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Consolidated Judicial Retirement System of North Carolina

Report on the Actuarial Valuation Prepared as of December 31, 2013

October 2014

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October 2, 2014

Board of Trustees
Consolidated Judicial
Retirement System of North Carolina
325 North Salisbury Street
Raleigh, NC 27603

Members of the Board:

We submit herewith our report on the actuarial valuation of the Consolidated Judicial Retirement System of North Carolina (referred to as "CJRS" or the "Judicial Plan") prepared as of December 31, 2013. The report has been prepared in accordance with North Carolina General Statute 135-50 through 135-75.

The primary purpose of the valuation report is to determine the required member and employer contribution rates, to describe the current financial condition of CJRS, and to analyze changes in such condition. In addition, the report provides information that the Office of the State Controller (OSC) requires for its Comprehensive Annual Financial Report (CAFR) and it summarizes census data. Use of this report for any other purposes or by anyone other than OSC 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' written consent.

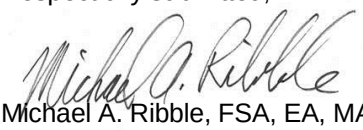
The valuation is based upon membership data and financial information as furnished by the Retirement Systems Division and the Financial Operations Division and as summarized in this report. Although reviewed for reasonableness and consistency with the prior valuation, these elements have not been audited by Buck and we cannot certify as to the accuracy and completeness of the data supplied. The valuation is also based on benefit and contribution provisions as presented in this report. If you have reason to believe that the plan provisions are incorrectly described, that important plan provisions relevant to this valuation are not described, or that conditions have changed since the calculations were made, you should contact the authors of this actuarial report prior to relying on this information.

The valuation is further based on the actuarial valuation assumptions, approved by the Board of Trustees, as presented in this report. We believe that these assumptions are reasonable and comply with the requirements of GASB Nos. 25, 27, and 67. We prepared this report in accordance with the requirements of these standards.

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.

The undersigned 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.

Respectfully submitted,



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Executive Summary

Overview

The North Carolina Retirement Systems Division (RSD) was established in 1941 to provide retirement benefits for public servants in the State of North Carolina. Today, under the management of the Department of State Treasurer, RSD administers eight public pension plans (defined benefit plans), three supplemental retirement plans (voluntary defined contributions plans), a health trust fund, a disability income plan, death benefit funds and a number of other benefit programs. As of December 31, 2013, the Retirement Systems defined benefit plans cover about 900,000 current and prior public servants in the state of North Carolina. During the fiscal year ending June 30, 2014, the Systems paid $5.2 billion in pensions to about 250,000 retirees. And as of June 30, 2014, the Systems' assets were valued at $90 billion.

Under the supplemental retirement plans, the amount of contributions in any given year is defined by law. The amount of benefits derived is dependent on the investment returns the individual achieves. Conversely, under the pension plans, the amount of the benefit paid to a member upon retirement, termination, death or disability is defined by law. The amount of contributions needed to fund these benefits cannot be known with certainty. In North Carolina, like other states, these contributions are paid during a public servant's career so that upon retirement, termination, death, or disability, there are funds available to pay these benefits. These amounts are determined through an actuarial valuation. Actuarial valuations are performed for each of the pension plans administered by RSD and the results are contained in actuarial valuation reports like this.

In 1985, the Consolidated Judicial Retirement System (referred to as "CJRS" or the "Judicial Plan") was established. CJRS provides benefits to the elected judges and justices, district attorneys, clerks of superior court of the general court of justice and public defenders. CJRS has approximately $512 million in assets and over 1,200 members. This actuarial valuation report is our annual analysis of the financial health of CJRS. This report, prepared as of December 31, 2013, presents the results of the actuarial valuation of CJRS.

Purpose

An actuarial valuation is performed on CJRS annually as of the end of the calendar year. The actuary determines the amount of contributions to be made to CJRS during each member's career that, when combined with investment return, will be sufficient to pay for retirement benefits.

In addition, the annual actuarial valuation is performed to:

- Determine the progress on funding CJRS,
- Explore why the results of the current valuation differ from the results of the valuation of the previous year, and
- Satisfy regulatory and accounting requirements.

A detailed summary of the valuation process and a glossary of actuarial terms are provided in Appendix A.

Executive Summary

Key Takeaways

The actuarial valuation is performed each year to replace the estimates the actuary assumed for the prior valuation with the actual events that happened. This past year, as expected, some of the assumptions used in the prior valuation were not realized. Key results of the December 31, 2013 valuation as compared to the December 31, 2012 valuation were:

- Market value returns of 12.19% compared to 7.25% assumed
- Increase in covered payroll of 0.3% compared to 3% assumed increase
- Recent legislation signed into law including:
  - 1% cost-of-living adjustment at July 1, 2014
  - Return to five-year vesting for all active members
  - Return of contributions with interest to all members prior to meeting vesting requirements
- No significant changes in actuarial assumptions or funding methodology from the prior year's valuations

When compared to the December 31, 2012 valuation, the above resulted in:

- Slightly higher funded ratio (92.3% in the December 31, 2013 valuation compared to 91.2% in the December 31, 2012 valuation)
- Lower employer required contribution rate (26.37% for fiscal year ending June 30, 2016 compared to 26.55% for fiscal year ending June 30, 2015)
- Lower projected benefit amounts being accrued by active members

CJRS is well funded compared to its peers. This is due to:

- Stakeholders working together to keep CJRS well-funded since inception
- A history of appropriating and contributing the recommended contribution requirements
- Assumptions that in aggregate are more conservative than peers
- A funding policy that aggressively pays down unfunded liability over a 12-year period
- An ad hoc cost-of-living adjustment that supports the health of the system
- Modest changes in benefits when compared to peers

Continued focus on these measures will be needed to maintain the solid status of CJRS well into the future.

More details can be found later in this report. We encourage readers to start with Section 1 and refer to other sections for additional details as needed.

Section 1: The Valuation Process

The following diagram summarizes the inputs and results of the actuarial valuation process.

A more detailed description of the valuation process is provided in Appendix A.

Valuation Input: Membership Data

As with any estimate, the actuary collects information that we know now. Under the actuarial valuation process, current information about CJRS members is collected annually by the Retirement Systems Division staff at the direction of the actuary. Membership data will assist the actuary in estimating benefits that could be paid in the future. Information about benefit provisions and assets held in the trust as of the valuation date is also collected.

The member information the actuary collects includes data elements such as current service, salary and benefit group identifier for members that have not separated service, and actual benefit amounts and form of payment for members that have separated service. Data elements such as gender and date of birth are used to determine when a benefit might be paid and for how long.

Section 1: The Valuation Process

Valuation Input: Membership Data (continued)

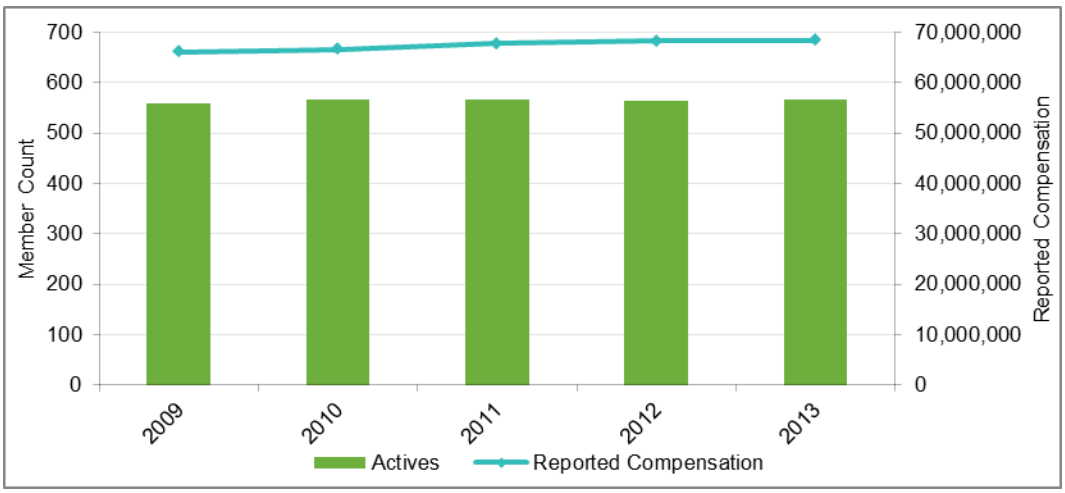
The table below provides a summary of the membership data used in this valuation compared to the prior valuation.

Number as of	12/13/2013	12/13/2012
Active members	566	564
Terminated members and survivors of decreased members entitled to benefits but not yet receiving benefits	53	48
Retired members and survivors of deceased members currently receiving benefits	584	559
Total	1,203	1,171

Commentary: The number of active members increased by 0.4% from the previous valuation date. The increase in the active population results in more benefits accruing, but also more contributions supporting the system. The number of retired members and survivors of deceased members currently receiving benefits increased by 4.5% from the previous valuation date. The increase in retiree population is consistent with expectations.

Graph 1: Active Members

The graph below provides a history of the number of active members and reported compensation over the past five years.



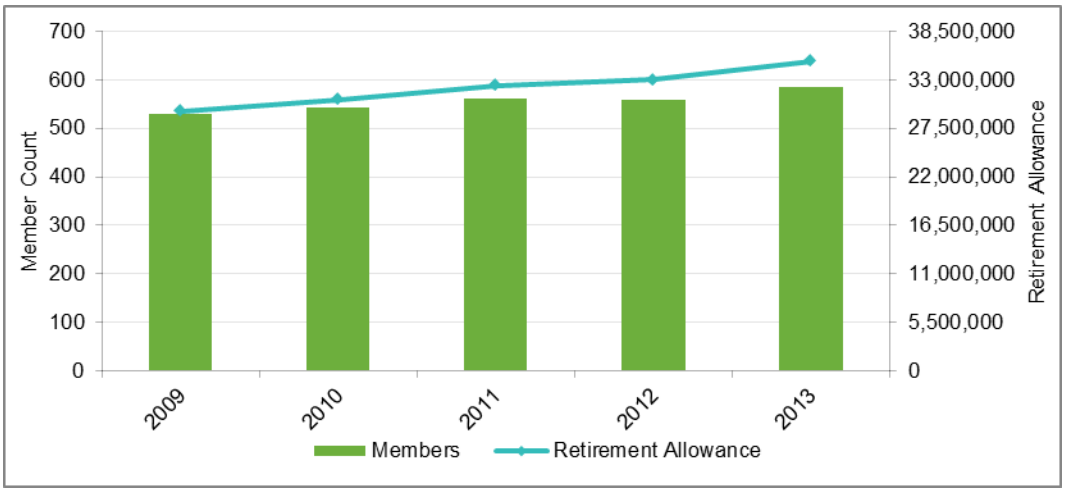
Commentary: Reported compensation has increased slightly. The valuation assumes covered payroll will increase by 3% annually in the future.

Section 1: The Valuation Process

Valuation Input: Membership Data (continued)

Graph 2: Retired Members and Survivors of Deceased Members

The graph below provides a history of the number of retired members and survivors of deceased members and benefit amounts payable over the past five years.



Commentary: The number of retired members and survivors of deceased members and the benefits paid to these members has been increasing steadily, as expected based on plan assumptions.

A detailed summary of the membership data used in this valuation is provided in Section 3 and Appendix B of this report.

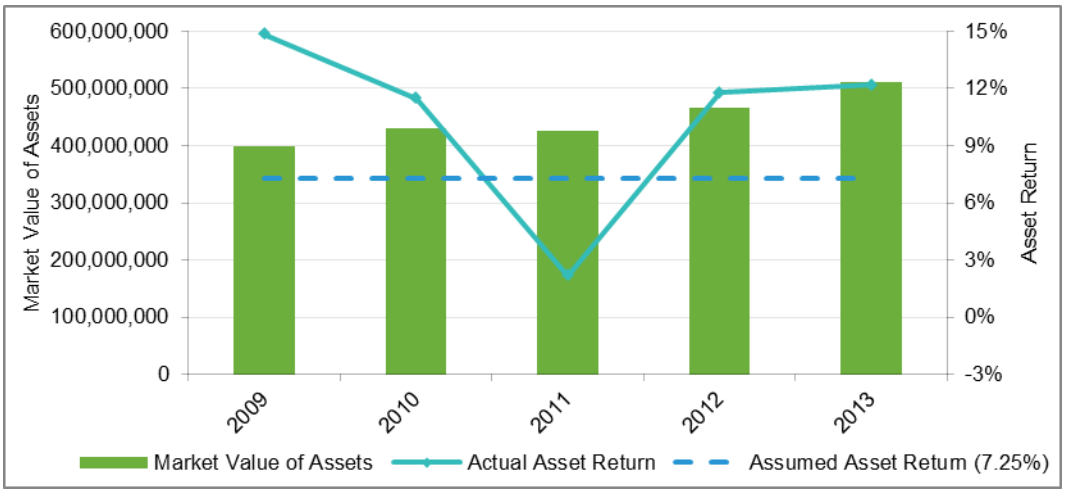
Section 1: The Valuation Process

Valuation Input: Asset Data

CJRS assets are held in trust and are invested for the exclusive benefit of plan members. The Market Value of Assets is $512 million as of December 31, 2013 and $466 million as of December 31, 2012. The investment return for the market value of assets for calendar year 2013 was 12.19%.

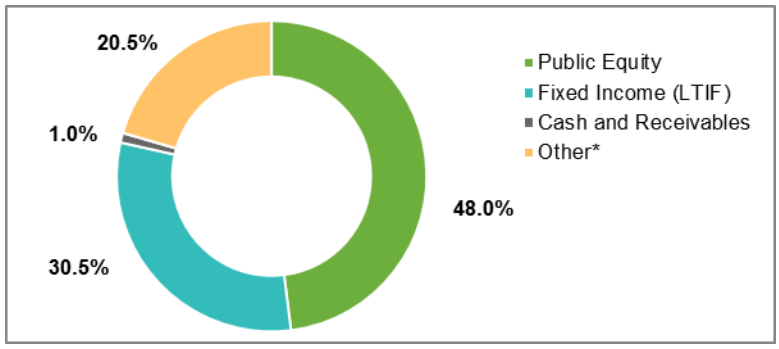
Graph 3: Market Value of Asset and Asset Returns

The graph below provides a history of the market value of assets and asset returns over the past five years.



