Florida Retirement System
Actuarial Assumption Estimating Conference
Executive Summary for Fall 2016

The Florida Retirement System Actuarial Assumption Conference met on October 11th and 13th to consider revisions to the demographic and economic assumptions used for the actuarial valuation of Florida's Retirement System (FRS). Prior to making any changes in assumptions, the preliminary results showed that the FRS would continue to have an unfunded actuarial liability (UAL)—dropping from 86.5% funded in the 2015 final report to a projected 85.9% funded level in the 2016 initial baseline. At the conclusion of the Conference, the projected funded status for 2016 further declines to 85.4%.

The Conference adopted two changes to the assumptions. The first was relatively minor and results in the use of a new mortality table for active employees. Taking this adjustment into consideration, the projected UAL is expected to increase from $22.3 billion in 2015's final valuation to $23.8 billion. The second change relates to the investment return assumption.

Asset performance has been uneven over the past five fiscal years. Returns far exceeded the investment rate assumption in Fiscal Years 2012-13 and 2013-14, which was 7.75% at the time. However, the investment return was much lower than expected in Fiscal Years 2011-12, 2014-15, and 2015-16. The tables below show actual investment returns for the past five fiscal years and actual returns for 5-year, 10-year and 15-year timeframes.

Fiscal Year	Investment Return
2011-12	0.29%
2012-13	13.12%
2013-14	17.40%
2014-15	3.67%
2015-16	0.61%

	Investment Return
5-year	6.78%
10-year	5.85%
15-year	5.93%

The state's actuary, the State Board of Administration (SBA), and the SBA's financial consultant all recommended a reduction in the investment return assumption to 7.00%. While some of the principals advocated for moving to 7.50%, the Conference ultimately decided to lower the investment return by 5 basis points to 7.60%. Taking both of the adopted demographic and economic adjustments into consideration, the projected UAL for 2016 is expected to increase to $24.9 billion. The table below displays the nominal returns, inflation rates, and real returns used in the four most recent valuations.

2013	2014	2015	2016
7.75% Investment Return	7.65% Investment Return	7.65% Investment Return	7.60% Investment Return
3.00% Inflation	2.60% Inflation	2.60% Inflation	2.60% Inflation
4.61% Real Return	4.92% Real Return	4.92% Real Return	4.87% Real Return

Note: The real return takes into account administrative expenses, so the numbers in this table are not additive.

The 2016 Legislature fully funded the UAL at the recommended contribution rate as provided in the 2015 valuation report. This action and continued full funding of the recommended UAL rate, as committed to by the Legislature, will result in the gradual increase of the funded ratio in future years. The UAL contribution rate is calculated assuming the liability will be funded over a period of 30 years. The contribution rates should remain stable as long as contributions are made as recommended and actual experience mirrors projections. However, there are many factors that affect these calculations and can cause the contribution rates to increase or decrease over time. For example, investment returns have been and will continue to be a relatively volatile factor included in the calculations, and if actual investment results are lower than assumed, there could be a significant impact on the UAL and future contribution rates. Some of the principals noted that if the experts continue to present similar data trends for expected returns, it is likely that further reductions to the investment rate assumption will occur in the near future.

The following table displays summary results from the 2015 Final Valuation and the 2016 Updated Baseline Valuation. The 2016 Updated Baseline Valuation estimate includes the updated mortality assumption and the updated investment return rate adopted by the conference.

	2015 Final	2016 Updated Baseline
Actuarial Liability (AL)	$165.5	$170.3
Actuarial Value of Assets (AVA)	$143.2	$145.4
Unfunded Actuarial Liability (UAL)	$22.3	$24.9
Funded Status (FS)	86.5%	85.4%
Normal Cost Rate (NCR)	4.17%	4.05%
Unfunded Actuarial Liability Rate (UALR)	5.06%	5.77%
NCR + UALR	9.23%	9.82%

Note: dollars are in billions.

The preliminary report addresses information received through July 1, 2016. The final report will be based on these assumptions and released in December 2016.

Florida Retirement System

2016 FRS Actuarial Assumptions Conference
Including Preliminary July 1, 2016 Actuarial Valuation Results

Presented by:

Matt Larrabee, FSA, EA, MAAA

October 11, 2016

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Agenda – FRS Pension Plan

- Preliminary July 1, 2016 actuarial valuation results, based on the assumptions and methods most recently adopted by the FRS Assumptions Conference to assist policymakers in:
  - Estimating plan year July 2017 – June 2018 actuarially calculated contribution rates
  - Assessing July 1, 2016 funded status for the FRS Pension Plan
- Recommended update to the mortality assumption for active employees, which affects valuation of an ancillary benefit
- Illustration of alternative investment return assumptions
  - Current assumption is 7.65% long-term average annual future return

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Census Demographics and Assets

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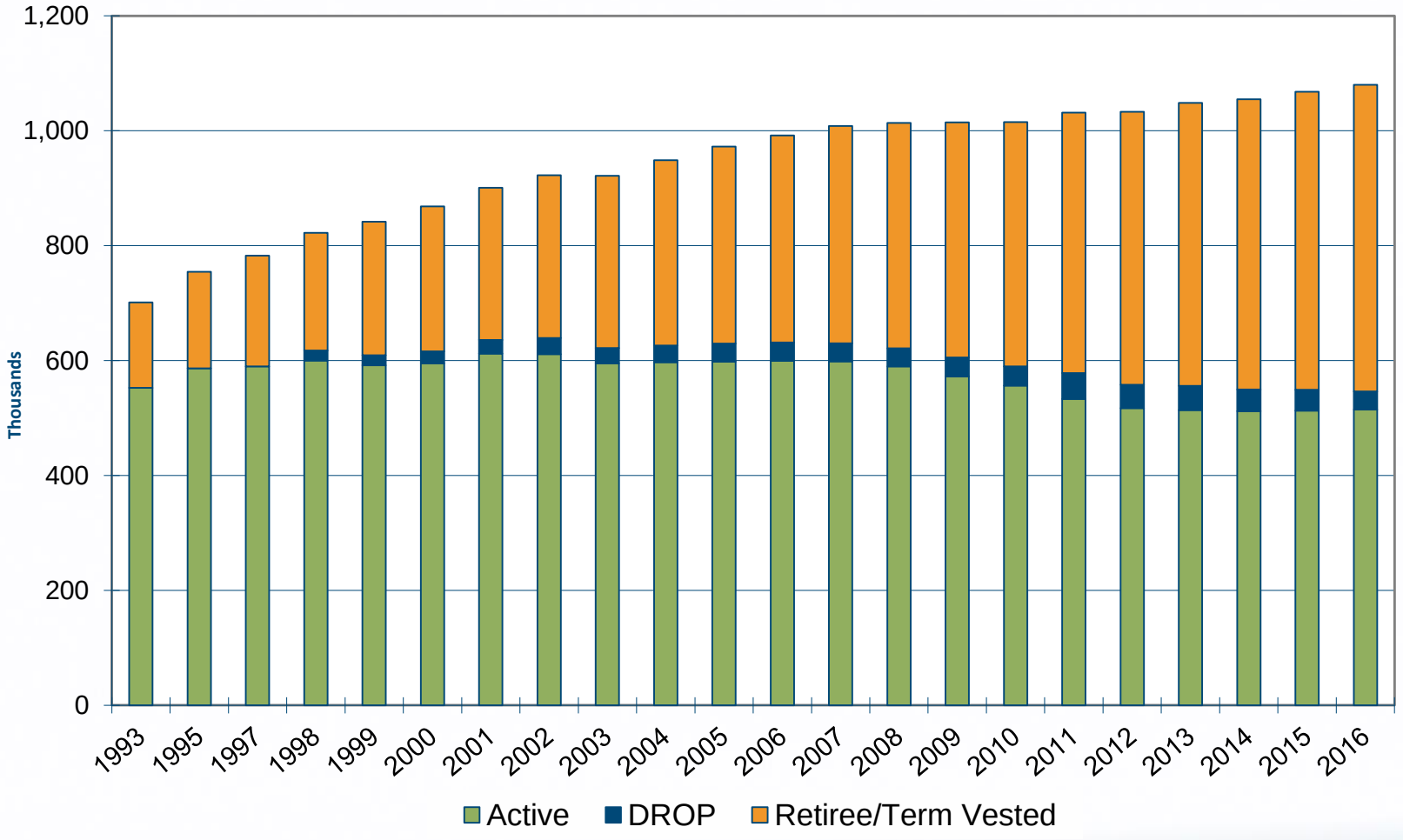
Pension Plan Membership



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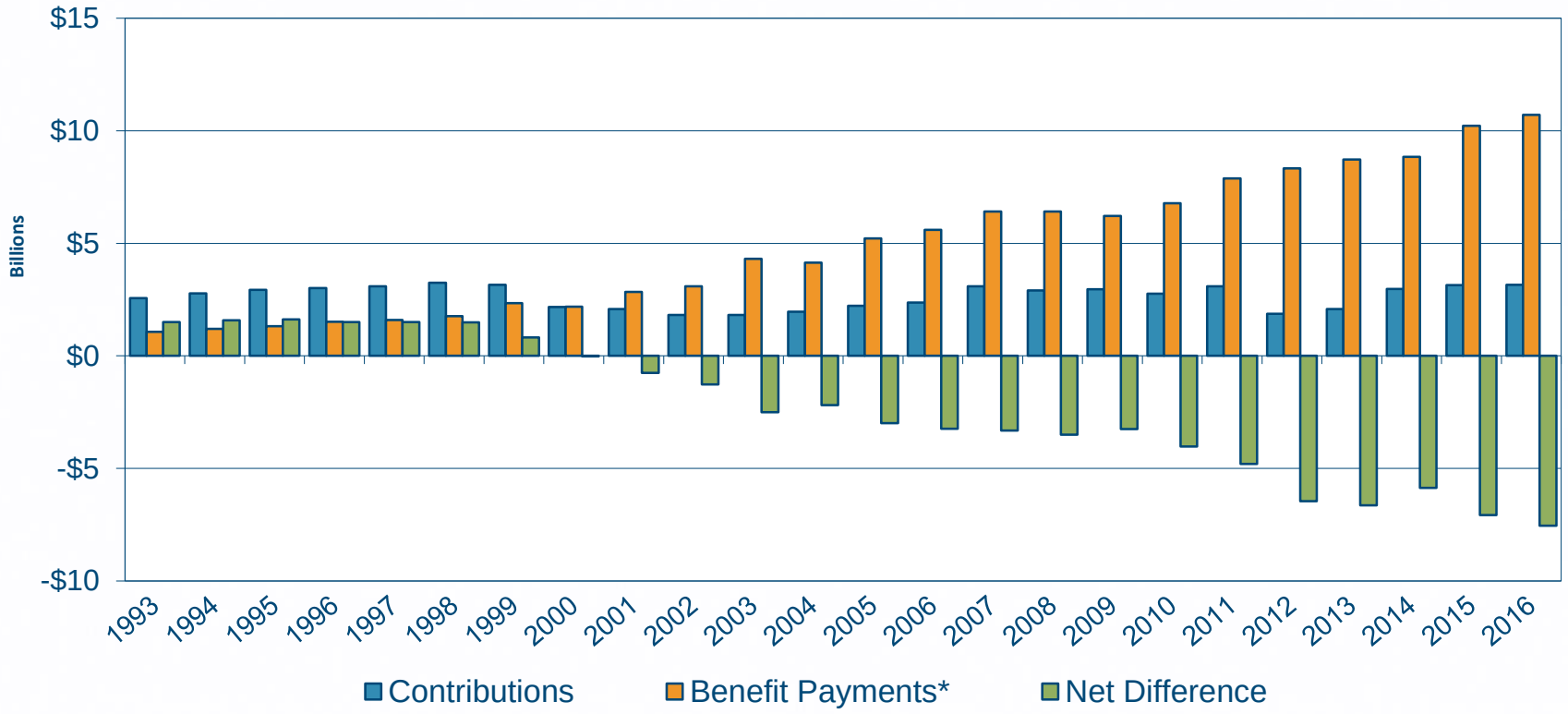
Contributions and Benefit Payments



* Includes transfers to Investment Plan

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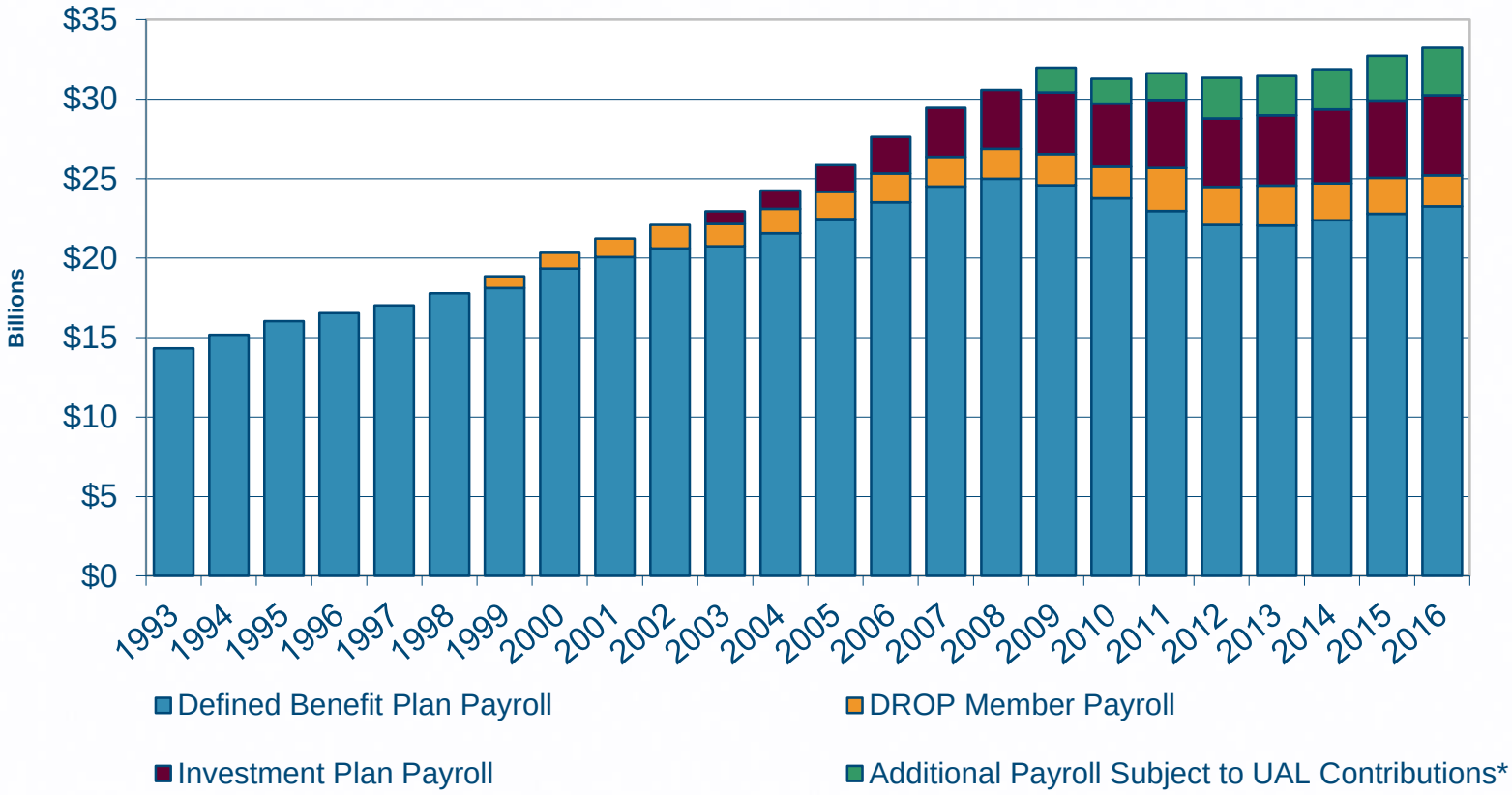
Payroll: FRS + Non-FRS UAL Contributory



**Includes payroll for participants in certain non-FRS defined contribution plans upon which UAL Rate contributions to the FRS Pension Plan are made. This payroll component is projected to be $3.1B in the 2017-2018 plan year.*

