

# Clayton County, Georgia

## Clayton County, Georgia Public Employee Retirement System

### Actuarial Valuation Report

Plan Year

July 1, 2016 – June 30, 2017

November 2016





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*Principal, Retirement*

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November 2016

Pension Board  
Clayton County, Georgia  
Public Employee Retirement System  
112 Smith Street  
Jonesboro, GA 30236

Members of the Board:

We are pleased to submit the results of the actuarial valuation of the Clayton County, Georgia Public Employee Retirement System (the System) as of July 1, 2016. The purpose of this report is to provide a summary of the funded status of the plan as of July 1, 2016 and to verify that scheduled contributions will be sufficient to meet the minimum funding requirement for the fiscal year ending June 30, 2017. Use of this report for any other purpose may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, you should ask Buck to review any statement you wish to make on the results contained in this report. Buck will not accept any liability for any such statement made without prior review. We trust that this report will meet the approval of the Board and will furnish the desired information concerning the financial condition of the System. We look forward to meeting with you in person to discuss these results.

### **Summary of Valuation Results**

It is the Board's funding policy to keep the Retirement System in compliance with the minimum funding requirements under Title 47, Chapter 20 of the Official Code of Georgia, which requires that contributions are sufficient to fund the annual cost of benefit accruals and amortize the unfunded liability within a 30 year period. This report confirms that contributions of 21.40% (13.90% from the County and Water Authority and 7.50% from Participants) are sufficient to meet the minimum contribution requirements. This result is dependent upon the valuation assumptions related to investment returns, payroll growth, rates of salary increase, retirement, turnover, and death.

As of July 1, 2016, the actuarial accrued liability was \$576,994,028. This compares to the market value of assets of \$373,563,784 (after an adjustment of \$733,160 for pending refunds) and the actuarial value of assets of \$402,094,096. The funded ratio as measured by the actuarial value of assets was 69.7%. This funded ratio is appropriate for evaluating the need and level of future contributions. It should be noted, however, that measuring the funded ratio using the market value of assets will result in a lower ratio and the funded ratio based on the actuarial value of assets makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities. The liabilities have been computed in accordance with the plan provisions listed in Schedule F and the actuarial assumptions listed in Schedule E. A summary of the market and actuarial value of assets are included in Schedules B and C.

### Summary of Plan Experience

The experience for the plan year produced an overall loss of \$16,271,142. Below is a summary of the sources of (gains) and losses.

|                               |    |             |
|-------------------------------|----|-------------|
| Due to investment performance | \$ | 5,757,769   |
| Due to retirement experience  |    | 4,579,624   |
| Due to new entrants           |    | 1,057,866   |
| Due to mortality experience   |    | (1,035,814) |
| Due to salary increases       |    | 4,510,588   |
| Due to other                  | \$ | 1,401,109   |

Further details are provided in Schedule D.

### Census and Financial Data

This valuation was performed using employee and financial data supplied by Clayton County. The census data was received as of July 1, 2016. Buck did not audit this data, although it was reviewed for reasonableness and consistency with the prior year's information. The results of the valuation are dependent on the accuracy of the data. Schedule G provides a summary of the census data.

### Changes in Actuarial Assumptions, Methods and Plan Provisions

There were no changes in assumptions or methods from the prior year. The plan provisions were updated to reflect changes to benefit provisions made for members hired on or after January 1, 2016. A summary of these changes is included in Schedule F.

### Certification

The actuarial certification is included in Section VI of this report. Complete contents of this report are outlined in the table of Contents which immediately follow. I am available to answer any questions regarding the contents of this report.

Respectfully submitted,



Timothy G. Bowen, EA, MAAA, FCA  
Principal, Retirement Consulting Actuary  
Enrolled Actuary Number 14-07204

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## Section I - Summary of Principal Results

For convenience of reference, the principal results of the valuation and a comparison with the results of the preceding valuation are summarized below:

| Valuation Date  | 7/1/2016       | 7/1/2015       |
|---|----------------|----------------|
| Number of active participants                                   | 2,470          | 2,449          |
| Annual compensation for year beginning on valuation date        | \$ 115,329,415 | \$ 105,822,834 |
| Number of retired participants and beneficiaries                | 1,235          | 1,166          |
| Annual retirement benefits as of July 1                         | \$ 33,824,487  | \$ 31,035,094  |
| Number of former participants with deferred benefits            | 287            | 289            |
| Present value of accrued benefits                               | \$ 556,191,803 | \$ 524,592,037 |
| Total actuarial accrued liability                               | \$ 576,994,028 | \$ 543,816,709 |
| Assets:   |                |                |
| Market value  | \$ 373,563,784 | \$ 387,761,223 |
| Actuarial value of assets                                       | \$ 402,094,096 | \$ 386,601,668 |
| Total unfunded actuarial accrued liability                      | \$ 174,899,932 | \$ 157,215,041 |
| Amortization period for unfunded actuarial accrued liability    | 30 years       | 30 years       |
| Recommended annual contribution rates:                          |                |                |
| Participants  | 7.50%          | 7.50%          |
| County/Water Authority (normal)                                 | 13.90%         | 13.90%         |
| County/Water Authority (special budgeted)                       | <u>0.00%</u>   | <u>0.00%</u>   |
| Total   | 21.40%         | 21.40%         |
| County/Water Authority annual required contribution rate (ARC): |                |                |
| Normal cost   | 4.12%          | 4.37%          |
| Unfunded actuarial accrued liability                            | 9.78%          | 9.53%          |
| Special budgeted contribution                                   | <u>0.00%</u>   | <u>0.00%</u>   |
| Total   | 13.90%         | 13.90%         |

- Comments on the valuation results as of July 1, 2016 are given in Section IV and further discussion of the contributions is set out in Section V.
- Schedule E of this report outlines the full set of actuarial assumptions and methods employed.
- Schedule F of this report summarizes the provisions of the System as interpreted for valuation purposes.