Graph 4: Allocation of Investments by Category

The graph below provides the breakdown of the market value of assets at December 31, 2013 by asset category.



* Real Estate, Alternatives, Inflation and Credit

Commentary: Based on historical market returns, the current asset allocation, the current investment policy, and the expectation of future asset returns, as reviewed in the last experience study, the 7.25% discount rate used in this valuation is reasonable and appropriate. The discount rate will be reviewed at the next experience study to be presented to the Board in October 2015.

A detailed summary of the market value of assets is provided in Section 4 of this report.

Section 1: The Valuation Process

Valuation Input: Benefit Provisions

Benefit provisions are described in North Carolina General Statues, Chapter 135.

There were the following changes in benefit provisions from the prior year's valuation:

- 1% cost-of-living adjustment at July 1, 2014
- Return to five-year vesting for all active members
- Return of contributions with interest to all members prior to meeting vesting requirements

Highlights of the benefit provisions are described below.

- An unreduced retirement allowance is payable to members who retire from service:
  - after attaining age 65 and five years of creditable service; or
  - after attaining age 50 and 24 years of creditable service
- The unreduced retirement allowance is equal to:
  - 4.02% of a member's final average compensation multiplied by the number of years of creditable service rendered as a Justice of the Supreme Court or Judge of the Court of Appeals, plus
  - 3.52% of a member's final average compensation multiplied by the number of years of creditable service rendered as a Judge of the Superior Court or as Administrative Officer of the Courts, plus
  - 3.02% of a member's final average compensation multiplied by the number of years of creditable service rendered as a Judge of the District Court, District Attorney, Public Defender, or Clerk of the Superior Court
- A reduced retirement allowance is payable to members who retire from service after attaining age 50 and five years of creditable service
- Ancillary benefits are also payable upon the death or disability of a member.
- CJRS does not provide for explicit cost of living increases as part of the benefit package. Instead, increases may be provided if certain financial conditions are met and/or the legislature passes a budget that provides for a cost-of-living adjustment.

Commentary: Most Public Sector Retirement Systems in the United States have undergone pension reform where the benefits of members (current retirees and active or future members) have been reduced. Because of the well-funded status of CJRS due to the legislature contributing the actuarially required contribution, benefit cuts have not been needed in North Carolina. Instead, we have seen a modest expansion of benefits this past year based on sound plan design.

A detailed summary of the benefit provisions is provided in Appendix C of this report.

Section 1: The Valuation Process

Valuation Input: Actuarial Assumptions

Actuarial assumptions bridge the gap between the information that we know with certainty as of the valuation date (age, gender, service, pay, and benefits of the members) and what may happen in the future. The actuarial assumptions of CJRS are reviewed at least every five years. Based on this review, the actuary will make recommendations on the demographic and economic assumptions.

Demographic assumptions describe future events that relate to people such as retirement rates, termination rates, disability rates, and mortality rates. Economic assumptions describe future events that relate to the assets of CJRS such as the interest rate, salary increases, the real return, and payroll growth.

The latest assumptions were adopted for use with the December 31, 2009 actuarial valuation, based on the experience study prepared as of December 31, 2009 and adopted by the Board of Trustees on October 21, 2010. The next experience study will be prepared as of December 31, 2014 and presented to the Board in October 2015. Assumptions and methods based on the next experience study, as adopted by the Board, will be used with the December 31, 2015 valuation. This policy of reviewing assumptions every five years is a best practice.

Valuation Input: Funding Methodology

The Funding Methodology is the payment plan for CJRS and is composed of the following three components:

- Actuarial Cost Methods allocate costs to the actuarial accrued liability (i.e. the amount of money that should be in the fund) for past service and normal cost (i.e. the cost of benefits accruing during the year) for current service.
  - The Board of Trustees has adopted Projected Unit Credit as its actuarial cost method
- Asset Valuation Methods smooth or average the market value returns over time to alleviate contribution volatility that results from market returns.
  - 20% of market value plus 80% of the expected actuarial value
  - Assets corridor: not greater than 120% of market value and not less than 80% of market value
- Amortization Methods determine the payment schedule for unfunded actuarial accrued liability (i.e. the difference between the actuarial accrued liability and actuarial value of assets)
  - Payment level: the payment is determined as a level dollar amount, similar to a mortgage payment
  - Payment period: a 12-year closed amortization period was adopted for fiscal year ending 2012. A new amortization base is created each year based on the prior years' experience.

When compared to other Public Sector Retirement Systems in the United States, the funding policy for CJRS is quite aggressive in that the policy pays down the pension debt over a much shorter period of time (12 years) compared to the national average of around 24 years. As such it is a best practice in the industry.

Section 1: The Valuation Process

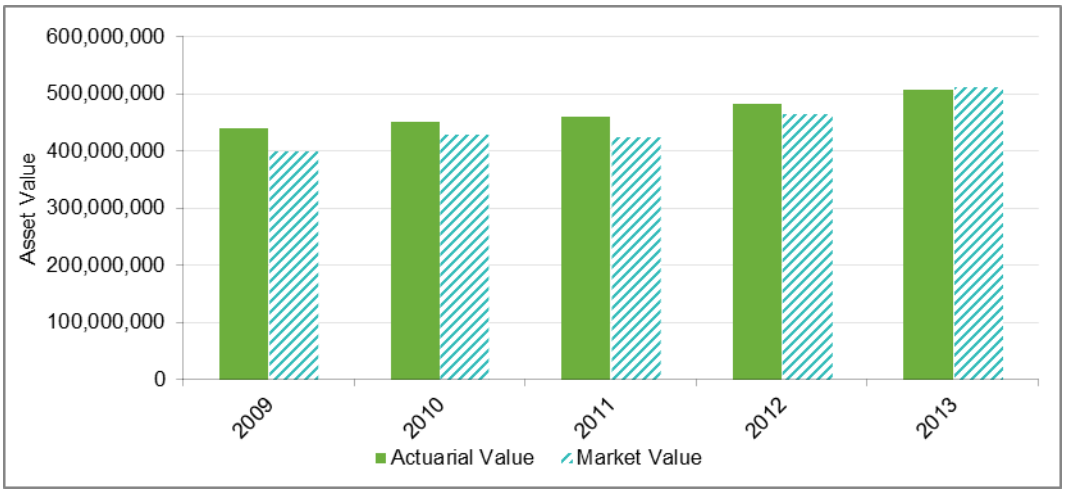
There were no significant changes in actuarial assumptions or funding method from the prior year's valuation. A detailed summary of the actuarial assumptions and methods is provided in Appendix D of this report.

Valuation Results: Actuarial Value of Assets

In order to reduce the volatility that investment gains and losses can have on required contributions and funded status of CJRS, the Board adopted an asset valuation method to determine the Actuarial Value of Assets used for funding purposes. The Actuarial Value of Assets is $507 million as of December 31, 2013 and $481 million as of December 31, 2012.

Graph 5: Actuarial Value and Market Value of Assets

The graph below provides a history of the market value and actuarial value of assets over the past five years.



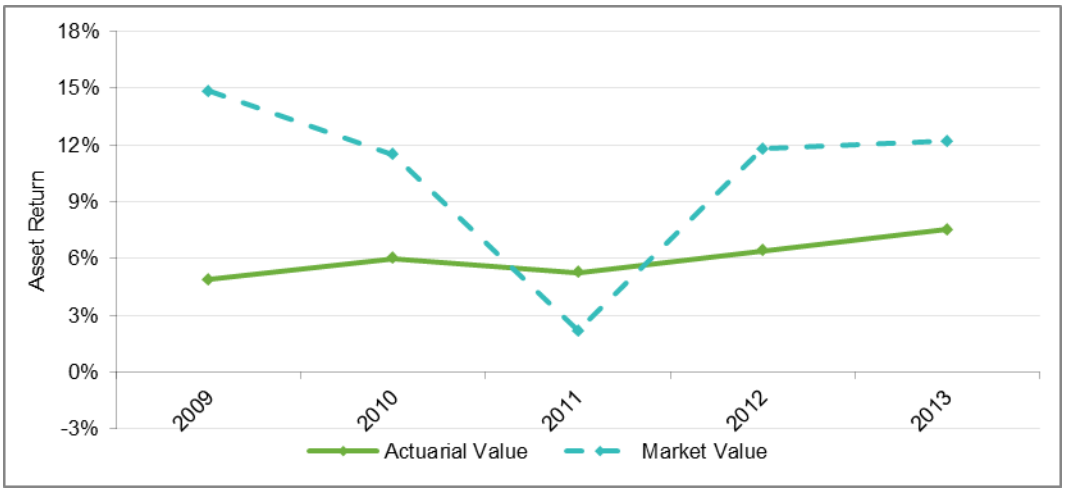
Commentary: For the first time in several years, the market value of assets is higher than the actuarial value of assets, which is used to determine employer contributions. This indicates that there are unrecognized asset returns to be recognized in future valuations, which will mitigate the impact of asset returns that are less than the assumed return of 7.25%. As a result, the upward pressure on contributions that we have seen since the Great Recession has been reversed, as seen in the projections of potentially higher funded ratios and lower employer contributions later in this report.

Section 1: The Valuation Process

Valuation Results: Actuarial Value of Assets (continued)

Graph 6: Asset Returns

The graph below provides a history of the market value and actuarial value of asset returns over the past five years.



Commentary: The investment return for the market value of assets for calendar year 2013 was 12.19%. The actuarial value of assets smooths investment gains and losses. Higher than expected market returns in 2009, 2010, 2012, and 2013 resulted in an actuarial value of asset return for calendar year 2013 of 7.52% which is higher than the assumed rate of 7.25%. Therefore, CJRS experienced an asset gain of $1.3 million during 2013.

A detailed summary of the Actuarial Value of Assets is provided in Section 4 of this report.

Section 1: The Valuation Process

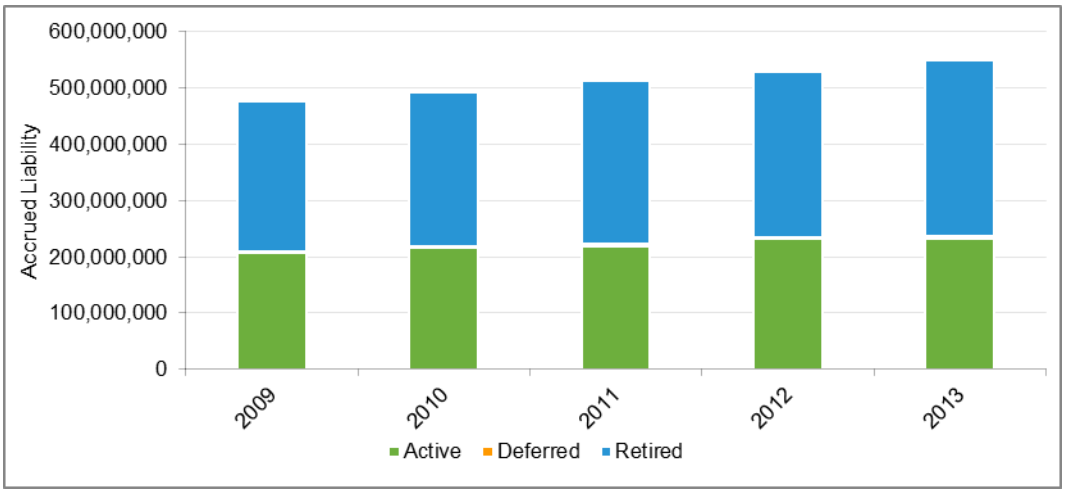
Valuation Results: Actuarial Accrued Liability

Using the provided membership data, benefit provisions, and actuarial assumptions, future benefit payments of CJRS are estimated. These projected future benefit payments are discounted into today's dollars using the assumed rate of investment return assumption to determine the Present Value of Future Benefits (PVFB) of CJRS. The PVFB is an estimate of the current value of the benefits promised to all members as of a valuation date.

Once the PVFB is developed, an actuarial cost method is used to allocate the PVFB. Under the actuarial cost method, the PVFB is allocated to past, current and future service, respectively known as the actuarial accrued liability (AAL), normal cost (NC) and present value of future normal costs (PVFNC). The AAL is also referred to as the amount of money CJRS should ideally have in the trust. The NC is also referred to as the cost of benefits accruing during the year.

Graph 7: Actuarial Accrued Liability

The graph below provides a history of the actuarial accrued liability over the past five years.



Commentary: The AAL increased from $528 million to $549 million during 2013. CJRS is an open plan, which means that new members enter the plan each year. In an open plan, liabilities are expected to grow from one year to next as more benefits accrue and the membership approaches retirement. The AAL prior to legislative changes was $1.3 million lower than expected, which resulted in a demographic gain of $1.3 million during 2013. Legislation increased the AAL by $3.1 million.

A detailed summary of the AAL is provided in Section 5 of this report.

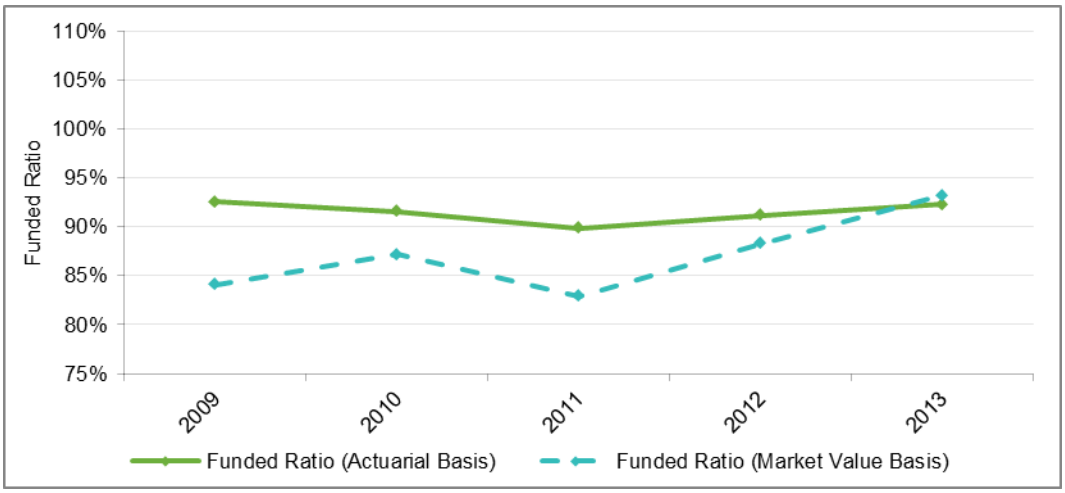
Section 1: The Valuation Process

Valuation Results: Funded Ratio

The funded ratio is a measure of the progress that has been made in funding the plan as of the valuation date. It is the ratio of how much money CJRS actually has in the fund to the amount CJRS should have in the fund.