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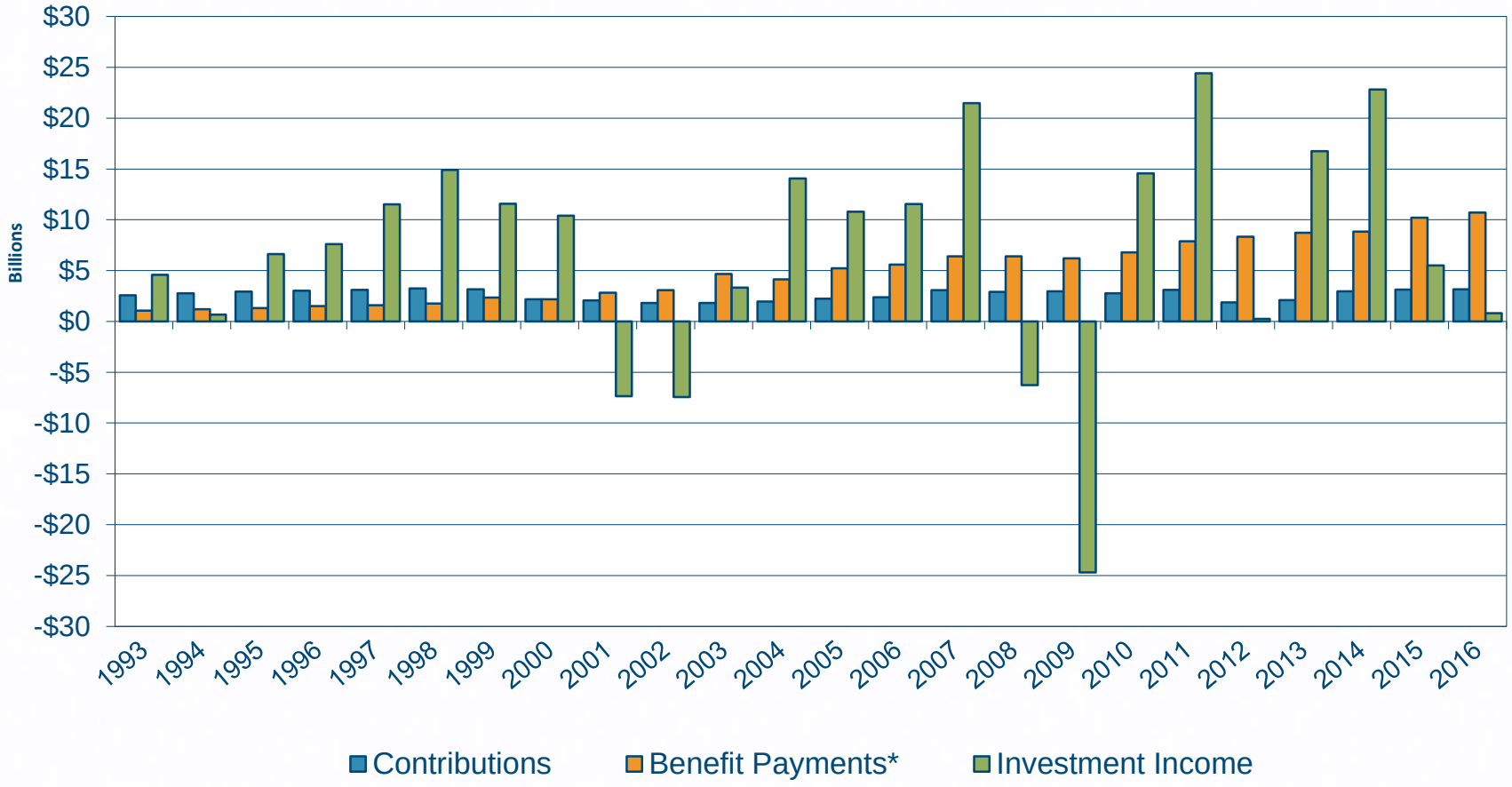
Pension Plan Cash Flows



* Includes transfers to Investment Plan

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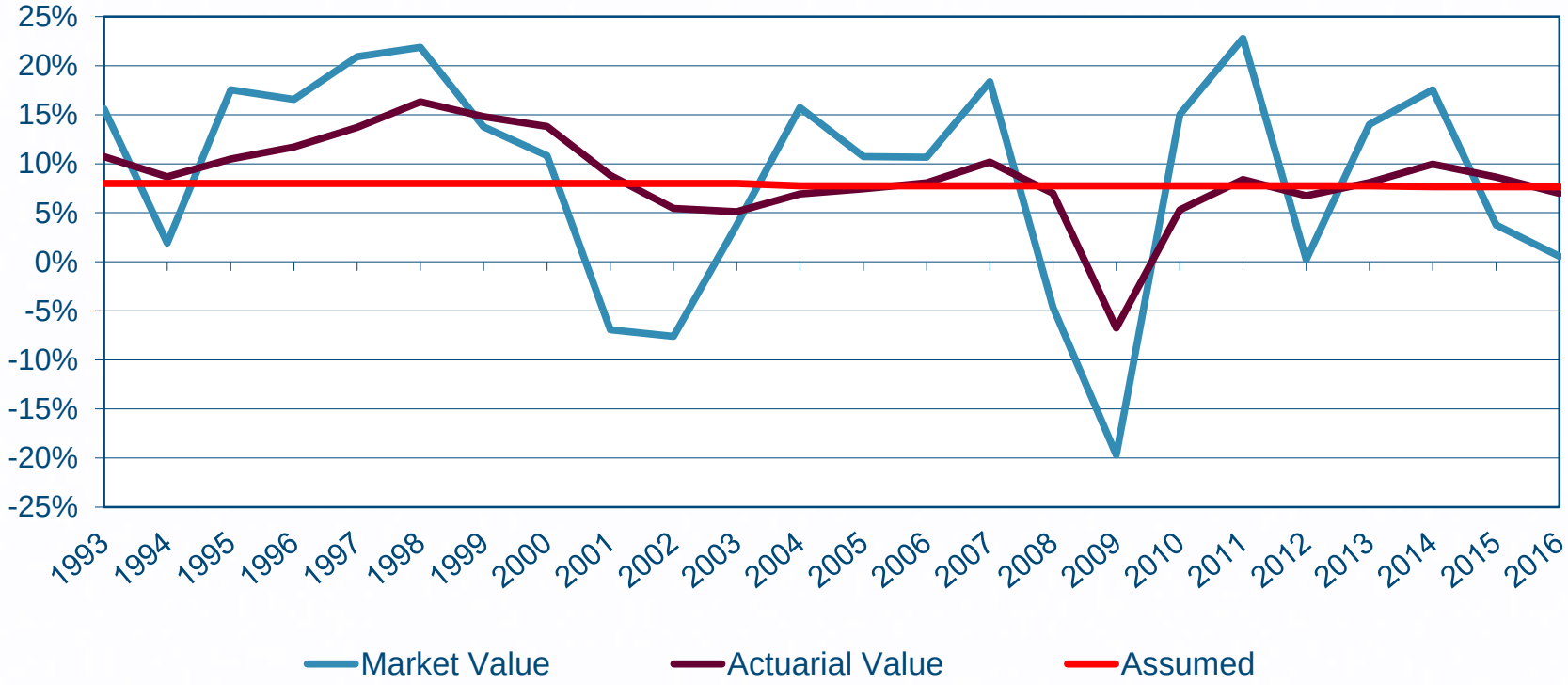
Historic Asset Returns



The 2015-16 return was +0.6% on a market value of assets (MVA) basis and +7.0% on a smoothed actuarial value of assets (AVA) basis

- AVA return is determined by market value returns over the prior five years

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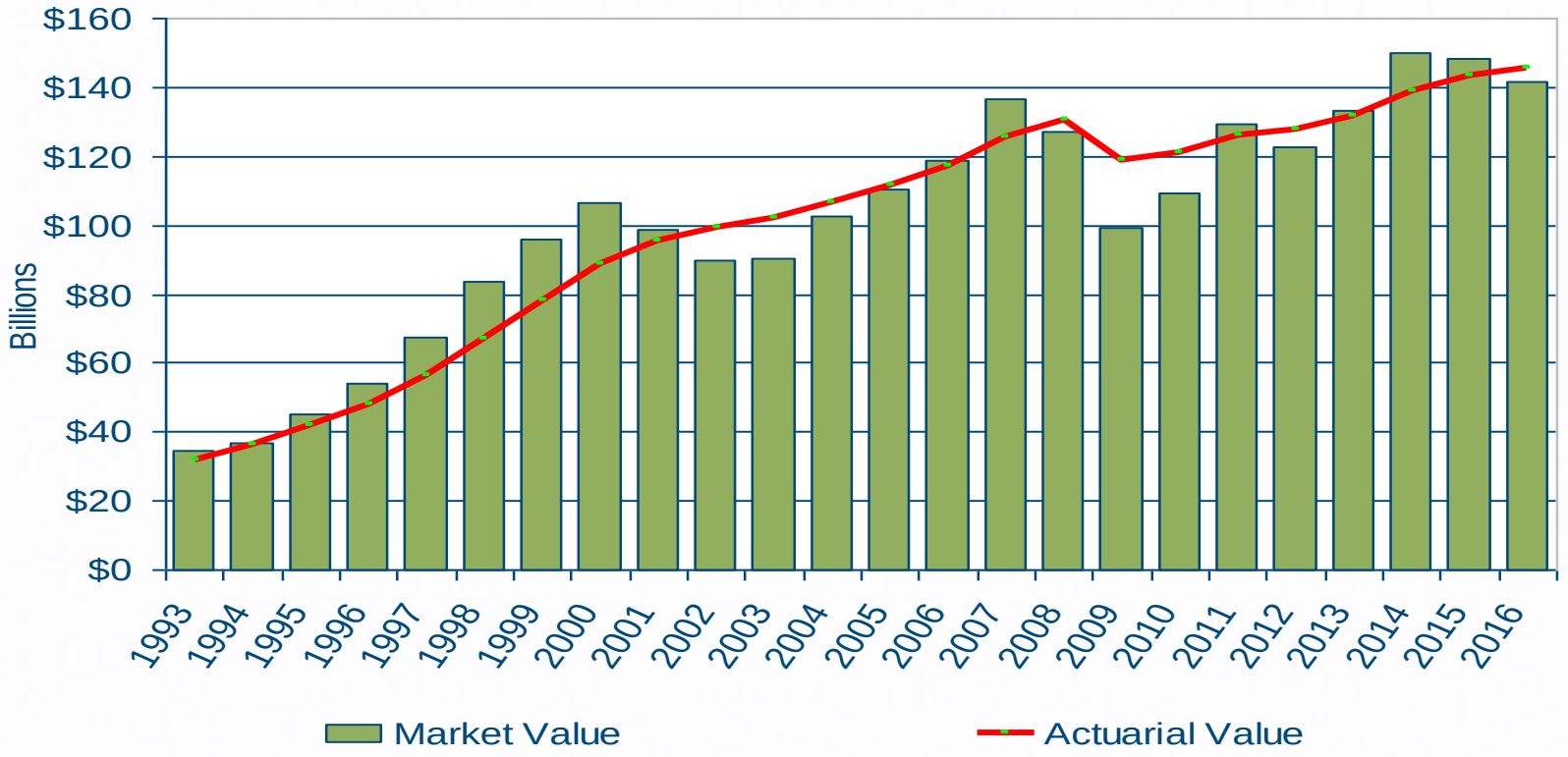
Market & Actuarial Value of Assets



Market Value of Assets (MVA) is $3.7 billion <u>below</u> AVA at July 2016. That deferred investment loss will be recognized in AVA returns (and associated rate increases) in subsequent valuations absent future investment performance above assumption.

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Valuation Process and Projected Benefit Payments

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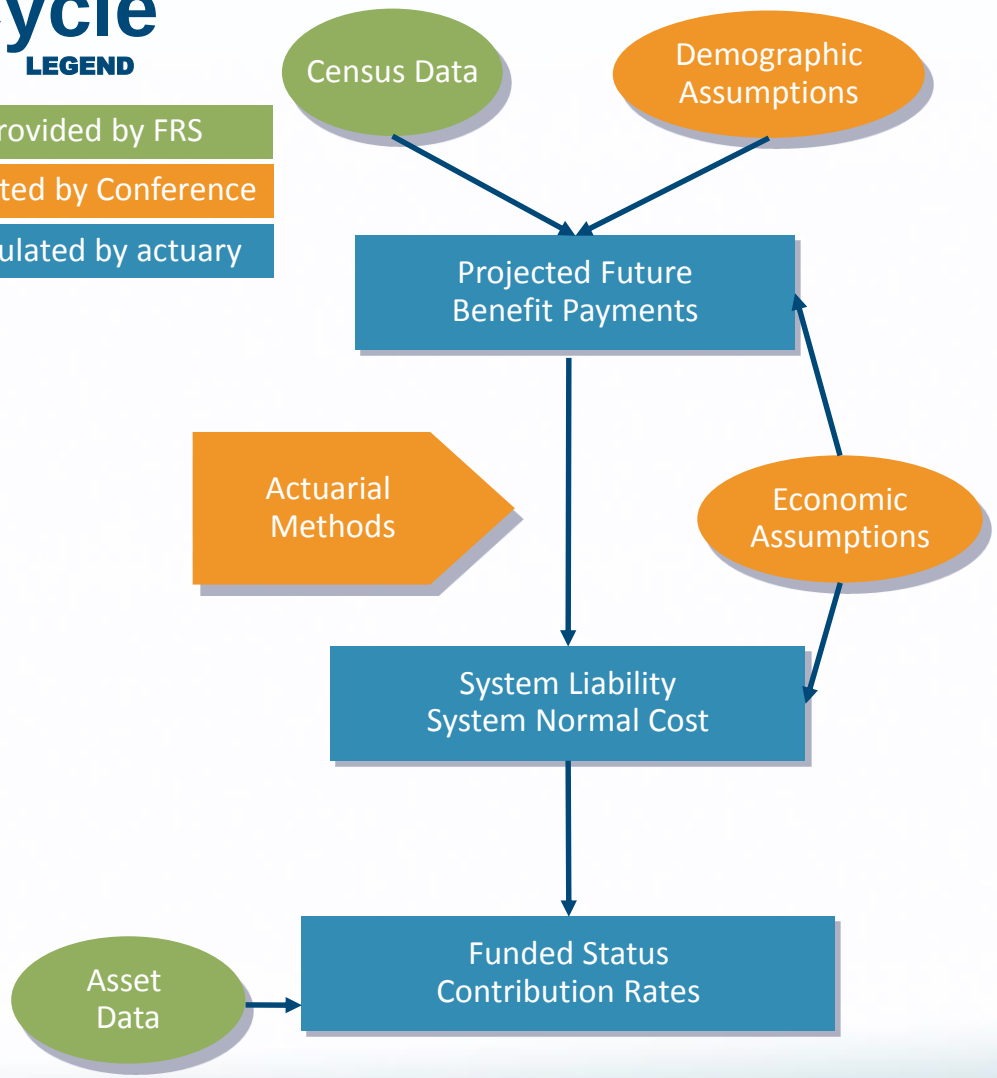
Actuarial Valuation Cycle

- Today: Discuss preliminary 2016 valuation results, select final assumptions and methods for 2016 actuarial valuation
- By December 1: Complete 2016 actuarial valuation report, including actuarially calculated contribution rates
- Demographic and certain economic assumptions determine projected future benefit payments
- Methods and other economic assumptions affect calculations of funded status and contribution rates



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Overview of an Actuarial Valuation

- The Pension Plan valuation is conducted annually to:
  - Calculate funded status
  - Develop actuarially calculated contribution rates
  - Assist FRS and employers with GASB financial reporting

Data

Assumptions

Methods

Provisions

Projected Benefit Payments

Funded Status

Actuarially Calculated Contribution Rates

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Projected Benefit Payments

- Projected benefit payments are developed using:
  - Census data provided by the Division of Retirement
  - Demographic assumptions
    - Mortality
    - Timing of retirement / entry into DROP
    - Likelihood of termination of employment prior to unreduced benefit
    - Incidence of disability
  - Annual salary increase assumption for individual members

- ➢ Census data is provided annually
- ➢ Assumptions listed above are typically formally reviewed in detail every five years as part of an actuarial experience study

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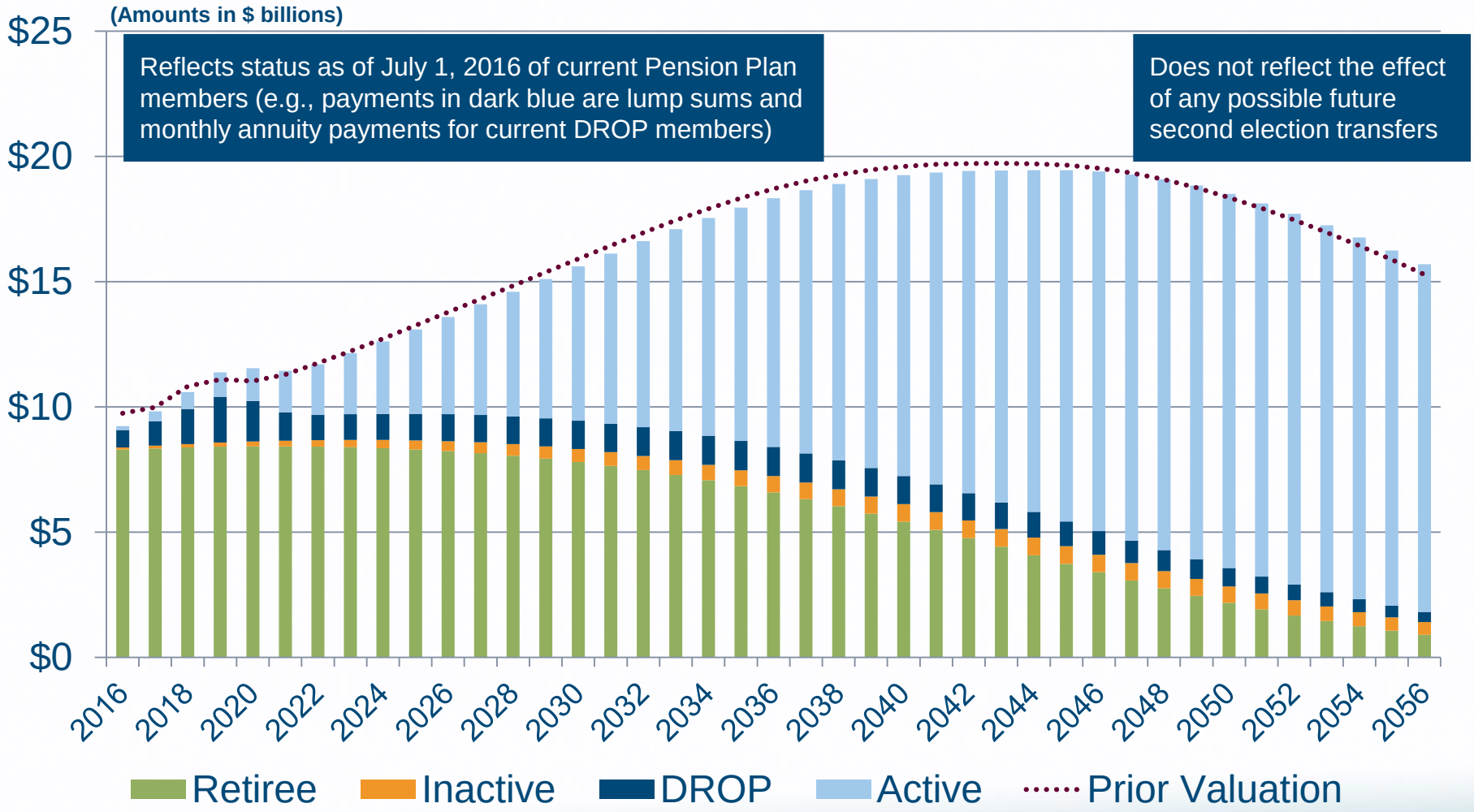
Projected Benefit Payments – 2016 Valuation