## Section II - Participant Data

All full time employees and elected officials of Clayton County and the Clayton County Water Authority are covered under the Plan. The valuation included 2,470 active participants as of July 1, 2016 with annual compensation on July 1, 2016 totaling \$114,187,540.

The following table shows the number of retired participants and beneficiaries of deceased participants and their annual retirement benefits as of the valuation date.

### The Number and Annual Retirement Benefits of Retired Participants and Beneficiaries of Deceased Participants as of July 1, 2016

| Group                                  | Number | Benefits      |
|--|--------|---------------|
| Normal and Early Retirements           | 1041   | \$ 30,554,555 |
| Beneficiaries of Deceased Participants | 125    | 2,016,095     |
| Disability Retirements                 | 69     | 1,253,837     |
| Total                                  | 1,235  | \$ 33,824,487 |

In addition, there are 287 former participants entitled to deferred annual benefits totaling \$3,378,591.

## Section III - Assets

- The amount of assets taken into account in this valuation is based on the unaudited financial statements provided by Clayton County.
- The market value of assets as of July 12016 was \$373,563,784. This represented a return of approximately -1.17%. The actuarial value of assets used for the current valuation was \$402,094,096. Schedule B shows the development of the actuarial value of assets as of July 1, 2016.
- Schedule C shows the reconciliation of the market value of asset balances from July 1, 2015 to July 1, 2016.

## Section IV - Comments on Valuation

- Schedule A outlines the results of the valuation. The valuation shows that the Retirement System has total actuarial accrued liabilities of \$576,994,028. Of this amount, \$397,601,857 is on account of benefits payable to retired participants, beneficiaries and former participants entitled to deferred vested benefits, and \$ 179,392,171 is for benefits expected to be paid based on service to the valuation date on account of the present active participants. Against these liabilities, the System has present actuarial value of assets of \$402,094,096 as of July 1, 2016. The difference of \$174,899,932 between the total liabilities and the present assets represents the present value of future accrued liability contributions to be made by the County and Water Authority.
- The regular contributions to the System consist of normal cost contributions and unfunded accrued liability amortization contributions. The normal cost contribution covers the cost of benefits accruing and Retirement System expenses during the upcoming year. The normal cost contribution rate for the County and Water Authority participants combined is determined to be 11.62% (4.12% County/Water Authority and 7.50% participants) of payroll. This compares to the 11.87% rate last year.
- Another measure of the funding is the present value of the benefits accrued as of the valuation date. This value does not include any allowance for future salary increases affecting the benefits earned to date. This amount is \$556,191,803. When compared to the market value of assets of \$373,563,784 the plan has insufficient assets to cover its accrued benefits.
- For the year, the Plan experienced an overall loss of \$16,271,142. This loss is due to the net effect of a loss on the actuarial value of assets of \$5,757,769 and a liability loss of \$10,513,373. Schedule D shows the development of this loss.

## Section V - Contributions Payable under the Retirement System

- The Retirement System has established a total contribution rate of 21.40% of active participants' compensation. Of this amount, the participants pay 7.50% and 13.90% is to be paid by the County/Water Authority.
- On the basis of the present valuation, a total normal cost contribution rate of 11.62% is payable. Participants contribute 7.50% of payroll, leaving a balance of 4.12% normal cost rate to be paid by the County/Water Authority.
- The excess of the County's and Water Authority's 13.90% contribution over the 4.12% normal cost is 9.78%. These amounts are applied toward the liquidation of the unfunded accrued liability. The total 9.78% of active participants' compensation will liquidate the unfunded accrued liability within a 30 year period. This assumes that the funds to liquidate the unfunded liability increase 3.00% per year.
- The following table summarizes the contribution rates.

### Contribution Rates Based on July 1, 2016 Valuation

| Contribution                                  | Percentage of Compensation |
|---|----------------------------|
| Payable by:                                   |                            |
| Participants                                  | 7.50%                      |
| County and Water Authority                    | 13.90                      |
| County and Water Authority (special budgeted) | <u>0.00</u>                |
| Total   | 21.40%                     |
| Rate Applied To:                              |                            |
| Total Normal Cost                             | 11.62%                     |
| Unfunded Actuarial Accrued Liability          | <u>9.78</u>                |
| Total   | 21.40%                     |

## Section VI – Enrolled Actuary’s Statement

The actuarial assumptions used to value the Plan for funding purposes were selected by the plan sponsor or us. The interest assumption, funding method, salary scale and asset method were selected by the plan sponsor in consideration of recommendations made by us. All other assumptions were selected by us. All assumptions (other than the salary scale which was selected by the plan sponsor) individually and in the aggregate represent my best estimate of anticipated experience under the plan. There is not sufficient information to evaluate the appropriateness of the salary scale as a long term assumption. The plan sponsor has indicated that the financial stress it is under will limit its ability for a considerable period to make salary increases in line with historical increases. Based on the foregoing, the cost results and actuarial exhibits for funding presented in this report were determined on a consistent and objective basis in accordance with applicable Actuarial Standards of Practice and generally accepted actuarial procedures.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. Because of limited scope, Buck performed no analysis of the potential range of such future differences.

To the best of my knowledge, the information in this report is complete and accurate and meets the requirements and intent of Georgia Public Retirement System Law, Code Title 47, Chapter 20. As is demonstrated earlier in this report, the Clayton County, Georgia Public Employees Retirement System is in compliance with the Minimum Funding Standards specified in Code Section 47-20-10 and meets the funding policy of the Fund’s Board, which is to keep the Fund in compliance with such standards.