Graph 8: Funded Ratios

The graph below provides a history of the funded ratio on a market and actuarial basis over the past five years.



Commentary: The actuarial value of assets basis is used for computing contributions to alleviate contribution volatility. The funded ratio on an actuarial basis increased from 91.2% at December 31, 2012 to 92.3% at December 31, 2013.

Section 1: The Valuation Process

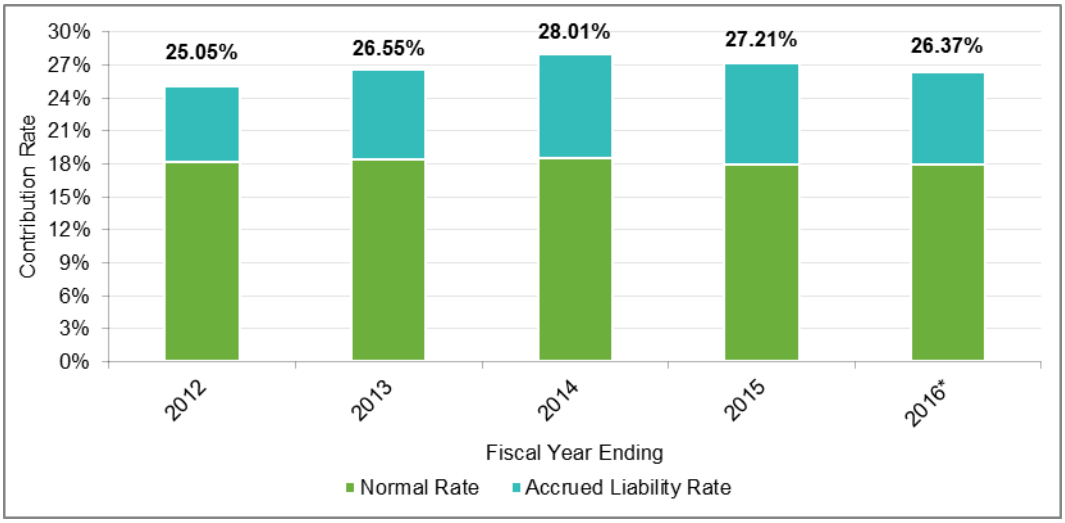
Valuation Results: Employer Contributions

G.S. 135-69 of the retirement act provides that the state shall make a normal contribution and an unfunded accrued liability contribution.

The December 31, 2012 valuation suggested that the preliminary total employer contribution rate be set at 26.55% of payroll for the fiscal year ending June 30, 2015. Subsequently, the 2014 Appropriations Act (Session Laws 2014-100) set contributions at 27.21% of payroll effective for the fiscal year ending June 30, 2015 in order to account for recent legislation passed into law. As a result of this December 31, 2013 valuation, the preliminary total employer contribution rate should be set at 26.37% of payroll for the fiscal year ending June 30, 2016, subject to the impact of any future legislative changes effective during that fiscal year. On this basis, these contributions would provide a preliminary reserve from undistributed gains equivalent to 0.84% of payroll that could be used for a cost-of-living adjustment or other benefit improvements.

Graph 9: Employer Required Contribution Rates

The graph below provides a history of employer required contribution rates over the past five years. The rates are split into the normal rate and the accrued liability rate. The normal rate is the employer's portion of the cost of benefits accruing after reducing for the member contribution. The accrued liability rate is the payment toward the unfunded liability.



***** Subject to the impact of future legislative changes effective during that fiscal year.

Commentary: The employer required contribution rate is the amount needed to pay for the cost of the benefits accruing and to pay off the pension debt over 12 years, offset for the 6% of pay contribution the members make. The 12-year period is a short period for Public Sector Retirement Systems in the United States, with most Systems using a period of 30 years or more to pay off the pension debt. The shorter period results in higher contributions and more benefit security.

A detailed summary of the employer required contributions rates is provided in Section 6 of this report.

Section 1: The Valuation Process

Valuation Results: Accounting Information

The Governmental Account Standards Board (GASB) issues statements which establish financial reporting standards for defined benefit pension plans and accounting for pension expenditures and expenses for governmental employers.

The valuation has been prepared in accordance with the parameters of Statement Nos. 25, 27, and 67 of the GASB and all applicable Actuarial Standards of Practice. The annual required contribution (ARC) under GASB 25/27 for the fiscal year ending June 30, 2016 is 26.37% of payroll. The Net Pension Liability (Asset) under GASB 67 for the fiscal year ending June 30, 2014, is $26,197,000 (compared to $70,845,000 for fiscal year ending June 30, 2013). The required financial reporting information for CJRS under GASB Nos. 25, 27, and 67 can be found in Section 8 of this report.

Section 2: Principal Results

This report, prepared as of December 31, 2013, presents the results of the actuarial valuation of the system. The principal results of the valuation and a comparison with the preceding year's results are summarized below.

Table 1: Summary of Principal Results

Valuation results as of	12/31/2013	12/31/2012
Active Members		
Number	566	564
Reported Compensation	$ 68,456,637	$ 68,237,144
Valuation Compensation*	$ 71,243,601	$ 70,723,760
Retired Members and Survivors of Deceased Members Currently Receiving Benefits		
Number	584	559
Annual Allowances	$ 35,111,390	$ 33,015,346
Assets		
Actuarial Value (AVA)	$ 506,787,899	$ 481,285,608
Market Value	$ 511,969,020	$ 466,099,097
Actuarial Accrued Liability (AAL)	$ 549,345,068	$ 527,585,094
Unfunded Accrued Liability (AAL-AVA)	$ 42,557,169	$ 46,299,486
Funded Ratio (AVA/AAL)	92.3%	91.2%
GASB 25/27 Results for Fiscal Year Ending	**6/30/2016**	**6/30/2015**
Annual Required Contribution (ARC) of employer, as a percentage of payroll		
Normal Cost	17.62%	17.55%
Death Benefit	0.35%	0.36%
Accrued Liability	8.40%	8.64%
Total	26.37%	26.55%
Impact of Legislative Changes	N/A	0.66%
Final Employer ARC	N/A	27.21%
Appropriations Act for Fiscal Year Ending	**6/30/2015**	**6/30/2014**
Employer Contribution Rate as a percentage of payroll		
Normal Cost	17.62%	17.55%
Death Benefit	0.35%	0.36%
Accrued Liability	9.24%	10.10%
Total	27.21%	28.01%
Preliminary Reserve for Undistributed Gains/(Losses)	0.84%	1.46%

* Reported compensation adjusted to reflect the assume rate of pay increase prior to the valuation date.

Section 3: Membership Data

The Retirement Systems Division provided membership data as of the valuation date for each member of CJRS. The membership data assists the actuary in estimating benefits that could be paid in the future. The tables below provide a summary of the membership data used in this valuation. Detailed tabulations of data are provided in Appendix B.

Table 2: Active Member Data

	Member Count	Average Age	Average Service	Reported Compensation
Justices of Supreme Court and Judges of Court of Appeals	22	59.87	12.89	$ 3,272,834
Judges of the Superior Court and Administrative Officers of the Court	113	58.46	16.10	15,895,106
Judges of the District Court, District Attorneys, Clerks of the Superior Court, and Public Defenders	431	53.72	12.28	49,288,697
Total	566	54.91	13.07	$ 68,456,637

The table above includes members not in receipt of benefits who had reported compensation in 2013.

Section 3: Membership Data

Table 3: Terminated Vested Member Data

	Member Count	Average Age	Average Service	Accumulated Contributions	Reported Compensation
Justices of Supreme Court and Judges of Court of Appeals	2	62.21	3.21	$ 55,673	$ 262,091
Judges of the Superior Superior Court and Administrative Officers of the Court	3	50.97	8.86	213,922	403,983
Judges of the District Court, District Attorneys, Clerks of the Superior Court, and Public Defenders	48	54.85	5.19	1,903,130	3,842,435
Total	53	54.91	5.32	$ 2,172,725	$ 4,508,509

The table above includes members not in receipt of benefits who did not have reported compensation in 2013.

Section 3: Membership Data

Table 4: Data for Members Currently Receiving Benefits

	Member Count	Average Age	Annual Retirement Allowances
Retired Members (Healthy at Retirement)			
Male	318	71.43	$ 22,884,920
Female	127	69.38	7,180,327
Total	445	70.84	$ 30,065,247
Retired Members (Disabled at Retirement)*			
Male	3	63.31	$ 164,664
Female	3	67.42	178,049
Total	6	65.37	$ 342,713
Survivors of Deceased Members			
Male	11	74.47	$ 306,399
Female	122	77.77	4,397,031
Total	133	77.50	$ 4,703,430
Grand Total	584	72.30	$ 35,111,390

* Includes retired members reported as disabled in a prior valuation and not subsequently reported as returned to work.

Section 4: Asset Data

Assets are held in trust and are invested for the exclusive benefit of CJRS members. The tables below provides the details of the Market Value of Assets for the current and prior year's valuations.

Table 5: Market Value of Assets

Asset Data as of	12/31/2013	12/31/2012
Beginning of Year Market Value of Assets	$ 466,099,097	$ 425,132,791
Contributions	24,646,461	24,602,853
Benefit Payments	(34,958,833)	(33,251,265)
Investment Income	56,182,295	49,614,718
Net Increase/(Decrease)	45,869,923	40,966,306
End of Year Market Value of Assets	$ 511,969,020	$ 466,099,097
Estimated Net Investment Return on Market Value	12.19%	11.79%

Table 6: Allocation of Investments by Category of the Market Value of Assets

Asset Data as of	12/31/2013	12/31/2012
Allocation by Dollar Amount		
Public Equity	$ 245,626,754	$ 206,831,993
Fixed Income (LTIF)	156,350,627	164,214,763
Cash and Receivables	5,261,579	2,729,803
Other*	104,730,060	92,322,538
Total Market Value of Assets	$ 511,969,020	$ 466,099,097
Allocation by Percentage of Asset Value		
Public Equity	47.98%	44.38%
Fixed Income (LTIF)	30.54%	35.23%
Cash and Receivables	1.03%	0.59%
Other*	20.45%	19.80%
Total Market Value of Assets	100.00%	100.00%

* Real Estate, Alternatives, Inflation and Credit

Section 4: Asset Data

In order to reduce the volatility that investment gains and losses can have on the required contributions and funded status of CJRS, the Board adopted an asset valuation method to determine the Actuarial Value of Assets used for funding purposes. The table below provides the calculation of the Actuarial Value of Assets at the valuation date.

Table 7: Actuarial Value of Assets

Asset Data as of	12/31/2013
(a) Beginning of Year Actuarial Value of Assets	$ 481,285,608
(b) Contributions	24,646,461
(c) Benefit Payments	(34,958,833)
(d) Net Cash Flow: (b) + (c)	(10,312,372)
(e) Expected Investment Return: [(a) x 7.25%] + [(d) x 3.625%]	34,519,383
(f) Expected End of Year Actuarial Value of Assets: (a) + (d) + (e)	505,492,619
(g) End of Year Market Value of Assets	511,969,020
(h) Excess of Market Value over Expected Actuarial Value of Assets: (g) - (f)	6,476,401
(i) 20% Adjustment toward Market Value: (h) x 20%	1,295,280
(j) Preliminary End of Year Actuarial Value of Assets: (f) + (i)	506,787,899
(k) Final End of Year Actuarial Value of Assets: (j) not less than 80% of (g) and not greater than 120% of (g)	506,787,899
(l) Estimated Net Investment Return on Actuarial Value	7.52%

Commentary: The actuarial value of assets smooths investment gains/losses, resulting in less volatility in the employer contribution. Higher than expected returns in 2009, 2010, 2012 and 2013 resulted in a $1.3 million asset gain recognition this year (item (i) above).

Section 4: Asset Data

The valuation assumes that the funds will earn a 7.25% asset return. The table below provides a history of the Actuarial Value and Market Value of Asset returns.

Table 8: Historical Asset Returns

Calendar Year	Actuarial Value of Asset Return	Market Value of Asset Return
2006	9.17%	11.35%
2007	9.04%	8.35%
2008	3.01%	(19.39%)
2009	4.88%	14.83%
2010	6.01%	11.49%
2011	5.25%	2.18%
2012	6.42%	11.79%
2013	7.52%	12.19%
Average	6.39%	6.01%
Range	6.16%	34.22%

Commentary: The average investment return recognized for purposes of determining the annual change in contribution each year is the actuarial value of assets return. Currently, the average actuarial return of 6.39% tracks average market return of 6.01% rather well. But the range of returns is markedly less – 6.16% versus 34.22%. This results in much lower employer contribution volatility using the actuarial value of assets versus market, while ensuring that the actuarial needs of CJRS are met.

Section 5: Liability Results

Using the provided membership data, benefit provisions, and actuarial assumptions, future benefit payments of CJRS are estimated. These projected future benefit payments are discounted into today's dollars using the assumed rate of investment return assumption to determine the Present Value of Future Benefits. The Present Value of Future Benefits is allocated to past, current and future service, respectively known as the actuarial accrued liability, normal cost and present value of future normal costs. The table below provides these liability numbers for the current and prior year's valuations.

Table 9: Liability Summary

Valuation Results as of	12/31/2013	12/31/2012
(a) Present Value of Future Benefits		
(1) Active Members	$ 392,144,662	$ 390,034,794
(2) Terminated Members	3,393,117	2,743,231
(3) Members Currently Receiving Benefits	313,168,240	292,281,547
(4) Total	$ 708,706,019	$ 685,059,572
(b) Present Value of Future Normal Costs	$ 159,360,951	$ 157,474,478
(c) Actuarial Accrued Liability: (a4) - (b)	$ 549,345,068	$ 527,585,094
(d) Actuarial Value of Assets	$ 506,787,899	$ 481,285,608
(e) Unfunded Accrued Liability: (c) - (d)	$ 42,557,169	$ 46,299,486

Section 5: Liability Results

The table below provides a reconciliation of the prior year's unfunded actuarial accrued liability to the current year's unfunded actuarial accrued liability.

