

Oklahoma Firefighters Pension and Retirement System

Actuarial Valuation Report
as of July 1, 2014



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Purpose

This report has been prepared by Buck Consultants, LLC, for the Oklahoma Firefighters Retirement Board to:

- Present the results of a valuation of the Oklahoma Firefighters Pension and Retirement System as of July 1, 2014;
- Review experience under the Plan for the year ended June 30, 2014; and
- Provide reporting and disclosure information for auditors' reports, governmental agencies and other interested parties.

The main financial highlights are:

- The funded status of the Plan has increased since the prior valuation as indicated by the table below:

| Funded Status (\$000,000) | July 1, 2014 | July 1, 2013 |
|----------------------------|--------------|--------------|
| Accrued Liability | \$ 3,225.5 | \$ 3,081.9 |
| Actuarial Value of Assets | \$ 2,001.8 | \$ 1,811.7 |
| Unfunded Accrued Liability | \$ 1,223.7 | \$ 1,270.2 |
| Funded Ratio | 62.1% | 58.8% |

- The total required contribution for the System decreased by 9.6% and the required State contribution decreased by 17.4%. The decrease was due mainly to changing the funding policy to amortize the Unfunded Accrued Liability over 30 years from July 1, 2014. The prior policy was to amortize the Unfunded Accrued Liability over 30 years from July 1, 2003.

| Contribution Summary (\$000,000) | July 1, 2014 | July 1, 2013 |
|-------------------------------------|--------------|--------------|
| Total Required Contribution | \$ 166.4 | \$ 184.1 |
| Expected Employee Contributions | (23.9) | (22.0) |
| Expected Municipality Contributions | (38.1) | (35.6) |
| Required State Contribution | \$ 104.4 | \$ 126.5 |
| --As a Percentage of Total Payroll | 39.3% | 49.8% |

Summary of Principal Valuation Results

A summary of principal results from the current valuation and the prior valuation follows. Any changes in actuarial assumptions, methods or Plan provisions between the two valuations are described in the section titled "Effects of Changes."

| | Actuarial Valuation as of | |
|---|---------------------------|----------------|
| | July 1, 2014 | July 1, 2013 |
| Summary of Costs | | |
| Total Contribution Requirement ⁽¹⁾ | \$ 166,394,630 | \$ 184,112,744 |
| Total Contributions Received in Prior Year ⁽²⁾ | \$ 137,706,693 | \$ 130,788,115 |

| Funded Status | | |
|--------------------------------------|------------------|------------------|
| Actuarial Accrued Liability | \$ 3,225,452,386 | \$ 3,081,898,361 |
| Actuarial Value of Assets | \$ 2,001,779,620 | \$ 1,811,650,751 |
| Unfunded Actuarial Accrued Liability | \$ 1,223,672,766 | \$ 1,270,247,610 |

| Market Value of Assets and Additional Liabilities | | |
|--|------------------|------------------|
| Market Value of Assets | \$ 2,197,104,543 | \$ 1,899,098,749 |
| Present Value of Projected Plan Benefits | \$ 3,882,376,325 | \$ 3,706,924,813 |

| Summary of Data | | |
|---|---------------|---------------|
| Number of Vested Members in Valuation | | |
| Active Paid Members | 2,280 | 2,270 |
| Active Volunteer Members | 2,666 | 2,658 |
| Deferred Option Plan Members | 77 | 84 |
| Members with Deferred Benefits | 1,390 | 1,356 |
| Members Receiving Benefits | 6,167 | 6,064 |
| Beneficiaries | 2,022 | 1,989 |
| Disabled Members | 1,831 | 1,815 |
| Total Vested Members | 16,433 | 16,236 |
| Number of Non-Vested Members in Valuation | | |
| Active Paid Members | 1,886 | 1,866 |
| Active Volunteer Members | 5,604 | 5,598 |
| Total Non-Vested Members | 7,490 | 7,464 |
| Total Members | 23,923 | 23,700 |

| Active Member Statistics | | |
|---|----------------|----------------|
| Total Annual Compensation (Paid Members) ⁽³⁾ | \$ 265,551,993 | \$ 253,955,389 |
| Average Compensation (Paid Members) ⁽³⁾ | \$ 63,743 | \$ 61,401 |
| Average Age | 38.6 | 38.5 |
| Average Service | 9.4 | 9.3 |

⁽¹⁾ Excluding Deferred Option Plan Contributions.

⁽²⁾ For the fiscal year beginning July 1, 2006, the System is scheduled to receive 34% of collected state-wide insurance premium taxes; beginning November 1, 2013, the System is scheduled to receive 36% of collected state-wide insurance premium taxes.

⁽³⁾ Compensation is projected one year based on the salary increase assumptions

Effects of Changes

Legislative Changes

SB 2024 changed the amortization period from 30 years beginning July 1, 2003, to 30 years beginning July 1, 2014. The result was a decrease in the Total Required Contribution of about \$18.6 million.

Changes in Actuarial Assumptions

There have been no changes to assumptions from those used in the prior valuation. See Section 3.2 for a description of the assumptions and methods used for the July 1, 2014 valuation.

Changes in Actuarial Funding Methods

There were no changes in actuarial funding methods from the previous valuation.

As noted last year, HB 2078 increased the amount of gross salary contributed by paid firefighters from 8% to 9%, effective November 1, 2013. In addition, the bill increased the amount of gross salary contributed by municipalities and fire districts from 13% to 14%, effective November 1, 2013. These increases were reflected in the calculation of the Required State Contribution.

The bill also increased the portion of statewide insurance premium tax allocated to the System from 34% to 36%, effective November 1, 2013.

Changes in System Benefits

There have been no changes in plan provisions or system benefits with an actuarial impact from those reflected in the previous valuation. As noted last year, HB 2078 and SB 1101 made certain changes to the benefits of members hired on or after November 1, 2013, including the following:

- Increased the eligibility to retire to age 50 with 22 years of service
- Increased the eligibility for a vested benefit to 11 years
- Changed the interest earned on DROP accounts to be the rate earned by System assets, less one percentage point, once the member has left active DROP

These benefit provisions were reflected for members hired on or after November 1, 2013, in this valuation. See Section 4.3 for a description of the plan provisions used for the July 1, 2014 valuation.

Actuarial experience during the plan year

The actuarial gain/(loss) is shown in the table below:

| | Total (000s) |
|----------------------------------|------------------|
| Liability Gain/(Loss) | \$ (28,947) |
| Asset Gain/(Loss) | 93,236 |
| Net Actuarial Gain/(Loss) | \$ 64,289 |

Deferred Option Plan

The Oklahoma Firefighters Deferred Option Plan (DROP) allows members eligible for a Normal Retirement Benefit to defer the receipt of retirement benefits while continuing employment. Participation in the Deferred Option Plan is limited to five years. During this time, the members' contributions stop, but the employer contributes half of the regular contribution on base salary to the Firefighters Pension and Retirement System and the other half to the members' accounts in the Deferred Option Plan equal to the retirement benefit accrued under the Plan. After the period of active participation, members must separate from active service as a firefighter and retire. After retirement, however, members may remain as inactive members in this plan and defer receipt of the account balance until payments are required under the minimum distribution rules. The DROP was modified effective July 1, 2003, to allow eligible members to retroactively elect to enter DROP as of a back-drop-date upon termination. The monthly retirement benefits and member contributions that would have been payable had the member elected to enter DROP are credited to the employee's account in the DROP.

For members hired before November 1, 2013, the Deferred Option Plan accounts are credited with interest at a rate of 2.0% less than the total fund growth, with a guaranteed minimum interest rate equal to the valuation interest rate of 7.5%. For members hired on or after November 1, 2013, the Deferred Option Plan accounts are credited with the same rate as above while in active DROP and 1.0% less than the total fund growth after they leave active DROP. The actual rate credited for the fiscal year ended June 30, 2014 was 15.89%.

Statistics regarding the number of Deferred Option Plan members and total account balances are shown in the table below:

| DROP Statistics | July 1, 2014 | July 1, 2013 |
|--|----------------|----------------|
| Number of Members | | |
| Active | 77 | 84 |
| Inactive | 1,958 | 1,852 |
| Total | 2,035 | 1,936 |
| Account Balances | \$ 548,217,780 | \$ 472,994,792 |
| Annual Retirement Benefits of Active Members | \$ 3,042,084 | \$ 3,030,612 |

GASB 67 and 68

Plan sponsors will be transitioning to new financial statement disclosure requirements which are set forth in GASB Statement 67 (for plans' financial statements) and GASB Statement 68 (for plan sponsors' financial statements) over this year and next year.