The report was prepared under the supervision of Timothy G. Bowen, the plan’s Enrolled Actuary and a Member of the American Academy of Actuaries, who has met the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

BUCK CONSULTANTS at Xerox (Buck)



Timothy G. Bowen, EA, MAAA, FCA  
Principal, Retirement Consulting Actuary  
Enrolled Actuary Number 14-07204

TGB/jac  
Clayton County 110716 TGB\_2016AVR

## Schedule A - Results of the Valuation Prepared as of July 1, 2016

1. Actuarial Accrued Liabilities

Present Value of Prospective Benefits Payable in Respect of:

|   |                    |
|---|--------------------|
| (a) Present active participants   | \$ 179,392,171     |
| (b) Present retired participants, beneficiaries, and former participants entitled to deferred vested benefits | <u>397,601,857</u> |
| (c) Total accrued actuarial liabilities   | \$ 576,994,028     |
| 2. Actuarial Value of Assets for Valuation Purposes   | <u>402,094,096</u> |
| 3. Unfunded Actuarial Accrued Liability [1(c) minus 2]  | \$ 174,899,932     |

## Schedule B - Development of July 1, 2016 Actuarial Value of Assets

|      |   |                   |                   |
|------|---|-------------------|-------------------|
| (1)  | Market Value of Assets on July 1, 2015 including Contributions Receivable                               |                   | \$ 387,761,223    |
| (2)  | 2015/2016 Net Cash Flow   |                   |                   |
|      | a. Contributions from Employer and Participants<br>plus increase/(decrease) in Contributions Receivable |                   | 22,922,056        |
|      | b. Benefits + Administrative Expense Only   |                   | <u>32,645,434</u> |
|      | c. Net Cash Flow (2)a - (2)b  |                   | \$ (9,723,378)    |
| (3)  | Expected Investment Return, Net of Investment Expenses<br>[(1) x .08] + [(2)c x .04]                    |                   | \$ 30,631,963     |
| (4)  | Expected Market Value of Assets on July 1, 2015<br>including Contributions Receivable (1) + (2)c + (3)  |                   | \$ 408,669,808    |
| (5)  | Market Value of Assets on July 1, 2016,<br>including Contributions Receivable                           |                   | \$ 373,563,784    |
| (6)  | Gain/(Loss) on Market Value of Assets (5) - (4)   |                   | \$ (35,106,024)   |
| (7)  | Deferred Gains/(Losses) on Market Value of Assets   |                   |                   |
|      |   | Total Gain/(Loss) | Amount Deferred   |
|      | 2015  | \$ (35,106,024)   | \$ (28,084,819)   |
|      | 2014  | (18,277,954)      | (10,966,772)      |
|      | 2013  | 26,303,197        | <u>10,521,279</u> |
| (8)  | Preliminary Actuarial Value of Assets on July 1, 2016 (5) - (7)   |                   | \$ 402,094,096    |
| (9)  | 80% of Market Value .80 x (5)   |                   | \$ 298,851,028    |
| (10) | 120% of Market Value 1.20 x (5)   |                   | \$ 448,276,541    |
| (11) | Actuarial Value of Assets on July 1, 2016<br>Smaller of (10) and maximum of (8) and (9)                 |                   | \$ 402,094,096    |

## Schedule C - Assets of the Retirement System

### Reconciliation of Market Value of Assets

#### Receipts

|  |                     |                    |
|--|---------------------|--------------------|
| Employer and Participant Contributions                       |                     | \$ 22,922,056      |
| Investment Income  |                     |                    |
| Interest and Dividends                                       | \$ 5,642,990        |                    |
| Net Appreciation (Depreciation) in Fair Value of Investments | <u>(10,385,655)</u> |                    |
| Total Investment Income                                      |                     | <u>(4,742,665)</u> |
| Total Receipts   |                     | \$ 18,179,392      |

#### Disbursements

|  |  |                |
|--|--|----------------|
| Benefits Paid                            |  | \$ 32,100,353  |
| Increase in Pending Refunds <sup>1</sup> |  | (134,302)      |
| Administrative and Investment Expenses   |  | <u>410,780</u> |
| Total Disbursements                      |  | \$ 32,376,830  |

**Excess of Receipts Over Disbursements** \$ (14,197,439)

#### Reconciliation of Asset Balances

|  |                |
|--|----------------|
| Market Value at July 1, 2015, including contributions receivable | \$ 387,761,223 |
| Excess of Receipts Over Disbursements                            | (14,197,439)   |
| Market Value at July 1, 2016, including contributions receivable | \$ 373,563,784 |

<sup>1</sup> Unpaid Pending Refunds of \$598,858 were subtracted from the July 1, 2015 Market Value of Assets, and \$733,160 was subtracted from the July 1, 2016 Market Value of Assets. The difference of \$134,302 was added to the annual disbursements during the year.

## Schedule D - Development of Experience Gain/(Loss)

|   |                     |                 |
|---|---------------------|-----------------|
| 1. Actual Unfunded Accrued Liability as of July 1, 2015<br>(before adjustment for window plan): |                     | \$ 157,215,041  |
| 2. Expected Change in Unfunded Liability During<br>2015/2016 Plan Year                          |                     |                 |
| a. Due to Total Normal Cost (beginning of year)   | \$ 11,720,228       |                 |
| b. Due to Assumption Changes  | 0                   |                 |
| c. Due to Plan Changes  | 0                   |                 |
| d. Due to Interest on Normal Cost and Unfunded Liability  | 13,514,821          |                 |
| e. Due to Actual Employer and Participant Contributions<br>with Interest                        | <u>(23,821,300)</u> |                 |
| f. Total Expected Change, a. + b. + c. + d. + e. + f. + g.                                      | \$ 1,413,749        |                 |
| 3. Expected Unfunded Accrued Liability as of July 1, 2016:                                      |                     | \$ 158,628,790  |
| 4. Actual Unfunded Accrued Liability as of July 1, 2016:  |                     | \$ 174,899,932  |
| 5. Experience Gain/(Loss) for the 2015/2016 Plan Year*<br>(3) – (4)                             |                     | \$ (16,271,142) |
| * Liability related portion of experience Gain/(Loss):  | \$ (10,513,373)     |                 |
| Asset related portion of experience Gain/(Loss):  | \$ (5,757,769)      |                 |

## Schedule E - Outline of Actuarial Assumptions and Methods

### Interest Rate

8% per annum, compounded annually, net of investment expenses.