Table 10: Reconciliation of Unfunded Actuarial Accrued Liability

(in millions)	
Unfunded Actuarial Accrued Liability (UAAL) as of 12/31/2012	$ 46.3
Normal Cost during 2013	16.7
Reduction due to Actual Contributions during 2013	(24.6)
Interest on UAAL, Normal Cost, and Contributions	3.7
Asset (Gain)/Loss	(1.3)
Actuarial Accrued Liability (Gain)/Loss	(1.3)
Impact of Legislative Changes	3.1
Unfunded Actuarial Accrued Liability (UAAL) as of 12/31/2013	$ 42.6

Section 6: Annual Required Contribution

The annual required contribution consists of a normal cost rate and an accrued liability rate. The normal cost rate is the employer's portion of the cost of benefits accruing during the year after reducing for the member contribution. The death benefit normal rate is the rate necessary to provide the one year's compensation upon death in active service. This rate is calculated to provide the death benefit on a one-year term basis and is payable to the Death Benefit Fund. The accrued liability rate is the payment toward the unfunded accrued liability in order to pay off the unfunded accrued liability over 12 years.

The table below provides the calculation of the annual required contribution for the current and prior years' valuations.

Table 11: Calculation of the Annual Required Contribution (ARC)

Valuation Date ARC for Fiscal Year Ending	12/31/2013 6/30/2016	12/31/2012 6/30/2015
Normal Cost Rate Calculation		
(a) Normal Cost*	$ 16,825,588	$ 16,658,427
(b) Valuation Compenation	71,243,601	70,723,760
(c) Normal Cost Rate: (a) / (b)	23.62%	23.55%
(d) Employee Contribution Rate	6.00%	6.00%
(e) Total Normal Cost Rate: (c) - (d)	17.62%	17.55%
Death Benefit Rate Calculation		
(f) Death Benefit Normal Cost	$ 248,877	$ 251,636
(g) Valuation Compenation	71,243,601	70,723,760
(h) Death Benefit Rate: (f) / (g)	0.35%	0.36%
Accrued Liability Rate Calculation		
(i) Total Annual Amortization Payments**	$ 5,987,959	$ 6,110,105
(j) Valuation Compensation	71,243,601	70,723,760
(k) Accrued Liability Rate: (i) / (j)	8.40%	8.64%
Total ARC (e) + (h) + (k)	26.37%	26.55%

* Includes assumed administrative expenses.
** See Table 14 for more detail.

Section 6: Annual Required Contribution

The table below provides a reconciliation of the annual required contribution for the current and prior years' valuations.

Table 12: Reconciliation of the Change in the ARC

Fiscal year ending June 30, 2015 Preliminary ARC (based on December 31, 2012 valuation)	26.55%
Impact of Legislative Changes	0.66%
Fiscal year ending June 30, 2015 Final ARC	27.21%
Change Due to Demographic (Gain)/Loss	(0.33%)
Change Due to Investment (Gain)/Loss	(0.25%)
Change Due to Contributions Greater than ARC	(0.26%)
Fiscal year ending June 30, 2016 Preliminary ARC (based on December 31, 2013 valuation)	26.37%

Section 6: Annual Required Contribution

Amortization methods determine the payment schedule for the unfunded actuarial accrued liability. CJRS adopted a 12-year closed amortization period for fiscal year ending 2012. A new amortization base is created each year based on the prior year's experience. The tables below provide the calculation of the new amortization base and the amortization schedule for the current year's valuation.

Table 13: Calculation of the New Amortization Base

Calculation as of	12/31/2013	12/31/2012
(a) Unfunded Actuarial Accrued Liability	$ 42,557,169	$ 46,299,486
(b) Prior Years' Outstanding Balances	$ 43,449,834	$ 50,538,516
(c) New Amortization Base: (a) - (b)	$ (892,665)	$ (4,239,030)
(d) New Amortization Payment	$ (122,146)	$ (580,038)

Table 14: Amortization Schedule for Unfunded Accrued Liability

Date Established	Original Balance	12/31/2013 Outstanding Balance	Annual Payment
December 31, 2009	$ 34,962,037	$ 33,190,088	$ 4,783,952
December 31, 2010	3,913,729	3,981,327	535,526
December 31, 2011	10,017,079	10,824,779	1,370,665
December 31, 2012	(4,239,030)	(4,546,360)	(580,038)
December 31, 2013	(892,665)	(892,665)	(122,146)
Total		$ 42,557,169	$ 5,987,959

Commentary: This is the payment schedule for the pension debt of CJRS.

Section 6: Annual Required Contribution

The table below provides a history of the annual required contribution and the corresponding appropriated rate.

Table 15: History of Annual Required Contributions and Appropriated Rates

Valuation Date	Fiscal Year Ending	Normal Rate*	Accrued Liability Rate	Change due to Legislation	Final ARC	Appropriated Rate
12/31/2013	6/30/2016	17.97%	8.40%	N/A	N/A	N/A
12/31/2012	6/30/2015	17.91%	8.64%	0.66%	27.21%	27.21%
12/31/2011	6/30/2014	18.48%	9.53%	0.00%	28.01%	28.01%
12/31/2010	6/30/2013	18.35%	7.62%	0.58%	26.55%	26.55%
12/31/2009	6/30/2012	18.13%	8.41%	-1.49%	25.05%	25.05%

* Includes Death Benefit rate

Table 16: Cost of Benefit Enhancements

Calculation as of	12/31/2013	12/31/2012
Increase in ARC for a 1% COLA*	0.64%	0.59%

* The 1% COLA calculated at the December 31, 2013 valuation would be effective July 1, 2015. The COLA would be paid in full to retired members and survivors of deceased members on the retirement roll on July 1, 2014 and would be prorated for retired members and survivors of deceased members who commence benefits after July 1, 2014 but before June 30, 2015.

Section 7: Valuation Balance Sheet

The valuation balance sheet shows the assets and liabilities of CJRS. The items shown in the balance sheet are present values actuarially determined as of the relevant valuation date. The table below provides the valuation balance sheet for the current year and prior year.

Table 17: Valuation Balance Sheet

Balance Sheet as of	12/31/2013	12/31/2012
Assets		
Current Actuarial Value of Assets		
Annuity Savings Fund	$ 59,221,482	$ 58,602,290
Pension Accumulation Fund	447,566,417	422,683,318
Total	$ 506,787,899	$ 481,285,608
Future Member Contributions to the Annuity Savings Fund	$ 38,109,595	$ 37,791,818
Prospective Contributions to the Pension Accumulation Fund		
Normal Contributions	$ 121,251,356	$ 119,682,660
Unfunded Accrued Liability Contributions	42,557,169	46,299,486
Undistributed Gain Contributions	4,228,380	7,827,545
Total	$ 168,036,905	$ 173,809,691
Total Assets	$ 712,934,399	$ 692,887,117
Liabilities		
Annuity Savings Fund		
Past Member Contributions	$ 59,221,482	$ 58,602,290
Future Member Contributions	38,109,595	37,791,818
Total Contributions	$ 97,331,077	$ 96,394,108
Pension Accumulation Fund		
Benefits Currently in Payment	$ 310,129,370	$ 292,281,547
Benefits to be Paid to Current Active Members	298,206,702	296,383,917
Reserve for Increases in Retirement Allowances effective July 1, 2014 (July 1, 2013 for December 31, 2012)	3,038,870	0
Reserve for Undistributed Gains/(Losses)	4,228,380	7,827,545
Total Benefits Payable	$ 615,603,322	$ 596,493,009
Total Liabilities	$ 712,934,399	$ 692,887,117

Section 8: Accounting Results

The section contains the accounting information for Governmental Accounting Standards Board (GASB) Statement No. 25, 27 and 67 for fiscal year ending June 30, 2014 based on a valuation date of December 31, 2013.

Please note that GASB Statement No. 25 (*Financial Reporting for Defined Benefit Pension Plans*) is applicable for fiscal years ending prior to 2014 and has been replaced by GASB Statement No. 67 (*Financial Reporting for Pension Plans)* for fiscal years ending 2014 and later. Similarly, GASB Statement No. 27 (*Accounting for Pensions by State and Local Governmental Employers*) is applicable for fiscal years ending prior to 2015 and has been replaced by GASB Statement No. 68 (*Accounting and Financial Reporting for Pensions*) for fiscal years ending 2015 and later.

GASB Statement Nos. 25 and 27 set forth certain items of information to be disclosed in the financial statements of the Plan. The tables below provide a distribution of the number of employees by type of membership, and the schedule of funding progress.

Table 18: Number of Active and Retired Members as of December 31, 2013

Group	Number
Retired members and survivors of deceased members currently receiving benefits	584
Terminated members and survivors of deceased members entitled to benefits but not yet receiving benefits	53
Active members	566
Total	1,203

Table 19: Schedule of Funding Progress

Actuarial Valuation Date	(a) Actuarial Value of Assets	(b) Projected Unit Credit Actuarial Accrued Liability	(b) - (a) Unfunded Actuarial Accrued Liability (UAAL)	(a)/(b) Funded Ratio	(c) Covered Payroll	[(b) - (a)] / (c) UAAL as a Percentage of Covered Payroll
12/31/2007	$ 430,356,059	$ 418,137,429	$ (12,218,630)	102.9%	$ 61,338,143	-19.92%
12/31/2008	433,552,760	441,932,606	8,379,846	98.1%	65,082,979	12.88%
12/31/2009	439,987,304	474,949,341	34,962,037	92.6%	66,171,078	52.84%
12/31/2010	451,195,513	492,606,027	41,410,514	91.6%	66,604,988	62.17%
12/31/2011	460,647,229	512,642,885	51,995,656	89.9%	67,814,831	76.67%
12/31/2012	481,285,608	527,585,094	46,299,486	91.2%	68,237,144	67.85%
12/31/2013	506,787,899	549,345,068	42,557,169	92.3%	68,456,637	62.17%

Section 8: Accounting Results

The tables below provide a reconciliation of the preliminary employer annual required contribution rate to the final employer annual required contribution, the calculation of the annual pension cost and net pension obligation, and a three-year trend of the net pension obligation.

Table 20: Reconciliation of the Annual Required Contribution Rate

Fiscal Year Ending	June 30, 2014
Preliminary Annual Required Contribution Rate	
Normal Cost	18.13%
Accrued Liability	9.53%
Death Benefit	0.35%
Total	28.01%
Impact of Legislative Changes	0.00%
Final Annual Required Contribution Rate	28.01%
Payroll	$ 69,534,334
Annual Required Contribution	$ 19,477,000

Table 21: Annual Pension Cost and Net Pension Obligation

Fiscal Year Ending	June 30, 2014
(a) Employer annual required contribution	$ 19,477,000
(b) Interest on net pension obligation	27,000
(c) Adjustment to annual required contribution	(51,000)
(d) Annual pension cost: (a) + (b) + (c)	$ 19,453,000
(e) Employer contributions made for fiscal year ending 6/30/2014	19,477,000
(f) Increase/(decrease) in net pension obligation: (d) - (e)	$ (24,000)
(g) Net pension obligation beginning of fiscal year	375,000
(h) Net pension obligation end of fiscal year: (f) + (g)	$ 351,000

Table 22: Trend Information for the Net Pension Obligation

Fiscal Year Ending	Annual Pension Cost (APC)	Percentage of APC Contributed	Net Pension Obligation
6/30/2012	$ 17,177,000	100.2%	$ 401,000
6/30/2013	18,476,000	100.1%	375,000
6/30/2014	19,453,000	100.1%	351,000

Section 8: Accounting Results

The tables below provide the annual required contribution (ARC) of the employer as a percentage of payroll (determined in accordance with the parameters of GASB 25/27) and additional information as of the valuation date. The accrued liability rate of the ARC is based on the amortization schedule found in Table 14.

Table 23: Annual Required Contribution Based on the Valuation as of December 31, 2013

Fiscal Year Ending	June 30, 2016
Normal Cost	17.62%
Accrued Liability	8.40%
Death Benefit	0.35%
Total	26.37%

Table 24: Additional Information for GASB Statement Nos. 25 and 27

Valuation Date	12/31/2013
Actuarial Cost Method	Projected Unit Credit
Amortization Method	Level dollar closed
Amortization Period	12 years
Asset Valuation Method	20% of market value plus 80% of expected actuarial value (not greater than 120% of market value and not less than 80% of market value)
Actuarial Assumptions	
Investment Rate of Return*	7.25%
Projected Salary Increases**	5.00% - 5.95%
*Includes Inflation of	3.00%
**Includes Inflation and Productivity of	3.50%
Cost-of-living Adjustments	N/A

Section 8: Accounting Results

GASB Statement No. 67 set forth certain items of information to be disclosed in the financial statements of the Plan. The tables below provide the schedule of changes in Net Pension Liability (Asset).

Table 25: Schedule of Changes in Net Pension Liability (Asset)

Calculation as of	June 30, 2014
Total Pension Liability	
Service Cost	$ 16,637,000
Interest	39,405,000
Changes of Benefit Terms	3,031,000
Difference between Expected and Actual Experience	(2,484,000)
Change of Assumptions	0
Benefit Payments, including Refund of Member Contributions	(35,428,000)
Net Change in Total Pension Liability	$ 21,161,000
Total Pension Liability - Beginning of Year	$ 544,600,000
Total Pension Liability - End of Year	$ 565,761,000
Plan Fiduciary Net Position	
Employer Contributions	$ 21,390,000
Member Contributions	5,598,000
Net Investment Income	74,294,000
Benefit Payments, including Refund of Member Contributions	(35,428,000)
Administrative Expenses	(48,000)
Other	3,000
Net Change in Fiduciary Net Position	$ 65,809,000
Plan Fiduciary Net Position - Beginning of Year	$ 473,755,000
Plan Fiduciary Net Position - End of Year	$ 539,564,000

Table 26: Net Pension Liability (Asset)

Calculation as of	June 30, 2014	June 30, 2013
Total Pension Liability	$ 565,761,000	$ 544,600,000
Plan Fiduciary Net Position	539,564,000	473,755,000
Net Pension Liability (Asset)	$ 26,197,000	$ 70,845,000
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	95.37%	86.99%

Section 8: Accounting Results

The table below is the sensitivity of the net pension liability to changes in the discount rate.