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Preliminary Baseline 2016 Valuation Results

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Preliminary Baseline 2016 Valuation Results

- The projected year-by-year benefit payments are converted into a present value using the investment return assumption
  - The present value is allocated between past (Actuarial Liability) and projected future service (Normal Cost) via the cost allocation method
- This establishes Baseline 2016 valuation results using
  - Methods and assumptions as most recently adopted by the 2014 FRS Actuarial Assumptions Conference, based on the 2014 Experience Study
  - Demographic member census data as of July 2016
  - Actual 2015-16 investment returns

2016 Baseline shows funded status and contribution rates on current data, prior to any potential updates to assumptions or methods

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Results Template - Actuarial Terms of Art

To summarize results, we use a template with a number of key actuarial terms

Acronym	Actuarial Term
AL	Actuarial Liability
AVA	Actuarial Value of Assets (smoothed, rather than market, value)
UAL	Unfunded Actuarial Liability
FS	Funded Status
NCR	Normal Cost Rate (net employer-paid portion)
UALR	Unfunded Actuarial Liability (UAL) Rate
NCR + UALR	A proxy, albeit an imperfect one, for the employer composite Pension Plan-only contribution rate prior to blending with Investment Plan rates to create blended proposed statutory rates

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Composite Pension Plan-Specific	2015 Final (2015 data; 2015 assumptions)	Baseline 2016 (2016 data; 2015 assumptions)
AL	$ 165.5	$ 169.2
AVA	$ 143.2	$ 145.4
UAL	$ 22.3	$ 23.8
FS	86.5%	85.9%
NCR	4.17%	4.05%
UALR	5.06%	5.54%
NCR + UALR	9.23%	9.59%

(Amounts in $ billions)

Results shown are liabilities and rates calculated for funding purposes; results for GASB financial reporting differ

Results shown use the 3.25% system payroll growth and 2.60% inflation assumptions used in the 2015 valuation

Composite Pension Plan-specific rates are shown, prior to blending with Investment Plan rates to create composite proposed statutory rates

Market Value of Assets (MVA) is $3.7 billion below AVA at July 2016. That deferred investment loss will be recognized in AVA returns (and associated UALR increases) in subsequent valuations absent future investment performance above assumption.

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Year-to-Year Change in UAL Rates

- The composite Pension Plan-only UAL rate increased by 0.48% of payroll, from 5.06% to 5.54%, between valuations
- UAL rate is a long-term amortization calculation designed to remain steady as a percent of UAL payroll if the following two conditions are met during the year:
  - Contributions are made in accordance with actuarially calculated rates
  - Experience follows assumptions, including:
    - Calculated return on Actuarial Value of Assets
    - System payroll growth
    - Individual member salary increases
    - Individual member timing of retirement
    - Mortality for members and beneficiaries in benefit payment status

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Year-to-Year Change in UAL Rates

- Plan year variations from assumption causing the 0.48% increase in the composite Pension Plan-only UAL Rate were:
  - 2015-16 return on the smoothed Actuarial Value of Assets of +7.0% versus a 7.65% long-term assumption, yielding a $0.9 billion UAL loss
    - Caused 30-40% of the rate increase
    - 2015-16 return on the Market Value of Assets was +0.6%
  - Actual system "UAL payroll" growth of 1.15%, compared to the 3.25% average annual increase assumption
    - For any given dollar amount of scheduled UAL amortization payments, the lower the payroll, the higher the UAL rate
    - Caused 20-30% of the rate increase
  - Actual demographic experience slightly different than assumption
    - Lesser effect than the investment return

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Recommendation: Update to Employee Mortality Assumption

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Overview

- The 2014 FRS Assumptions Conference adopted updated mortality assumptions based on the 2014 Experience Study
  - Assumptions reflect current life expectancy improvement trends
  - Assumption identification focused on finding a mortality table that matched recently observed FRS retiree mortality experience
- To simplify valuation, a single mortality table was used for both actives and retirees of a given gender and membership class
- We recommend updating the employee mortality assumption
  - Use employee-focused analogue tables to the current annuitant tables
  - Minor impact as employee death is a small percentage of total liability
  - Gives more precise cost estimates of potential death benefit changes
    - Recommended approach was used to estimate costs of Senate Bill 7012

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All figures shown based on 2.60% inflation, 3.25% system payroll growth assumptions

2015 Valuation	2015 Valuation	Updated
7.65% Inv. Return	7.65% Inv. Return	7.65% Inv. Return

Employee Mortality
Investment Return

Composite Pension Plan-Specific	Final 2015	Baseline 2016	Updated Mortality 2016
AL	$ 165.5	$ 169.2	$ 169.2
AVA	$ 143.2	$ 145.4	$ 145.4
UAL	$ 22.3	$ 23.8	$ 23.8
FS	86.5%	85.9%	85.9%
NCR	4.17%	4.05%	3.96%
UALR	5.06%	5.54%	5.55%
NCR + UALR	9.23%	9.59%	9.51%

(Amounts in $ billions)

Composite rates shown are Pension Plan-specific, prior to blending with Investment Plan rates to create composite proposed statutory rates

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Discussion of Alternative Investment Return Assumptions

Note: Today's Milliman speaker is not a credentialed investment advisor

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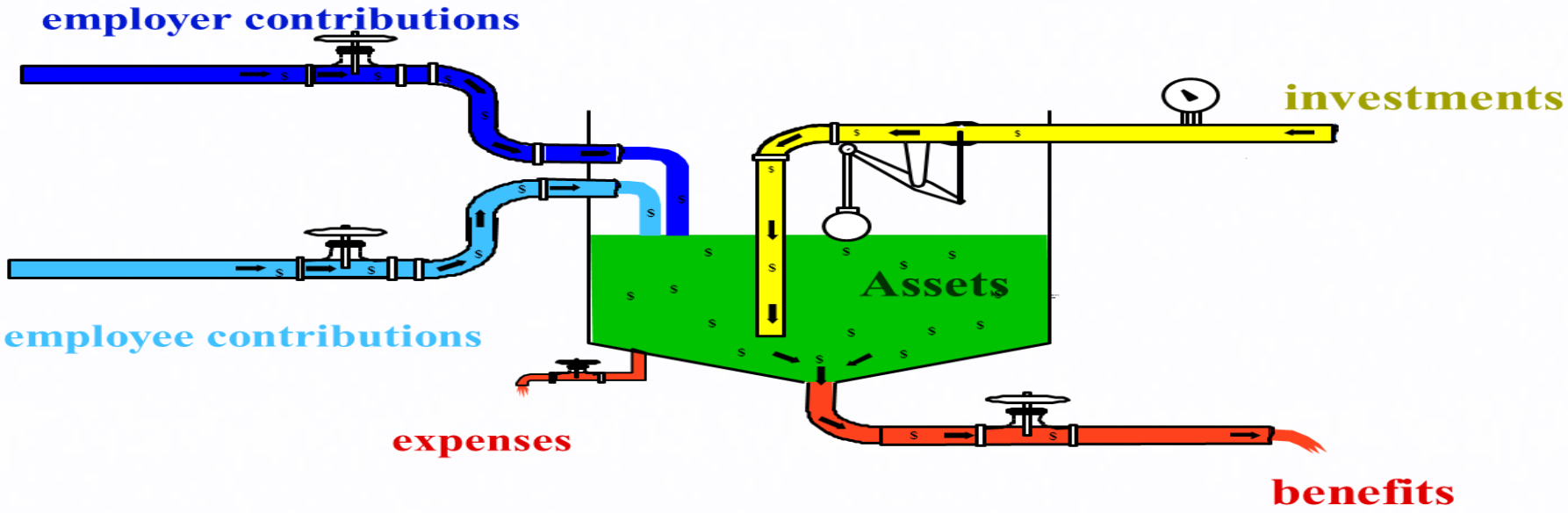
Guidance in Setting Methods & Assumptions



- Methods & assumptions do not determine ultimate long-term System cost, only the budget timing of cost incurrence

Ultimately, the *Fundamental Cost Equation* always governs:

Contributions + Investments = Benefits + Expenses

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Commonly Used Guiding Objectives

- Protection of funded status
- Contribution rate stability
- Contribution rate predictability
- Intergenerational equity
- Transparency and understandability
- Actuarial soundness

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Setting the Investment Return Assumption

Given that actual future investment returns are not knowable in advance with certainty, how should the assumption be set?

- Prudently select a best estimate
- Review return models from credentialed investment professionals
- Remain cognizant that hoping for a result does not make it happen; the assumption selected does not affect actual investment returns
- Avoid myopia --- the objective is to make a prudent long-term estimate, not to get a single individual year right
- Neither ignore historical results nor be 100% beholden to them
- Since actual results will vary from assumption, review a return model's probability range and consider a margin for variance

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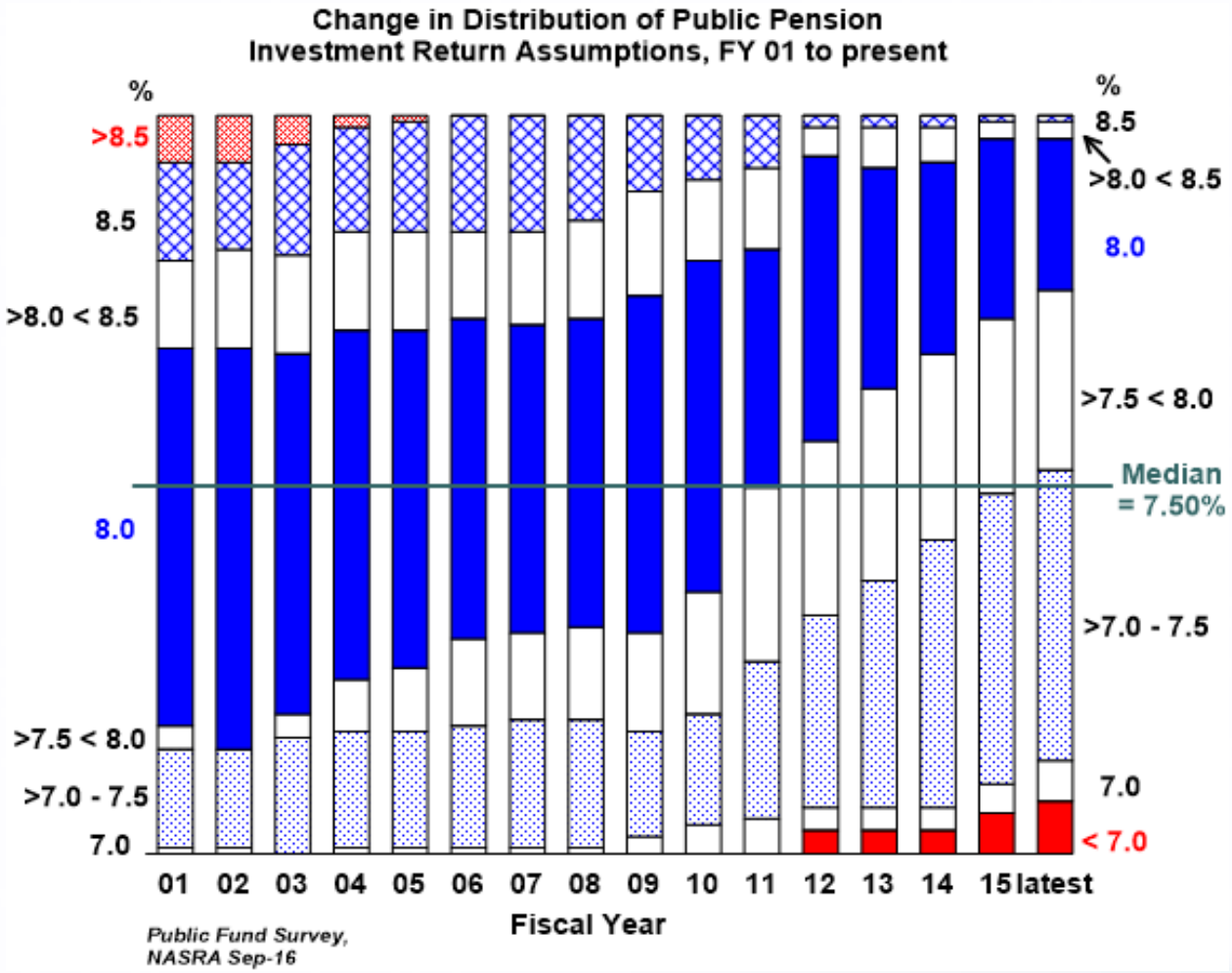
Assumptions of Other Large Public Plans



- In response to changing market outlooks for future inflation and real return, large public plans are continuing to lower their return assumptions
- The chart at left shows current assumptions for the largest hundred-plus public plans, as monitored by NASRA
- The current median assumption is 7.50%

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Overview - Current Assumption and Models

- At the 2015 FRS Actuarial Assumptions Conference, median average annual long-term future investment returns were presented using two real return investment models:
  - Aon Hewitt Investment Consulting (AHIC) investment return model: 6.81% median return
    - Used AHIC's 2.2% assumption for inflation at that time
  - Milliman investment return model: 6.9% median return
    - Used FRS Assumptions Conference's 2.6% adopted inflation assumption
- After discussion, the investment return assumption was left unchanged by the Assumptions Conference at 7.65% for the 2015 valuation

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Overview - Current Assumption and Models

- Both models have been updated for this year's conference
  - AHIC investment return model: **6.3%** median return
    - Uses AHIC's current 2.1% assumption for inflation
  - Milliman investment return model: **6.6%** median return
    - Uses FRS Assumptions Conference's 2.6% adopted inflation assumption
      - The current default inflation assumption in the Milliman model is 2.3%
- AHIC used an additional model for the 2016 asset-liability study, which was completed in the 1st quarter of 2016
  - "SBA Approach" investment return model: **7.0%** median return
    - Uses the average of global equity risk premiums from four large investment consulting firms as of the time the study was conducted
    - Uses 2.1% assumption for inflation

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Milliman Investment Return Model

- Based on the current target asset allocation, model results are geometric annual average net returns based on:

Percentile	30-Year Average
65th	7.4%
60th	7.1%
55th	6.9%
50th	**6.6%**
45th	6.3%
40th	6.1%
35th	5.8%

- A series of average annual real returns by asset class, plus asset class correlations
- A 2.6% inflation assumption as most recently adopted by the 2014 FRS Assumptions Conference

In the model, long-term average annual future returns of 7.50% and 7.65% both lie between the 65th and 70th percentiles

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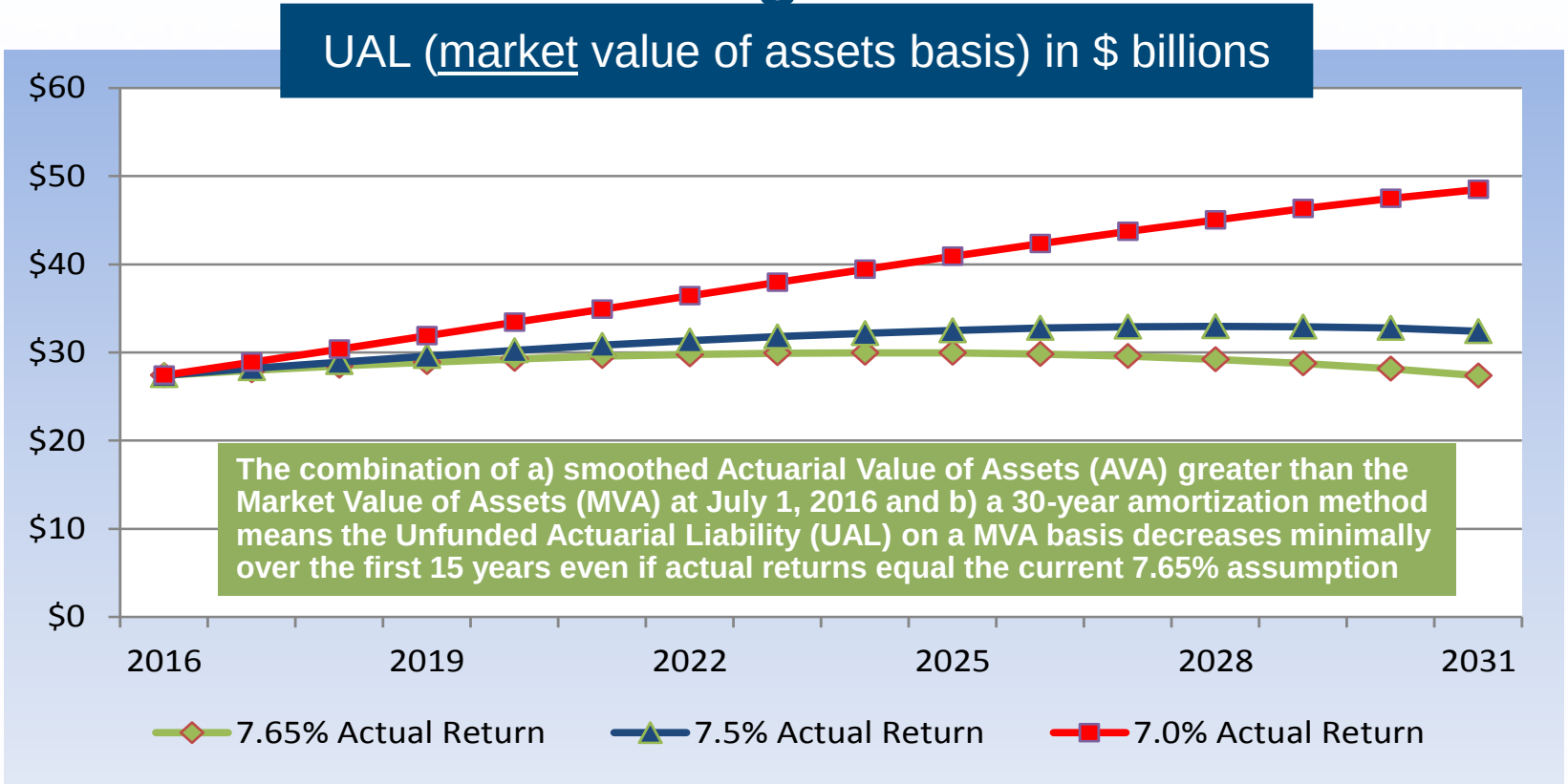
Effects of Not Lowering the Assumed Return