### Separations before Retirement – Hired Before 1/1/2016

Representative values of the assumed annual rates of withdrawal, disability, and death are as follows:

#### Safety

| Age | Annual Rate of |           |           |           |           |            |
|-----|----------------|-----------|-----------|-----------|-----------|------------|
|     | Withdrawal     |           |           |           |           | Disability |
|     | Years 0-1      | Years 1-2 | Years 2-3 | Years 3-9 | Years 10+ |            |
| 25  | 15.00%         | 12.00%    | 10.00%    | 8.00%     | 6.75%     | .07%       |
| 30  | 15.00          | 12.00     | 10.00     | 8.00      | 6.50      | .08        |
| 35  | 15.00          | 12.00     | 10.00     | 8.00      | 5.75      | .09        |
| 40  | 15.00          | 12.00     | 10.00     | 8.00      | 4.00      | .11        |
| 45  | 15.00          | 12.00     | 10.00     | 8.00      | 3.25      | .16        |
| 50  | 15.00          | 12.00     | 10.00     | 8.00      | 3.25      | .24        |
| 55  | -              | -         | -         | -         | -         | .40        |
| 60  | -              | -         | -         | -         | -         | .84        |
| 64  | -              | -         | -         | -         | -         | 1.49       |

#### Non-Safety

| Age | Annual Rate of |           |           |           |           |            |
|-----|----------------|-----------|-----------|-----------|-----------|------------|
|     | Withdrawal     |           |           |           |           | Disability |
|     | Years 0-1      | Years 1-2 | Years 2-3 | Years 3-9 | Years 10+ |            |
| 25  | 15.00%         | 12.00%    | 10.50%    | 6.75%     | 6.75%     | .07%       |
| 30  | 15.00          | 12.00     | 10.50     | 6.75      | 6.25      | .08        |
| 35  | 15.00          | 12.00     | 10.50     | 6.75      | 6.00      | .09        |
| 40  | 15.00          | 12.00     | 10.50     | 6.75      | 4.50      | .11        |
| 45  | 15.00          | 12.00     | 10.50     | 6.75      | 3.00      | .16        |
| 50  | 15.00          | 12.00     | 10.50     | 6.75      | 2.25      | .24        |
| 55  | 15.00          | 12.00     | 10.50     | 6.75      | 2.00      | .40        |
| 60  | 15.00          | 12.00     | 10.50     | 6.75      | 2.00      | .84        |
| 64  | 15.00          | 12.00     | 10.50     | 6.75      | 2.00      | 1.49       |

## Schedule E - Outline of Actuarial Assumptions and Methods (continued)

### Separations before Retirement – Hired On or After 1/1/2016

Representative values of the assumed annual rates of withdrawal, disability, and death are as follows:

#### Safety

| Age | Annual Rate of |           |           |           |           |            |
|-----|----------------|-----------|-----------|-----------|-----------|------------|
|     | Withdrawal     |           |           |           |           | Disability |
|     | Years 0-1      | Years 1-2 | Years 2-3 | Years 3-9 | Years 10+ |            |
| 25  | 15.00%         | 12.00%    | 10.50%    | 6.75%     | 6.75%     | .07%       |
| 30  | 15.00          | 12.00     | 10.50     | 6.75      | 6.25      | .08        |
| 35  | 15.00          | 12.00     | 10.50     | 6.75      | 6.00      | .09        |
| 40  | 15.00          | 12.00     | 10.50     | 6.75      | 4.50      | .11        |
| 45  | 15.00          | 12.00     | 10.50     | 6.75      | 3.00      | .16        |
| 50  | 15.00          | 12.00     | 10.50     | 6.75      | 2.25      | .24        |
| 55  | 15.00          | 12.00     | 10.50     | 6.75      | 2.00      | .40        |
| 60  | 15.00          | 12.00     | 10.50     | 6.75      | 2.00      | .84        |
| 64  | 15.00          | 12.00     | 10.50     | 6.75      | 2.00      | 1.49       |

#### Non-Safety

| Age | Annual Rate of |           |           |           |           |            |
|-----|----------------|-----------|-----------|-----------|-----------|------------|
|     | Withdrawal     |           |           |           |           | Disability |
|     | Years 0-1      | Years 1-2 | Years 2-3 | Years 3-9 | Years 10+ |            |
| 25  | 15.00          | 12.00     | 10.00     | 8.00      | 6.75      | .07        |
| 30  | 15.00          | 12.00     | 10.00     | 8.00      | 6.50      | .08        |
| 35  | 15.00          | 12.00     | 10.00     | 8.00      | 5.75      | .09        |
| 40  | 15.00          | 12.00     | 10.00     | 8.00      | 4.00      | .11        |
| 45  | 15.00          | 12.00     | 10.00     | 8.00      | 3.25      | .16        |
| 50  | 15.00          | 12.00     | 10.00     | 8.00      | 3.25      | .24        |
| 55  | -              | -         | -         | -         | -         | .40        |
| 60  | -              | -         | -         | -         | -         | .84        |
| 64  | -              | -         | -         | -         | -         | 1.49       |