Table 27: Sensitivity of the Net Pension Liability at June 30, 2014 to Changes in the Discount Rate

	1% Decrease	Current	1% Increase
Discount Rate	6.25%	7.25%	8.25%
Net Pension Liability (Asset)	80,338,000	26,197,000	(20,692,000)

The discount rate used to measure the total pension liability was 7.25%. The projection of cash flows used to determine the discount rate assumed that System contributions will continue to follow the current funding policy. Based on those assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Please see Appendix E for additional detail.

Appendix A: Valuation Process and Glossary of Actuarial Terms

Purpose of an Actuarial Valuation

The majority of Public Sector Retirement Systems in the State of North Carolina are defined benefit (DB) retirement systems. Under a DB Retirement System, the amount of benefits payable to a member upon retirement, termination, death or disability is defined in various contracts and legal instruments and is based, in part, on the member's years of credited service and final compensation. The amount of contribution needed to fund these benefits cannot be known with certainty. A primary responsibility of the Board of Trustees of a Retirement System is to establish and monitor a funding policy for the contributions made to the Retirement System.

While somewhat uncommon, in some jurisdictions, contributions are made by the plan sponsor as benefits come due. This is known as pay-as-you-go financing. More commonly, contributions for benefits are made in advance during the course of active employment of the members. This is known as actuarial pre-funding. For example, the State of North Carolina mandates for the Teachers' and State Employees' Retirement System (the "State Plan") that "on account of each member there shall be paid into the pension accumulation fund by employers an amount equal to a certain percentage of the actual compensation of each member to be known as the 'normal contribution'…" and further "the normal rate of contribution shall be determined by the actuary after each valuation."

The Actuarial Valuation Process

The following diagram summarizes the inputs and results of the actuarial valuation process. A narrative of the process follows the diagram. The reader may find it worthwhile to refer to the diagram from time to time.

Under the actuarial valuation process, current information about Retirement System members is collected annually by staff at the direction of the actuary, namely member data, asset data and information on benefit provisions. Member data is collected for each member of the Retirement System. The member data will assist the actuary in estimating benefits that could be paid in the future. The member information the actuary collects to estimate the amount of benefit includes elements such as current service, salary and benefit group identifier for members that have not separated service; for those that have, the actual benefit amounts are collected. The actuary collects information such as gender and date of birth to determine when a benefit might be paid and for how long. The actuary collects summary information about assets as of the valuation date and information on cash flows for the year ending on the valuation date. Information about

Appendix A: Valuation Process and Glossary of Actuarial Terms

benefit provisions as of the valuation date is also collected. To bridge the gap between the information collected and potential benefits to be paid in the future, the actuary must make assumptions about future activities. These assumptions are recommended by the actuary to the Boards based on the results of an experience review. An experience review is a review of the Retirement System over a period of time, typically five years, where the actuary analyzes the demographic and economic assumptions of the Retirement System. Based on this review, the actuary will make recommendations on the demographic assumptions, such as when members will be projected to retire, terminate, become disabled and/or die in the future, as well as the economic assumptions, such as what rate of return is projected to be earned by the fund based on the Retirement System investment policy and what level of future salary increases is expected for members. To maintain the assumptions, the Board should adopt a prudent policy of having an experience review being performed every five years. The next experience review for the North Carolina Retirement Systems will be based on the five-year period ending on December 31, 2014 and will be presented during 2015. Using these assumptions, the actuary is able to use the member data, asset data and benefit provision information collected to project the benefits that will be paid from the Retirement System to current members. These projected future benefit payments are based not only on service and pay through the valuation date but includes future pay and service, which has not yet been earned by the members but is expected to be earned.

These projected future benefit payments are discounted into today's dollars using the assumed rate of investment return assumption to determine the Present Value of Future Benefits (PVFB) of the Retirement System. The PVFB is an estimate of the value of the benefits promised to all members as of a valuation date. If the Retirement System held assets equal to the PVFB and all the assumptions were realized, there would be sufficient funds to pay off all the benefits to be paid in the future for members in the Retirement System as of the valuation date.

The PVFB is a large sum of money, typically much larger than the amount of Retirement System assets held in the trust. The next step is for the actuary to apply the Funding Policy as adopted by the Board to determine the employer contributions to be made to the Retirement System so that the gap between the PVFB and assets is systematically paid off over time. The Funding Policy is adopted by the Board based on discussions with the actuary. When the Board develops a funding policy, a balance between contributions which are responsive to the needs of the Retirement System yet stable should be struck. There are many different funding policies for the Board to consider, and the actuary is responsible for discussing the various features of the funding policies under consideration. Funding Policies are generally reviewed during an experience review, but it is not uncommon to review a funding policy in between, particularly during period where large increases or decreases in contributions are expected. The Funding Policy is composed of three components: the actuarial cost method, the asset valuation method, and the amortization method.

Once the PVFB is developed, an actuarial cost method is used to allocate the PVFB. Under the actuarial cost method, the PVFB is allocated to past, current and future service, respectively known as the actuarial accrued liability (AAL), normal cost (NC) and present value of future normal costs (PVFNC). The actuary computes the liability components (PVFB, NC, AAL, and PVFNC) for each participant in the Retirement

Appendix A: Valuation Process and Glossary of Actuarial Terms

System at the valuation date. These liability components are then totaled for the Retirement System. There are many actuarial cost methods. Different actuarial methods will produce different contribution patterns, but do not change the ultimate cost of the benefits. The entry age normal cost method is the most prevalent method used for public sector plans in the United States, because the expected normal cost is calculated in such a way that it will tend to stay level as a percent of pay over a member's career. Most of the North Carolina Retirement Systems use the entry age normal cost method; LGERS uses a method known as frozen initial liability, which is similar to entry age normal but allows for the individualized payments for local employers when they enter LGERS.

The actuarial accrued liability (AAL) is also referred to as the amount of money the Retirement System should ideally have in the trust. The unfunded actuarial accrued liability (UAAL) is the portion of actuarial accrued liability that is not covered by the assets of the Retirement System. The UAAL can be a negative number, which means that the Retirement System has more assets than actuarial accrued liability. We refer to this condition as overfunded liability in this summary. Having UAAL does not indicate that the Retirement System is in failing actuarial health. UAAL is a common occurrence. Currently, many Retirement Systems in the United States have UAAL as a result of the Great Recession of 2008. Another related statistic of the Retirement System is the funded ratio. The funded ratio is the percent of the actuarial accrued liabilities covered by the actuarial value of assets. The assets used for these purposes are an actuarial value of assets (AVA), not market. The actuarial value of assets is based on the asset valuation method as recommended by the actuary and adopted by the Board. An actuarial value of assets is a smoothed, or averaged, value of assets, which is used to limit employer contribution volatility. Typically, assets are smoothed, or averaged, over a period of 3 to 5 years, although longer periods are becoming more common. By averaging returns, the UAAL is not as volatile, which we will see later results in contributions that are not as volatile as well. The North Carolina Retirement Systems use an actuarial value of assets with a smoothing period of 5 years.

While having UAAL is common, it is acceptable only if it is systematically being paid off. The method by which the UAAL is paid off is known as the amortization method. The concept is similar to that of a mortgage payment. The Board adopts the amortization method used to pay off the UAAL over a period of time. The amortization method is composed of the amortization period, the amount of payment increase, whether the period is open or closed and by the amount of amortization schedules. The amortization period is the amount of time over which the UAAL will be paid off. This is generally a period of thirty years or less, but actuaries are beginning to recommend shorter periods. The payments can be developed to stay constant from year to year like a mortgage, but often they are developed to increase each year at the same level payroll increases. Amortization type can be closed or open. Under a closed period, the UAAL is expected to be paid off over the amortization period. This is similar to a typical mortgage. Under an open period, the amortization period remains unchanged year after year. The concept is similar to re-mortgaging annually. In many instances, an amortization schedule is developed, whereby the UAAL is amortized over a closed period from the point the UAAL is incurred. Finally, some amortization methods are defined by a schedule of payments, where a new schedule of payments is added with each valuation. Regardless of the amortization type or period, the funding policy should generate a contribution that pays off the UAAL, which results in the funded ratio trending to 100% over time. Caution

Appendix A: Valuation Process and Glossary of Actuarial Terms

should be used when an open method is used, because typically an open amortization policy does not result in the UAAL being paid off. North Carolina pays off a much larger amount of UAAL compared to other states. While many states struggle to pay a 30-year level percent of pay UAAL contribution, which doesn't even reduce the amount of UAAL, North Carolina pays down the UAAL with level dollar payments over 12 years. This aggressive payment of UAAL results in North Carolina being home to many of the best funded Public Retirement Systems in the United States.

To satisfy the requirements of the State of North Carolina, the actuary calculates the total annual contribution to the Retirement System as the normal cost plus a contribution towards UAAL. Said another way, this contribution is sufficient to pay for the cost of benefits accruing during the year (normal cost) plus the mortgage payment (UAAL payment). The total contribution is reduced by the amount of member contributions, if any, to arrive at the employer contribution. For the aggressive North Carolina contribution policy to be effective, the amounts that Buck calculates need to be contributed. With very limited exception, North Carolina has contributed the amounts that Buck has calculated, which has resulted in the North Carolina Retirements Systems being among the best funded in the United States.

An actuarial valuation report is produced annually, which contains the contribution for the fiscal year as well as the funded ratio of the Retirement System. The primary purpose of performing an actuarial valuation annually is to replace the estimated activities from the previous valuation, which were based on assumptions, with the actual experience of the Retirement System for the prior year. The experience gain (loss) is the difference between the expected and the actual UAAL of the Retirement System. An experience loss can be thought of as the amount of additional UAAL over and above the amount that was expected from the prior year due to deviation of actual experience from the assumption. Similarly, an experience gain can be thought of as having less UAAL than that which was expected from the prior year assumptions. As an example, if the Retirement System achieves an asset return of 15% when the assumption was a 7.25% return, an actuarial gain is said to have happened, which typically results in lower contributions and higher funded ratio, all else being equal. Alternatively, a return of 2% under the same circumstances would result in an actuarial loss, requiring an increase in contributions and a funded ratio that is lower than anticipated. Experience gains and losses are common within the valuation process. Typically gains and losses offset each other over time. To the extent that does not occur, the reasons for the gains and losses should be understood, and appropriate recommendations should be made by the actuary after an experience review to adjust the assumptions.

The actuarial valuation report will contain histories of key statistics from prior actuarial valuation reports. In particular, a history of the funded ratio of the Retirement System is an important exhibit. Trustees should understand the reason for the trend of the funded ratio of the Retirement System over time. The actuary will discuss the reasons for changes in the funded ratio of the Retirement System with each valuation report. To the extent that there are unexplained changes in funded ratio corrective action should be explored and the actuary will make recommendations as to whether there should be changes in the assumptions, funding policy, or some other portion of the actuarial valuation process.

Appendix A: Valuation Process and Glossary of Actuarial Terms

In addition to historical information, projections of contributions and funded ratio based on current assumptions can sometimes be found in an actuarial valuation report. Projections of contributions can allow the employer to plan their budget accordingly. Surprises in Retirement System contributions to be paid by the employer serve no one. A one-year projection based on "bad" asset returns can provide ample time for the employer to plan, or allow for a discussion of changing the funding policy to occur. Contribution surprises are a primary contributor to employers considering pension reform. It is important to keep the employer apprised of future contribution requirements. A projection of funded ratio can serve the Trustees by illustrating the trend of the funded ratio over time. The funded ratio, under a prudent funding policy, should trend to 100% over a period of less than 30 years. (It is worthwhile to note that while 30 years has served as an industry standard for the longest period over which 100% funding should be achieved, that period is coming under scrutiny by the actuarial community and will likely be shortened.) If a projection of funded ratio does not trend to 100% over time, consideration should be given to fixing the funding policy to achieve this goal. For the North Carolina Retirement Systems, projections are generally performed for the January Board meetings. While the projection period has tended to be limited to five years, a longer projection would show the funded ratio trend to 100% much faster than other Public Retirement Systems.

The actuarial report will contain schedules of information about the census, plan and asset information submitted by Retirement System staff upon which the actuarial valuation is based. It is important that the Board of Trustees review that information and determine if the information is consistent with their understanding of the Retirement System. If after questioning staff, the Board of Trustees is not comfortable that the information provided is correct, the actuary should be notified to determine if the actuarial valuation report should be corrected.

Finally, the valuation report and/or presentation should contain sufficient information in an understandable fashion to allow the Board to take action and adopt the contribution rate for the upcoming year. It should also allow stakeholders to understand key observations over the past year that resulted in contributions increasing (or decreasing) and where contributions are headed. The actuary is always open to making the results understandable. Buck works with the North Carolina Retirement Division to make your reports and presentations understandable and actionable. If something doesn't make sense – speak up!!

Appendix A: Valuation Process and Glossary of Actuarial Terms

Glossary

Note that the first definitions given are the "official" definitions of the term. For some terms there is a second definition, in italics, which is the unofficial definition.

Actuarial Accrued Liability (AAL). The portion of the Present Value of Projected Benefits (PVFB) allocated to past service. Also difference between (i) the actuarial present value of future benefits, and (ii) the present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability." *The amount of money that should be in the Fund. The funding target.*

Actuarial Assumptions. Estimates of future plan experience with respect to rates of mortality, disability, retirement, investment income and salary increases. Demographic ("people") assumptions (rates of mortality, separation, and retirement) are generally based on past experience, often modified for projected changes in conditions. Economic ("money") assumptions (salary increases and investment income) consist of an underlying rate appropriate in an inflation-free environment plus a provision for a long-term average rate of inflation. *Estimates of future events used to project what we know now- current member data, assets, and benefit provisions – into an estimate of future benefits.*

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the Present Value of Projected Benefits (PVFB) between the normal costs to be paid in the future and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Methods. The collective term for the Actuarial Cost Method, the Amortization Payment for UAAL Method, and the Asset Valuation Method used to develop the contribution requirements for the Retirement System. *The Funding Policy*.