Information calculated in accordance with GASB Statement 67 will be provided separately for this plan in a supplement to this report.

Actuarial Certification

This valuation is based on employee and financial data which were provided by the Oklahoma Firefighters Pension and Retirement System and the independent auditor, respectively, and which are summarized in this report.

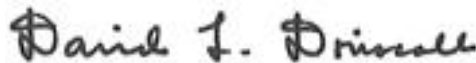
Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. An analysis of the potential range of such future differences is beyond the scope of this report.

Use of this report for any other purposes or by anyone other than the Oklahoma Firefighters Pension and Retirement System and its auditors may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. No one may make any representations or warranties based on any statements or conclusions contained in this report without Buck Consultants' prior written consent.

We are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained in this report. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions about it.



David Kent, FSA, EA, MAAA
Director, Consulting Actuary



David L. Driscoll, FSA, EA, MAAA, FCA
Principal, Consulting Actuary

DK:MW
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Section 1 Funding Results

| | |
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| Section 1.1 | Calculation of Contribution Requirement |
| Section 1.2 | Liability Detail |
| Section 1.3 | Unfunded Actuarial Accrued Liability |
| Section 1.4 | Actuarial Gain/(Loss) |
| Section 1.5 | Contributions |
| Section 1.6 | Ten-Year Projected Cash Flow |

1.1 Calculation of Contribution Requirement

| Summary of Contribution Requirements | Actuarial Valuation as of | | | |
|---|---------------------------|---------------------------|-----------------|---------------------------|
| | July 1, 2014 | | July 1, 2013 | |
| | Amount | % of Active Covered Comp. | Amount | % of Active Covered Comp. |
| 1. Annual Compensation | | | | |
| a. Members included in Valuation (Covered Compensation) | \$ 265,551,993 | | \$ 253,955,389 | |
| b. Deferred Option Plan Members | 6,020,346 | | 5,882,776 | |
| c. Total Compensation | 271,572,339 | | 259,838,165 | |
| 2. Total Normal Cost Mid-year | \$ 63,446,631 | 23.9% | \$ 60,948,200 | 24.0% |
| 3. Unfunded Actuarial Accrued Liability | \$1,223,672,766 | | \$1,270,247,610 | |
| 4. Amortization of Unfunded Actuarial Accrued Liability over 30 years from July 1, 2014 Mid-year ⁽¹⁾ | \$ 99,930,247 | 37.6% | \$ 120,176,235 | 47.3% |
| 5. Budgeted Expenses | \$ 3,017,752 | 1.1% | \$ 2,988,309 | 1.2% |
| 6. Total Required Contribution (2 + 4 + 5) | \$ 166,394,630 | 62.7% | \$ 184,112,744 | 72.5% |
| 7. Estimated Member Contribution | \$ 23,899,679 | 9.0% | \$ 22,009,467 | 8.7% |
| 8. Estimated Employer Contribution | | | | |
| a. Active Members – Paid | \$ 37,177,279 | 14.0% | \$ 34,707,236 | 13.7% |
| b. Deferred Option Plan Members – Paid | 421,424 | 7.0% ⁽²⁾ | 401,990 | 6.8% ⁽²⁾ |
| c. Active Members - Volunteer | 496,200 | | 495,360 | |
| d. Deferred Option Plan Members – Volunteer | 270 | | 450 | |
| e. Total | \$ 38,095,173 | 14.0% ⁽³⁾ | \$ 35,605,036 | 13.7% ⁽³⁾ |
| 9. Required State Contribution to amortize Unfunded Actuarial Accrued Liability over 30 years from July 1, 2014 at Mid-year. (6 - 7 - 8e) | \$ 104,399,778 | 39.3% | \$ 126,498,241 | 49.8% |
| 10. Previous year's actual State Contribution ⁽⁴⁾ | \$ 79,545,329 | 30.0% | \$ 76,310,725 | 30.0% |

⁽¹⁾ Funding Policy adopted by Board. The policy is to amortize the Unfunded Actuarial Accrued Liability over 30 years from July 1, 2003 for the July 1, 2013 valuation.

⁽²⁾ Percentage of Deferred Option Plan Compensation.

⁽³⁾ Percent of Total Compensation.

⁽⁴⁾ The System is scheduled to receive 34% of collected state-wide insurance premium taxes. Beginning November 1, 2013, the System is scheduled to receive 36% of collected state-wide insurance premium taxes.

1.1 Calculation of Contribution Requirement (continued)

| Allocation of contribution requirements | July 1, 2014 | | |
|---|------------------|---------------|------------------|
| | Paid | Volunteer | Total |
| 1. Total normal cost mid-year | \$ 61,040,819 | \$ 2,405,812 | \$ 63,446,631 |
| 2. Unfunded actuarial accrued liability ⁽¹⁾ | \$ 1,156,024,735 | \$ 67,648,031 | \$ 1,223,672,766 |
| 3. Amortization of unfunded actuarial accrued liability over 30 years from July 1, 2014 mid-year ⁽²⁾ | \$ 94,405,825 | \$ 5,524,422 | \$ 99,930,247 |
| 4. Budgeted expenses ⁽³⁾ | \$ 2,850,922 | \$ 166,830 | \$ 3,017,752 |
| 5. Total required contribution (1 + 3 + 4) | \$ 158,297,566 | \$ 8,097,064 | \$ 166,394,630 |
| 6. Estimated member contribution | \$ 23,899,679 | \$ 0 | \$ 23,899,679 |
| 7. Estimated employer contribution | \$ 37,598,703 | \$ 496,470 | \$ 38,095,173 |
| 8. Required state contribution to amortize unfunded actuarial accrued liability over 30 years from July 1, 2014 at mid-year (5 - 6 - 7) | \$ 96,799,184 | \$ 7,600,594 | \$ 104,399,778 |

⁽¹⁾ See Section 1.3 for allocation.

⁽²⁾ Funding Policy Adopted by Board.

⁽³⁾ Allocation based on total Actuarial Accrued Liability.

1.2 Liability Detail

| Total | |
|---|------------------|
| Present Value of Benefits | \$ 3,882,376,325 |
| Present Value of Future Normal Costs | \$ 656,923,939 |
| Accrued Liability | \$ 3,225,452,386 |
| Normal Cost Mid-Year | \$ 63,446,631 |

| Active Accrued Liability | |
|--------------------------|------------------|
| a. Retirement | \$ 1,044,375,462 |
| b. Withdrawal | 6,124,357 |
| c. Disability | 215,553 |
| d. Death | 12,103,857 |
| e. Total | \$ 1,062,819,229 |

| Inactive Accrued Liability | |
|--|-------------------------|
| 1. Members eligible for automatic COLA | |
| A. Disabled members | \$ 50,919,925 |
| B. Beneficiaries | 90,598,900 |
| C. Retired members | 86,693,273 |
| D. Total | \$ 228,212,098 |
| 2. Members not eligible for automatic COLA | |
| A. Terminated vested members | 29,419,522 |
| B. Disabled members | 468,321,450 |
| C. Beneficiaries | 122,032,223 |
| D. Retired members | 654,730,232 |
| E. Deferred option plan members - annuity | 38,801,342 |
| F. Deferred option plan members - account balances | 621,116,290 |
| G. Total | \$ 1,934,421,059 |
| 3. Total inactive (1d + 2g) | \$ 2,162,633,157 |
| Accrued Liability (Active + Inactive) | \$ 3,225,452,386 |

1.3 Unfunded Actuarial Accrued Liability

The actuarial accrued liability is the present value of projected Plan Benefits allocated to past service by the actuarial funding method being used.