## Schedule E - Outline of Actuarial Assumptions and Methods (continued)

### Rates of Retirement – Hired Before 1/1/2016

Representative values of the assumed annual rates of early and normal retirement are as follows:

| Age       | Non-Safety*               |        | Safety** |        |
|-----------|---------------------------|--------|----------|--------|
|           | Annual Rate of Retirement |        |          |        |
|           | Early                     | Normal | Early    | Normal |
| 50        |                           |        | .10      |        |
| 51        |                           |        | .10      |        |
| 52        |                           |        | .15      |        |
| 53        |                           |        | .25      |        |
| 54        |                           |        | .35      |        |
| 55        | .40                       |        | .16      | .25    |
| 56        | .10                       |        | .16      | .10    |
| 57        | .09                       |        | .16      | .10    |
| 58        | .08                       |        | .16      | .15    |
| 59        | .07                       |        | .16      | .20    |
| 60        | .06                       |        |          | .55    |
| 61        | .05                       |        |          | .65    |
| 62        |                           | .25    |          | .65    |
| 63        |                           | .16    |          | .65    |
| 64        |                           | .11    |          | .65    |
| 65        |                           | .60    |          | 1.00   |
| 66        |                           | .40    |          |        |
| 67        |                           | .40    |          |        |
| 68        |                           | .40    |          |        |
| 69        |                           | .40    |          |        |
| <b>70</b> |                           | 1.00   |          |        |

\* An additional 30% are assumed to retire upon attainment of 25 years of service.

\*\* An additional 30% are assumed to retire in the year when first eligible for normal retirement and upon attainment of 25 years of service.

Note: Employees who terminate with a vested benefit and greater than 15 years of service are assumed to commence at age 55 with a subsidized early retirement pension. Other deferred vested employees are assumed to commence at normal retirement age.

### Salary Increases

2.00% per annum for 4 years, 3.00% per annum for the following 5 years, and 4.00% per annum thereafter.

## Schedule E - Outline of Actuarial Assumptions and Methods (continued)

### Mortality

#### Healthy Annuitants

RP2014 blue collar base rates with a load of 7.75% with fully generational mortality improvements based on the Modified Buck MP2014 projection scale.

#### Healthy Non-annuitants

RP2014 blue collar base rates with fully generation mortality improvements based on the Modified Buck MP2014 projection scale.

#### Disabled Participants

RP2014 disabled base rates with Modified Buck MP 2014 projection scale.

### Future Administrative Expenses

Expenses assumed to be 0.325% of payroll.

### Loading or Contingency Reserves

A 0.10% load on active liabilities is held to reflect potential use of accumulated sick leave upon retirement.

### Spouses

The husband is assumed to be three years older than the wife, and it is assumed that 85% of the participants are married.

### Contingent Assets & Liabilities

There were none as of July 1, 2016.

### Valuation Assets

Actuarial Value, as developed in Schedule B. The actuarial value of assets is based on a 5-year smoothing of market value gains and losses starting with the asset gains and losses for the period July 1, 2013 – June 30, 2014. The actuarial value of assets is limited to a range between 80% and 120% of market value.

### Valuation Funding Method

Projected unit credit cost method. Gains and losses are reflected in the unfunded accrued liability.

### Inflation

3.00% per annum (used for the amortization of unfunded liability).

### Contribution Timing

Employee contributions are assumed to occur bi-weekly and County contributions quarterly.

## Schedule E - Outline of Actuarial Assumptions and Methods (continued)

### Historical Assumption Changes

For new members hired after January 1, 2016, assumed rates of retirement and termination were implemented to correspond with the new vesting and retirement eligibility requirements. Sample rates of retirement and termination are shown above.

#### Effective 7/1/2015

The mortality table for healthy participants was changed to the RP2014 blue collar base rates with a load of 7.75% with fully generational mortality improvements based on the Modified Buck MP 2014 projection scale. For non-annuitants, the mortality table was changed to RP2014 blue collar base rates with fully generation mortality improvements based on the Modified Buck MP 2014 projection scale. The mortality table for disabled participants was changed RP2014 disabled base rates with Modified Buck MP 2014 projection scale. The assumption for Future Administration expenses was changed to 0.325% of payroll.

#### Effective 7/1/2014

The assumed rates of salary increase were adjusted to 2.00% for 4 years, 3.00% for the next 5 years, and 4.00% thereafter. The mortality table for healthy participants was changed to the RP-2000 blue collar base rates increased by 7.5% to reflect actual plan experience, generationally projected using Scale BB for annuitants and the RP-2000 blue collar base rates, generationally projected using Scale BB for non-annuitants. The mortality table for disabled participants was changed to the RP-2000 disabled mortality table. The assumed rates of retirement and termination were changed to better reflect anticipated experience. The asset valuation method was changed to reflect a 5-year smoothing of market value gains and losses beginning with gains and losses for the period July 1, 2013 – June 30, 2014. The Actuarial Value of Assets is limited to an 80% - 120% market value corridor.

#### Effective 7/1/2013

The assumed rates of salary increase were adjusted from 3% for the next 9 years and 4% thereafter to 0% for the upcoming year for County employees, 2% for the upcoming year for Water Authority employees, 3% for the next 9 years for all employees and 4% thereafter for all employees. The mortality table was changed to the RP 2000 Mortality Table with a 10% load projected to the year 2019 with Blue Collar adjustment.

#### Effective 7/1/2012

The assumed rates of salary increase were adjusted from 3% for the next 10 years and 4% for the following 20 years to 0% for the upcoming year for County employees, 1% for the upcoming year for Water Authority employees, 3% for the next 9 years for all employees and 4% thereafter for all employees. The mortality table was changed to the RP 2000 Mortality Table with a 10% load projected to the year 2018 with Blue Collar adjustment.

