and Clerical Workers as determined by the United States Department of Labor over the one-year period ending in the December immediately preceding the date of which the redetermined amount is being calculated. However, the redetermined amount of the benefit to be paid shall not be less than the redetermined amount of the benefit paid in the preceding year.

Based on our expected inflation assumption, we have used an assumption that a permanent 2.25% compound cost-of-living adjustment will be made.

#### **Deferred Retirement Option Plan**

This plan includes a Deferred Retirement Option Plan (DROP). Active members eligible for normal retirement are eligible to participate in the DROP program while continuing active employment. During DROP, the member will receive the regular retiree cost of living adjustments. A member can remain in DROP to the later of age 65 or the completion of five years of participation in DROP. DROP is divided into Tier I and Tier II. Tier I consists of the first five years of DROP participation, while Tier II is the remaining period. In Tier I, 90% of the retirement annuity will be deposited in the DROP account, whereas in Tier II, 79% of the retirement annuity will be deposited. The DROP account is credited with interest in Tier I and Tier II (as set by the Board, currently 6%). Furthermore, the member and employer contributions cease during DROP until the member enters Tier II; during Tier II participation, the member contributes 6.00% of their total payroll earnings and the employer contributes 6.90%. At actual retirement, the member will receive the DROP balance and commence receiving the regular annuity payments.

#### **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, based on the assumptions made, found that the pension plan's net position was projected to make all projected future benefit payments of current plan members. Therefore, the single discount rate of 7.50%, discussed in Appendix F, was applied to all periods of projected benefit payments to determine the Total Pension Liability.

**Appendix D (continued)**

**Components of Net Pension Liability**

The components of the net pension liability at June 30, 2019 were as follows:

|                               |                             |
|-------------------------------|-----------------------------|
| Total Pension Liability       | \$1,809,041,584             |
| Plan's Fiduciary Net Position | <u>1,386,076,598</u>        |
| Net Pension Liability         | <u><u>\$442,964,986</u></u> |

|  |        |
|--|--------|
| Plan Fiduciary Net Position as a Percentage of Total Pension Liability | 76.62% |
|--|--------|

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 7.5%, as well as what the plan's Net Pension Liability would be if it were calculated using a single discount rate one percentage point lower and one percentage point higher:

|                         |                      |                                |                      |
|-------------------------|----------------------|--------------------------------|----------------------|
|                         | 1% Decrease<br>6.50% | Current Single<br>Rate Assumed | 1% Increase<br>8.50% |
| Total Pension Liability | 2,030,955,394        | 1,809,041,584                  | 1,629,287,791        |
| Net Pension Liability   | 644,878,796          | 422,964,986                    | 243,211,193          |

**Changes in the Net Pension Liability**

|   | Total<br>Pension<br>Liability | Plan<br>Fiduciary<br>Net Position | Net<br>Pension<br>Liability |
|---|-------------------------------|-----------------------------------|-----------------------------|
| Balances at 6/30/2018                                 | \$1,991,358,627               | \$1,472,472,865                   | \$518,885,762               |
| Changes for the year:                                 |                               |                                   |                             |
| a) Service Cost                                       | 19,699,067                    |                                   | 19,699,067                  |
| b) Interest on NPL                                    | 128,527,434                   |                                   | 128,527,434                 |
| c) Differences between expected and actual experience | 26,324,123                    |                                   | 26,324,123                  |
| d) Employer contributions                             |                               | 19,281,642                        | (19,281,642)                |
| e) Employee contributions                             |                               | 9,249,680                         | (9,249,680)                 |
| f) Net investment income                              |                               | 4,559,025                         | (4,559,025)                 |
| g) Benefits and refunds                               | (119,412,266)                 | (119,412,266)                     | 0                           |
| h) Administrative expenses                            |                               | (74,348)                          | 74,348                      |
| i) Assumption/method change                           | (216,056,489)                 |                                   | (216,056,489)               |
| j) Benefit Changes                                    | (21,398,912)                  |                                   | (21,398,912)                |
| Net changes   | (182,317,043)                 | (86,396,267)                      | (95,920,776)                |
| Balances at 6/30/2019                                 | \$1,809,041,584               | \$1,386,076,598                   | \$422,964,986               |