| | Total Plan | |
|---|------------------|------------------|
| | July 1, 2014 | July 1, 2013 |
| 1. Actuarial Present Value Of Benefits | | |
| a. Active Members | \$ 1,719,743,168 | \$ 1,655,661,627 |
| b. Members With Deferred Benefits | 29,419,522 | 28,831,800 |
| c. Members Receiving Benefits Who Are Eligible For Automatic Cola | 228,212,098 | 241,681,506 |
| d. Members Receiving Benefits Who Are Not Eligible For Automatic Cola | 1,245,083,905 | 1,206,222,128 |
| e. Deferred Option Plan Members ⁽¹⁾ | 659,917,632 | 574,527,722 |
| f. Total | 3,882,376,325 | 3,706,924,813 |
| 2. Actuarial Present Value Of Future Normal Costs | \$ 656,923,939 | \$ 625,026,452 |
| 3. Total Actuarial Accrued Liability (1f - 2) | \$ 3,225,452,386 | \$ 3,081,898,361 |
| 4. Actuarial Value of Assets | \$ 2,001,779,620 | \$ 1,811,650,751 |
| 5. Unfunded Actuarial Accrued Liability (3 - 4, Not Less Than \$0) | \$ 1,223,672,766 | \$ 1,270,247,610 |

Allocation of current year between paid and volunteer:

| | Total Plan | | |
|---|------------------|----------------|------------------|
| | Paid | Volunteer | Total |
| 1. Actuarial present value of benefits | | | |
| a. Active members | \$ 1,655,097,035 | \$ 64,646,133 | \$ 1,719,743,168 |
| b. Members with deferred benefits | 7,615,187 | 21,804,335 | 29,419,522 |
| c. Members receiving benefits who are eligible for automatic cola | 228,212,098 | 0 | 228,212,098 |
| d. Members receiving benefits who are not eligible for automatic cola | 1,139,158,040 | 105,925,865 | 1,245,083,905 |
| e. Deferred option plan members ⁽¹⁾ | 659,708,536 | 209,096 | 659,917,632 |
| f. Total | \$ 3,689,790,896 | \$ 192,585,429 | \$ 3,882,376,325 |
| 2. Actuarial present value of future normal costs | \$ 642,650,482 | \$ 14,273,457 | \$ 656,923,939 |
| 3. Total actuarial accrued liability (1f - 2) | \$ 3,047,140,414 | \$ 178,311,972 | \$ 3,225,452,386 |
| 4. Actuarial value of assets ⁽²⁾ | \$ 1,891,115,679 | \$ 110,663,941 | \$ 2,001,779,620 |
| 5. Unfunded actuarial accrued liability (3 - 4, not less than \$0) | \$ 1,156,024,735 | \$ 67,648,031 | \$ 1,223,672,766 |

⁽¹⁾ Effective July 1, 1997, deferred option account balances are included as liability and assets and effective July 1, 2013, the guarantee for the interest rate credited to the account balances is included in the liability. The total account balance on July 1, 2014, is \$548,217,780 and the balance used on July 1, 2013, is \$472,994,792.

⁽²⁾ Allocated based on total actuarial accrued liability (item 3)

1.4 Actuarial Gain/(Loss)

The actuarial gain/(loss) is comprised of both the liability gain/(loss) and the actuarial asset gain/(loss). Each of these represents the difference between the expected and actual values as of July 1, 2014.

| | |
|---|------------------|
| 1. Expected actuarial accrued liability | |
| a. Actuarial accrued liability at July 1, 2013 | \$ 3,081,898,361 |
| b. Normal cost at July 1, 2013 | 58,783,664 |
| c. Reserve for drop interest rate guarantee and drop contribution at mid-year | 0 |
| d. Benefit payments for plan year ending June 30, 2014 | 173,344,947 |
| e. Interest on a + b + c - d to end of year | 229,168,233 |
| f. Impact of assumption change | 0 |
| g. Plan changes | 0 |
| h. Expected actuarial accrued liability at July 1, 2014 (a + b + c - d + e + f +g) | 3,196,505,311 |
| 2. Actuarial accrued liability at July 1, 2014 | 3,225,452,386 |
| 3. Actuarial liability gain/(loss) (1h - 2) | (28,947,075) |
| 4. Expected actuarial value of assets | |
| a. Actuarial value of assets at July 1, 2013 | 1,811,650,751 |
| b. Contributions made for plan year ending June 30, 2014 | 137,706,693 |
| c. Benefit payments and expenses for plan year ending June 30, 2014 | 175,303,048 |
| d. Interest on a + b - c to end of year | 134,489,431 |
| e. Expected actuarial value of assets at July 1, 2014 (a + b - c + d) | 1,908,543,827 |
| 5. Actuarial value of assets as of July 1, 2014 | \$ 2,001,779,620 |
| 6. Actuarial asset gain/(loss) (5-4e) | \$ 93,235,793 |
| 7. Actuarial gain/(loss) (3+6) | \$ 64,288,718 |

1.5 Contributions

Contributions to the Retirement System are made by the Members, municipalities, fire districts, and the State of Oklahoma.

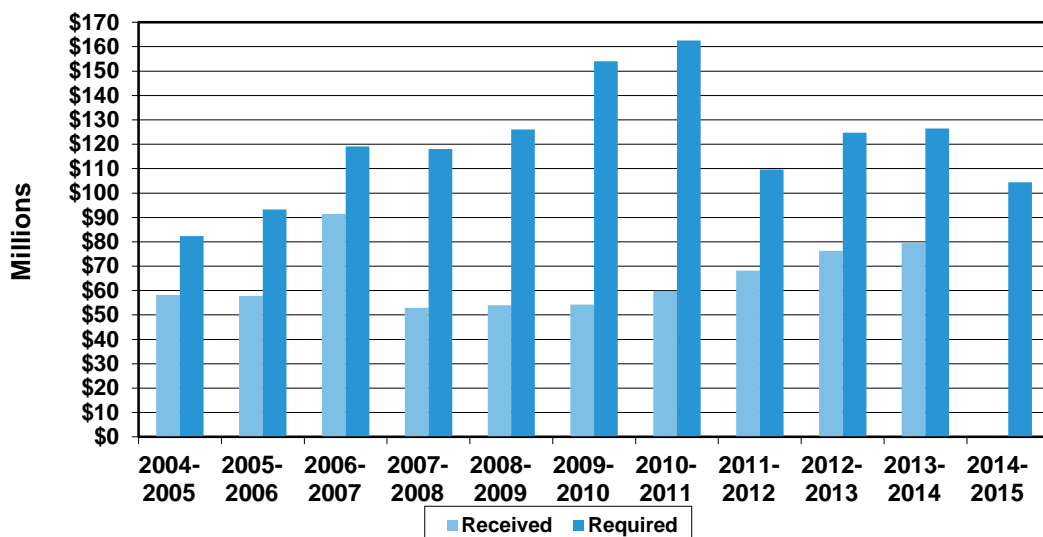
Historically, paid firefighters have contributed 8% of gross salary. Beginning November 1, 2013, the contribution rate for paid firefighters increased to 9%. Historically, municipalities and fire districts have contributed 13% of gross salary. Beginning November 1, 2013, the contribution rate for municipalities and fire districts increased to 14%.

For the fiscal year ending June 30, 2014, the fund received a contribution of \$79,545,329 from the State. The Retirement System received 34% of collected statewide insurance premium taxes until November 1, 2013. Beginning November 1, 2013, the System began receiving 36% of collected statewide insurance premium taxes

Volunteer firefighters do not contribute to the fund. Municipalities and fire districts that are not exempt contribute \$60 per year per active volunteer.

The Deferred Option Plan Members do not make employee contributions to the Fund. However, municipalities continue contributing for them, with 50% of the contribution going to the Retirement System fund and 50% going into the Deferred Option account. Contributions for members who retroactively elect to enter the Deferred Option Plan as of a back-drop-date are also deposited into the Deferred Option account.

**State contributions received versus
Contributions required by 30-year
Funding Policy ⁽¹⁾**



⁽¹⁾ 30-year amortization period was reset for plan year ending June 30, 2015 (SB 2024) to start at July 1, 2014. Prior to that time, the amortization period was 30 years from July 1, 2003.

1.6 Ten-Year Projected Cash Flow

(Retirement Benefit Payments)

| Plan Year Ending | Actives | Retirees ⁽¹⁾ | Total |
|------------------|------------|-------------------------|-------------|
| 6/30/2015 | 5,077,383 | 201,156,334 | 206,233,717 |
| 6/30/2016 | 12,575,347 | 206,261,023 | 218,836,370 |
| 6/30/2017 | 20,162,235 | 211,668,536 | 231,830,771 |
| 6/30/2018 | 28,180,130 | 217,637,367 | 245,817,497 |
| 6/30/2019 | 36,374,432 | 224,145,075 | 260,519,507 |
| 6/30/2020 | 45,646,748 | 231,240,172 | 276,886,920 |
| 6/30/2021 | 55,041,846 | 239,022,573 | 294,064,419 |
| 6/30/2022 | 64,760,542 | 247,644,374 | 312,404,916 |
| 6/30/2023 | 74,918,243 | 257,201,429 | 332,119,672 |
| 6/30/2024 | 85,984,088 | 267,773,571 | 353,757,659 |

⁽¹⁾ Includes Deferred Option Plan Members, Disabled Members, Beneficiaries and Terminated Vested Members and current Deferred Option Plan Accounts.