## Schedule E - Outline of Actuarial Assumptions and Methods (continued)

### Effective 7/1/2011

The mortality table was changed from the RP 2000 Mortality Table with Blue Collar adjustments to the RP 2000 Mortality Table with a 10% load projected to the year 2017 with Blue Collar adjustment; the assumed rates of salary increase was adjusted from a flat 4% to 0% for the upcoming year, 3% for the next 10 years and 4% thereafter; and the assumed rate of inflation used as an amortization adjustment was changed from a flat 4% to 3% for the next 11 years and 4% thereafter.

### Effective 7/1/2009

The salary scale assumption decreased from 5.3% annually to 4.0% annually.

### Effective 7/1/2008

The mortality table for employees (both before and after retirement) changed from the 1983 Group Annuity Mortality Table to the RP-2000 Mortality Table with Blue Collar Adjustment.

### Effective 7/1/2004

The expense assumption has been lowered to .20% of payroll to reflect true level of administrative expense. The retirement table has been changed to produce expected results that more closely match recent experience. The salary scale has increased from 5.0% to 5.3%.

### Effective 7/1/2003

The mortality table for employees (both before and after retirement) changed from the 1971 Group Annuity Mortality Table set back 1 year to the 1983 Group Annuity Mortality Table. The withdrawal table for employees changed to a 3-year select-and-ultimate table to reflect recent plan experience.

### Effective 7/1/2001

The mortality table has been set back one year.

## Schedule F - Summary of the Main Benefit and Contribution Provisions

### Effective Date

July 1, 1971.

### Plan Year and Fiscal Year

Each July 1 to June 30.

### Type of Plan

A cost-sharing multiple-employer defined benefit pension plan administered by a public employee retirement system funded by the Plan Sponsors (Clayton County and the Clayton County Water Authority) and Participant contributions.

### Employees Covered

Full-time employees, including Commissioners, persons appointed by Commissioners, judicial secretaries, Probate Court Judge, magistrate, Court Clerks, Sheriff and Chief Deputy, Tax Commissioner and Deputy, and Water Authority employees and appointees.

Effective November 1, 2010, any employee who is enrolled or becomes an active participant or member in the Employees Retirement System of Georgia or the Georgia State Employees Pension and Savings Plan (or any successor plan) will not be covered under this Plan. This amendment was not reflected in the July 1, 2010 valuation.

Effective July 1, 2012, State Court Law Clerks are now eligible to participate in the Plan.

### Credited Service

Service from employment. Effective January 1, 1999, each Participant's sick leave in excess of the allowable amount, as of the last pay period of each calendar year, shall be placed in reserve status to be used in determining Credited Service at the Participant's termination of employment. Certain employees' service with The City of Forest Park Water and Sewer Department is included as Credited Service.

### Normal Retirement Benefit

#### Eligibility – Hired Before 1/1/2016

The earlier of age 60 and 7 years of participation (5 years of participation for sworn safety personnel hired prior to June 1, 2001), or age 55 and 25 years of credited service. Effective January 1, 1999, a Participant may elect to apply sick leave reserve as an age credit in determining the attainment of Normal Retirement Age.

#### Eligibility – Hired On or After 1/1/2016

##### General Members

- Normal retirement at age 62 with 10 years of service

##### Public Safety Members

- Normal retirement at age 60 with 10 years of service or 55 with 25 years of service

## Schedule F - Summary of the Main Benefit and Contribution Provisions (continued)

### Basic Monthly Benefit

2.5% of average monthly salary multiplied by years of credited service up to 32.

For members hired before January 1, 2016, average monthly compensation is based on the 36 highest consecutive months of service during the last 60 months of service. For members hired on or after January 1, 2016, average monthly compensation is based on the last 60 months of service

### Cost of Living Adjustments

Annual 2.0% cost of living increase effective beginning July 1, 2009 for those who have received their 84th monthly benefit payment prior to July 1.

For new employees hired after 1/1/2016, COLA is discretionary and provided on an ad-hoc basis.

### Early Retirement Benefit

#### Eligibility – Hired Before 1/1/2016

The earlier of age 50 and 25 years of credited service or age 55 and 15 years of credited service.

#### Eligibility – Hired On or After 1/1/2016

General Members

- Early retirement at age 60 with 15 years of service or age 55 with 25 years of service

Public Safety Members

- Early retirement at age 55 with 15 years of service or age 50 with 25 years of service

#### Benefit

If the participant has 25 years of credited service, the benefit is reduced 1/2% for each month age is less than 55. If the participant has less than 25 years of credited service, the benefit is reduced 1/2% for each month age is less than 60.

### Disability Retirement

#### Eligibility

3 years of credited service for in line-of-duty; 7 years of credited service for other than in line-of-duty.

#### Benefit

30% of participants' monthly rate of compensation as of the date of disability.

### Late Retirement Benefit

#### Eligibility

Retirement after eligibility for normal retirement.

#### Benefit

Normal retirement benefit based on average monthly salary and service at actual date of retirement.

## Schedule F - Summary of the Main Benefit and Contribution Provisions (continued)

### Deferred Vested Benefit

#### Eligibility – Hired Before 1/1/2016

7 years of credited service.

#### Eligibility – Hired On or After 1/1/2016

10 years of credited service.

#### Benefit

100% of accrued benefit commencing at normal retirement age. If the member has 15 years of credited service, he may receive a reduced benefit commencing at early retirement age.

### Pre-Retirement Death Benefit

#### In Line-of-Duty

##### Eligibility

Participation in the Plan.

##### Benefit

Survivor portion of the 50% Joint and Survivor benefit payable immediately (unreduced for early commencement) if married. If not married, payments are unreduced and paid for 60 months.

#### Other than Line-of-Duty

##### Eligibility

7 years of service.