Actuarial Equivalent. Benefits whose actuarial present values are equal.

Actuarial Present Value. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Actuarial Value of Assets (AVA). A smoothed value of assets which is used to limit contribution volatility. Also known as the funding value of assets. *Smoothed value of assets.*

Appendix A: Valuation Process and Glossary of Actuarial Terms

Amortization Payment for UAAL. Payment of the unfunded actuarial accrued liability by means of periodic contributions of interest and principal, as opposed to a lump sum payment. The components of the amortization payment for UAAL includes:

- Amortization Period Length – Generally amortization periods up to 30 years are allowed. Similar to a mortgage, the shorter the amortization period, the higher the payment and the faster the UAAL is paid off.
- Amortization payment increases – Future payments can be level dollar, like a mortgage, or as a level percent of pay. Most Retirement Systems amortize UAAL as a level percent of pay which when combined with the employer normal cost that is developed as a level percent of pay can result in contributions that are easier to budget.
- Amortization type Amortization schedule can be closed or open. A closed amortization schedule is similar to a mortgage – at the end of the amortization period the UAAL is designed to be paid off. An open amortization period is similar to refinancing the UAAL year after year.
- Amortization schedule UAAL can be amortized over a single amortization period, or it can be amortized over a schedule.

The amortization payment for UAAL can be thought of as the UAAL mortgage payment.

Asset Valuation Method. The components of how the actuarial value of assets is to be developed.

Experience Gain Loss. A measure of the difference between actual experience and experience anticipated by a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used. *The experience Gain (Loss) represents how much the actuary missed the mark in a given year.*

Funded Ratio. The percent of the actuarial accrued liabilities covered by the actuarial value of assets. Also known as the funded status. *The ratio of how much money you actually have in the fund to the amount you should have in the fund.*

Normal Cost. The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as “current service cost.” An amortization payment toward the unfunded actuarial accrued liability is paid in addition to the normal cost to arrive at the total contribution in a given year. *The cost of benefits accruing during the year*.

Present Value of Future Normal Cost (PVFNC). The portion of the Present Value of Projected Benefits (PVFB) allocated to future service. *The value in today’s dollars of the amount of contribution to be made in the future for benefits accruing for members in the Retirement System as of the valuation date. Note that in practice, this number is rarely discussed.*

Appendix A: Valuation Process and Glossary of Actuarial Terms

Present Value of Future Benefits (PVFB). The projected future benefit payments of the plan are discounted into today's dollars using an assumed rate of investment return assumption to determine the Present Value of Future Benefits (PVFB) of the Retirement System. The PVFB is the discounted value of the projected benefits promised to all members as of a valuation date, including future pay and service for members which has not yet been earned. *If the Retirement System held assets equal to the PVFB and all the assumptions were realized, there would be sufficient funds to pay off all the benefits to be paid in the future for members in the Retirement System as of the valuation date.*

Reserve Account. An account used to indicate that funds have been set aside for a specific purpose and are not generally available for other uses.

Unfunded Actuarial Accrued Liability (UAAL). The difference between the actuarial accrued liability (AAL) and actuarial value of assets (AVA). The UAAL is sometimes referred to as "unfunded accrued liability." *Funding shortfall, or prefunded amount if negative.*

Valuation Date. The date that the actuarial valuation calculations are performed as of. *Also known as the "snapshot date".*

Appendix B: Detailed Tabulations of Member Data

Table B-1: The Number and Average Reported Compensation of Active Members Distributed by Age and Service as of December 31, 2013

Age	Years of Service										
	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	Total
Under 25	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0
30 to 34	1	2	1	0	0	0	0	0	0	0	4
	6,949	110,684	111,378	0	0	0	0	0	0	0	84,924
35 to 39	1	10	4	0	0	0	0	0	0	0	15
	9,224	112,284	113,103	0	0	0	0	0	0	0	105,632
40 to 44	2	21	29	6	1	0	0	0	0	0	59
	38,152	109,161	117,331	121,488	114,061	0	0	0	0	0	112,106
45 to 49	1	25	26	23	11	7	2	0	0	0	95
	13,898	106,391	113,625	126,303	128,131	125,376	87,398	0	0	0	115,734
50 to 54	0	22	29	17	11	10	9	1	0	0	99
	0	106,291	119,534	115,287	130,197	131,804	125,143	91,394	0	0	118,512
55 to 59	1	15	19	12	18	15	10	7	3	1	101
	30,496	111,310	118,103	127,600	125,641	137,022	132,407	118,284	103,406	99,398	122,315
60 to 64	2	10	18	14	17	12	14	11	3	2	103
	23,059	112,124	117,188	127,485	135,981	134,639	138,360	138,932	110,839	97,400	126,034
65 to 69	0	11	16	7	13	8	6	9	2	1	73
	0	123,030	119,194	133,274	136,001	143,332	144,990	136,478	126,562	91,394	130,833
70 & Up	0	0	3	0	4	3	3	2	1	1	17
	0	0	107,704	0	141,082	138,387	152,942	155,612	128,666	103,406	135,572
Total	8	116	145	79	75	55	44	30	9	5	566
	22,874	110,164	117,039	124,591	131,483	135,063	133,885	132,905	113,836	97,800	120,948

Appendix B: Detailed Tabulations of Member Data

Table B-2: The Number and Reported Compensation of Active Members Distributed by Age as of December 31, 2013

	Men		Women	
Age	Number	Compensation	Number	Compensation
31	1	$ 6,949		
33	1	110,684		
34	2	222,062		
35	2	221,368		
36			2	$ 221,368
37	2	226,684	2	92,614
38	1	110,684	4	468,739
39	2	243,013		
40			4	458,672
41	4	431,261	5	553,420
42	13	1,375,834	3	370,113
43	7	827,085	11	1,223,765
44	5	586,549	7	787,552
45	9	952,173	12	1,371,667
46	10	982,007	7	787,966
47	11	1,402,253	10	1,164,752
48	14	1,708,274	7	892,449
49	7	838,699	8	894,502
50	6	706,861	8	907,621
51	13	1,701,234	10	1,122,387
52	9	1,049,213	10	1,192,427
53	11	1,364,853	8	935,505
54	15	1,838,312	9	914,251
55	5	591,477	8	875,088
56	13	1,598,812	3	318,078
57	16	2,118,798	9	924,347
58	10	1,289,442	9	1,063,643
59	20	2,618,954	8	955,191
60	12	1,542,221	5	577,351
61	20	2,514,199	4	427,374
62	19	2,454,037	2	302,271
63	14	1,874,478	3	422,532
64	20	2,401,269	4	465,761
65	18	2,415,783	4	480,497
66	14	1,808,873	2	278,893

Appendix B: Detailed Tabulations of Member Data

Table B-2: The Number and Reported Compensation of Active Members Distributed by Age as of December 31, 2013 (continued)

	Men		Women	
Age	Number	Compensation	Number	Compensation
67	14	$ 1,902,789		
68	9	1,188,489	2	$ 217,132
69	9	1,147,630	1	110,684
70	5	743,409		
71	6	829,283	3	416,568
75	1	83,390		
77	1	128,666		
83			1	103,406
Total	371	$ 46,158,051	195	$ 22,298,586

Appendix B: Detailed Tabulations of Member Data

Table B-3: The Number and Reported Compensation of Active Members Distributed by Service as of December 31, 2013

	Men		Women	
Service	Number	Compensation	Number	Compensation
0	7	$ 173,767	1	$ 9,224
1	21	2,250,442	19	1,914,719
2	3	377,428	5	526,281
3	32	3,736,562	20	2,139,281
4	10	1,193,542	6	640,715
5	21	2,422,814	21	2,315,811
6	10	1,171,303	8	949,009
7	33	3,903,607	13	1,460,402
8	9	1,095,687	3	342,891
9	17	2,064,597	10	1,244,537
10	2	203,398	2	203,731
11	15	1,921,819	12	1,440,562
12	6	813,327	3	358,608
13	16	1,974,700	10	1,305,991
14	10	1,243,346	3	377,197
15	14	1,773,024	3	381,765
16	6	853,686	4	500,714
17	9	1,189,905	6	764,164
18	6	757,198	3	378,689
19	22	2,965,795	2	296,280
20	10	1,406,067	4	472,096
21	8	1,154,771	3	434,082
22	3	404,973	2	222,159
23	17	2,391,716	2	244,712
24	4	479,832	2	218,075
25	15	2,130,577	5	544,169
26			1	132,322
27	8	1,104,432	1	110,684
28	3	388,673	1	121,304
29	7	979,872	3	378,925
30	2	310,289		
31	4	629,496	2	242,965
32	4	458,940	4	497,105
33	3	452,022	1	115,241
34	7	986,756	3	294,342

Appendix B: Detailed Tabulations of Member Data

Table B-3: The Number and Reported Compensation of Active Members Distributed by Service as of December 31, 2013 (continued)

	Men		Women	
Service	Number	Compensation	Number	Compensation
35	2	$ 278,383		
36	1	149,717		
37	1	95,402	1	$ 103,406
38	1	87,398	3	310,218
40			1	99,398
41	1	91,394		
42	1	91,394	1	103,406
45			1	103,406
Total	371	$ 46,158,051	195	$ 22,298,586

Appendix B: Detailed Tabulations of Member Data

Table B-4: The Number and Accumulated Contributions of Terminated Vested Members Distributed by Age as of December 31, 2013

	Men		Women	
Age	Number	Contributions	Number	Contributions
36			1	$ 11,453
39			1	3,881
42	1	$ 36,177		
43	2	21,231		
44	1	39,453		
46	4	268,275		
47			2	74,269
48	1	4,943		
49	1	29,033	3	236,727
50	3	266,116	1	4,476
51	1	30,825		
52			2	110,867
53	2	83,210		
54	1	35,275		
56	2	96,361	2	222,704
57	2	86,740	1	81,611
59	1	6,436		
60	2	39,534	1	1,243
61	2	102,597	1	3,494
63	1	17,615	1	37,406
64	2	32,710		
65	1	46,576		
66	1	15,601		
67	1	39,770		
69	1	54,530		
70	1	12,790		
71	2	3,506		
76			1	15,290
Total	36	$ 1,369,304	17	$ 803,421

Appendix B: Detailed Tabulations of Member Data

Table B-5: The Number and Annual Retirement Allowances of Retired Members (Healthy at Retirement) and Survivors of Deceased Members Distributed by Age as of December 31, 2013

	Men		Women	
Age	Number	Allowances	Number	Allowances
47			1	$ 17,076
49			2	25,836
51			2	36,576
52			1	80,436
53	1	$ 21,048	2	97,344
54	1	37,776		
55	1	6,168	1	72,024
56			3	156,396
57	3	247,248	9	530,448
58	1	93,168	5	263,004
59	7	423,816	3	231,168
60	10	681,252	6	311,532
61	7	490,824	5	303,444
62	14	790,944	10	566,556
63	9	614,640	7	515,388
64	17	1,275,840	9	568,164
65	13	902,472	8	474,168
66	14	1,014,984	6	400,656
67	21	1,634,448	8	353,472
68	24	1,691,292	11	667,224
69	11	800,076	4	209,004
70	13	911,460	4	185,616
71	16	1,099,992	6	437,964
72	13	1,046,363	10	371,758
73	10	855,684	3	136,524
74	13	1,198,476	9	555,960
75	10	856,908	6	287,136
76	9	619,128	6	215,964
77	13	954,732	6	310,392
78	11	638,484	7	294,636
79	5	261,648	8	292,212
80	7	505,608	3	90,012
81	6	417,264	8	415,524
82	6	369,888	5	346,500
83	7	471,324	4	154,380

Appendix B: Detailed Tabulations of Member Data

Table B-5: The Number and Annual Retirement Allowances of Retired Members (Healthy at Retirement) and Survivors of Deceased Members Distributed by Age as of December 31, 2013 (continued)

	Men		Women	
Age	Number	Allowances	Number	Allowances
84	7	$ 432,420	7	$ 268,116
85	8	462,228	7	160,476
86	2	70,860	8	226,632
87	4	230,976	6	190,668
88	4	283,140	2	72,828
89	2	154,092	4	53,196
90	1	98,772	7	128,184
91	3	195,600	5	103,296
92	1	35,556	1	20,652
93	2	104,544	4	88,344
94	2	190,176	2	56,748
95			3	109,428
96			2	75,540
98			3	48,756
Total	329	$ 23,191,319	249	$ 11,577,358

Appendix B: Detailed Tabulations of Member Data

Table B-6: The Number and Annual Retirement Allowances of Retired Members (Healthy at Retirement) and Survivors of Deceased Members Distributed by Annuity Type as of December 31, 2013

	Men		Women	
Annuity Type	Number	Allowances	Number	Allowances
Maximum	208	$ 15,507,348	103	$ 5,910,143
Option 1	4	326,600	1	20,648
Option 2	19	757,776	3	179,485
Option 3	34	2,816,616	2	108,196
Option 4	2	139,906	8	422,846
Option 5-2				
Option 5-3				
Option 6-2	10	349,980		
Option 6-3	36	2,816,696	8	466,459
Other	5	169,998	2	72,550
Survivors of Deceased Members	11	306,399	122	4,397,031
Total	329	$ 23,191,319	249	$ 11,577,358

Appendix B: Detailed Tabulations of Member Data

Table B-7: The Number and Annual Retirement Allowances of Retired Members (Disabled at Retirement) Distributed by Age of December 31, 2013

	Men		Women	
Age	Number	Allowances	Number	Allowances
57	1	$ 68,323		
61	1	51,041		
63			1	$ 95,438
65			1	51,970
73	1	45,300		
74			1	30,641
Total	3	$ 164,664	3	$ 178,049

Appendix B: Detailed Tabulations of Member Data

Table B-8: The Number and Annual Retirement Allowances of Retired Members (Disabled at Retirement) Distributed by Annuity Type of December 31, 2013

	Men		Women	
Annuity Type	Number	Allowances	Number	Allowances
Maximum	1	$ 68,323	2	$ 126,079
Option 1	1	45,300		
Option 2	1	51,041		
Option 3			1	51,970
Option 4				
Option 5-2				
Option 5-3				
Option 6-2				
Option 6-3				
Other				
Total	3	$ 164,664	3	$ 178,049

Appendix C: Summary of Main Benefit and Contribution Provisions

All justices, judges, district attorneys, and public defenders of the General Court of Justice, and clerks of the Superior Court are eligible for membership.