Section 2 Plan Assets

| | |
|--------------------|---|
| Section 2.1 | Summary of Assets |
| Section 2.2 | Reconciliation of Assets |
| Section 2.3 | Actuarial Value of Assets |
| Section 2.4 | Average Annual Rates of Investment Return |

2.1 Summary of Assets ⁽¹⁾

| Asset Category | Market Value as of June 30, 2014 | Market Value as of June 30, 2013 ⁽²⁾ |
|------------------------------------|-------------------------------------|--|
| | Amount | Amount |
| 1. Cash and short-term investments | \$ 40,394,823 | \$ 49,485,679 |
| 2. Receivables | \$ 89,140,129 | \$ 22,603,035 |
| 3. Investments at fair value | | |
| a. Government bonds | \$ 0 | \$ 176,811,724 |
| b. Foreign government bonds | 45,509,701 | 37,322,459 |
| c. U.S. treasury | 12,662,086 | 17,205,604 |
| d. International securities | 82,647,856 | 73,795,193 |
| e. Corporate bonds | 3,077,856 | 10,603,954 |
| f. International corporate bonds | 0 | 0 |
| g. Common stock | 1,448,479,877 | 1,128,264,962 |
| h. Foreign stock | 114,982,941 | 114,688,191 |
| i. mortgage-backed securities | 49,931,465 | 18,177,034 |
| j. Municipal bonds | 1,733,871 | 1,518,931 |
| k. Limited partnerships | 312,870,040 | 250,912,788 |
| l. Securities lending | 144,543,920 | 137,834,828 |
| m. Total | \$ 2,216,439,613 | \$ 1,967,135,668 |
| 4. Assets used in plan operations | \$ 29,223 | \$ 35,994 |
| 5. Total assets | \$ 2,346,003,788 | \$ 2,039,260,376 |
| 6. Liabilities | \$ (148,899,245) | \$ (140,161,627) |
| 7. Net assets for pension benefits | \$ 2,197,104,543 | \$ 1,899,098,749 |

(1) Deferred option plan assets are included in the valuation assets. The value of these assets on July 1, 2013, was \$472,994,792 and the value on July 1, 2014, was \$548,217,780.

(2) June 30, 2013 assets were reclassified into different categories. This reclassification has not been reflected for July 1, 2013 results in this report.

2.2 Reconciliation of Assets

| Transactions | June 30, 2014 | June 30, 2013 |
|--|------------------|------------------|
| Additions | | |
| 1. Contributions | | |
| a. Contributions from employers | \$ 36,103,860 | \$ 34,286,563 |
| b. Contributions from plan members | 22,057,504 | 20,190,827 |
| c. Insurance premium tax | 79,545,329 | 76,310,725 |
| d. Legislative appropriation | 0 | 0 |
| e. Total | \$ 137,706,693 | \$ 130,788,115 |
| 2. Net investment income | \$ 335,602,149 | \$ 230,064,460 |
| 3. Total additions | \$ 473,308,842 | \$ 360,852,575 |
| Deductions | | |
| 4. Benefit payments | \$ (173,344,947) | \$ (168,983,642) |
| 5. Administrative expenses | (1,958,101) | (2,005,153) |
| 6. Adjustment | 0 | 0 |
| 7. Total deductions | \$ (175,303,048) | \$ (170,988,795) |
| 8. Net increase | \$ 298,005,794 | \$ 189,863,780 |
| 9. Net assets held in trust for pension benefits | | |
| a. Beginning of year | \$ 1,899,098,749 | \$ 1,709,234,969 |
| b. End of year | \$ 2,197,104,543 | \$ 1,899,098,749 |
| 10. Drop assets (included in 9 above) | | |
| a. Beginning of year | \$ 472,994,792 | \$ 420,412,678 |
| b. End of year | \$ 548,217,780 | \$ 472,994,792 |

2.3 Actuarial Value of Assets

| Schedule of Assets Gains/(Losses) | | | | |
|-----------------------------------|-----------------------|---------------------------|----------------------|----------------------------|
| Year | Original Amount | Recognized in Prior Years | Recognized This Year | Recognized in Future Years |
| 2009/2010 | \$ 158,405,157 | \$ 126,724,124 | \$ 31,681,031 | \$ 0 |
| 2010/2011 | 141,090,329 | 84,654,198 | 28,218,066 | 28,218,065 |
| 2011/2012 | (133,963,350) | (53,585,340) | (26,792,670) | (53,585,340) |
| 2012/2013 | 99,636,055 | 19,927,211 | 19,927,211 | 59,781,633 |
| 2013/2014 | 201,138,206 | 0 | 40,227,641 | 160,910,565 |
| Total | \$ 466,306,397 | \$ 177,720,193 | \$ 93,261,281 | \$ 195,324,923 |

| Development of Actuarial Value of Assets | |
|---|-------------------------|
| Development of actuarial value of assets | |
| 1. Actuarial value as of July 1, 2013 (pre-corridor) | \$ 1,811,650,751 |
| 2. Contributions | |
| a. Employer | \$ 36,103,860 |
| b. Member | 22,057,504 |
| c. Insurance tax | 79,545,329 |
| d. Legislative appropriation | 0 |
| e. Total | \$ 137,706,693 |
| 3. Decreases during the year | |
| a. Benefit payments | \$ 173,344,947 |
| b. Noninvestment expenses | 1,958,101 |
| c. Total | \$ 175,303,048 |
| 4. Expected return at 7.50% on: | |
| a. Item 1 | \$ 135,873,806 |
| b. Item 2 | 5,164,001 |
| c. Item 3 | 6,573,864 |
| d. Total (a + b - c) | \$ 134,463,943 |
| 5. Expected actuarial value of assets June 30, 2014 (1 +2 - 3 +4) | \$ 1,908,518,339 |
| 6. Unrecognized asset gain/(loss) as of June 30, 2013 | \$ 87,447,998 |
| 7. Expected actuarial value June 30, 2014 plus previous year's unrecognized asset gain/(loss) (5 + 6) | \$ 1,995,966,337 |
| 8. Market value June 30, 2014 | \$ 2,197,1044,543 |
| 9. 2013/2014 asset gain/(loss) (8 -7) | \$ 201,138,206 |
| 10. Asset gain/(loss) to be recognized as of June 30, 2014 | \$ 93,261,281 |
| 11. Initial actuarial value July 1, 2014 (5 + 11) | \$ 2,001,779,620 |
| 12. Constraining values: | |
| a. 80% of market value (8 x 0.8) | \$ 1,757,683,634 |
| b. 120% of market value (8 x 1.2) | 2,836,525,452 |
| 13. Actuarial value July 1, 2014 (11), but no less than (12a), nor greater than (12b) | \$ 2,001,779,620 |

2.4 Average Annual Rates of Investment Return

| Year Ending June 30 | Actuarial Value | | Market Value | |
|------------------------|-----------------|------------|--------------|------------|
| | Annual | Cumulative | Annual | Cumulative |
| 1991 | 7.46% | 7.46% | 7.77% | 7.77% |
| 1992 | 8.35% | 7.90% | 13.74% | 10.71% |
| 1993 | 9.42% | 8.41% | 13.70% | 11.70% |
| 1994 | 8.34% | 8.39% | 1.75% | 9.13% |
| 1995 | 9.56% | 8.62% | 15.06% | 10.29% |
| 1996 | 11.30% | 9.06% | 15.22% | 11.09% |
| 1997 | 25.01% | 11.21% | 18.24% | 12.09% |
| 1998 | 11.34% | 11.23% | 18.77% | 12.90% |
| 1999 | 10.32% | 11.13% | 6.59% | 12.18% |
| 2000 | 10.98% | 11.11% | 11.08% | 12.07% |
| 2001 | 7.14% | 10.74% | (7.88%) | 10.09% |
| 2002 | 1.94% | 9.98% | (7.20%) | 8.54% |
| 2003 | 3.56% | 9.47% | 3.73% | 8.16% |
| 2004 | 2.75% | 8.98% | 13.32% | 8.52% |
| 2005 | 1.75% | 8.48% | 9.29% | 8.57% |
| 2006 | 5.39% | 8.29% | 10.23% | 8.67% |
| 2007 | 10.42% | 8.41% | 15.93% | 9.09% |
| 2008 | 7.85% | 8.38% | (3.80%) | 8.33% |
| 2009 | (5.87%) | 7.58% | (18.07%) | 6.75% |
| 2010 | 3.32% | 7.36% | 9.58% | 6.89% |
| 2011 | 7.21% | 7.35% | 21.10% | 7.52% |
| 2012 | 2.41% | 7.12% | 0.33% | 7.19% |
| 2013 | 5.33% | 7.05% | 13.62% | 7.46% |
| 2014 | 12.70% | 7.28% | 17.85% | 7.87% |

Annual Returns include Deferred Option Plan Assets.