- The assumption selected does not affect actual investment returns
- With no change to assumed return, this chart illustrates UAL changes for three possible scenarios for actual future investment return

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Effects of Lowering the Assumed Return

- A lower assumption produces higher calculated Actuarial Liability and Normal Cost, which in turn leads to higher near-term actuarially calculated contribution rates
  - A reduction in the assumption tilts the expected balance of the fundamental cost equation away from investment earnings and toward contributions
- A lower assumption lessens the likelihood of a pattern of increasing contribution rates in future years
  - Actual investment results determine ultimate long-term System cost, so, all else being equal, contribution rates:
    - Increase if investments underperform assumption
    - Decrease if investments outperform assumption

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All figures shown based on 2.60% inflation, 3.25% system payroll growth assumptions

Updated	Updated	Updated	Updated	Updated	Employee Mortality
7.65% Inv. Return	7.60% Inv. Return	7.55% Inv. Return	7.50% Inv. Return	7.00% Inv. Return	Investment Return

Composite Pension Plan-Specific	2016 7.65%	2016 7.60%	2016 7.55%	2016 7.50%	2016 7.00%
AL	$ 169.2	$ 170.3	$ 171.3	$ 172.3	$ 183.3
AVA	$ 145.4	$ 145.4	$ 145.4	$ 145.4	$ 145.4
UAL	$ 23.8	$ 24.9	$ 25.9	$ 26.9	$ 37.9
FS	85.9%	85.4%	84.9%	84.4%	79.3%
NCR	3.96%	4.05%	4.14%	4.23%	5.21%
UALR	5.55%	5.77%	6.00%	6.23%	8.65%
NCR + UALR	9.51%	9.82%	10.14%	10.46%	13.86%

Composite rates shown are Pension Plan-specific, prior to blending with Investment Plan rates to create composite proposed statutory rates

(Amounts in $ billions)

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Blended Proposed Statutory Rates – 7.65%

Pension Plan-only contribution rates are blended with Investment Plan contribution rates to create blended PP/IP proposed statutory rates

Weighted Average of Membership Classes Rates	Fiscal Year 2016-17 Legislated Rates			Preliminary 2017-18 Rates (7.65% Return)		
	NC	UAL	Total	NC	UAL	Total
PP composite employer rate	4.17%	5.06%	**9.23%**	3.96%	5.55%	**9.51%**
IP composite employer rate	4.76%	0.00%	4.76%	4.76%	0.00%	4.76%
Blended PP/IP employer rate	4.28%	4.30%	**8.58%**	4.09%	4.71%	**8.80%**
Employee contribution rate			3.00%			3.00%
Composite blended employer plus employee rate			**11.58%**			**11.80%**

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Blended Proposed Statutory Rates

Pension Plan-only contribution rates are blended with Investment Plan contribution rates to create blended PP/IP proposed statutory rates

Blended Pension Plan / Investment Plan Proposed Statutory Rates (Weighted Average of Membership Classes)	
Fiscal Year 2016-17 Legislated	**8.58%**
Preliminary 2017-18 (7.65% Return Assumption)*	**8.80%**
Preliminary 2017-18 (7.60% Return Assumption)	**9.06%**
Preliminary 2017-18 (7.55% Return Assumption)	**9.33%**
Preliminary 2017-18 (7.50% Return Assumption)**	**9.60%**
Preliminary 2017-18 (7.00% Return Assumption)	**12.47%**

Based on projected 2017-18 PP/IP payroll of $34.3 billion (including additional payroll subject to UAL contributions), estimated combined PP/IP contribution of:

* $2.89 billion at 7.65% return assumption

** $3.16 billion at 7.50% return assumption

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Pension Plan – Actuarial Methods

- Actuarial methods do not affect ultimate plan cost, only the timing of cost incurrence
- Key methods currently endorsed by the Conference:
  - Ultimate Entry Age Normal (Ultimate EAN) cost allocation method
    - This method sets the normal cost rate as if all members were in Tier 2
    - Since the method doesn't affect projected benefits, Ultimate EAN increases Actuarial Liability compared to the EAN method mandated for GASB
  - 30-year amortization, as a level percent of projected pay, of actuarial gains and losses that arise during any given year
    - This approach has an extended period of net negative amortization
      - The unamortized balance increases for the first 11 to 13 years
      - The balance decreases after that, with the original unamortized balance effectively being paid off in the last 10 years of the 30-year amortization period

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Wrap-Up – Pension Plan

- Preliminary valuation results using 7.65% return assumption and a recommended update to employee mortality indicate:
  - UAL on a smoothed Actuarial Value of Assets basis increasing by $1.5 billion to $23.8 billion
  - Composite Pension Plan-specific actuarially calculated contribution rates are 0.28% of payroll higher
  - Proposed blended PP/IP statutory rates are 0.23% of payroll higher
- Aon Hewitt, Milliman, and SBA Approach investment return models all indicate 50th percentile future returns materially below 7.65%
  - While decreasing the assumption would increase actuarially calculated 2017-18 contribution rates, in our opinion it would provide a better estimate of anticipated future plan investment experience

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Needed Guidance – Pension Plan

- Approval of recommended update to employee mortality assumption
  - The retiree mortality assumption, which is far more material, would remain unchanged
- Identification of investment return assumption to use in the 2016 Pension Plan valuation

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Other 2016 Actuarial Valuations

- We are currently conducting 2016 valuations for:
  - Health Insurance Subsidy (HIS)
  - Florida National Guard Supplemental Retirement Benefit
- Both of these programs are effectively pay-as-you-go funded
  - The valuations are to satisfy GASB financial reporting requirements, rather than to determine actuarially calculated contribution rates
  - The municipal bond yield index used as a discount rate decreased from 3.80% to 2.85%, which will increase calculated GASB liabilities
- The HIS valuation report will also evaluate the sufficiency of the current statutory payroll funding rate for the program
- We anticipate finalizing both valuations by November 15th

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Appendix

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Recommendation – Active Employee Mortality Assumption

Category	Current Assumption	Recommended Assumption
Female – Special Risk	White collar generational *healthy annuitant* table, Scale BB; 25% of deaths are duty-related	White collar generational *combined healthy* table, Scale BB; 25% of deaths are duty-related
Female - All Other Classes	White collar generational *healthy annuitant* table, Scale BB; *15%* of deaths are duty-related	White collar generational *combined healthy* table, Scale BB; *2%* of deaths are duty-related
Male – Special Risk	50% white collar / 50% blue collar generational *healthy annuitant* table, Scale BB; 25% of deaths are duty-related	50% white collar / 50% blue collar generational *combined healthy* table, Scale BB; 25% of deaths are duty-related
Male – All Other Classes	90% white collar / 10% blue collar generational *healthy annuitant* table, Scale BB; *15%* of deaths are duty-related	90% white collar / 10% blue collar generational *combined healthy* table, Scale BB; *2%* of deaths are duty-related

No modification is recommended to the far more material assumption for retiree mortality

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Milliman Capital Market Outlook Assumptions

For assessing the expected portfolio return under Milliman's capital market assumptions, we considered the FRS to be allocated among the model's asset classes as shown below. This allocation is based on our understanding of the most recently revised target allocation policy, titled *"2014-12 FRS Pension Plan IPS Effective 1-1-15.pdf"* as provided to us by email on Sep. 27, 2016.

	Policy Allocation	Annual Arithmetic Mean	**Annualized Geometric Mean**	**Annual Standard Deviation**
Cash	1%	3.03%	3.02%	1.75%
Fixed Income	18%	4.74%	4.65%	4.64%
Global Equity	53%	8.10%	6.81%	17.19%
Real Estate	10%	6.45%	5.81%	12.00%
Private Equity	6%	11.50%	7.81%	30.00%
Strategic Investments	12%	6.10%	5.55%	11.06%
US Inflation (CPI-U)*			2.60%	1.89%
Total Fund	100%	7.2%	**6.6%**	**11.8%**

*US Inflation assumption adopted by the 2014 FRS Actuarial Assumptions Conference and applied to the real return assumptions in the Milliman capital market outlook model, the assumptions of which are set semi-annually by a committee of credentialed investment professionals.

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Contribution Rate Calculations

- Pension plan-specific contribution rates have two components:
  - Normal cost rate
    - Cost assigned to current year benefits by the allocation method
  - UAL rate
    - Rate calculated to eliminate UAL in a systematic manner over a specified time period if future experience follows assumptions
- To calculate the UAL rate, an additional assumption and an additional method are needed
  - For amortizations as a level percentage of projected payroll, the system's **general wage increase** assumption affects the rate
  - In addition, the length of the **amortization period** affects the rate

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Asset Measurement Method

- Contribution rates established annually based on the reported unfunded actuarial liability (UAL)
  - UAL compares Actuarial Liability against a system asset measure
- The asset measure used by FRS is specified by statute, and employs an “asset smoothing” technique
  - The mandated method annually recognizes 20% of investment return deviations from assumption
- The statutory calculation approach includes a “corridor” to ensure smoothed assets vary no more than 20% from fair market value

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Asset Smoothing

- Five-year smoothing method recognizes heavy losses gradually following times of unfavorable asset performance
- The smoothing is symmetrical, so that any large investment gains are also not “felt” all at once, but instead serve as a cushion against potential future unfavorable asset performance
- The objective of asset smoothing is to keep long-term contribution levels appropriately linked to actual investment performance, and to have year-to-year contribution rate changes be less volatile and more predictable

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Disclaimer

At your request, we have provided these draft results prior to completion of the July 1, 2016 Actuarial Valuation Report. Because these are draft results, Milliman does not make any representation or warranty regarding the contents of the presentation. Milliman advises any reader not to take any action in reliance on anything contained in this presentation. All results from this presentation are subject to revision or correction prior to the release of the final July 1, 2016 Actuarial Valuation Report, and such changes or corrections may be material.

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Certification

This presentation summarizes key preliminary results of an actuarial valuation of the Florida Retirement System ("FRS" or "the System") as of July 1, 2016. The valuation, when finalized, will develop actuarially calculated contribution rates for the Plan Year ending June 30, 2018. The results in this presentation are preliminary in nature and may not be relied upon to, for example, prepare the System's Consolidated Annual Financial Report (CAFR). The reliance document will be the formal July 1, 2016 Actuarial Valuation Report.

In preparing this presentation, we relied, without audit, on information (some oral and some in writing) supplied by Division of Retirement ("Division") staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

Preliminary results have been determined on the basis of actuarial assumptions and methods as most recently adopted by the 2014 FRS Actuarial Assumptions Conference. At the time of their review and adoption, those assumptions were individually reasonable (taking into account the experience of the System and reasonable expectations); and, in combination, offered a reasonable estimate of anticipated future experience affecting the System.

Future actuarial measurements may differ significantly from the current measurements presented in this presentation due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. The FRS Actuarial Assumptions Conference has the final decision regarding the appropriateness of the assumptions.

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Certification

Computations presented in this presentation are for purposes of preliminarily estimating the actuarially calculated contribution rates for funding the System. Computations prepared for other purposes may differ. The calculations in the presentation have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this presentation have been made on a basis consistent with our understanding of the plan provisions described in the appendix of our formal actuarial valuation report as of July 1, 2015, as subsequently modified by Senate Bill 7012. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this presentation. Accordingly, additional determinations may be needed for other purposes.

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The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel. The presenting actuaries are independent of the plan sponsors. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this presentation has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

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Actuarial Basis

Data

We have based our calculations on demographic member census data as of July 1, 2016 as supplied by the Division of Retirement ("Division"). That data will be summarized in our formal actuarial valuation report for funding purposes as of July 1, 2016, which will be published in the 4th quarter of this year. Assets as of July 1, 2016, were based on values provided by the Division.

Methods / Policies

Actuarial Cost Method: Ultimate Entry Age Normal, using the interpretation of that method as most recently endorsed by the 2014 FRS Actuarial Assumptions Conference.

UAL Amortization: Newly arising UAL each plan year is amortized as a level percentage of projected payroll over a closed 30-year period.

Actuarial Value of Assets: A smoothed asset value specified by Florida statute that annually recognizes 20% of deviations in investment performance from the long-term assumption systematically over time. The statutory calculation approach includes a "corridor" to ensure smoothed assets vary no more than 20% from fair market value.

Assumptions

Assumptions for 2016 Baseline valuation calculations use assumptions as most recently adopted by the 2014 FRS Actuarial Assumptions Conference, and as detailed in the 2014 Experience Study and as used in the July 1, 2015 Actuarial Valuation Report for funding purposes.

Provisions

Provisions valued are as summarized in the July 1, 2015 Actuarial Valuation Report for funding purposes.

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Glossary – Results Template Actuarial Terms

Acronym	Actuarial Term
AL	Actuarial Liability
AVA	Actuarial Value of Assets (smoothed, rather than market, value)
UAL	Unfunded Actuarial Liability
FS	Funded Status
NCR	Normal Cost Rate (net employer-paid portion)
UALR	Unfunded Actuarial Liability (UAL) Rate
NCR + UALR	A proxy, albeit an imperfect one, for the employer composite Pension Plan-only contribution rate prior to blending with Investment Plan rates to create blended proposed statutory rates

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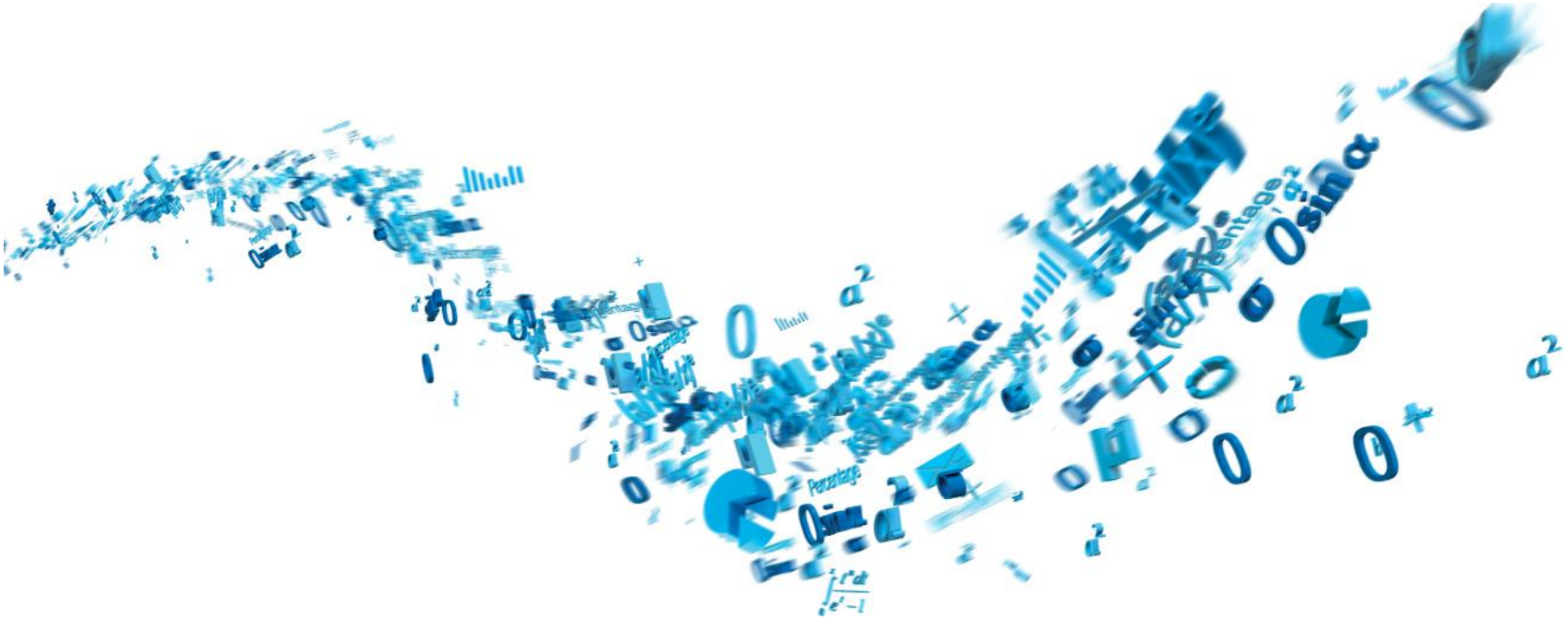


Historical Review of SBA Expected Return on Pension Assets

Florida State Board of Administration
October 2016

Aon Hewitt
Retirement and Investment

Table of Contents

Executive Summary

Executive Summary

- **Purpose of this Presentation**
  - Illustrate today's capital market expectations, historical capital market expectations, and implications to the expected return on SBA pension assets