"Final compensation" as used in the summary means the annual rate of compensation of the member at his date of termination or death. “Average final compensation” means the average annual compensation during the 48 consecutive calendar months of membership producing the highest average. "Creditable service" includes all service rendered as a justice of the Supreme Court, judge of the Court of Appeals, judge of the Superior Court, judge of the District Court Division of the General Court of Justice, Administrative Officer of the Courts, District Attorney, Public Defender or as a Clerk of the Superior Court.

BENEFITS

Service Retirement Allowance

Conditions for Allowance

A service retirement allowance is payable to any member who retires from service and:

(a) had attained age 50 and was in service on October 8, 1981; or

(b) has attained age 50 and completed five or more years of creditable service; or

Retirement is compulsory at age 72 if the member is a justice or judge of the Appellate, Superior, or District Divisions of the General Court of Justice and at age 70 for each other member.

Unreduced Allowance

An unreduced annual service retirement allowance is payable to a member who:

(a) has attained age 65 and completed five years of creditable service; or

(b) has attained age 50 and completed 24 years of creditable service.

The Service Retirement Allowance is equal to:

(i) 4.02% of final compensation multiplied by the number of years of creditable service rendered as a justice of the Supreme Court or judge of the Court of Appeals, plus

(ii) 3.52% of final compensation multiplied by the number of years of creditable service rendered

Appendix C: Summary of Main Benefit and Contribution Provisions

as a judge of the Superior Court or as Administrative Officer of the Courts, plus

(iii) 3.02% of final compensation multiplied by the number of years of creditable service rendered as a judge of the District Court, District Attorney, Public Defender, or Clerk of the Superior Court, plus

(iv) A service retirement allowance computed on average final compensation, service transferred from the Teachers' and State Employees' Retirement System or the Local Governmental Employees' Retirement System and the applicable formula accrual rate from the previous system.

Reduced Allowance	A reduced annual service retirement allowance is payable to a member who retires: (a) prior to the earlier of attainment of age 65 and completion of five years of creditable service; (b) prior to attainment of age 50 or the completion of 24 years of creditable service. The reduced amount is an allowance as computed above reduced by 3% for each year that the member's retirement date precedes the date upon which the member would have attained age 65 or completed 24 years of service had he remained in service, whichever is earlier.
Maximum Amount	The maximum annual service retirement allowance (on an unreduced basis) is the amount which, when added to the member's benefit payable from the Teachers' and State Employees' Retirement System, Local Governmental Employees' Retirement System, or Legislative Retirement System (all on an unreduced basis) would total 75% of the member's final compensation.

Appendix C: Summary of Main Benefit and Contribution Provisions

Minimum Amount	In no event will a member whose creditable service commenced prior to January 1, 1974 as a justice of the Supreme Court, as a judge of the Court of Appeals, as an Administrative Officer of the courts, or as a judge of the Superior Court, receive a smaller retirement allowance than he would have received under Chapter 7-A of the General Statutes.
Disability Retirement Allowance	
Condition for Allowance	Any member who becomes permanently and totally disabled prior to the attainment of age 65 and who has completed at least five years of creditable service may be retired by the Board of Trustees on a disability retirement allowance. Any retired member may also apply for a disability retirement allowance within the first three years of retirement.
Amount of Allowance	The disability retirement allowance is computed as a service retirement allowance based on the number of years of creditable service the member would have had had he remained in service to the earliest date he could have retired on an unreduced service retirement allowance.
Deferred Allowance	Any member who separates from service prior to age 50 and completion of five years of creditable service and who leaves his total accumulated contributions in the system may receive a deferred allowance, beginning at age 50, computed in the same way as a service retirement allowance on the basis of his creditable service and compensation to the date of separation.
Spouse Benefit	
Conditions for Benefit	Upon the death of a member in active service after his attainment of age 50 and completion of five years of creditable service a death benefit is payable to his surviving spouse.
Amount of Benefit	The surviving spouse receives a lump sum payment equal to the member's final compensation. In addition the surviving spouse receives an annual retirement allowance, until death or remarriage, equal to 50% of the service retirement allowance to which the member would have been entitled had he retired on the first day

Appendix C: Summary of Main Benefit and Contribution Provisions

	of the calendar month coincident with or next following his date of death reduced by 2% for each year that the member's age exceeds that of his spouse.
Lump Sum Death Benefit	Upon the death of a member in active service prior to his attainment of age 50 a lump sum payment equal to his accumulated contributions plus his final compensation is made to his designated beneficiary or estate.
Death after Retirement	Upon the death of a retired member while in receipt of a service retirement allowance or after age 65 if in receipt of a disability retirement allowance an allowance is paid to his spouse, until death or remarriage, equal to one-half the allowance which was payable to the member prior to his death reduced by 2% for each year that the member's age exceeds that of his spouse. Upon the death of a member in receipt of a disability retirement allowance prior to age 65, an allowance is paid to his spouse, until death or remarriage, equal to one-half the service retirement allowance he would have received had he remained in service up to his date of death reduced by 2% for each year that the member's age exceeds that of his spouse.
Other Death Benefits	Upon the death of a member in service, other benefits may be provided by the Death Benefit Plan.
Return of Contributions	Any member who terminates service other than by retirement or death is entitled to the return of his accumulated contributions. If the total retirement allowance payments to a retired member, spouse and/or beneficiary under option are less than the member's accumulated contributions at retirement, the excess is paid to the designated beneficiary or legal representatives. The current interest rate on member contributions is 4%.

Appendix C: Summary of Main Benefit and Contribution Provisions

Optional Allowances	In lieu of the full retirement allowance, any member may elect to receive a reduced retirement allowance equal in value to the full allowance, with the provision that: Option 1 - At the death of the member within 10 years from his retirement date, an amount equal to his accumulated contributions at retirement, less 1/120 for each month he has received a retirement allowance payment, is paid to his estate, or to a person designated by the member, or Option 2 - At the death of the member his allowance shall be continued throughout the life of such other person as the member shall have designated at the time of his retirement, or Option 3 - At the death of the member one-half of his allowance shall be continued throughout the life of such other person as the member shall have designated at the time of his retirement, or Option 4 - At retirement, any member may elect to receive a retirement allowance in such amount that, together with his Social Security benefit, he will receive approximately the same income per annum before and after the earliest age at which he becomes eligible to receive the Social Security benefit. A member who elects to receive his allowance under this option is deemed to have elected Option 1 also, or Option 5 - At retirement, the member may elect to receive a reduced retirement allowance during his life with some other benefit approved by the Board of Trustees payable after he dies, or he may elect to receive a reduced retirement allowance under the provisions of Option 2 or Option 3 in conjunction with the provisions of Option 1, or Option 6 - A member may elect either Option 2 or Option 3 with the added provision that in the event the designated beneficiary predeceases the member, the retirement allowance payable to the member after the designated beneficiary's death shall be equal to the retirement allowance which would have been payable had the member not elected the Option.

Appendix C: Summary of Main Benefit and Contribution Provisions

Unused Sick Leave	Unused sick leave counts as creditable service at retirement. Sick leave which was converted from unused vacation leave is also creditable. One month of credit is allowed for each 20 days of unused sick leave, plus an additional month for any part of 20 days left over.
Post-Retirement Increases in Allowance	Future increases in allowances may be granted at the discretion of the State.
Contributions	
Member Contributions	Each member contributes 6% of his annual compensation.
Employer Contributions	The State makes annual contributions consisting of a normal contribution and an accrued liability contribution. The normal contribution covers the liability on account of current service and is determined by the actuary after each valuation. The accrued liability contribution covers the liability on account of service rendered before the establishment of the retirement system and the liability on account of increases in benefits for service rendered prior to the effective date of any amendment.
Changes Since Prior Valuation	A 1% cost-of-living adjustment was granted at July 1, 2014. Vesting requirements were restored to five years, instead of 10 years, for all active members hired after August 1, 2011. The return of contributions with accumulated interest is allowed for members terminating with less than five years of membership service.

Appendix D: Actuarial Assumptions and Methods

Assumptions are based on the experience investigation prepared as of December 31, 2009 and adopted by the Board of Trustees on October 21, 2010. The next experience investigation will be based on the five-year period ending December 31, 2014. The actuary will present this investigation during the fall of 2015 for adoption by the Board of Trustees with the intent of using the assumptions recommended in the December 31, 2014 experience review beginning with the December 31, 2015 annual valuation.

Interest Rate: 7.25% per annum, compounded annually.

Inflation: Both general and wage inflation are assumed to be 3.00% per annum.

Real Wage Growth: 0.50% per annum.

Withdrawal: No termination of employment is assumed to occur prior to retirement, other than death or disability.

Separations Before Retirement and Salary Increases: Representative values of the assumed annual rates of separation and annual rate of salary increases are as follows:

		Annual Rate of			
Age	Disability	Base Mortality*		Service	Salary Increase
		Male	Female		
25	.0001	.0004	.0002	0	.0595
30	.0001	.0005	.0003	5	.0570
35	.0003	.0008	.0005	10	.0545
40	.0007	.0011	.0008	15	.0525
45	.0014	.0016	.0012	20	.0520
50	.0023	.0023	.0018	25	.0500
55	.0047	.0033	.0028	30	.0500
60	.0077	.0054	.0043	35	.0500
64	.0098	.0076	.0058	40	.0500

* Base mortality rates as of December 31, 2003.

Service Retirement: Representative values of the assumed annual rates of service retirement are as follows:

	Service					
Age	5	10	15	20	25	30
50					.075	.075
55	.030	.030	.030	.030	.075	.075
60	.030	.030	.030	.030	.075	.075
65	.100	.100	.100	.100	.250	.250
70	1.000	1.000	1.000	1.000	1.000	1.000

Appendix D: Actuarial Assumptions and Methods

Representative values of the assumed post-retirement mortality rates as of December 31, 2003 prior to any mortality improvements are as follows:

Annual Rate of Death after Retirement (Retired Members and Survivors of Deceased Members)

	Retirees (Healthy at Retirement)		Survivors of Deceased Members		Retirees (Disabled at Retirement)	
Age	Male	Female	Male	Female	Male	Female
55	.0061	.0039	.0061	.0044	.0277	.0176
60	.0090	.0069	.0090	.0077	.0342	.0229
65	.0149	.0114	.0149	.0125	.0407	.0296
70	.0246	.0186	.0246	.0207	.0483	.0401
75	.0422	.0310	.0422	.0341	.0596	.0558
80	.0720	.0508	.0720	.0563	.0775	.0771

Mortality Improvements: Representative values of the assumed mortality improvement rates (applied to pre-retirement mortality rate for active members and post-retirement mortality rates for retirees healthy at retirement and survivors of deceased members after such tables have been set back or set forward) are as follows:

Age	Male Projection Scale	Female Projection Scale
25	0.010	0.014
30	0.005	0.010
35	0.005	0.011
40	0.008	0.015
45	0.013	0.016
50	0.018	0.017
55	0.019	0.008
60	0.016	0.005
65	0.014	0.005
70	0.015	0.005
75	0.014	0.008
80	0.010	0.007

Deaths After Retirement (Non-Disabled): According to the RP-2000 Mortality tables for retirees. These tables are set forward one year for males and females. These tables are also set forward one year for male survivors of deceased members and set forward two years for female survivors of deceased members. The base retiree RP-2000 tables have no rates prior to age 50. The active employee rates of RP-2000 are used for ages less than 50 prior to any adjustments for set back or set forward.

Appendix D: Actuarial Assumptions and Methods

Death After Disability: RP-2000 Mortality tables for disabled annuitants set back six years for males and set forward one year for females.

Deaths Prior to Retirement: According to the RP-2000 Mortality tables for active employees. These tables are set forward one year for males and females. The base RP-2000 tables for active employees have no rates after age 70. The rates from ages 71 to 79 are smoothed based on the active rate at age 70 and the retiree rate at age 80. Retiree rates are used for ages 80 and beyond.

Mortality Projection (Non-Disabled): All mortality rates are projected from December 31, 2003 using generational improvement with Scale AA.

Timing of Assumptions: All withdrawals, deaths, disabilities, retirements and salary increases are assumed to occur July 1 of each year.

Liability For Inactive Members: The liability for members who terminated prior to five years of creditable service is estimated to be 100% of the member's accumulated contributions. The liability for members who terminated after completing five years of creditable service is estimated based on the member's current age and the service and reported compensation at termination of employment.

Administrative Expenses: 0.75% of normal cost.

Marriage Assumption: 90% of male members married and 50% of female members married with the male spouses four years older than female spouses.

Reported Compensation: Calendar year compensation as furnished by the system's office.

Valuation Compensation: Reported compensation adjusted to reflect the assumed rate of pay as of the valuation date.

Actuarial Cost Method: Projected unit credit. Projected benefits and the corresponding liabilities are allocated based on proration by creditable service.

Asset Valuation Method: Actuarial value, as developed in Schedule A. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected actuarial value of assets, based on the assumed valuation rate of return. The amount recognized each year is 20% of the difference between market value and expected actuarial value. The actuarial value of assets is not allowed to be greater than 120% of the market value of assets or less than 80% of the market value of assets.

Changes Since Prior Valuation: None.