Section 3 Basis of Valuation

This section presents and describes the basis of the valuation. This section presents and describes the basis of the valuation. The census of Members, actuarial basis and provisions of the Plan are the foundation of the valuation, since these are the present facts on which the projection of benefit payments will depend. The valuation is based on the premise that the Plan will continue in existence

| | |
|--------------------|----------------------------|
| Section 3.1 | Plan Members |
| Section 3.2 | Actuarial Basis |
| Section 3.3 | Summary of Plan Provisions |

3.1 Plan Members

A. Count of Paid Active Members

| Age | Years of Service | | | | | | | | | Total |
|--------------|------------------|------------|------------|------------|------------|------------|------------|-----------|----------|--------------|
| | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40+ | |
| Under 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 167 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 171 |
| 25-29 | 367 | 117 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 484 |
| 30-34 | 247 | 362 | 79 | 9 | 0 | 0 | 0 | 0 | 0 | 697 |
| 35-39 | 112 | 230 | 211 | 151 | 6 | 0 | 0 | 0 | 0 | 710 |
| 40-44 | 51 | 130 | 136 | 305 | 121 | 3 | 0 | 0 | 0 | 746 |
| 45-49 | 22 | 56 | 53 | 150 | 198 | 100 | 2 | 0 | 0 | 581 |
| 50-54 | 4 | 14 | 22 | 103 | 130 | 181 | 76 | 1 | 0 | 531 |
| 55-59 | 1 | 2 | 4 | 28 | 46 | 65 | 54 | 15 | 0 | 215 |
| 60-64 | 0 | 0 | 0 | 0 | 4 | 11 | 10 | 3 | 0 | 28 |
| 65-69 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 3 |
| 70-74 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 75+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 971 | 915 | 505 | 747 | 506 | 360 | 143 | 19 | 0 | 4,166 |

B. Average Compensation of Paid Active Members

| Age | Years of Service | | | | | | | | | Total |
|--------------|------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------|---------------|
| | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40+ | |
| Under 20 | | | | | | | | | | 0 |
| 20-24 | 38,645 | | | | | | | | | 38,816 |
| 25-29 | 42,956 | 51,987 | | | | | | | | 45,139 |
| 30-34 | 45,992 | 58,578 | 66,651 | | | | | | | 55,079 |
| 35-39 | 43,578 | 58,735 | 69,507 | 74,620 | | | | | | 63,078 |
| 40-44 | 42,938 | 55,772 | 71,519 | 75,122 | 86,815 | | | | | 70,791 |
| 45-49 | 43,047 | 61,944 | 69,774 | 73,086 | 84,203 | 77,723 | | | | 75,006 |
| 50-54 | | | 64,734 | 72,392 | 79,203 | 70,169 | 89,680 | | | 75,132 |
| 55-59 | | | | 62,163 | 70,689 | 65,467 | 82,074 | | | 71,935 |
| 60-64 | | | | | | | | | | 69,923 |
| 65-69 | | | | | | | | | | 61,558 |
| 70-74 | | | | | | | | | | 0 |
| 75+ | | | | | | | | | | 0 |
| Total | 43,162 | 57,524 | 69,329 | 73,531 | 82,214 | 71,198 | 84,508 | 92,204 | 0 | 63,473 |

Average compensation not shown for groupings of less than twenty members

C. Count of Volunteer Active Members

| Age | Years of service | | | | | | | | | Total |
|--------------|------------------|--------------|--------------|------------|------------|------------|-----------|-----------|----------|--------------|
| | 0-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40+ | |
| Under 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 892 | 68 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 960 |
| 25-29 | 690 | 388 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 1,115 |
| 30-34 | 620 | 460 | 209 | 21 | 0 | 0 | 0 | 0 | 0 | 1,310 |
| 35-39 | 525 | 445 | 218 | 111 | 13 | 0 | 0 | 0 | 0 | 1,313 |
| 40-44 | 361 | 386 | 211 | 202 | 62 | 2 | 0 | 0 | 0 | 1,224 |
| 45-49 | 208 | 298 | 188 | 183 | 88 | 25 | 3 | 0 | 0 | 993 |
| 50-54 | 59 | 162 | 180 | 190 | 106 | 37 | 9 | 1 | 0 | 744 |
| 55-59 | 9 | 18 | 82 | 153 | 85 | 39 | 15 | 3 | 0 | 404 |
| 60-64 | 6 | 6 | 8 | 60 | 52 | 21 | 6 | 4 | 1 | 164 |
| 65-69 | 0 | 2 | 0 | 4 | 8 | 8 | 1 | 1 | 2 | 26 |
| 70-74 | 0 | 1 | 0 | 2 | 4 | 0 | 1 | 0 | 0 | 8 |
| 75+ | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 1 | 0 | 9 |
| Total | 3,370 | 2,234 | 1,133 | 926 | 427 | 132 | 35 | 10 | 3 | 8,270 |

D. Inactive Members Statistics

| Paid | | |
|---------------------------------------|--------------|--------------------------|
| Inactive members as of July 1, 2014 | Number | Amount of Annual benefit |
| Members receiving benefits | | |
| a. Retired | 2,053 | \$ 59,939,976 |
| b. Beneficiaries | 833 | 23,916,456 |
| c. Disabled | 1,502 | 45,964,188 |
| d. Deferred option | 68 | 3,025,776 |
| Total | 4,456 | \$ 132,846,396 |
| Members with deferred benefits | | |
| a. Terminated vested | 58 | \$ 819,684 |
| Total | 58 | \$ 819,684 |

| Volunteer | | |
|---------------------------------------|--------------|--------------------------|
| Inactive members as of July 1, 2014 | Number | Amount of Annual benefit |
| Members receiving benefits | | |
| a. Retired | 4,114 | \$ 7,267,476 |
| b. Beneficiaries | 1,189 | 2,043,816 |
| c. Disabled | 329 | 469,992 |
| d. Deferred option | 9 | 16,308 |
| Total | 5,641 | \$ 9,797,592 |
| Members with deferred benefits | | |
| a. Terminated vested | 1,332 | \$ 2,150,964 |
| Total | 1,332 | \$ 2,150,964 |