##### Benefit

Same as in line-of-duty benefit if greater than age 50. If under age 50, 50% of the deferred vested benefit reduced for early retirement payable at early retirement date if married. If not married, the benefit reduced for early retirement is paid for 60 months starting at early retirement age.

### Excess Benefits for Water Authority

#### Participants Only

Benefits in excess of the Internal Revenue Code 415 (m) limits are funded by the Water Authority as the benefits become payable but are not included in the valuation.

### Normal Form of Payment

5 years certain and life annuity.

### Optional Forms of Payment

- 100%, 75%, or 50% joint and survivor annuity.
- Life annuity with 120 months certain

## Schedule F - Summary of the Main Benefit and Contribution Provisions (continued)

### Participant Contributions

Each participant contributes 7.5% of compensation beginning July 1, 2015. Contribution rate from July 1, 2006 through June 30, 2014 was 5.5% of compensation. Contribution rate from August 8, 1998 through June 30, 2006 was 3.5% of compensation and for July 1, 1995 through August 7, 1998 was 2.0% of compensation. If a participant terminates employment before meeting the requirements for any of the above benefits, he is entitled to receive a return of his contributions with 5% interest.

Any participant or beneficiary may elect to receive a refund of contributions with interest in lieu of any other benefit payable under the Plan.

Participant contributions are "picked-up" by the County (i.e., taken out of pre-tax income).

## Schedule F - Summary of the Main Benefit and Contribution Provisions (continued)

### Historical Provision Changes

#### Effective 7/1/2016

For new members hired after January 1, 2016:

- 10 year vesting
- Final average compensation based on final 5 years of service
- Discretionary, ad-hoc COLA
- Change in normal and early retirement eligibility:

#### General Members

- Early retirement at age 60 with 15 years of service or age 55 with 25 years of service
- Normal retirement at age 62 with 10 years of service

#### Public Safety Members

- Early retirement at age 55 with 15 years of service or age 50 with 25 years of service
- Normal retirement at age 60 with 10 years of service or 55 with 25 years of service

#### Effective 7/1/2015

The County and Water Authority contribution rate was increased to 13.9% from 12.9%.

The participant contribution rate was increased from 5.5% to 7.5%.

For employees hired on or after January 1, 2016 a new tier of benefits will apply.

#### Effective 7/1/2012

State Court Law Clerks are now eligible to participate in the Plan.

#### Effective 7/1/2008

Eliminated the 60 month certain and 114 month certain optional forms of payment for annuity starting dates after December 31, 2008.

#### Effective 7/1/2007

Adjusted accrued benefits of three people as of their normal retirement age.

#### Effective 7/1/2006

Added an annual 2.0% cost of living increase effective beginning July 1, 2009 for those who have received their 84th monthly benefit payment prior to July 1.

Increased participant contributions from 3.5% to 5.5%.

Granted a one-time 4.0% benefit increase to current participants, spouses and beneficiaries who were receiving benefits as of January 1, 2001.

Added a minimum monthly allowance of \$300 (after the above benefit increases) to any participant, spouse or beneficiary receiving benefits as of July 1, 2006.

Added an Excess Benefit Arrangement providing benefits in excess of IRS Code Sec. 415 for Water Authority employees funded entirely and separately by the Water Authority.

## Schedule F - Summary of the Main Benefit and Contribution Provisions (continued)

### Effective 7/1/2005

Added the 60 month certain and 114 month certain optional forms of payment.

### Effective 7/1/2003

The County and Water Authority contribution rate was increased to 12.9% from 12.4% and it is now applied to compensation under the plan rather than total compensation.

The definition of compensation excludes certain forms of premium pay.

The compensation limit has been increased to \$200,000.

The mortality table used to convert benefits to optional forms of payment has been changed to the table prescribed under Revenue Ruling 2001-62.

The Social Security Leveling Option has been removed as an optional form of payment.

The normal form of payment for persons receiving disability payments has been changed from a life annuity to a life annuity with 60 months guaranteed. Upon death, payments to beneficiaries will continue according to the election chosen for the disability payments.

The method for computing final average earnings was clarified.

The basis for actuarial equivalence for maximum benefit limit purposes has been changed.

### Effective 7/1/2001

Normal Retirement Age for non-Safety Personnel was amended from age 65 with 5 years of credited service to age 60 with 7 years of credited service.

For Safety Personnel hired after 6/1/2001, 7 years of credited service is required for Normal Retirement.

Funding rate increased from 12.15% to 12.40%.

The pre-Retirement Death Benefit was changed from 50% of the Normal Fund Payment as if employment continued to normal retirement to the survivor portion of the 50% Joint and Survivor benefit (unreduced for early commencement). If the participant is single, the Normal Fund Payment is paid as a 5-year certain only benefit.

## Schedule G - Member Statistics

|  | June 30, 2016 |
|--|---------------|
| Active members                         |               |
| Number                                 | 2,470         |
| Average age                            | 42.02         |
| Average service                        | 8.47          |
| Terminated vested members              |               |
| Number                                 | 287           |
| Average age                            | 51.90         |
| Average annual retirement benefits     | \$ 11,772     |
| Retired members                        |               |
| Number                                 | 1041          |
| Average age                            | 67.60         |
| Average annual retirement benefits     | \$ 29,351     |
| Disabled members                       |               |
| Number                                 | 69            |
| Average age                            | 61.62         |
| Average annual retirement benefits     | \$ 18,172     |
| Survivors and beneficiaries of members |               |
| Number                                 | 125           |
| Average age                            | 66.52         |
| Average annual retirement benefits     | \$ 16,129     |
| Total Number of Members                | 3,992         |