- **AHIC Capital Market Assumptions**
  - Based on the AHIC capital market assumptions, the SBA expected return on pension assets is 6.3% today
  - There has been a trend of lower return expectations over the past several years
    - Over the past year, AHIC's portfolio return expectations for SBA have declined approximately 30bps
    - Over a five year period, the decline has been approximately 170bps

- **SBA Approach to Assumption Development**
  - SBA uses the equity risk premiums from four consulting firms (AHIC, Callan, Wilshire, and Mercer) to remove any biases from any one firm
  - In 2016, SBA changed the methodology for determining the equity risk premium from using U.S. equities to global equities
  - Reflecting the above, using the SBA approach, the assumed equity risk premium increased between 2015 and 2016

- **Horizon Survey for Assumption Benchmarking**
  - The Horizon Survey reflects assumptions from dozens of investment advisors each year
  - Capital market assumptions in aggregate slightly decreased between 2015 and 2016, according to the survey
  - AHIC assumptions tend to be similar to somewhat conservative relative to other investment advisors in the Horizon Survey

AHIC Capital Market Assumptions

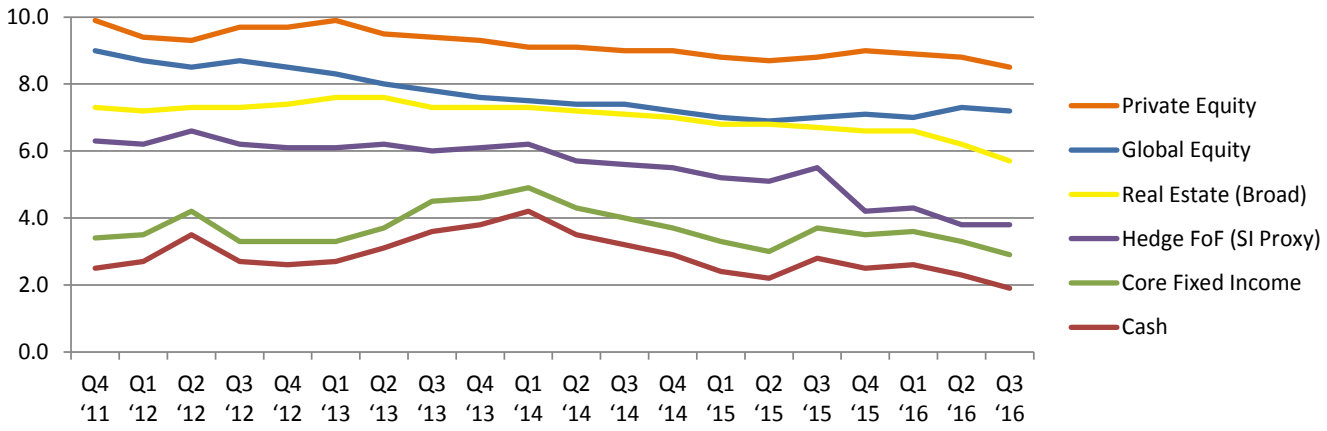
AHIC Capital Market Assumptions
Background

- Long-term (10 and 30 year forecasts) forward-looking assumptions (asset class geometric return, volatility and correlations)
- Building Block approach. Primarily based on consensus expectations and market based inputs
- Best estimates of annualized returns (50/50 better or worse)
- Market returns: no active management value added (other than hedge funds and private equity)
- Net of investment fees
- Updated quarterly
- We show AHIC's long-term (i.e., 30-year) capital market assumptions throughout this material

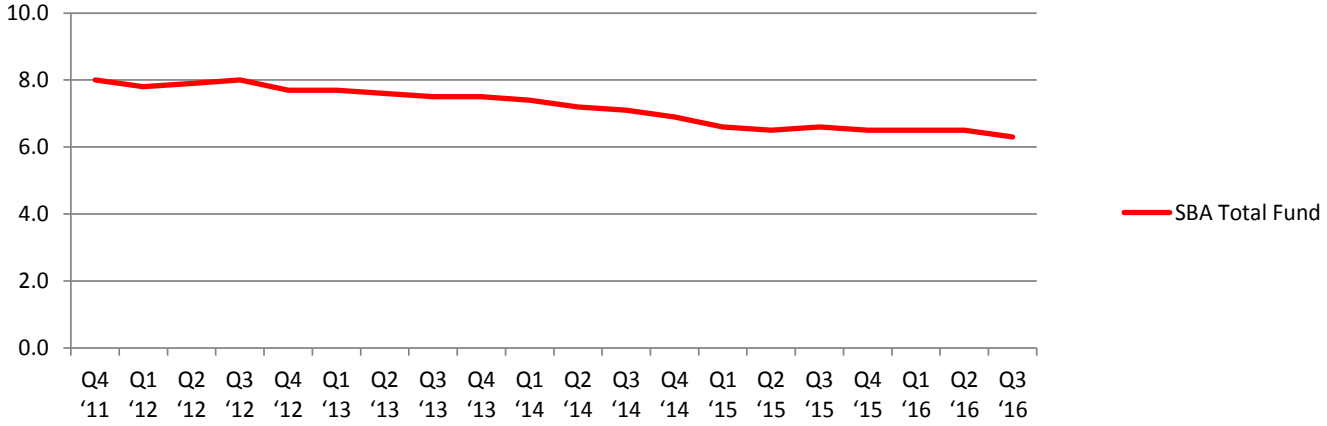
AHIC Capital Market Assumptions

Declining Return Expectations

Asset Classes



SBA Total Fund



Key Takeaways:

- Asset class return expectations generally decreasing since 2011
- Declining trend applies to equities and fixed income
- As a result, SBA total fund return expectations steadily declining over the period, based on AHIC assumptions

AHIC Capital Market Assumptions

Declining Return Expectations

- The table below shows the expected portfolio returns using AHIC's capital market assumptions, and SBA's long-term policy allocation
- Return expectations have fallen markedly over the past few years, due primarily to the decline in inflation expectations and bond yields
- Summary of expected return on pension plan assets:

Asset Classes	Q4 '11	Q1 '12	Q2 '12	Q3 '12	Q4 '12	Q1 '13	Q2 '13	Q3 '13	Q4 '13	Q1 '14	Q2 '14	Q3 '14	Q4 '14	Q1 '15	Q2 '15	Q3 '15	Q4 '15	Q1 '16	Q2 '16	Q3 '16
Global Equity	9.0	8.7	8.5	8.7	8.5	8.3	8.0	7.8	7.6	7.5	7.4	7.4	7.2	7.0	6.9	7.0	7.1	7.0	7.3	7.2
Cash	2.5	2.7	3.5	2.7	2.6	2.7	3.1	3.6	3.8	4.2	3.5	3.2	2.9	2.4	2.2	2.8	2.5	2.6	2.3	1.9
Core Fixed Income	3.4	3.5	4.2	3.3	3.3	3.3	3.7	4.5	4.6	4.9	4.3	4.0	3.7	3.3	3.0	3.7	3.5	3.6	3.3	2.9
Hedge FoF (SI Proxy)	6.3	6.2	6.6	6.2	6.1	6.1	6.2	6.0	6.1	6.2	5.7	5.6	5.5	5.2	5.1	5.5	4.2	4.3	3.8	3.8
Real Estate (Broad)	7.3	7.2	7.3	7.3	7.4	7.6	7.6	7.3	7.3	7.3	7.2	7.1	7.0	6.8	6.8	6.7	6.6	6.6	6.2	5.7
Private Equity	9.9	9.4	9.3	9.7	9.7	9.9	9.5	9.4	9.3	9.1	9.1	9.0	9.0	8.8	8.7	8.8	9.0	8.9	8.8	8.5
SBA Total Fund	**8.0**	**7.8**	**7.9**	**8.0**	**7.7**	**7.7**	**7.6**	**7.5**	**7.5**	**7.4**	**7.2**	**7.1**	**6.9**	**6.6**	**6.5**	**6.6**	**6.5**	**6.5**	**6.5**	**6.3**

AHIC CMAs have declined 30 bps over the past year

= Period used for 2016 Asset-Liability Study

AHIC Capital Market Assumptions

Declining Return Expectations

- The table below illustrates the changes in AHIC's capital market assumptions over the past 5 years, using the long-term policy target allocations shown

Asset Class	Change Since Q4 '11
Global Equity	-1.8
Cash	-0.6
Core Fixed Income	-0.5
Hedge FoF (SI proxy)	-2.5
Real Estate (Broad)	-1.6
Private Equity	-1.4
SBA Total Fund	**-1.7**

Asset Class	LT Policy Weights
Global Equity	53%
Cash	1%
Core Fixed Income	18%
Hedge FoF (SI proxy)	12%
Real Estate (Broad)	10%
Private Equity	6%
Total	**100%**

SBA Approach to Assumption Development

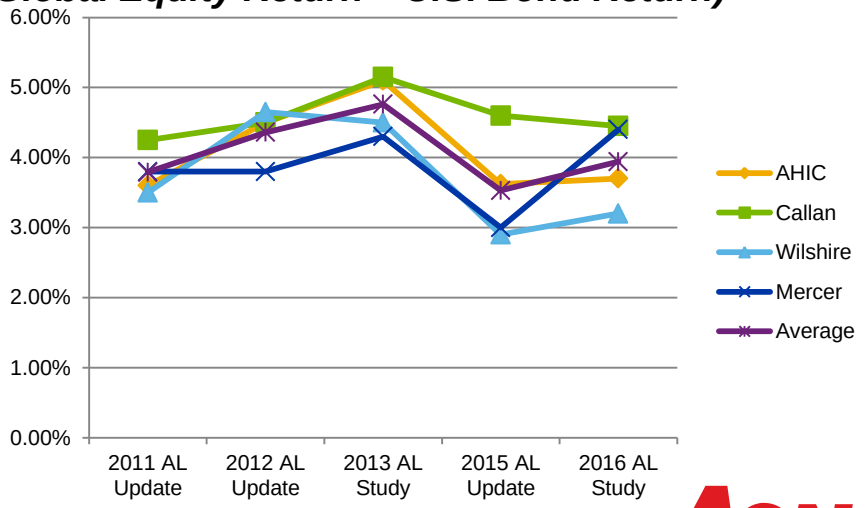
SBA Approach to Assumption Development

Development of Equity Risk Premium Assumption[1]

- SBA approach averages the equity risk premiums from four investment advisors (AHIC, Callan, Wilshire, Mercer)
  - Global equity risk premium used starting in 2016, deemed more applicable given global equity portfolio
  - Prior years were based on U.S. equity risk premiums
- Building block approach is used
  - Price inflation and fixed income returns reflect market conditions and yields
  - For all other asset classes ("risk assets") a risk premium is added to fixed income returns
- The average risk premium is used to scale AHIC's expected returns for the "Risk Assets"
  - Lower bond yields widened the equity risk premiums from 2011 to 2013
  - Declining equity returns have contributed to lowering the equity risk premium in recent years
  - Global equity generally has higher expected return than US equity – this methodology change has led to increased equity risk premium

Average Global Equity Risk Premium = Average (Global Equity Return – U.S. Bond Return)

Risk Premium for Equities[2]	U.S. Equities				Global Equities
	2011 A-L Update	2012 A-L Update	2013 A-L Study	2015 A-L Update	2016 A-L Study
AHIC	3.60%	4.50%	5.10%	3.62%	3.70%
Callan	4.25%	4.50%	5.15%	4.60%	4.45%
Wilshire	3.50%	4.65%	4.50%	2.90%	3.20%
Mercer	3.80%	3.80%	4.30%	3.00%	4.40%
Average	*3.79%*	*4.36%*	*4.76%*	*3.53%*	*3.94%*



[1]Equity Risk Premium is defined as the excess return earned over bonds that compensates investors for taking on higher risk; all returns are 15-year geometric average (compounded) expected returns

[2]AL Study was not completed in 2014

SBA Approach to Assumption Development

Historical and Expected Equity Risk Premium

- This graph shows the historical moving average of the global equity risk premium. The shaded section captures the experience since 1950. During this period, the average rolling 15-year global ERP has been 3.70%.

Notes:

- Global equity risk premium measured as the difference between Global Stock returns and U.S. Bonds.
- Global Stocks: January 1926 to December 1969 – 50% U.S. [CRSP 1-10 Deciles Data (cap-based)] / 50% International stock data from Global Financial Database; January 1970 to present – MSCI All-Country Index
- U.S. Bonds: January 1926 to December 1975 – Long-Term Government Bond returns from Ibbotson; January 1976 to present – Barclays Capital Aggregate Bond Index

SBA Approach to Assumption Development

Total Fund Expected Returns (based on AHIC CMAs, adjusted for ERP)*

	2011 A-L Update**	2012 A-L Update	2013 A-L Study	2014 A-L Update	2015 A-L Update	2016 A-L Study
Global Equities	58%	52%	52%	53%	53%	53%
Private Equity	4%	5%	5%	6%	6%	6%
Real Estate	7%	7%	7%	10%	10%	10%
High Yield Bonds	2%	--	--	--	--	--
Strategic Investments	--	11%	11%	12%	12%	12%
US Bonds	28%	24%	24%	18%	18%	18%
Cash	1%	1%	1%	1%	1%	1%
Total	100%	100%	100%	100%	100%	100%
Net – Expected Nominal Return	**7.40%**	**7.40%**	**7.00%**	**7.50%**	**6.75%**	**7.00%**
Net – Expected Real Return	**4.70%**	**5.30%**	**4.50%**	**5.10%**	**4.50%**	**4.80%**

*SBA Total Fund results shown are based on the long-term, or recommended long-term policy weights from the respective AL Study, with the exception of 2011
**2011 expected returns reflect the SBA's current asset allocation at the time of the study and not the long-term or recommended long-term policy

Horizon Survey of Capital Market Assumptions

2016 Horizon Survey Results
AHIC vs. Other Advisors

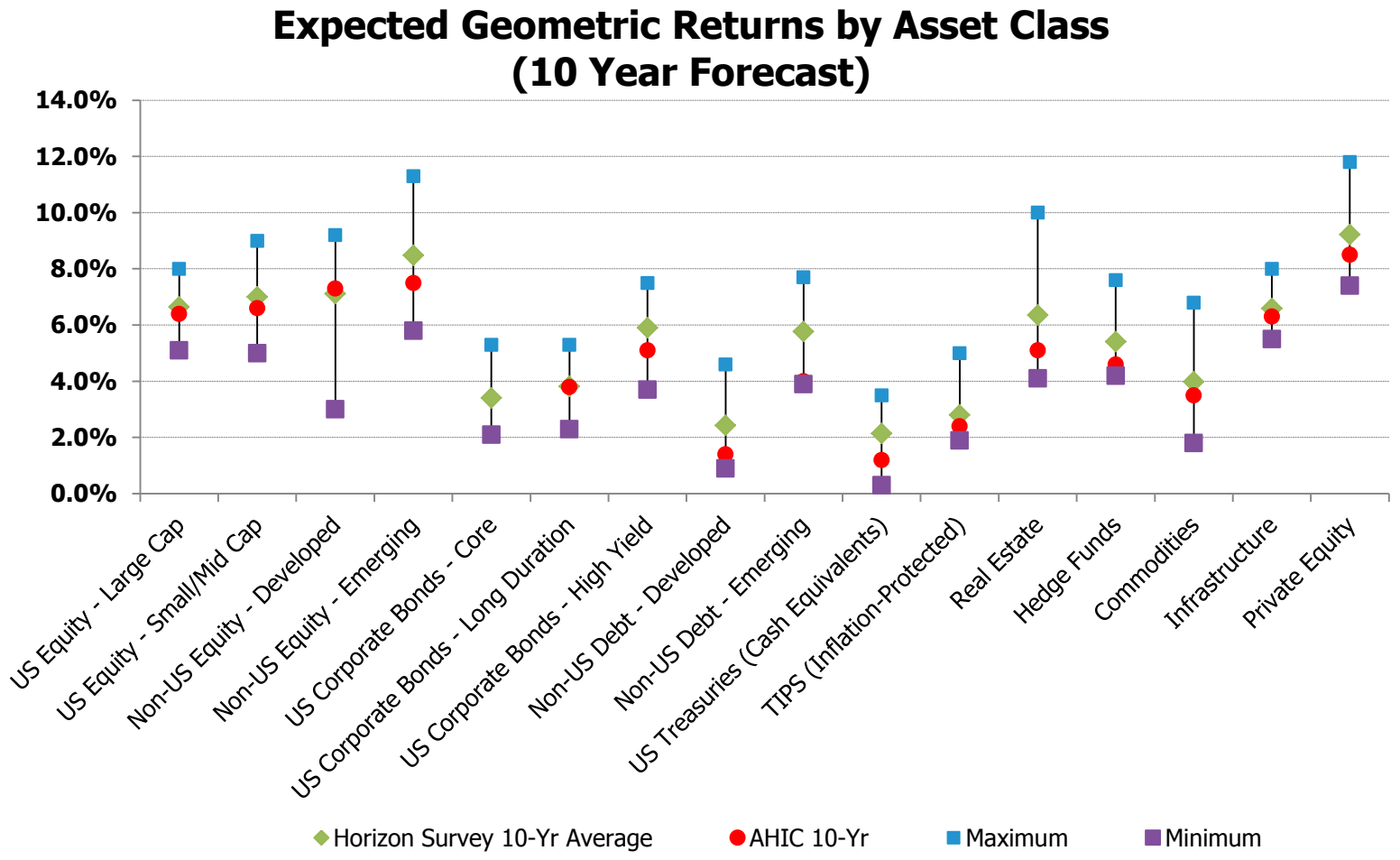
- The 2016 Horizon Survey generally showed return expectations slightly lower in 2016 than 2015
  - Equity return assumptions are lower by an average of 0.1%
  - Fixed income return assumptions are higher by an average of 0.1%
  - Alternative asset class return assumptions are lower by an average of 0.1%