E. Member in Pay Status - Annual Benefits

| Paid | | | | | | | | |
|--------------|-----------------|-------------------|---------------|-------------------|------------------|-------------------|-----------------------|--------------------|
| Attained age | Retired members | | Beneficiaries | | Disabled members | | Current payment total | |
| | No. | Benefit | No. | Benefit | No. | Benefit | No. | Benefit |
| Under 50 | 47 | 1,267,308 | 33 | 844,332 | 111 | 2,668,272 | 191 | 4,779,912 |
| 50-54 | 214 | 6,462,060 | 28 | 735,600 | 139 | 4,321,056 | 381 | 11,518,716 |
| 55-59 | 346 | 10,432,416 | 47 | 1,304,292 | 280 | 8,956,380 | 673 | 20,693,088 |
| 60-64 | 413 | 12,215,244 | 77 | 1,927,656 | 288 | 9,078,168 | 778 | 23,221,068 |
| 65-69 | 304 | 8,337,780 | 104 | 2,836,176 | 277 | 8,285,796 | 685 | 19,459,752 |
| 70-74 | 297 | 7,932,540 | 144 | 3,720,984 | 221 | 6,666,012 | 662 | 18,319,536 |
| 75-79 | 206 | 5,815,080 | 134 | 3,969,576 | 117 | 3,422,532 | 457 | 13,207,188 |
| 80-84 | 132 | 4,227,108 | 108 | 3,479,376 | 40 | 1,446,204 | 280 | 9,152,688 |
| 85-89 | 69 | 2,418,048 | 96 | 3,069,336 | 23 | 862,056 | 188 | 6,349,440 |
| 90 and over | 25 | 832,392 | 62 | 2,029,128 | 6 | 257,712 | 93 | 3,119,232 |
| Total | 2,053 | 59,939,976 | 833 | 23,916,456 | 1,502 | 45,964,188 | 4,388 | 129,820,620 |

| Volunteer | | | | | | | | |
|--------------|-----------------|------------------|---------------|------------------|------------------|----------------|-----------------------|------------------|
| Attained age | Retired members | | Beneficiaries | | Disabled Members | | Current payment total | |
| | No. | Benefit | No. | Benefit | No. | Benefit | No. | Benefit |
| Under 50 | 185 | 339,276 | 69 | 85,296 | 30 | 35,964 | 284 | 460,536 |
| 50-54 | 474 | 813,180 | 35 | 47,328 | 40 | 55,392 | 549 | 915,900 |
| 55-59 | 688 | 1,155,492 | 70 | 106,812 | 42 | 58,716 | 800 | 1,321,020 |
| 60-64 | 728 | 1,254,444 | 104 | 171,204 | 54 | 75,252 | 886 | 1,500,900 |
| 65-69 | 666 | 1,202,484 | 125 | 221,436 | 62 | 87,000 | 853 | 1,510,920 |
| 70-74 | 543 | 973,800 | 146 | 254,424 | 44 | 66,828 | 733 | 1,295,052 |
| 75-79 | 373 | 672,960 | 192 | 343,608 | 35 | 54,984 | 600 | 1,071,552 |
| 80-84 | 248 | 466,608 | 163 | 298,620 | 17 | 26,712 | 428 | 791,940 |
| 85-89 | 155 | 289,248 | 167 | 299,184 | 2 | 3,708 | 324 | 592,140 |
| 90 and over | 54 | 99,984 | 118 | 215,904 | 3 | 5,436 | 175 | 321,324 |
| Total | 4,114 | 7,267,476 | 1,189 | 2,043,816 | 329 | 469,992 | 5,632 | 9,781,284 |

F. Terminated Vested and Deferred Option Plan Members - Annual Benefits

| Paid | | | | |
|--------------|---------------------------|-------------------|------------------------------|---------------------|
| Attained age | Terminated vested members | | Deferred option plan members | |
| | No. | Benefit | No. | Benefit |
| Under 40 | 6 | \$ 93,276 | 0 | \$ 0 |
| 40-44 | 20 | 254,112 | 7 | 306,396 |
| 45-49 | 13 | 180,300 | 11 | 474,984 |
| 50-54 | 12 | 153,408 | 33 | 1,491,972 |
| 55-59 | 4 | 105,432 | 16 | 713,976 |
| 60-64 | 3 | 33,156 | 1 | 38,448 |
| 65-69 | 0 | 0 | 0 | 0 |
| 70 and over | 0 | 0 | 0 | 0 |
| Total | 58 | \$ 819,684 | 68 | \$ 3,025,776 |

| Volunteer | | | | |
|--------------|---------------------------|---------------------|------------------------------|------------------|
| Attained age | Terminated vested members | | Deferred option plan members | |
| | No. | Benefit | No. | Benefit |
| Under 40 | 110 | \$ 122,844 | 0 | \$ 0 |
| 40-44 | 161 | 191,808 | 1 | 1,812 |
| 45-49 | 249 | 330,828 | 0 | 0 |
| 50-54 | 243 | 352,020 | 3 | 5,436 |
| 55-59 | 206 | 348,888 | 3 | 5,436 |
| 60-64 | 129 | 253,536 | 1 | 1,812 |
| 65-69 | 69 | 153,180 | 1 | 1,812 |
| 70 and over | 165 | 397,860 | 0 | 0 |
| Total | 1,332 | \$ 2,150,964 | 9 | \$ 16,308 |

G. Member Data Reconciliation

| | Paid members | | | | | | |
|----------------------------------|----------------|----------------------|-------------------------|-----------------|------------------|---------------|--------------|
| | Active members | | Inactive members | | | | Total |
| | Regular | Deferred option plan | Deferred vested members | Retired members | Disabled members | Beneficiaries | |
| As of July 1, 2013 | 4,136 | 69 | 59 | 2,038 | 1,479 | 808 | 8,589 |
| Deferred option plan retirees | (10) | 10 | | | | | |
| Service retirements | (59) | (8) | (4) | 71 | | | |
| Disability retirements | (43) | (2) | | | 45 | | |
| Deaths without beneficiaries | | | | (13) | (8) | (36) | (57) |
| Deaths with beneficiaries | (1) | | | (32) | (26) | 59 | |
| Nonvested terminations | (48) | | | | | | (48) |
| Vested terminations | (5) | | 5 | | | | |
| Rehires | 2 | (1) | (1) | | | | |
| Cashouts of member contributions | | | | | | | |
| Expiration of benefits | | | | | | | |
| Data corrections | (5) | | (1) | (11) | 12 | 2 | (3) |
| Transfers to volunteer | (12) | | | | | | (12) |
| Transfers from volunteer | 69 | | | | | | 69 |
| Net change | (112) | (1) | (1) | 15 | 23 | 25 | (51) |
| New entrants during the year | 142 | | | | | | 142 |
| Net change | 30 | (1) | (1) | 15 | 23 | 25 | 91 |
| As of July 1, 2014 | 4,166 | 68 | 58 | 2,053 | 1,502 | 833 | 8,680 |

G. Member Data Reconciliation (continued)

| | Volunteer members | | | | | | |
|----------------------------------|-------------------|----------------------|-------------------------|-----------------|------------------|----------------|---------------|
| | Active members | | Inactive members | | | | Total |
| | Regular | Deferred option plan | Deferred vested members | Retired members | Disabled members | Bene-ficiaries | |
| As of July 1, 2013 | 8,256 | 15 | 1,297 | 4,026 | 336 | 1,181 | 15,111 |
| Deferred option plan retirees | | | | | | | |
| Service retirements | (123) | (6) | (46) | 175 | | | |
| Disability retirements | (7) | | | | 7 | | |
| Deaths without beneficiaries | | | (1) | (36) | (4) | (63) | (104) |
| Deaths with beneficiaries | (11) | | | (43) | (9) | 63 | |
| Nonvested terminations | (751) | | | | | | (751) |
| Vested terminations | (94) | | 94 | | | | |
| Rehires | 13 | | (12) | | (1) | | |
| Cashouts of member contributions | | | | | | | |
| Expiration of benefits | | | | | | | |
| Data corrections | | | | (8) | | 8 | |
| Transfers to paid | (69) | | | | | | (69) |
| Transfers from paid | 12 | | | | | | 12 |
| Net change | (1,030) | (6) | 35 | 88 | (7) | 8 | (912) |
| New entrants during the year | 1,044 | | | | | | 1,044 |
| Net change | 14 | (6) | 35 | 88 | (7) | 8 | 132 |
| As of July 1, 2014 | 8,270 | 9 | 1,332 | 4,114 | 329 | 1,189 | 15,243 |

3.2 Actuarial Basis

A. Entry Age Actuarial Cost Method

Liabilities and contributions shown in this report are computed using the Individual Entry Age method of funding.

Sometimes called "funding method", an actuarial cost method is a particular technique used by actuaries for establishing the amount and incidence of the annual actuarial cost of Plan Benefits, or normal cost, and the related unfunded actuarial accrued liability. Ordinarily the annual contribution to the plan is comprised of (1) the normal cost and (2) an amortization payment on the unfunded actuarial accrued liability.

Under the Entry Age Actuarial Cost Method, the Normal Cost is computed as the level percentage of pay which, if paid from the earliest time each Member would have been eligible to join the plan if it then existed (thus, entry age) until his retirement or termination, would accumulate with interest at the rate assumed in the valuation to a fund sufficient to pay all benefits under the plan.

The Actuarial Accrued Liability under this method at any point in time is the theoretical amount of the fund that would have accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date.) The Unfunded Actuarial Accrued Liability is the excess of the actuarial accrued liability over the actuarial value of plan assets actually on hand on the valuation date.