## Schedule G - Member Statistics (continued)

### Age Service Table (all Active Participants)

| Attained Age       | Completed Years of Service |            |            |            |            |            |            |           |          |          | Total        |
|--------------------|----------------------------|------------|------------|------------|------------|------------|------------|-----------|----------|----------|--------------|
|                    | Under 1                    | 1 to 4     | 5 to 9     | 10 to 14   | 15 to 19   | 20 to 24   | 25 to 29   | 30 to 34  | 35 to 39 | 40 & up  |              |
| <b>Under 25</b>    | <b>63</b>                  | <b>60</b>  | <b>1</b>   | <b>0</b>   | <b>0</b>   | <b>0</b>   | <b>0</b>   | <b>0</b>  | <b>0</b> | <b>0</b> | <b>124</b>   |
| Avg. Pay           | 36,276                     | 38,342     | *          | 0          | 0          | 0          | 0          | 0         | 0        | 0        | 37,327       |
| <b>25 to 29</b>    | <b>89</b>                  | <b>190</b> | <b>56</b>  | <b>1</b>   | <b>0</b>   | <b>0</b>   | <b>0</b>   | <b>0</b>  | <b>0</b> | <b>0</b> | <b>336</b>   |
| Avg. Pay           | 36,378                     | 38,415     | 44,092     | *          | 0          | 0          | 0          | 0         | 0        | 0        | 38,862       |
| <b>30 to 34</b>    | <b>58</b>                  | <b>148</b> | <b>95</b>  | <b>41</b>  | <b>3</b>   | <b>0</b>   | <b>0</b>   | <b>0</b>  | <b>0</b> | <b>0</b> | <b>345</b>   |
| Avg. Pay           | 38,302                     | 39,655     | 46,525     | 46,699     | *          | 0          | 0          | 0         | 0        | 0        | 42,343       |
| <b>35 to 39</b>    | <b>32</b>                  | <b>100</b> | <b>80</b>  | <b>62</b>  | <b>31</b>  | <b>0</b>   | <b>0</b>   | <b>0</b>  | <b>0</b> | <b>0</b> | <b>305</b>   |
| Avg. Pay           | 48,036                     | 43,259     | 42,924     | 48,653     | 53,891     | 0          | 0          | 0         | 0        | 0        | 45,849       |
| <b>40 to 44</b>    | <b>29</b>                  | <b>73</b>  | <b>70</b>  | <b>55</b>  | <b>58</b>  | <b>17</b>  | <b>0</b>   | <b>0</b>  | <b>0</b> | <b>0</b> | <b>302</b>   |
| Avg. Pay           | 46,658                     | 40,320     | 49,611     | 46,109     | 59,206     | *          | 0          | 0         | 0        | 0        | 49,028       |
| <b>45 to 49</b>    | <b>7</b>                   | <b>73</b>  | <b>96</b>  | <b>43</b>  | <b>62</b>  | <b>39</b>  | <b>41</b>  | <b>3</b>  | <b>0</b> | <b>0</b> | <b>364</b>   |
| Avg. Pay           | *                          | 40,313     | 44,919     | 42,055     | 59,509     | 67,473     | 69,944     | *         | 0        | 0        | 51,607       |
| <b>50 to 54</b>    | <b>14</b>                  | <b>62</b>  | <b>64</b>  | <b>32</b>  | <b>37</b>  | <b>35</b>  | <b>66</b>  | <b>17</b> | <b>0</b> | <b>0</b> | <b>327</b>   |
| Avg. Pay           | *                          | 40,777     | 43,286     | 42,331     | 57,030     | 66,175     | 76,035     | *         | 0        | 0        | 54,575       |
| <b>55 to 59</b>    | <b>13</b>                  | <b>51</b>  | <b>48</b>  | <b>49</b>  | <b>33</b>  | <b>14</b>  | <b>10</b>  | <b>1</b>  | <b>2</b> | <b>0</b> | <b>221</b>   |
| Avg. Pay           | *                          | 42,735     | 44,527     | 41,439     | 50,446     | *          | *          | *         | *        | 0        | 45,905       |
| <b>60 to 64</b>    | <b>3</b>                   | <b>17</b>  | <b>22</b>  | <b>28</b>  | <b>21</b>  | <b>7</b>   | <b>8</b>   | <b>1</b>  | <b>0</b> | <b>0</b> | <b>107</b>   |
| Avg. Pay           | *                          | *          | 34,323     | 40,074     | 51,198     | *          | *          | *         | 0        | 0        | 44,667       |
| <b>65 to 69</b>    | <b>0</b>                   | <b>4</b>   | <b>16</b>  | <b>9</b>   | <b>4</b>   | <b>0</b>   | <b>0</b>   | <b>0</b>  | <b>0</b> | <b>1</b> | <b>34</b>    |
| Avg. Pay           | 0                          | *          | *          | *          | *          | 0          | 0          | 0         | 0        | *        | 39,944       |
| <b>70 &amp; up</b> | <b>0</b>                   | <b>1</b>   | <b>3</b>   | <b>0</b>   | <b>1</b>   | <b>0</b>   | <b>0</b>   | <b>0</b>  | <b>0</b> | <b>0</b> | <b>5</b>     |
| Avg. Pay           | 0                          | *          | *          | 0          | *          | 0          | 0          | 0         | 0        | 0        | *            |
| <b>Total</b>       | <b>308</b>                 | <b>779</b> | <b>551</b> | <b>320</b> | <b>250</b> | <b>112</b> | <b>125</b> | <b>22</b> | <b>2</b> | <b>1</b> | <b>2,470</b> |
| Avg. Annual Pay    | 38,885                     | 40,328     | 44,564     | 44,344     | 56,120     | 65,879     | 71,750     | 70,444    | *        | *        | 46,230       |

\*pay information for cells with less than 20 employees have not been disclosed.