## APPENDIX E

### REQUIRED SUPPLEMENTARY INFORMATION

GASB 67 requires a 10-fiscal year history of various information about the pension liability. These schedules may be built prospectively since the presentation is not the same as all previous years under previous standards. The four schedules are:

- Schedule of changes in the net pension liability.
- Schedule of the components of net pension liability along with related ratios.
- Comparison of actual employer contributions to the actuarially determined contributions based on the plan's funding policy.
- Schedule of the annual money-weighted rate of return on pension plan investments.

Please note that the money-weighted rate of return schedule is based on all transactions occurring at mid-year. The standard calls for a monthly calculation of the weighted, but we do not have the data sufficient to make that calculation.

The actuarially determined contribution rate was not calculated in the fashion described historically. Therefore, that schedule will be completed prospectively.

**\* Note on Covered Payroll on these schedules.** The next three schedules of Required Supplementary Information all include Covered Payroll as a data point. Paragraph 5 of GASB 82 clarified this definition by adding the following: Covered payroll is the payroll on which contributions to a pension plan are based. Beginning with the 2018 disclosures we disclose that amount to the extent the data allows. The amounts for previous years in the schedule have not been adjusted.

**Appendix E (continued)**

**Arkansas State Highway Employees Retirement System**  
**Schedule of Required Supplementary Information**  
**Schedule of Changes in the Employers' Net Pension Liability and Related Ratios**

| Fiscal Year ending December 31,  | 2018          | 2018          | 2017          | 2016          | 2015          | 2014          | 2013 | 2012 | 2011 | 2010 |
|--|---------------|---------------|---------------|---------------|---------------|---------------|------|------|------|------|
| <b>Total Pension Liability</b>   |               |               |               |               |               |               |      |      |      |      |
| Service Cost   | 19,699,067    | 23,601,075    | 42,816,372    | 18,935,319    | 18,412,588    | 16,862,918    |      |      |      |      |
| Interest   | 128,527,434   | 113,808,845   | 110,543,661   | 126,929,266   | 115,441,556   | 112,962,064   |      |      |      |      |
| Benefit Changes  | (21,398,912)  | 0             | (101,042,380) | -             | -             | -             |      |      |      |      |
| Difference between Actual & Expected Experience                        | 26,324,123    | 49,165,072    | (31,506,816)  | 20,925,790    | 20,790,869    | -             |      |      |      |      |
| Assumption changes   | (216,056,489) | (331,139,733) | (137,435,476) | 790,989,712   | 91,940,822    | -             |      |      |      |      |
| Benefit Payments   | (119,412,266) | (115,747,730) | (111,904,597) | (106,755,840) | (102,245,806) | (95,454,598)  |      |      |      |      |
| Net Change in Total Pension Liability                                  | (182,317,043) | (260,312,471) | (228,529,236) | 850,924,247   | 144,340,029   | 34,370,384    |      |      |      |      |
| Total Pension Liability - Beginning                                    | 1,991,358,627 | 2,251,671,098 | 2,480,200,334 | 1,629,276,087 | 1,484,936,058 | 1,450,565,674 |      |      |      |      |
| Total Pension Liability - Ending                                       | 1,809,041,584 | 1,991,358,627 | 2,251,671,098 | 2,480,200,334 | 1,629,276,087 | 1,484,936,058 |      |      |      |      |
| <b>Plan Fiduciary Net Position</b>                                     |               |               |               |               |               |               |      |      |      |      |
| Contributions – Employer   | 19,281,642    | 19,294,283    | 19,175,401    | 19,231,804    | 19,059,012    | 18,614,507    |      |      |      |      |
| Contributions - Employee Mandatory                                     | 9,249,680     | 9,163,176     | 9,143,408     | 9,379,784     | 9,138,451     | 8,884,829     |      |      |      |      |
| Net Investment Income  | 4,559,025     | 205,497,639   | 133,167,344   | (60,344,122)  | 25,383,756    | 234,208,606   |      |      |      |      |
| Benefit Payments   | (119,412,266) | (115,747,730) | (111,904,597) | (106,755,840) | (102,245,806) | (95,454,598)  |      |      |      |      |
| Administrative Expense   | (74,348)      | (55,703)      | (130,076)     | (118,199)     | (91,542)      | (43,282)      |      |      |      |      |
| Other  | -             | -             | -             | -             | -             | -             |      |      |      |      |
| Net Change in Plan Net Position  | (86,396,267)  | 118,151,665   | 49,451,480    | (138,606,573) | (48,756,129)  | 166,210,062   |      |      |      |      |
| Plan Fiduciary N P - Beginning   | 1,472,472,865 | 1,354,321,200 | 1,304,869,720 | 1,443,476,293 | 1,492,232,422 | 1,326,022,360 |      |      |      |      |
| Plan Fiduciary N P – Ending  | 1,386,076,598 | 1,472,472,865 | 1,354,321,200 | 1,304,869,720 | 1,443,476,293 | 1,492,232,422 |      |      |      |      |
| Plan Fiduciary Net Position as a Percentage of Total Pension Liability | 76.62%        | 73.94%        | 60.15%        | 52.61%        | 88.60%        | 100.49%       |      |      |      |      |
| Covered Employee Payroll *   | 146,461,468   | 148,527,851   | 141,154,763   | 141,906,487   | 140,544,393   | 137,261,720   |      |      |      |      |
| Net Pension Liability as a Percentage Of Covered Employee Payroll      | 288.79%       | 349.35%       | 635.72%       | 828.24%       | 132.20%       | (5.32%)       |      |      |      |      |