Under this method experience gains or losses, i.e. decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

Actuarial Present Value

The current worth (on the valuation date) of an amount or series of amounts payable or receivable in the future. The actuarial present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

B. Asset Valuation Method

The actuarial value of assets is based on a five-year moving average of expected and market values determined as follows:

- at the beginning of each plan year, a preliminary expected actuarial asset value is calculated as the sum of the previous year's actuarial value increased with a year's interest at the System valuation rate plus net cash flow adjusted for interest (at the same rate) to the end of the previous plan year;
- the expected actuarial asset value is set equal to the preliminary expected actuarial value plus the unrecognized investment gains and losses as of the beginning of the previous plan year;
- the difference between the expected actuarial asset value and the market value is the investment gain or loss for the previous plan year;

- the (final) actuarial asset value is the preliminary value plus 20% of the investment gains and losses for each of the five previous plan years, but in no case more than 120% of the market value or less than 80% of the market value.

C. Valuation Procedures

No actuarial accrued liability is held for nonvested, inactive Members who have a break in service, or for nonvested Members who have quit or been terminated, even if a break in service had not occurred as of the valuation date.

The wages used in the projection of benefits and liabilities were considered earnings for the year ending June 30, 2014, increased by the salary scale to develop expected earnings for the current valuation year. Earnings were annualized for Members with less than twelve months of reported earnings.

In computing accrued benefits, average earnings were determined using actual pay history provided for valuation purposes.

The impact from the dollar limitation required by the Internal Revenue Code Section 415 for governmental plans was not considered in this valuation and was determined not to be significant on a projected basis.

The compensation limitation under IRC Section 401(a)(17) was not considered in this valuation. On a projected basis, the impact of this limitation is insignificant.

The census data provided by the Retirement System was screened for completeness and validity, and discrepancies were resolved. No significant assumptions for incomplete data were necessary.

The estimated employee, employer and state contributions have been determined based on total compensation.

When the data is edited, members reported as non-vested terminations are verified to have less than ten years of service at date of termination. Members with more than ten years of service are included in the valuation (with estimated benefits if necessary).

The Deferred Option Plan members are valued in a manner similar to retired Members. The main difference is the continuation of 50% of the employer contributions to the Firefighters Pension and Retirement System based on the compensation rate of the Deferred Option Plan members.

For members hired before November 1, 2013, Deferred Option Plan account balances are assumed to grow at 10.45% and be paid out over ten years, for the account balances of current DROP members; and over twenty years, for future DROP members. Discounting the expected DROP benefit payments at the assumed rate of return will result in a larger valuation liability than the actual DROP account balances. This difference represents the liability associated with the interest rate guarantee on the DROP accounts.

For members hired on or after November 1, 2013, Deferred Option Plan account balances are assumed to be paid as a lump sum upon termination.

The contribution requirements are based on total annual compensation rather than total covered compensation. This is a better reflection of the overall expectations for the Plan.

The calculations for the required state contribution are determined as of mid-year. This is a reasonable assumption since the employer contributions, employee contributions and State insurance premium tax allocations are made on a monthly basis throughout the year, and mid-year represents an average weighting of the contributions.

D. Actuarial Assumptions

Paid Firefighters

Economic Assumptions

1. Investment Return 7.5%, net of investment expenses, per annum, compound annually.

2. Earnings Progression Sample rates below:

| Years of Service | Inflation % | Merit % | Increase % |
|------------------|-------------|---------|------------|
| 0 | 3.0 | 6.00 | 9.00 |
| 1 | 3.0 | 5.50 | 8.50 |
| 2 | 3.0 | 5.00 | 8.00 |
| 3 | 3.0 | 4.90 | 7.90 |
| 4 | 3.0 | 4.75 | 7.75 |
| 5 | 3.0 | 4.50 | 7.50 |
| 10 | 3.0 | 3.55 | 6.55 |
| 15 | 3.0 | 1.65 | 4.65 |
| 20 | 3.0 | 1.20 | 4.20 |
| 25 | 3.0 | 1.00 | 4.00 |
| 30+ | 3.0 | 0.50 | 3.50 |

3. Reserve for Guaranteed Interest Rate for DROP Account Balances

For members hired before November 1, 2013, DROP account balances are assumed to earn 2.95% more than the assumed investment return. The accounts are assumed to grow at 10.45%, and be paid out over ten years, for the account balances of current DROP members; and over twenty years, for future DROP members.

For members hired on or after November 1, 2013, DROP account balances are assumed to be paid as a lump sum upon termination.

Demographic Assumptions

1. Retirement Rates

See table below:

| Attained Service | Annual Rates of Retirement Per 100 Eligible Members |
|------------------|---|
| 20* | 10 |
| 21* | 5 |
| 22 | 5 |
| 23 | 5 |
| 24 | 10 |
| 25-29 | 15 |
| 30-33 | 20 |
| 34 | 25 |
| 35+ | 100 |
| 20 | 10 |
| 21 | 5 |

* Not applicable for members hired on or after November 1, 2013

2. Mortality Rates

- (a) Active employees (pre-retirement)

RP-2000 Blue Collar Healthy Combined with generational mortality improvement using Scale AA.

- (b) Active employees (post-retirement) and nondisabled pensioners

RP-2000 Blue Collar Healthy Combined with generational mortality improvement using Scale AA

- (c) Disabled pensioners

RP-2000 Blue Collar Healthy Combined

3. Disability Rates

Graduated rates. See table below:

| Age Range | Annual Rate |
|-----------|-------------|
| 20-24 | .0005 |
| 25-29 | .0010 |
| 30-34 | .0035 |
| 35-39 | .0035 |
| 40-44 | .0045 |
| 45-49 | .0070 |
| 50-54 | .0200 |
| 55-59 | .0400 |
| 60-64 | .0900 |

20% of disabilities are assumed to be Non-Duty related and 80% are assumed to be Duty related

4. Withdrawal Rates

Graduated rates. See table below:

| Attained Service | Rate |
|------------------|-------|
| 0 | .0300 |
| 1 | .0350 |
| 2 | .0300 |
| 3 | .0200 |
| 4 | .0200 |
| 5-9 | .0100 |
| 10-14 | .0080 |
| 15+ | .0040 |

5. Marital Status

- (a) Percentage married: Males: 85%; Females: 85%
- (b) Age difference: Males are assumed to be three years older than females.

Other Assumptions

- 1. Assumed Age of Commencement for Deferred Benefits: Later of Age 50 and 20 Years of Service for members hired before November 1, 2013 and Age 50 with 22 Years of Service for members hired on or after November 1, 2013.
- 2. Provision for Expenses: Administrative Expenses, as budgeted by the Oklahoma Firefighters Pension and Retirement System.
- 3. Cost-of-Living Allowance Assumption for retirees with 20 years of service as of May 26, 1983: Half of the dollar amount of a 3% assumed increase in base pay.
- 4. Cost-of-Living Increase Assumption: Members are assumed to receive no annual increase in benefits during retirement, except for those in Item 3 above.
- 5. Deferred Option Plan: The retirement rates reflect both regular retirement and entry into the DROP. 100% of member retirements with at least 25 years of service are assumed to retroactively elect to enter DROP.

Volunteer firefighters

Economic assumptions

1. Investment return 7.50%, net of investment expenses, per annum, compound annually.
2. Benefit level increases No increases.

Demographic assumptions

1. Retirement rates Sample rates below:

| Attained service | Annual rates of retirement Per 100 eligible members |
|------------------|--|
| 20* | 30 |
| 21* | 15 |
| 22 | 15 |
| 23 | 15 |
| 24 | 25 |
| 25 | 25 |
| 26-28 | 15 |
| 29-34 | 20 |
| 35+ | 100 |

* Not applicable for members hired on or after November 1, 2013

2. Mortality Rates

- (a) Active employees (pre-retirement) RP-2000 Blue Collar Healthy Combined with generational mortality improvement using Scale AA.
- (b) Active employees (post-retirement) and nondisabled pensioners RP-2000 Blue Collar Healthy Combined with generational mortality improvement using Scale AA
- (c) Disabled pensioners RP-2000 Blue Collar Healthy Combined

3. Disability Rates

Graduated rates. See table below:

| Age Range | Annual Rate |
|-----------|-------------|
| 20-24 | .0005 |
| 25-29 | .0005 |
| 30-34 | .0005 |
| 35-39 | .0005 |
| 40-44 | .0010 |
| 45-49 | .0030 |
| 50-54 | .0030 |
| 55-59 | .0060 |
| 60-64 | .0200 |

33% of disabilities are assumed to be Non-Duty related and 67% are assumed to be Duty related.