- 2016 AHIC 10-year forecast assumptions tend to be similar to the survey average in some asset classes (e.g., public equities), and somewhat lower in others (e.g., alternatives)
  - AHIC equity assumptions are driven by market valuations, earnings growth expectations and assumed payouts to investors. Recent experience suggests strong equity market performance has been driven more by increasing valuations than increasing profits. As markets have become more expensive, our equity return assumptions have consequently fallen
  - AHIC fixed income assumptions reflect rising yields and steepening of yield curves during the first quarter of 2016
  - AHIC alternative asset class assumptions are generally lower due to methodological and inflation forecast differences compared to survey participant forecasts

- In conclusion, AHIC assumptions appear somewhat more conservative than peers included in the 2016 Horizon Survey of capital market assumptions

2016 Horizon Survey Results

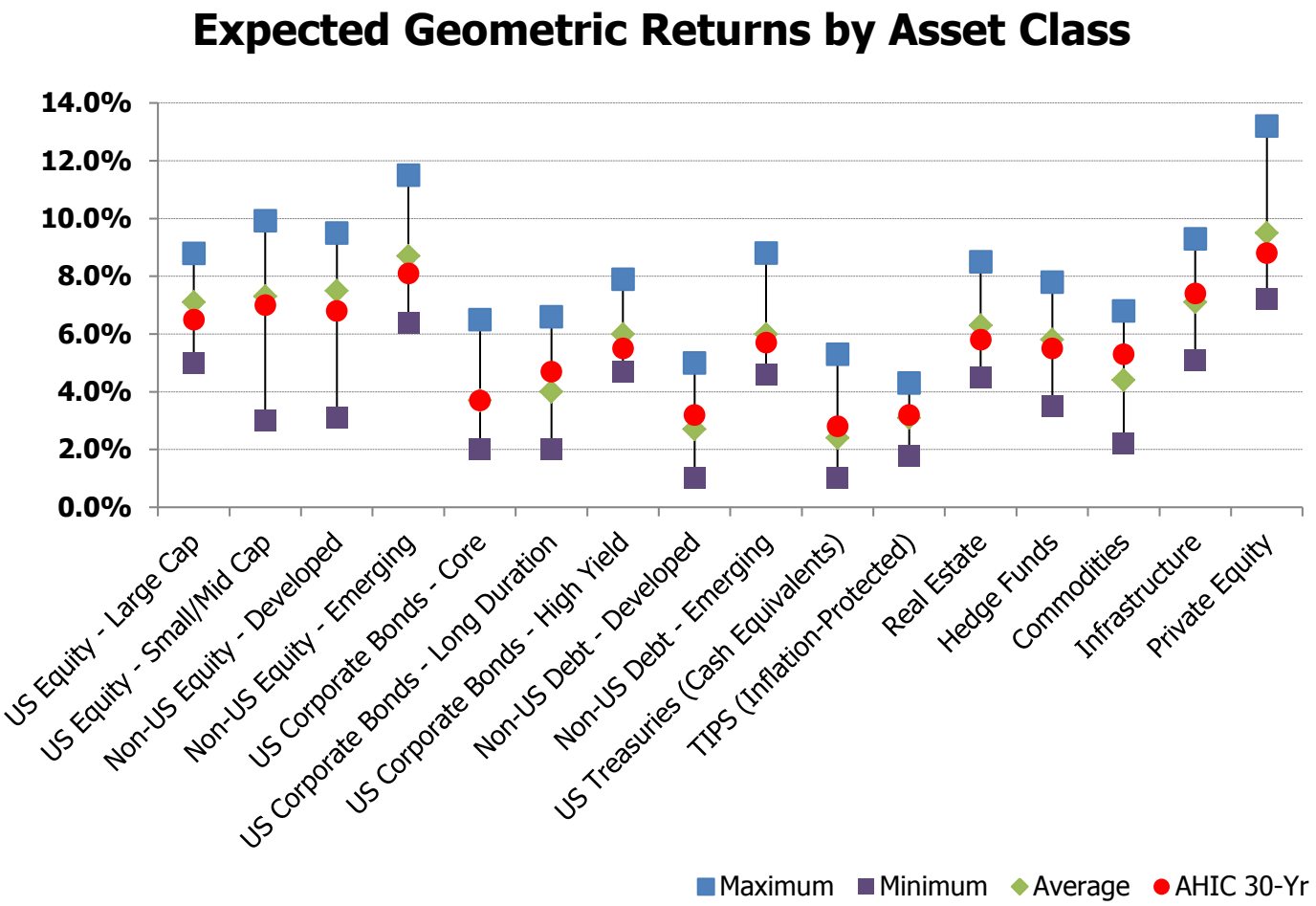
Distribution of Expected Returns from 35 Consultants



SOURCE: Horizon Actuarial survey of 2016 capital market assumptions from 35 independent investment advisors
Expected returns of the survey are annualized over 10-years (geometric).
AHIC expected returns are annualized over 10-years as of 3Q 2016

2015 Horizon Survey Results

Distribution of Expected Returns from 29 Consultants



SOURCE: Horizon Actuarial survey of 2015 capital market assumptions from 29 independent investment advisors
Expected returns of the survey are annualized over 10-20 years (geometric). Returns are 'blended,' using 10-year assumptions when 20-year assumptions are not available.
AHIC expected returns are annualized over 30-years.

Appendix

2016 Horizon Survey
AHIC Versus Peers

	Horizon Survey				AHIC			
	Expected Geometric Returns (10-Yr)			Expected Risk	10 Year Forecasts		30 Year Forecasts	
Asset Class	Maximum	Minimum	Average	Average	Expected Return	Expected Risk	Expected Return	Expected Risk
US Equity - Large Cap	8.0%	5.1%	6.6%	16.9%	6.4%	17.0%	6.3%	17.0%
US Equity - Small/Mid Cap	9.0%	5.0%	7.0%	21.0%	6.6%	23.0%	6.8%	23.5%
Non-US Equity - Developed	9.2%	3.0%	7.1%	19.5%	7.3%	20.0%	7.2%	20.0%
Non-US Equity - Emerging	11.3%	5.8%	8.5%	26.4%	7.5%	30.0%	7.5%	30.5%
US Fixed Income - Core	5.3%	2.1%	3.4%	6.0%	2.1%	3.5%	2.9%	5.0%
US Fixed Income - Long Duration Corp	5.3%	2.3%	3.8%	10.5%	3.8%	11.5%	4.0%	15.0%
US Fixed Income - High Yield	7.5%	3.7%	5.9%	11.0%	5.1%	12.0%	5.4%	12.0%
Non-US Fixed Income - Developed	4.6%	0.9%	2.4%	7.6%	1.4%	5.5%	2.2%	6.5%
Non-US Fixed Income - Emerging	7.7%	3.9%	5.8%	11.6%	4.0%	13.0%	4.9%	13.5%
Treasuries (Cash Equivalents)	3.5%	0.3%	2.1%	2.8%	1.2%	1.0%	1.9%	2.0%
TIPS (Inflation-Protected)	5.0%	1.9%	2.8%	6.5%	2.4%	4.5%	3.1%	4.5%
Real Estate	10.0%	4.1%	6.4%	14.7%	5.1%	11.5%	5.1%	11.5%
Hedge Funds	7.6%	4.2%	5.4%	8.4%	4.6%	9.0%	5.0%	9.5%
Commodities	6.8%	1.8%	4.0%	18.5%	3.5%	17.0%	4.4%	17.0%
Infrastructure	8.0%	5.5%	6.6%	13.8%	6.3%	14.5%	6.6%	14.5%
Private Equity	11.8%	7.4%	9.2%	23.1%	8.5%	24.0%	8.5%	24.5%
Inflation			2.2%	1.8%	2.1%	1.0%	2.1%	1.5%

Notes (Horizon Survey):
Source: Horizon Actuarial survey of 2016 capital market assumptions from 35 independent investment advisors
Expected returns are annualized (geometric).

Notes (AHIC Forecasts):
AHIC Forecasts are for Q3 2016
US Equity - Small/Mid Cap forecasts represents AHIC forecasts for US Small Cap
US Fixed Income - Long Duration forecasts represents AHIC forecasts for Long Duration Credit
Non-US Fixed Income - Developed forecasts represents AHIC forecasts for Non-US Fixed Income - Developed (50% Hedged)
Non-US Fixed Income- Emerging forecasts represents AHIC forecasts for Non-US Fixed Income- Emerging Sovereign USD
Real Estate forecasts represents AHIC forecasts for Core Private Real Estate
Hedge Funds forecasts represents AHIC forecasts for Hedge Fund-of-Funds (Buy List)

2015 Horizon Survey
AHIC Versus Peers

	Horizon Survey				AHIC			
	Expected Geometric Returns			Expected Risk	10 Year Forecasts		30 Year Forecasts	
Asset Class	Maximum	Minimum	Average	Average	Expected Return	Expected Risk	Expected Return	Expected Risk
US Equity - Large Cap	8.8%	5.0%	7.1%	17.1%	6.5%	17.0%	6.5%	17.5%
US Equity - Small/Mid Cap	9.9%	3.0%	7.3%	21.0%	6.7%	23.0%	7.0%	23.5%
Non-US Equity - Developed	9.5%	3.1%	7.5%	19.6%	6.9%	20.0%	6.8%	20.5%
Non-US Equity - Emerging	11.5%	6.4%	8.7%	26.6%	8.0%	30.0%	8.1%	30.5%
US Fixed Income - Core	6.5%	2.0%	3.7%	5.6%	2.9%	4.0%	3.7%	5.0%
US Fixed Income - Long Duration Corp	6.6%	2.0%	4.0%	10.8%	4.4%	11.5%	4.7%	13.5%
US Fixed Income - High Yield	7.9%	4.7%	6.0%	11.2%	4.7%	12.0%	5.5%	12.0%
Non-US Fixed Income - Developed	5.0%	1.0%	2.7%	7.4%	2.3%	5.5%	3.2%	6.5%
Non-US Fixed Income - Emerging	8.8%	4.6%	6.0%	11.7%	4.6%	13.0%	5.7%	13.5%
Treasuries (Cash Equivalents)	5.3%	1.0%	2.4%	2.8%	2.1%	1.0%	2.8%	1.5%
TIPS (Inflation-Protected)	4.3%	1.8%	3.1%	6.3%	2.7%	4.5%	3.2%	4.5%
Real Estate	8.5%	4.5%	6.3%	13.6%	5.8%	11.5%	5.8%	11.5%
Hedge Funds	7.8%	3.5%	5.8%	8.3%	5.0%	9.0%	5.5%	10.0%
Commodities	6.8%	2.2%	4.4%	18.0%	4.5%	17.0%	5.3%	17.0%
Infrastructure	9.3%	5.1%	7.1%	13.1%	7.2%	14.5%	7.4%	14.5%
Private Equity	13.2%	7.2%	9.5%	23.6%	8.8%	24.0%	8.8%	24.5%
Inflation	2.8	1.7	2.2%	1.8%	2.1%	1.0%	2.1%	1.5%

Notes (Horizon Survey):
Source: Horizon Actuarial survey of 2015 capital market assumptions from 29 independent investment advisors
Expected returns are annualized over 10-20 years (geometric). Returns are 'blended,' using 10-year assumptions when 20-year assumptions are not available.

Notes (AHIC Forecasts):
AHIC Forecasts are for Q3 2015
US Equity - Small/Mid Cap forecasts represents AHIC forecasts for US Small Cap
US Fixed Income - Long Duration forecasts represents AHIC forecasts for Long Duration Credit
Non-US Fixed Income - Developed forecasts represents AHIC forecasts for Non-US Fixed Income - Developed (50% Hedged)
Non-US Fixed Income- Emerging forecasts represents AHIC forecasts for Non-US Fixed Income- Emerging Sovereign USD
Real Estate forecasts represents AHIC forecasts for Core Private Real Estate
Hedge Funds forecasts represents AHIC forecasts for Hedge Fund-of-Funds

Leading Methodologies & Reasons for Differences

Leading Methodologies

- Building Block
- Global Capital Asset Pricing Model (Global CAPM)
- Surveys
- Historical data (as a guide to future)
- Black-Litterman (combination of building block and CAPM)

Reasons for Differences

- Methodology
- Time Horizon
- Arithmetic vs. Geometric forecasts*
- Alpha (active management)*
- Inflation
- Investment Fees
- Asset class definition

* While some firms in Horizon survey responded with Arithmetic forecasts, the results have been converted to Geometric forecasts for comparison purposes. Additionally, the return expectations included in the Horizon survey are based on indexed returns (no “alpha”). However, AHIC return assumptions for certain asset classes include “alpha” or active management premium (e.g., Private Equity and Hedge Funds)

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ATTN: AHIC Compliance Officer

State Board of Administration

FRS Pension Plan Performance Review

Actuarial Assumptions Estimating Conference

October 11, 2016

SBA FLORIDA
STATE BOARD OF ADMINISTRATION

Executive Summary

- The Pension Plan's assets totaled $141.3 billion (unaudited) as of June 30, 2016, which represents a $6.7 billion decrease since June 30, 2015, despite a net cash outflow of $7.3 billion (net benefit payouts).
- The Pension Plan's market value has remained relatively flat since October 2013 despite net cash outflows of $17.5 billion (net benefit payouts).
- The Pension Plan returned 4.56% during the time period from October 2013 to June 2016, i.e., 32 months.
- Net Pension Plan cash outflows are continuing to grow as the Plan matures and Plan contributions remain relatively static

Executive Summary

- As of June 30, 2016, the Pension Plan, when measured against its market based performance benchmark, outperformed over the trailing one-, three-, five-, ten-, fifteen-, twenty-, twenty five-year time periods and slightly underperformed over the trailing thirty-year period.

- As of June 30, 2016, relative to the current actuarial return assumption of 7.65%, the Pension Plan has underperformed over the trailing one-, three-, five-, ten-, fifteen-, twenty-year time periods; however, it has outperformed over the trailing twenty five- and thirty-year time periods.

- Going forward, the longer term trailing returns, twenty-five and thirty-year time periods, will start to trend downward as more recent return experience starts to dominate.

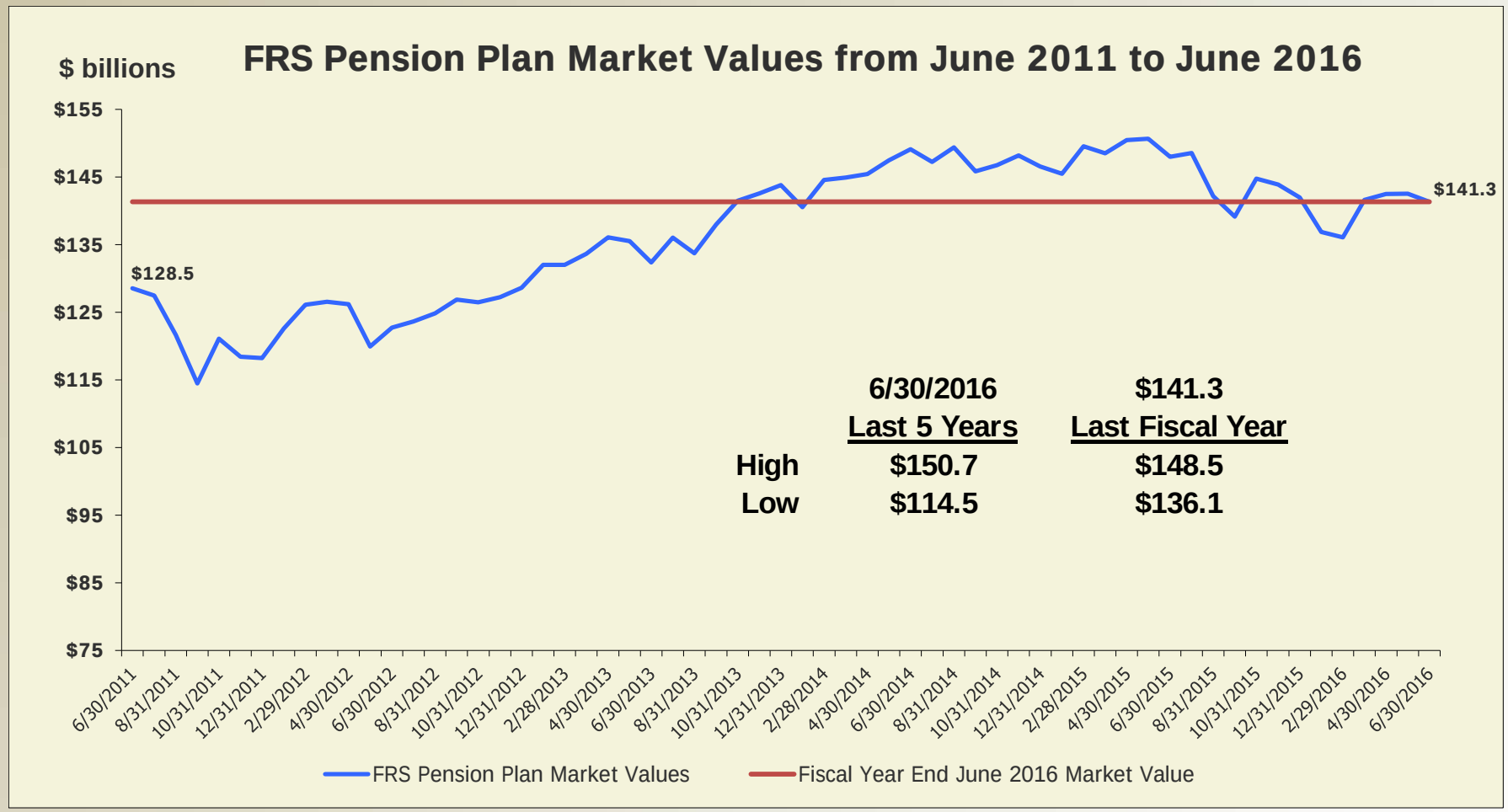
FRS Pension Plan Change in Market Value
Fiscal Year Ending 6/30/2016