**Appendix E (continued)**

**Arkansas State Highway Employees Retirement System  
Schedule of Required Supplementary Information  
Schedule of Net Pension Liability**

| <u>FY ending<br/>June 30,</u> | <u>(TPL) Total<br/>Pension<br/>Liability</u> | <u>Plan Net<br/>Position</u> | <u>(NPL) Net<br/>Pension<br/>Liability</u> | <u>Net Position<br/>as % of<br/>TPL</u> | <u>Covered<br/>Payroll*</u> | <u>NPL<br/>as % of<br/>Payroll</u> |
|-------------------------------|--|------------------------------|--|---|-----------------------------|------------------------------------|
| 2010                          |  |                              |  |   |                             |                                    |
| 2011                          |  |                              |  |   |                             |                                    |
| 2012                          |  |                              |  |   |                             |                                    |
| 2013                          |  |                              |  |   |                             |                                    |
| 2014                          | 1,484,936,058                                | 1,492,232,422                | (7,296,364)                                | 100.49%                                 | 137,261,720                 | (5.32%)                            |
| 2015                          | 1,629,276,087                                | 1,443,476,293                | 185,799,794                                | 88.60%                                  | 140,544,393                 | 132.20%                            |
| 2016                          | 2,480,200,334                                | 1,304,869,720                | 1,175,330,614                              | 52.61%                                  | 141,906,487                 | 828.24%                            |
| 2017                          | 2,251,671,098                                | 1,354,321,200                | 897,349,898                                | 60.15%                                  | 141,154,763                 | 635.72%                            |
| 2018                          | 1,991,358,627                                | 1,472,472,865                | 518,885,762                                | 73.94%                                  | 148,527,851                 | 349.35%                            |
| 2019                          | 1,809,041,584                                | 1,386,076,598                | 422,964,986                                | 76.62%                                  | 146,461,468                 | 288.79%                            |