4. Withdrawal Rates

Graduated rates. See table below:

| Attained service | Rate |
|------------------|-------|
| 0 | .1500 |
| 1 | .1600 |
| 2 | .1400 |
| 3 | .1300 |
| 4 | .1100 |
| 5-9 | .0080 |
| 10-14 | .0550 |
| 15+ | .0350 |

5. Marital Status

(a) Percentage married:

Males: 85%; Females: 85%

(b) Age difference:

Males are assumed to be three years older than females.

Other Assumptions

2. Assumed Age of Commencement for Deferred Benefits:

Later of Age 50 and 20 Years of Service for members hired before November 1, 2013 and Age 50 with 22 Years of Service for members hired on or after November 1, 2013.

2. Provision for Expenses

Administrative Expenses, as budgeted by the Oklahoma Firefighters Pension and Retirement System.

3. Cost-of-Living Allowance Assumption for retirees with 20 years of service as of May 26, 1983

Members are assumed to receive no annual increase in benefits during retirement.

4. Deferred Option Plan

The retirement rates reflect both regular retirement and entry into the DROP.

3.3 Summary of System Provisions

| | |
|--------------------------------------|---|
| Effective Date and Plan Year: | The plan became effective May 14, 1908 and is regularly amended during legislative session. The plan year is July 1 to June 30. |
| Administration: | The plan is administered the Oklahoma Firefighters Pension and Retirement System Board consisting of 13 members. The Board acts as the fiduciary for investment and administration of the Plan. |
| Members Included: | All paid and volunteer firefighters of participating municipalities and fire protection districts. |
| Member Contributions: | Paid firefighters contributed 8% of gross salary prior to November 1, 2013. Effective November 1, 2013, paid firefighters contribute 9% of gross salary. No employee contributions are required of volunteer firefighters. |
| Employer Contributions: | Participating municipalities and fire protection districts contributed 13% of gross salary for each paid firefighter and \$60.00 per year for each volunteer firefighter prior to November 1, 2013. Effective November 1, 2013, participating municipalities and fire protection districts will contribute 14% of gross salary for each paid firefighter. Municipalities with revenues under \$25,000 make no contribution for volunteers. |
| State Contributions: | Insurance Premium Tax allocation. The fund received 34% of these collected taxes prior to November 1, 2013. Effective November 1, 2013, the fund is scheduled to receive 36% of these collected taxes. |
| Service Considered: | <p>The period of membership in the Pension System or a predecessor municipal system. Service for members of a fire protection district does not accrue before July 1, 1982.</p> <p>Military service is credited for one term (unless the member is required by law to re-enlist) if the city continues to make contributions on the member's behalf as though he were in actual service, provided that he returns to actual service within the fire department within ninety (90) days of honorable discharge. War veterans shall receive up to five years of credit for active military service.</p> <p>A member who has withdrawn his contributions and later returns to membership may repay the amount withdrawn plus interest as determined by the Board to reinstate participating service which was canceled by his withdrawal.</p> <p>A member may receive credit for up to five years of credited service accumulated by the member while a member of the Oklahoma Police Pension and Retirement System, the Oklahoma Law Enforcement Retirement System, the Teachers' Retirement System of Oklahoma, or the Oklahoma Public Employees Retirement System, if the member is not receiving or eligible to receive retirement credit or benefits from said service in any other public retirement system.</p> |

The cost of buy-back service is determined as the actuarial present value of the benefits attributable to this service, effective January 1, 1991.

| | |
|-------------------------------------|---|
| Considered Compensation: | The member's gross salary excluding overtime, payment for accumulated sick or annual leave upon termination, any uniform allowances or reimbursement of out-of-pocket expenses, but excluding any salary reductions pursuant to Section 457 or Section 414(b) of the Internal Revenue Code. Only salary on which the required contributions have been made may be considered. |
| Final Average Compensation: | The monthly average of the highest thirty (30) consecutive months of the last sixty (60) months of participating service. |
| Normal Retirement Date: | For member hired before November 1, 2013, the first day following the day the member completes twenty (20) years of service, regardless of age. For member hired on or after November 1, 2013, the first day following the day the member completes twenty (20) years of service and is 50 years old. |
| Normal Retirement Benefit: | |
| Paid firefighters | A monthly benefit equal to 50% of final average compensation. |
| Volunteer firefighters | \$150.60 per month, effective July 1, 2008. |
| Late Retirement Benefit: | Benefits continue to accrue for service up to thirty (30) years at the following rates: |
| Paid firefighters | 2.5% of final average compensation per year of service. |
| Volunteer firefighters | \$7.53 per month per year of service, effective July 1, 2008. |
| Early Retirement Benefit: | None. |
| Disability or Death Benefit: | All firefighters are eligible for immediate disability or death benefits. Disabilities due to heart disease, injury to the respiratory system, or cancer are considered in the line of duty. If there is no eligible surviving spouse, the death benefit is divided between the children under age 18 or age 22 if children are enrolled as full-time students. |
| Paid firefighters | 2.5% of final average monthly compensation per year of service, with a minimum service credit of 20 years and maximum of 30 years. For disabilities not in the line of duty, final average monthly compensation is based on 60 months instead of 30 months. |
| Volunteer firefighters | \$7.53 per month per year of service, with a maximum of 30 years. For disabilities or deaths in the line of duty, there is a minimum service credit of 20 years. |
| Vested Severance Benefit: | For members hired before November 1, 2013: A member who terminates after ten years of credited service is eligible for a vested severance benefit |

determined by the normal retirement formula, based on service and salary history to date of termination.

The benefit is payable at age 50 or when the member would have completed twenty years of service, whichever is later, provided the member's contribution accumulation is not withdrawn.

Members terminating with less than ten years of credited service receive a refund of their contribution accumulation without interest.

For members hired on or after November 1, 2013:

A member who terminates after 11 years of credited service is eligible for a vested severance benefit determined by the normal retirement formula, based on service and salary history to date of termination.

The benefit is payable at age 50 and 22 years of service provided the member's contribution accumulation is not withdrawn.

Members terminating with less than 11 years of credited service receive a refund of their contribution accumulation without interest.

Lump Sum Death Benefit:

Upon the death of an active or retired member on or after July 1, 1999, a \$5,000 lump sum death benefit will be paid to the member's beneficiary, or estate if no beneficiary. The \$5,000 death benefit does not apply to members electing the vested benefit.

Form of Payments:

The normal form of benefit is a Joint and 100% Survivor Annuity if the firefighter was married 30 months prior to death.

Post-Retirement Adjustments:

Firefighters with 20 years of service as of May 26, 1983, are entitled to post-retirement adjustments equal to one-half the increase or decrease for top step firefighters. Pensions will not be adjusted below the level at which the firefighter retired.

Deferred Option Plan:

A Member who is eligible to receive a Normal Retirement Benefit and continues employment may elect to participate in the Deferred Option Plan (DROP). Participation in the DROP shall not exceed five years. The employees' contributions cease upon entering the Plan, but the employer contributions are divided equally between the Retirement System and DROP. The monthly retirement benefits that the employee is eligible to receive are paid into the DROP account.

A member is also allowed to retroactively elect to join the DROP as of a back-drop-date which is no earlier than the member's Normal Retirement Date or five years before his termination date. The monthly retirement benefits and employee contributions that would have been payable had the member elected to join the DROP are credited to the member's DROP account with interest.

The retirement benefits are not recalculated for service and salary past the election date to join the

DROP. However, the benefits may be increased by any applicable cost-of-living increases.

When the Member actually terminates employment, the DROP account balance may be paid in a lump sum or to an annuity provider. Monthly retirement benefits are then paid directly to the retired Member.

For members hired before November 1, 2013, the DROP account is guaranteed a minimum of the valuation interest rate for investment return, or 2% less than the fund rate of return, if greater.

For members hired on or after November 1, 2013, the DROP account is guaranteed a minimum of the valuation interest rate for investment return, or 2% less than the fund rate of return, if greater, while in active DROP. The DROP account is credited with 1% less than the fund rate of return once the member leaves active DROP.