Summary of Cash Flows	
	Fiscal Year 2015-16*
	$ in Billions
Beginning Market Value	$148.0
+/- Net Contributions/(Withdrawals)	($7.3)
Investment Earnings	$0.6
= Ending Market Value	$141.3
Net Change	($6.7)

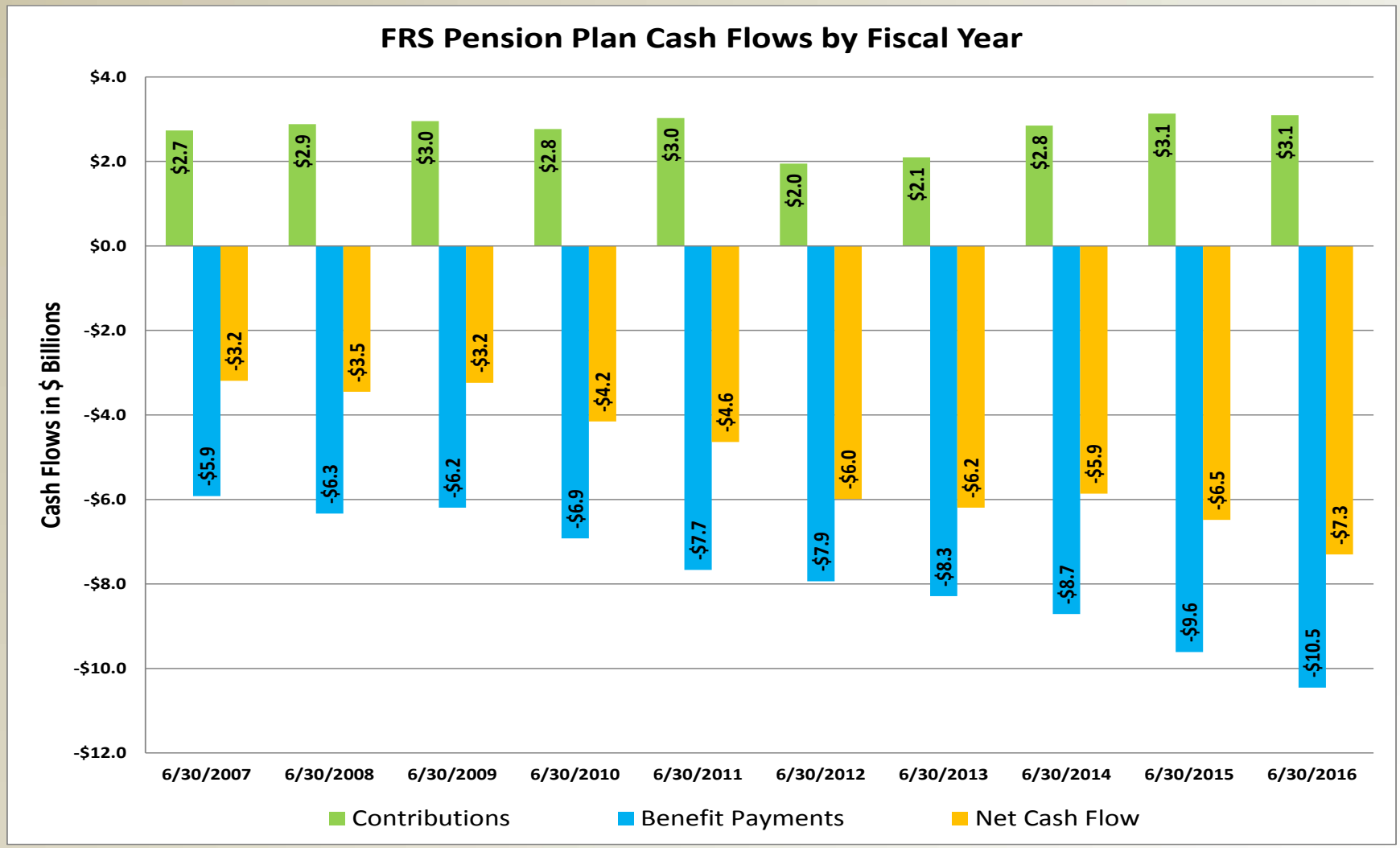
*Period July 2015 – June 2016, unaudited.

SBA FLORIDA

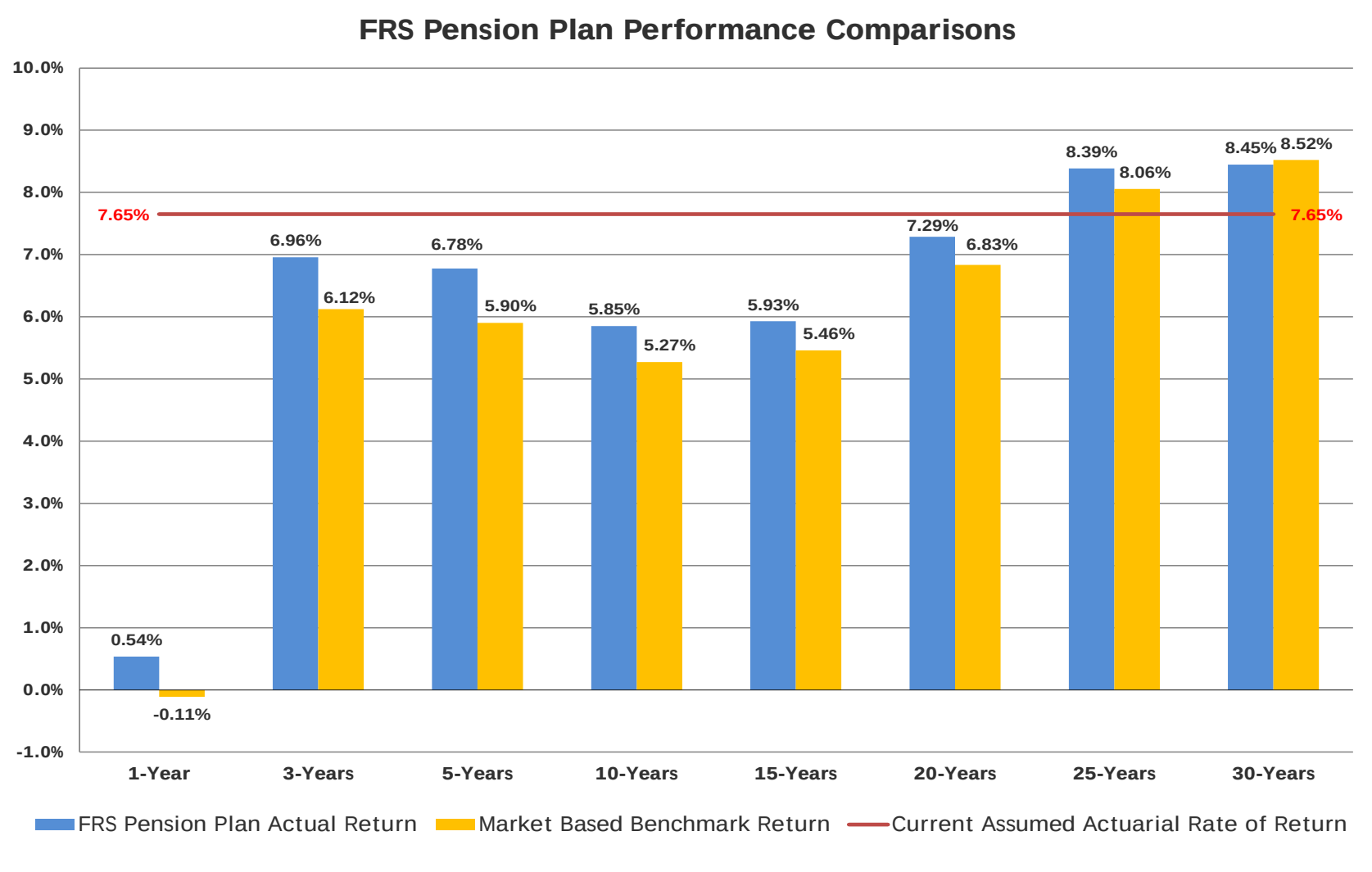
FRS Pension Plan Changes in Market Values From June 30, 2011 to June 30, 2016 (5 Years)



FRS Pension Plan Cash Flows by Fiscal Year From Fiscal Year 2006-07 to 2015-16 (10 Years)



FRS Pension Plan Investment Results Periods Ending 6/30/2016



Milliman

Florida Retirement System Pension Plan

Actuarial Valuation as of July 1, 2016

Prepared by:

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December 1, 2016

Ms. Elizabeth Stevens
State Retirement Director
Florida Department of Management Services, Division of Retirement

Re: **Actuarial Valuation as of July 1, 2016**

Dear Director Stevens:

We have conducted an annual actuarial valuation of the Florida Retirement System (FRS) Pension Plan as of July 1, 2016, for assessing plan funded status and determining actuarially calculated contribution rates for the July 2017 - June 2018 plan year. The major findings of the valuation are contained in the following report.

Section 1 contains an Executive Summary of the results of our valuation followed by four sections containing detailed information on Assets (Section 2), Liabilities (Section 3), Contributions (Section 4), and Accounting Statements (Section 5). In the Appendices, we provide information regarding actuarial methods and assumptions, a summary of plan provisions, membership statistics, cost projections, comparisons/reconciliation, and a glossary of terms.

All costs and liabilities shown in this report have been determined on the basis of actuarial assumptions and methods set forth in Appendix A. Preliminary 2016 valuation results using the actuarial assumptions and methods used in the previous valuation as of July 1, 2015 were presented by the actuary to the 2016 FRS Actuarial Assumptions Conference held in October 2016. The assumptions are based on Milliman's most recent review of the System's experience, which was for the observation period from July 1, 2008 through June 30, 2013. Additional details on that review of System experience can be located in our August 11, 2014 presentation materials to the 2014 FRS Actuarial Assumptions Conference and our formal 2014 Experience Study report, which was issued on September 8, 2014. The assumptions used in this valuation are unchanged from those used in the prior valuation as of July 1, 2015 with two exceptions: 1) the investment return assumption, was decreased from 7.65% to 7.60%; and 2) the mortality assumption applied to members while in FRS-covered employment was updated to better anticipate expected future experience. The preliminary 2016 valuation results that were presented to the 2016 FRS Actuarial Assumptions Conference in October 2016 reflected these changes.

With one exception, we believe the assumptions and methods used in this report for purposes of developing actuarially calculated contribution rates are reasonable. The investment return assumption, which was set by the 2016 FRS Actuarial Assumptions Conference, is a *prescribed assumption* as defined by Actuarial Standard of Practice No. 27 (ASOP 27). The prescribed assumption conflicts with our professional judgment regarding what would constitute a reasonable assumption as defined by ASOP 27. Details and discussion regarding the return assumption are shown in our 2016 FRS Actuarial Assumptions Conference presentation materials and discussed in the Executive Summary of this report.

The accounting calculations for the FRS Pension Plan's financial reporting and its June 30, 2016 CAFR in compliance with the GASB Statement No. 67 use some methods that differ from those used in this report. The GASB financial reporting information is issued under separate cover.

The results of this report are dependent upon future experience conforming to the assumptions disclosed in this report. Future actuarial measurements may differ significantly from the current measurements presented in this report due to many factors, including: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Actuarial computations presented in this report are for purposes of assessing funded status and determining the actuarially calculated contribution rates for the FRS Pension Plan. The calculations in the enclosed report have been made on a basis consistent with our understanding of the FRS Pension Plan's funding requirements and goals. Determinations for purposes other than meeting those requirements referenced in this paragraph may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

In preparing our report we relied, without audit, on information (some oral and some written) supplied by the Florida Department of Management Services, Division of Retirement. This information includes, but is not limited to, statutory provisions, employee census, and financial information. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes. Since the valuation results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

This actuarial valuation was prepared and completed by us and those under our direct supervision, and we acknowledge responsibility for the results. To the best of our knowledge, the results are complete and accurate. With the exception of the one assumption noted above, the techniques and assumptions used are reasonable. In our opinion this valuation meets the requirements and intent of Part VII, Chapter 112, Florida Statutes. Regarding the one noted exception, Section 216.136(10) of Florida Statutes indicates that the 2016 FRS Actuarial Assumptions Conference holds the statutory authority to determine the investment return assumption. There is no benefit provision or related expense to be provided by the plan and/or paid from the plan's assets for which liabilities or current costs have not been established or otherwise taken into account in the valuation. To the best of our knowledge, there were no known events that were not taken into account in the valuation.

Milliman's work product was prepared exclusively for the internal business use of Florida Department of Management Services, Division of Retirement, for a specific and limited purpose. It is a complex technical analysis that assumes a high level of knowledge concerning the Florida Retirement System's operations, and uses Division data, which Milliman has not audited. To the extent that Milliman's work is not subject to disclosure under applicable public record laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work

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The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with Actuarial Standards of Practice, the Code of Professional Conduct and Qualification Standards for Public Statements of Actuarial Opinion of the American Academy of Actuaries. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Respectfully submitted,

Matt Larrabee, FSA, EA, MAAA

Daniel Wade, FSA, EA, MAAA

Kathryn Hunter, FSA, EA, MAAA
Consulting Actuary

ML/DW/KH/nlo

Table of Contents

1. Executive Summary

This report presents the results of our July 1, 2016 actuarial valuation of the defined benefit Florida Retirement System (FRS) Pension Plan. This valuation is used to determine actuarially calculated Pension Plan-specific employer contribution rates for the July 1, 2017 – June 30, 2018 plan year. The Pension-Plan specific rates developed in this valuation report are then combined with contribution rates from the defined contribution FRS Investment Plan to create blended proposed statutory employer contribution rates. The actual contribution rates paid by employers during the 2017-2018 plan year will be determined by Florida Statutes. The statutory contribution rates in effect for the current 2016-2017 plan year are identical to the blended proposed statutory rates developed in conjunction with the July 1, 2015 actuarial valuation as subsequently modified to reflect the effects of Senate Bill 7012, which was enacted during the 2016 legislative session.

On the smoothed Actuarial Value of Assets basis used to determine actuarially calculated contribution rates, Pension Plan funded status decreased slightly from 86.5% to 85.4%. On a Market Value of Assets basis, Pension Plan funded status decreased from 89.7% to 83.2% due to actual plan year investment return of +0.54% compared to an assumed prior year return of 7.65%.[1]

Pension Plan actuarially calculated employer contribution rates, prior to blending with Investment Plan rates to create blended proposed statutory contribution rates, increased from 9.23% of pay to 9.80% of pay on a composite basis. The most significant rate increase sources were, in decreasing order of significance, a) a 0.05% decrease in the assumed future investment return, b) a plan year investment return on a smoothed Actuarial Value of Assets basis of +7.0%, which is below the long-term assumption used in the prior valuation, c) actual growth of payroll to amortize the Unfunded Actuarial Liability (UAL) was only 1.1%, compared to the assumed payroll growth of 3.25%, and d) the legislated enhancement in 2016 to in-line-of-duty death benefits for members of the Special Risk membership class.

Due to sub-assumption market value investment performance over the past two years, the Market Value of Assets lags the smoothed Actuarial Value of Assets used for funded status and contribution rate calculations by $3.7 billion as of July 1, 2016. That $3.7 billion not yet recognized market investment loss will be systematically recognized as a sequence of actuarial investment losses in the UAL over the next several years unless market value investment experience during that period exceeds assumption. If actual market value investment experience during that period fails to exceed the 7.60% assumption used in this valuation, the not yet recognized market investment loss will be reflected via future increases in actuarially calculated employer contribution rates.

For this valuation a long-term average annual future investment return assumption of 7.60% was used, a decrease of 0.05% from the assumption used in the previous valuation. The 7.60% assumed return is a *prescribed assumption* as defined by Actuarial Standard of Practice No. 27 (ASOP 27), as it was set by the 2016 FRS Actuarial Assumptions Conference. The prescribed assumption conflicts with our judgment regarding what would constitute a reasonable assumption as defined by ASOP 27. It is materially above the 50th percentile average returns in the proprietary capital market outlook models developed by both Milliman and the Florida State Board of Administration's investment consultant (Aon Hewitt Investment Consulting). The models developed by Milliman and Aon Hewitt each had 50th percentile average annual long-term future returns in the 6.3%-7.0% range, and all models developed in 2016 indicated a likelihood of 35% or less of actual long-term future returns meeting or exceeding 7.60%. More details are shown in our 2016 FRS Actuarial Assumptions Conference presentation materials.