Appendix E: GASB 67 Fiduciary Net Position Projection

Table E-1: Projection of Fiduciary Net Positions
(in thousands)

Year	Beginning Fiduciary Position	Member Contributions	Employer Contributions	Benefit Payments	Administrative Expenses	Investment Earnings	Ending Fiduciary Position
12/31/2013	$ 511,969	$ 4,275	$ 18,686	$ 38,192	$ 130	$ 36,576	$ 533,184
12/31/2014	533,184	4,130	18,006	39,330	127	38,043	553,906
12/31/2015	553,906	4,045	17,576	41,040	125	39,462	573,824
12/31/2016	573,824	3,959	17,235	42,784	121	40,829	592,942
12/31/2017	592,942	3,864	16,961	44,437	119	42,143	611,354
12/31/2018	611,354	3,770	16,634	46,147	115	43,402	628,898
12/31/2019	628,898	3,662	16,327	47,858	112	44,598	645,515
12/31/2020	645,515	3,550	16,131	49,351	109	45,739	661,475
12/31/2021	661,475	3,455	15,852	50,962	106	46,825	676,539
12/31/2022	676,539	3,339	13,212	52,633	102	47,802	688,157
12/31/2023	688,157	3,217	10,471	53,898	100	48,460	696,307
12/31/2024	696,307	3,115	9,219	55,366	96	48,958	702,137
12/31/2025	702,137	2,989	8,555	56,569	92	49,293	706,313
12/31/2026	706,313	2,864	8,643	57,922	88	49,548	709,358
12/31/2027	709,358	2,724	8,484	59,064	84	49,721	711,139
12/31/2028	711,139	2,580	8,113	60,263	79	49,789	711,279
12/31/2029	711,279	2,438	7,599	61,682	74	49,725	709,285
12/31/2030	709,285	2,272	7,088	62,851	69	49,515	705,240
12/31/2031	705,240	2,102	6,479	64,099	62	49,150	698,810
12/31/2032	698,810	1,907	5,789	65,545	56	48,602	689,507
12/31/2033	689,507	1,700	5,176	66,488	49	47,865	677,711
12/31/2034	677,711	1,508	4,512	67,340	43	46,949	663,297
12/31/2035	663,297	1,320	3,811	68,156	36	45,843	646,079
12/31/2036	646,079	1,115	3,107	68,822	29	44,539	625,989
12/31/2037	625,989	906	2,518	68,990	23	43,049	603,449
12/31/2038	603,449	730	1,982	68,819	18	41,395	578,719
12/31/2039	578,719	575	1,614	67,935	14	39,615	552,574
12/31/2040	552,574	459	1,206	66,957	10	37,736	525,008
12/31/2041	525,008	339	903	65,557	7	35,773	496,459
12/31/2042	496,459	242	726	63,594	5	33,763	467,591
12/31/2043	467,591	181	606	61,280	4	31,746	438,840
12/31/2044	438,840	142	490	58,842	3	29,743	410,370
12/31/2045	410,370	110	356	56,457	2	27,758	382,135
12/31/2046	382,135	74	261	53,932	1	25,796	354,333
12/31/2047	354,333	49	198	51,264	1	23,873	327,188
12/31/2048	327,188	32	141	48,568	1	21,998	300,790
12/31/2049	300,790	19	98	45,837	0	20,179	275,249
12/31/2050	275,249	10	68	43,071	0	18,425	250,681
12/31/2051	250,681	4	55	40,272	0	16,742	227,210
12/31/2052	227,210	0	35	37,543	0	15,137	204,839
12/31/2053	204,839	0	25	34,802	0	13,612	183,674
12/31/2054	183,674	0	17	32,108	0	12,174	163,757
12/31/2055	163,757	0	12	29,467	0	10,824	145,126
12/31/2056	145,126	0	8	26,889	0	9,564	127,809
12/31/2057	127,809	0	5	24,387	0	8,398	111,825
12/31/2058	111,825	0	3	21,972	0	7,325	97,181
12/31/2059	97,181	0	1	19,658	0	6,346	83,870
12/31/2060	83,870	0	0	17,459	0	5,459	71,870
12/31/2061	71,870	0	0	15,390	0	4,663	61,143
12/31/2062	61,143	0	0	13,459	0	3,954	51,638

Appendix E: GASB 67 Fiduciary Net Position Projection

Table E-1: Projection of Fiduciary Net Positions (continued)

(in thousands)

Year	Beginning Fiduciary Position	Member Contributions	Employer Contributions	Benefit Payments	Administrative Expenses	Investment Earnings	Ending Fiduciary Position
12/31/2063	$ 51,638	$ 0	$ 0	$ 11,675	$ 0	$ 3,328	$ 43,291
12/31/2064	43,291	0	0	10,045	0	2,781	36,027
12/31/2065	36,027	0	0	8,577	0	2,307	29,757
12/31/2066	29,757	0	0	7,265	0	1,899	24,391
12/31/2067	24,391	0	0	6,104	0	1,551	19,838
12/31/2068	19,838	0	0	5,089	0	1,257	16,006
12/31/2069	16,006	0	0	4,208	0	1,011	12,809
12/31/2070	12,809	0	0	3,449	0	806	10,166
12/31/2071	10,166	0	0	2,805	0	637	7,998
12/31/2072	7,998	0	0	2,260	0	500	6,238
12/31/2073	6,238	0	0	1,804	0	388	4,822
12/31/2074	4,822	0	0	1,426	0	299	3,695
12/31/2075	3,695	0	0	1,117	0	228	2,806
12/31/2076	2,806	0	0	866	0	173	2,113
12/31/2077	2,113	0	0	664	0	130	1,579
12/31/2078	1,579	0	0	503	0	97	1,173
12/31/2079	1,173	0	0	377	0	72	868
12/31/2080	868	0	0	280	0	53	641
12/31/2081	641	0	0	205	0	40	476
12/31/2082	476	0	0	149	0	30	357
12/31/2083	357	0	0	108	0	22	271
12/31/2084	271	0	0	77	0	17	211
12/31/2085	211	0	0	54	0	14	171
12/31/2086	171	0	0	38	0	11	144
12/31/2087	144	0	0	26	0	10	128
12/31/2088	128	0	0	18	0	9	119
12/31/2089	119	0	0	12	0	9	116
12/31/2090	116	0	0	8	0	9	117
12/31/2091	117	0	0	5	0	9	121
12/31/2092	121	0	0	3	0	9	127
12/31/2093	127	0	0	2	0	10	135
12/31/2094	135	0	0	1	0	10	144
12/31/2095	144	0	0	1	0	11	154
12/31/2096	154	0	0	0	0	11	165
12/31/2097	165	0	0	0	0	12	177
12/31/2098	177	0	0	0	0	13	190
12/31/2099	190	0	0	0	0	14	204
12/31/2100	204	0	0	0	0	15	219
12/31/2101	219	0	0	0	0	16	235
12/31/2102	235	0	0	0	0	17	252
12/31/2103	252	0	0	0	0	19	271
12/31/2104	271	0	0	0	0	20	291
12/31/2105	291	0	0	0	0	21	312
12/31/2106	312	0	0	0	0	23	335
12/31/2107	335	0	0	0	0	25	360
12/31/2108	360	0	0	0	0	26	386
12/31/2109	386	0	0	0	0	28	414
12/31/2110	414	0	0	0	0	30	444
12/31/2111	444	0	0	0	0	33	477
12/31/2112	477	0	0	0	0	35	512

Appendix E: GASB 67 Fiduciary Net Position Projection

Table E-2: Actuarial Present Value of Projected Benefit Payments

(in thousands)

Year	Beginning Fiduciary Position	Benefit Payments	Funded Benefit Payments	Unfunded Benefit Payments	Present Value of Benefit Payments: Funded Payments at 7.25%	Present Value of Benefit Payments: Unfunded Payments at 3.66%	Present Value of Benefit Payments: Using Single Discount Rate of 7.25%
12/31/2013	$ 511,969	$ 38,192	$ 38,192	$ 0	$ 36,879	$ 0	$ 36,879
12/31/2014	533,184	39,330	39,330	0	35,410	0	35,410
12/31/2015	553,906	41,040	41,040	0	34,452	0	34,452
12/31/2016	573,824	42,784	42,784	0	33,488	0	33,488
12/31/2017	592,942	44,437	44,437	0	32,431	0	32,431
12/31/2018	611,354	46,147	46,147	0	31,402	0	31,402
12/31/2019	628,898	47,858	47,858	0	30,365	0	30,365
12/31/2020	645,515	49,351	49,351	0	29,196	0	29,196
12/31/2021	661,475	50,962	50,962	0	28,111	0	28,111
12/31/2022	676,539	52,633	52,633	0	27,070	0	27,070
12/31/2023	688,157	53,898	53,898	0	25,846	0	25,846
12/31/2024	696,307	55,366	55,366	0	24,756	0	24,756
12/31/2025	702,137	56,569	56,569	0	23,584	0	23,584
12/31/2026	706,313	57,922	57,922	0	22,515	0	22,515
12/31/2027	709,358	59,064	59,064	0	21,407	0	21,407
12/31/2028	711,139	60,263	60,263	0	20,365	0	20,365
12/31/2029	711,279	61,682	61,682	0	19,436	0	19,436
12/31/2030	709,285	62,851	62,851	0	18,465	0	18,465
12/31/2031	705,240	64,099	64,099	0	17,559	0	17,559
12/31/2032	698,810	65,545	65,545	0	16,741	0	16,741
12/31/2033	689,507	66,488	66,488	0	15,834	0	15,834
12/31/2034	677,711	67,340	67,340	0	14,953	0	14,953
12/31/2035	663,297	68,156	68,156	0	14,111	0	14,111
12/31/2036	646,079	68,822	68,822	0	13,286	0	13,286
12/31/2037	625,989	68,990	68,990	0	12,418	0	12,418
12/31/2038	603,449	68,819	68,819	0	11,550	0	11,550
12/31/2039	578,719	67,935	67,935	0	10,631	0	10,631
12/31/2040	552,574	66,957	66,957	0	9,769	0	9,769
12/31/2041	525,008	65,557	65,557	0	8,919	0	8,919
12/31/2042	496,459	63,594	63,594	0	8,067	0	8,067
12/31/2043	467,591	61,280	61,280	0	7,248	0	7,248
12/31/2044	438,840	58,842	58,842	0	6,489	0	6,489
12/31/2045	410,370	56,457	56,457	0	5,805	0	5,805
12/31/2046	382,135	53,932	53,932	0	5,171	0	5,171
12/31/2047	354,333	51,264	51,264	0	4,583	0	4,583
12/31/2048	327,188	48,568	48,568	0	4,048	0	4,048
12/31/2049	300,790	45,837	45,837	0	3,562	0	3,562
12/31/2050	275,249	43,071	43,071	0	3,121	0	3,121
12/31/2051	250,681	40,272	40,272	0	2,721	0	2,721
12/31/2052	227,210	37,543	37,543	0	2,365	0	2,365
12/31/2053	204,839	34,802	34,802	0	2,044	0	2,044
12/31/2054	183,674	32,108	32,108	0	1,758	0	1,758
12/31/2055	163,757	29,467	29,467	0	1,505	0	1,505
12/31/2056	145,126	26,889	26,889	0	1,280	0	1,280
12/31/2057	127,809	24,387	24,387	0	1,083	0	1,083
12/31/2058	111,825	21,972	21,972	0	909	0	909
12/31/2059	97,181	19,658	19,658	0	759	0	759
12/31/2060	83,870	17,459	17,459	0	628	0	628
12/31/2061	71,870	15,390	15,390	0	516	0	516
12/31/2062	61,143	13,459	13,459	0	421	0	421

Appendix E: GASB 67 Fiduciary Net Position Projection

Table E-2: Actuarial Present Value of Projected Benefit Payments (continued)

(in thousands)

Year	Beginning Fiduciary Position	Benefit Payments	Funded Benefit Payments	Unfunded Benefit Payments	Present Value of Benefit Payments: Funded Payments at 7.25%	Present Value of Benefit Payments: Unfunded Payments at 3.66%	Present Value of Benefit Payments: Using Single Discount Rate of 7.25%
12/31/2063	$ 51,638	$ 11,675	$ 11,675	$ 0	$ 341	$ 0	$ 341
12/31/2064	43,291	10,045	10,045	0	273	0	273
12/31/2065	36,027	8,577	8,577	0	218	0	218
12/31/2066	29,757	7,265	7,265	0	172	0	172
12/31/2067	24,391	6,104	6,104	0	135	0	135
12/31/2068	19,838	5,089	5,089	0	105	0	105
12/31/2069	16,006	4,208	4,208	0	81	0	81
12/31/2070	12,809	3,449	3,449	0	62	0	62
12/31/2071	10,166	2,805	2,805	0	47	0	47
12/31/2072	7,998	2,260	2,260	0	35	0	35
12/31/2073	6,238	1,804	1,804	0	26	0	26
12/31/2074	4,822	1,426	1,426	0	19	0	19
12/31/2075	3,695	1,117	1,117	0	14	0	14
12/31/2076	2,806	866	866	0	10	0	10
12/31/2077	2,113	664	664	0	7	0	7
12/31/2078	1,579	503	503	0	5	0	5
12/31/2079	1,173	377	377	0	4	0	4
12/31/2080	868	280	280	0	2	0	2
12/31/2081	641	205	205	0	2	0	2
12/31/2082	476	149	149	0	1	0	1
12/31/2083	357	108	108	0	1	0	1
12/31/2084	271	77	77	0	1	0	1
12/31/2085	211	54	54	0	0	0	0
12/31/2086	171	38	38	0	0	0	0
12/31/2087	144	26	26	0	0	0	0
12/31/2088	128	18	18	0	0	0	0
12/31/2089	119	12	12	0	0	0	0
12/31/2090	116	8	8	0	0	0	0
12/31/2091	117	5	5	0	0	0	0
12/31/2092	121	3	3	0	0	0	0
12/31/2093	127	2	2	0	0	0	0
12/31/2094	135	1	1	0	0	0	0
12/31/2095	144	1	1	0	0	0	0
12/31/2096	154	0	0	0	0	0	0
12/31/2097	165	0	0	0	0	0	0
12/31/2098	177	0	0	0	0	0	0
12/31/2099	190	0	0	0	0	0	0
12/31/2100	204	0	0	0	0	0	0
12/31/2101	219	0	0	0	0	0	0
12/31/2102	235	0	0	0	0	0	0
12/31/2103	252	0	0	0	0	0	0
12/31/2104	271	0	0	0	0	0	0
12/31/2105	291	0	0	0	0	0	0
12/31/2106	312	0	0	0	0	0	0
12/31/2107	335	0	0	0	0	0	0
12/31/2108	360	0	0	0	0	0	0
12/31/2109	386	0	0	0	0	0	0
12/31/2110	414	0	0	0	0	0	0
12/31/2111	444	0	0	0	0	0	0
12/31/2112	477	0	0	0	0	0	0