**Appendix E (continued)**

**Arkansas State Highway Employees Retirement System  
Schedule of Required Supplementary Information  
Schedule of Contributions**

| <u>FY ending<br/>June 30,</u> | <u>ADC<br/>Rate</u> | <u>Actuarially<br/>Determined<br/>Contribution</u> | <u>Actual<br/>Contribution</u> | <u>Contribution<br/>Deficiency<br/>(Excess)</u> | <u>Covered<br/>Payroll*</u> | <u>Contribution<br/>as % of<br/>Payroll</u> |
|-------------------------------|---------------------|--|--------------------------------|---|-----------------------------|---|
| 2010                          |                     |  |                                |   |                             |   |
| 2011                          |                     |  |                                |   |                             |   |
| 2012                          |                     |  |                                |   |                             |   |
| 2013                          |                     |  |                                |   |                             |   |
| 2014                          |                     |  | 18,614,507                     |   | 137,261,720                 | 13.56%                                      |
| 2015                          |                     |  | 19,059,012                     |   | 140,544,393                 | 13.56%                                      |
| 2016                          |                     |  | 19,231,804                     |   | 141,906,487                 | 13.55%                                      |
| 2017                          |                     |  | 19,175,401                     |   | 141,154,763                 | 13.58%                                      |
| 2018                          |                     |  | 19,294,283                     |   | 148,527,851                 | 12.99%                                      |
| 2019                          |                     |  | 19,281,642                     |   | 146,461,468                 | 13.16%                                      |

**Key Assumptions for ADC:**

|                           |  |
|---------------------------|--|
| Cost Method               | Entry Age Normal   |
| Amortization Method       | Level Percent of Salary  |
| Asset Valuation           | 4-year smoothed Market Value   |
| Investment rate of return | 7.50%  |
| Inflation                 | 2.5%   |
| Salary Scale              | 3.5% to 10.5%, total payroll growth of 3.0%  |
| Mortality                 | RP 2000 Combined Healthy Lives with Blue Collar adjustment scaled at 105%, Projected with scale AA.<br>RP 2000 Combined Healthy Lives with Blue Collar adjustment scaled at 100%, Projected with scale AA. |

**Appendix E (continued)**

**Arkansas State Highway Employees Retirement System  
Schedule of Required Supplementary Information  
Schedule of Investment Returns**

| <u>FY ending<br/>June 30,</u> | <u>Annual<br/>Money-weighted<br/>Rate of Return</u> |
|-------------------------------|---|
| 2010                          |   |
| 2011                          |   |
| 2012                          |   |
| 2013                          |   |
| 2014                          | 18.12%  |
| 2015                          | 1.74%   |
| 2016                          | -4.31%  |
| 2017                          | 10.53%  |
| 2018                          | 15.68%  |
| 2019                          | 0.32%   |

The amounts shown are net of investment expenses.

The actuary calculated these rates with the information that was provided, therefore, these rates are annual money-weighted. Monthly money-weighted returns are not available.

## APPENDIX F

### CALCULATION OF THE SINGLE DISCOUNT RATE

GASB 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 projected and compared to the obligation to make benefit payments in those years. As long as assets are projected to be sufficient 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 “risk-free” rate is required. The single discount rate is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods.

Our projections show that Plan Net Position (assets) together with employer contributions and projected investment returns will be sufficient to meet benefit payments and expenses in all future years. Therefore, for the purpose of this valuation, the expected rate of return on pension plan investments is 7.50%, the municipal bond rate is 3.13%, and the resulting single discount rate is 7.50%.

These projections are generated under the guidelines of GASB 67 and the related implementation guide. They should be used solely to determine the single discount rate as defined in the GASB statements. Any implication beyond that determination is beyond the scope of this report.

**For the purpose of this valuation, the expected rate of return on pension plan investments is 7.50%; the municipal bond rate is 3.13%; since assets are projected to be sufficient to meet benefit payments, the resulting single discount rate is 7.50%. The details of these projections are available upon request.**