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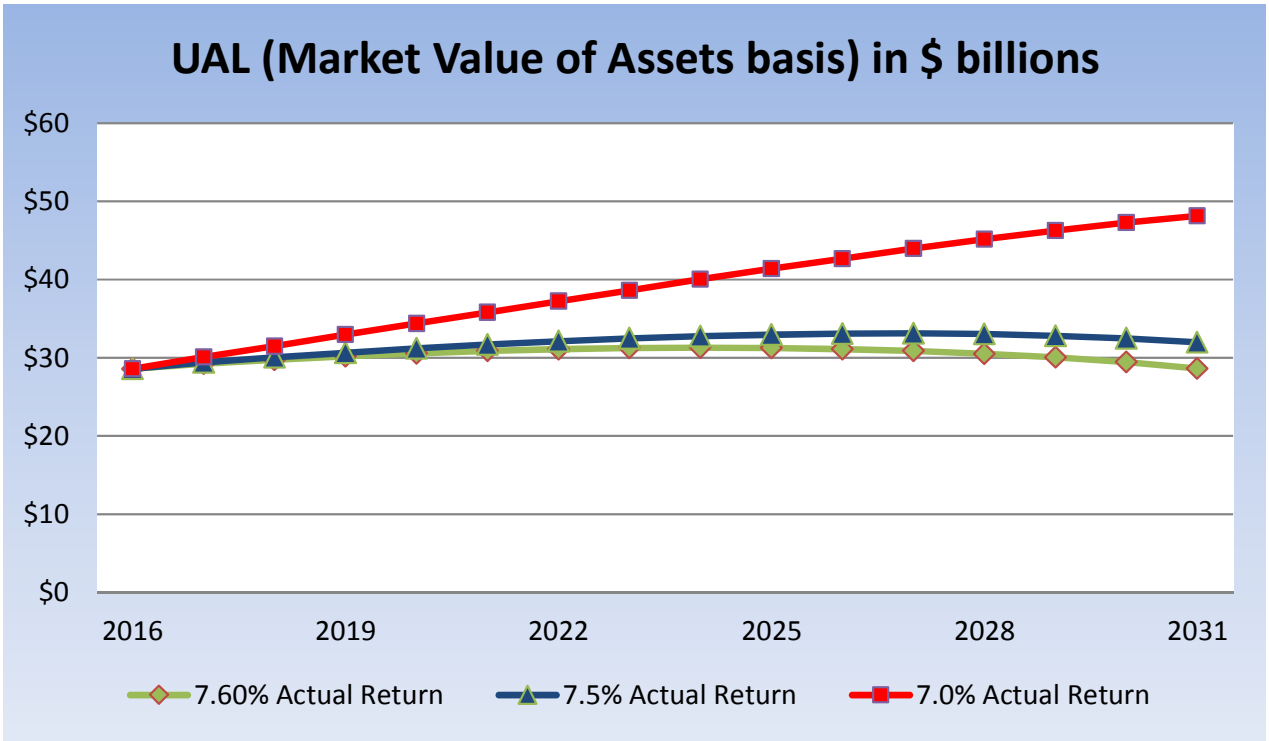
[1] *The financial reporting information under GASB 67 valuation requirements uses an actuarial cost allocation method mandated by GASB that is different from that used in this valuation for funding purposes, and is issued under separate cover.*

All else being equal, the lower the selected investment return assumption, the higher the likelihood the FRS Pension Plan will meet or exceed its assumed investment return in future years. A lower assumption would result in higher short-term actuarially calculated contribution rates for employers, but would also serve to lessen the magnitude of actuarially calculated contribution rate increases in the event that actual future investment performance fails to meet the assumption.

Actual future investment return experience for the FRS Pension Plan is not affected by the assumption used in the actuarial valuation. Applying the 7.60% assumption used in this valuation, the following graph illustrates the UAL (Unfunded Actuarial Liability) on a Market Value of Assets basis under three scenarios for steady actual future investment returns:

- 7.60%, which is the assumption selected for this valuation by the FRS Actuarial Assumptions Conference
- 7.50%, which is slight underperformance compared to the valuation assumption
- 7.00%, which is near the 50th percentile assumption for a model developed by Aon Hewitt Investment Consulting in consultation with the Florida State Board of Administration for the 2016 asset-liability study



As illustrated in the graph, if actual future investment returns match the 7.60% assumption the UAL is effectively unchanged by the end of the illustrated fifteen year period. When there are investment losses that are not yet recognized as of the valuation date, this pattern over the first fifteen years is typical of the method of closed 30-year amortization periods used to calculate contribution rates in the valuation. (The UAL remaining after fifteen years is amortized over the latter fifteen years of the amortization schedule.) If actual returns show slight underperformance compared to the 7.60% assumption, the UAL increases modestly over the illustrated projection period. On the other hand, if actual investment returns significantly underperform the assumption (0.60% annual underperformance is illustrated) the UAL will increase significantly over time even if actuarially calculated contributions are made and all other experience follows the assumptions used in this valuation.

We also would like to point out other key items regarding this valuation:

- Consistent with the previous valuation, the contribution rate calculation methodology uses the Ultimate Entry Age Normal (Ultimate EAN) actuarial cost allocation method. Under Ultimate EAN, the Normal Cost Rate is calculated as the rate that would be applicable if the plan provisions of Senate Bill 2100 for members hired on or after July 1, 2011 applied to all FRS Pension Plan members for the entirety of their projected working careers. The present value of total projected benefits calculated for each member reflects the actual tier in which the member participates. As such, the methodology used for calculating contribution rates understates Normal Cost Rate but overstates Actuarial Liability and UAL Rate when compared to some alternative calculation methodologies, such as the Individual Entry Age Normal (Individual EAN) methodology that is mandated by GASB for financial reporting calculations under GASB Statements Nos. 67 & 68.

- The Ultimate EAN actuarial cost allocation method being used for liability and rate calculations, like any actuarial cost allocation method, divides the present value of total projected benefits for each active member between past service (Actuarial Liability, or AL) and future service (present value of future normal costs). The cost allocation method does not impact the calculation of the present value of total projected benefits.

The tables immediately following compare July 1, 2015 actuarial valuation results with July 1, 2016 actuarial valuation results. The difference column shows the change between the July 1, 2015 valuation results and the July 1, 2016 valuation results.

A. Assets, Liabilities, and Funded Status

A comparison of the Actuarial Liability and Actuarial Value of Assets (AVA) follows. These figures are based upon the actuarial assumptions used to determine the actuarial costs of the FRS Pension Plan (see Appendix A). Under current methodology, and as required by Florida law, the AVA cannot be less than 80% or greater than 120% of the Market Value of Assets (MVA). This corridor restriction does not come into play unless there are dramatic asset gains or losses in the prior plan year. The purpose of the corridor is to ensure that the “smoothed” value of assets does not vary from the market value by more than 20%. As of July 1, 2016, the AVA is 102.6% of the MVA.

		Valuation Results (numbers in $ billions)		
		July 1, 2015	July 1, 2016	Difference
1.	Actuarial Liability	$165.5	$170.4	$4.9
2.	Actuarial Value of Assets	$143.2	$145.5	$2.3
3.	Unfunded Actuarial Liability (1 - 2)	$22.3	$24.9	$2.6
4.	Funded Percentage (2 / 1)	86.5%	85.4%	-1.1%

In Section 5 of this report we present an additional measure of funded status based on a different liability measure, the "Accumulated Benefit Obligation" (ABO), based on both the AVA and the MVA.

B. Contributions

Actuarially calculated contribution rates by class are determined annually in the actuarial valuation. Actual contribution rates paid by employers for each class are set by statute and consist of Normal Cost and UAL Cost components. For the 2016-2017 plan year, the actuarially calculated rates determined by the 2015 valuation and the legislated rates are equivalent. The 2017-2018 actual contribution rates will be set by the 2017 session of the Florida Legislature, with advice from this valuation. The Unfunded Actuarial Liability amortization payment will consist primarily of costs or savings associated with plan changes, assumption changes, differences in actual and expected experience, or changes in actuarial methodology. As of July 1, 2016 the FRS Pension Plan has a UAL

of $24.9 billion on a smoothed Actuarial Value of Assets basis. The UAL Cost is calculated to eliminate the UAL over a pre-determined amortization period if future experience follows assumptions.

The comparative FRS Regular and Special Risk contribution rates resulting from this valuation and the prior valuation are as follows. See Section 4 for more details on rate development and valuation results for all classes.

	July 1, 2015 Valuation (2016-2017 Rates)		July 1, 2016 Valuation (2017-2018 Rates)		Difference	
	Regular	Special Risk	Regular	Special Risk	Regular	Special Risk
Normal Cost	2.84%	11.17%	2.75%	11.57%	-0.09%	0.40%
UAL Cost [1]	3.37%	10.54%	3.93%	11.28%	0.56%	0.74%
Total Cost for FRS Employers	6.21%	21.71%	6.68%	22.85%	0.47%	1.14%

1) The 0.56% increase in UAL Cost for the Regular class represents an 0.18% increase in rates due to assumption changes, and a 0.38% increase in rates due to other experience, including payroll grow th less than assumed. The 0.74% increase in UAL Cost for the Special Risk class represents a 0.07% increase in rates due to plan change, a 0.34% increase in rates due to assumption changes, and a 0.33% increase in rates due to other experience.

C. Membership

The total membership (active, terminated vested, retired, and DROP) of the FRS Pension Plan increased by 16,095 members from 1,031,387 as of July 1, 2015 to 1,047,482 as of July 1, 2016, an increase of 1.6%. The total annualized projected payroll of non-DROP active Pension Plan members increased by 1.8%, from $22.8 billion for the 2015-2016 plan year to $23.3 billion for the 2016-2017 plan year, a $0.5 billion increase in payroll. Note that the payroll on which UAL Cost rates are determined is higher, and includes the payroll of DROP and members in Optional Retirement Plans subject to the UAL contribution.

A summary of Pension Plan membership change by status follows:

	Valuation Results: Counts		
	July 1, 2015	July 1, 2016	% Change
Active Members	512,909	514,629	0.3%
Terminated Vested Members	106,514	108,662	2.0%
Retired Members	375,428	392,582	4.6%
DROP Members	36,536	31,609	-13.5%
Total Members	1,031,387	1,047,482	1.6%

D. Experience

Changes to assets and liabilities between July 1, 2015 and July 1, 2016 are described in this section.

1. Assets:

Changes in the smoothed Actuarial Value of Assets (AVA) during the plan year were due to:

▪ Contributions received	$3.204	
▪ Payment of benefits and administrative expenses	(10.698)	
▪ Assumed plan year investment returns	10.668	
▪ Investment plan year gain/(loss) experience	(0.918)	
Total plan year Actuarial Value of Assets increase	$2.256	Billion

The actual plan investment return on the AVA was 6.99% compared to the valuation's assumed return of 7.65%. On a market-value basis, the assets earned 0.54%. On a year-by-year basis, asset returns were as follows:

	Rates of Return*		
	2013/2014	2014/2015	2015/2016
Market Value	17.54%	3.76%	0.54%
Actuarial Value	9.95%	8.62%	6.99%

* *Assumes net cash flow occurs mid-year.*

2. Liabilities:

Changes in the Actuarial Liability during the plan year were due to:

▪ Expected increase, due to combined effects of Normal Cost plus interest-related growth in Actuarial Liability less benefit payments during plan year	$3.306
▪ Change in plan provisions	0.040
▪ Changes in assumptions	1.069
Liability Plan Year (Gain) / Loss Experience	
▪ Active member salary increases different than assumption	(0.552)
▪ New active members	0.441
▪ Other demographic sources not noted above[1]	0.522
▪ Liability plan year (gain) / loss experience	0.411
Total plan year Actuarial Liability increase	$4.826 Billion

[1] *Reflects the combined effects of all other liability (gain)/loss sources for actuarial experience compared to assumptions used in the July 1, 2015 actuarial valuation. These include actual experience for DROP entry, retirement, second election transfers to the Investment Plan, inactive mortality and actual experience compared to assumed on all other demographic assumptions used to calculate July 1, 2015 actuarial valuation results.*

3. Unfunded Liability:

The net change in the UAL of the FRS Pension Plan was an increase of $2.570 billion, from $22.353 billion to $24.923 billion. The net increase is attributable to the following:

Change due to:

▪ Expected increase, based on the net combined effect of plan contributions received, interest, and assumed investment and demographic experience	$0.132
▪ Change in plan provisions	0.040
▪ Changes in assumptions	1.069
▪ Investment plan year (gain)/loss experience	0.918
▪ Liability plan year (gain)/loss experience	0.411
Total plan year increase/(decrease) in UAL	$2.570 Billion

See table on the following page for total gains/losses by class.

2015-2016 Plan Year (Gain)/Loss Experience[1]

(All Amounts in Thousands)

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class -- Judicial	Leg-Atty-Cab	Local	Senior Management	Grand Total
Investment plan year (gain)/loss experience	**$733,097**	**$161,647**	**$456**	**$4,929**	**$349**	**$1,858**	**$15,338**	**$917,674**
Liability plan year (gain) / loss experience by source								
Plan change to Special Risk ILOD Death Benefit	$0	$40,353	$0	$0	$0	$0	$0	$40,353
Assumption changes	772,983	252,654	467	7,973	624	3,395	31,193	1,069,289
Active member salary increases different than assumption	(388,126)	(154,752)	(488)	(8,598)	(1,158)	(3,899)	5,200	(551,821)
New active Pension Plan members [2]	364,242	56,214	119	1,751	21	540	17,896	440,783
Other demographic sources not noted above [3]	263,300	153,550	506	15,048 [4]	10,744 [4]	20,982 [4]	57,381 [5]	521,523
Liability plan year (gain) / loss experience	**$1,012,399**	**$348,019**	**$604**	**$16,174**	**$10,231**	**$21,018**	**$111,670**	**$1,520,115**

[1] *For purposes of this exhibit, liabilities and assets associated with members in DROP are allocated to their respective membership classes. This differs from their representation in Section 4, where UAL bases are tracked separately for the DROP.*

[2] *Includes transfers and re-hires.*

[3] *Reflects the combined effects of all other liability (gain)/loss sources for actuarial demographic experience compared to assumptions used in the July 1, 2015 valuation. This includes actual experience for DROP entry, retirement, and retiree mortality. It also includes the effects of second election transfers to the Investment Plan and changes to census data reporting.*

[4] *The "other sources" demographic liability loss for Elected Officers was almost entirely due to changes in census data reporting for 43 recent retirements (26 local, 11 judiciary, 6 leg-atty-cab) that were not valued in the previous valuation.*

[5] *The "other sources" demographic liability loss for Senior Management was almost entirely due to actual retirements and entries into the DROP during 2015-2016 in excess of the long-term assumption.*

4. Actuarially Calculated Contribution Rates:

On a level-rate-of-pay basis, the FRS Pension Plan employer contribution rates for each membership class changed as follows:

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class -- Judicial	Leg-Atty-Cab	Local	Senior Management
A. 1. July 1, 2015 Employer Normal Cost	2.84%	11.17%	3.19%	11.75%	6.58%	8.47%	4.18%
2. UAL Cost	3.37%	10.54%	32.30%	25.42%	44.61%	44.52%	21.00%
3. Total July 1, 2015 Actuarially Calculated Employer Contribution Rate (1.+2.)	6.21%	21.71%	35.49%	37.17%	51.19%	52.99%	25.18%
B. 1. July 1, 2016 Employer Normal Cost	2.75%	11.57%	3.09%	11.73%	6.27%	8.37%	4.05%
2. UAL Cost (See Table 4-11)	3.93%	11.28%	42.81%	28.75%	55.87%	49.25%	22.16%
3. Total July 1, 2016 Actuarially Calculated Employer Contribution Rate (1.+2.)	6.68%	22.85%	45.90%	40.48%	62.14%	57.62%	26.21%
C. Change in Total Actuarially Calculated Employer Contribution Rate (B.3.-A.3.)	0.47%	1.14%	10.41%	3.31%	10.95%	4.63%	1.03%

E. Graphs

Chart A: Assets / Liabilities

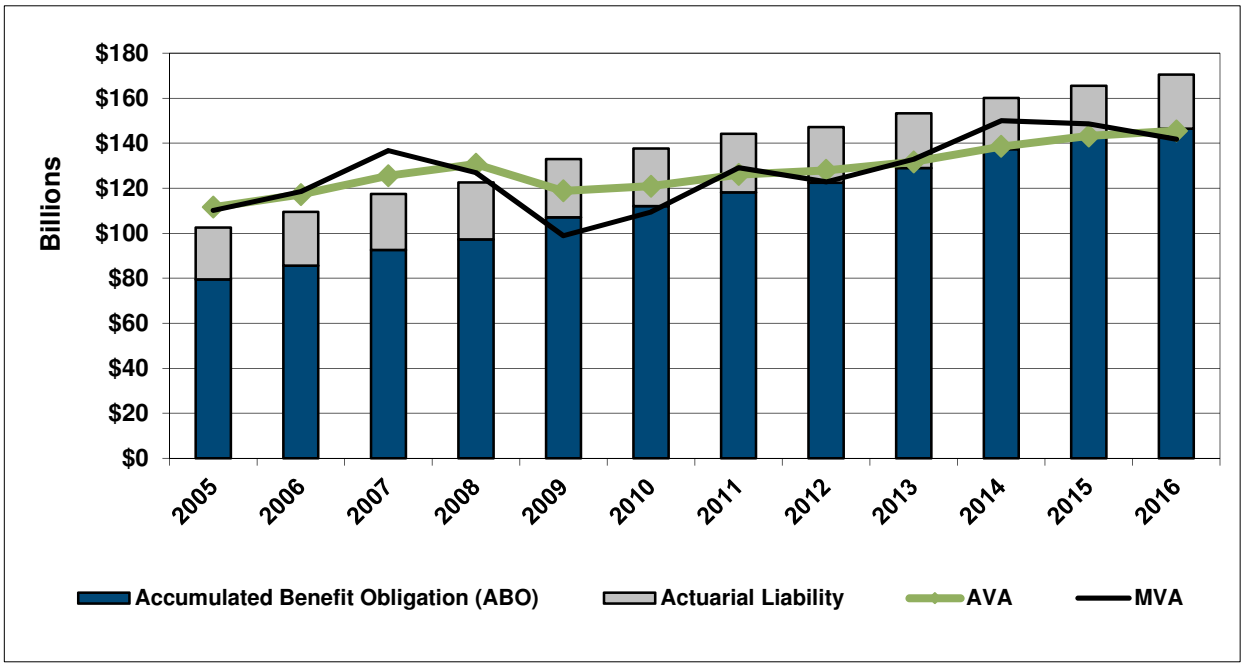


Chart B: Cash Flows

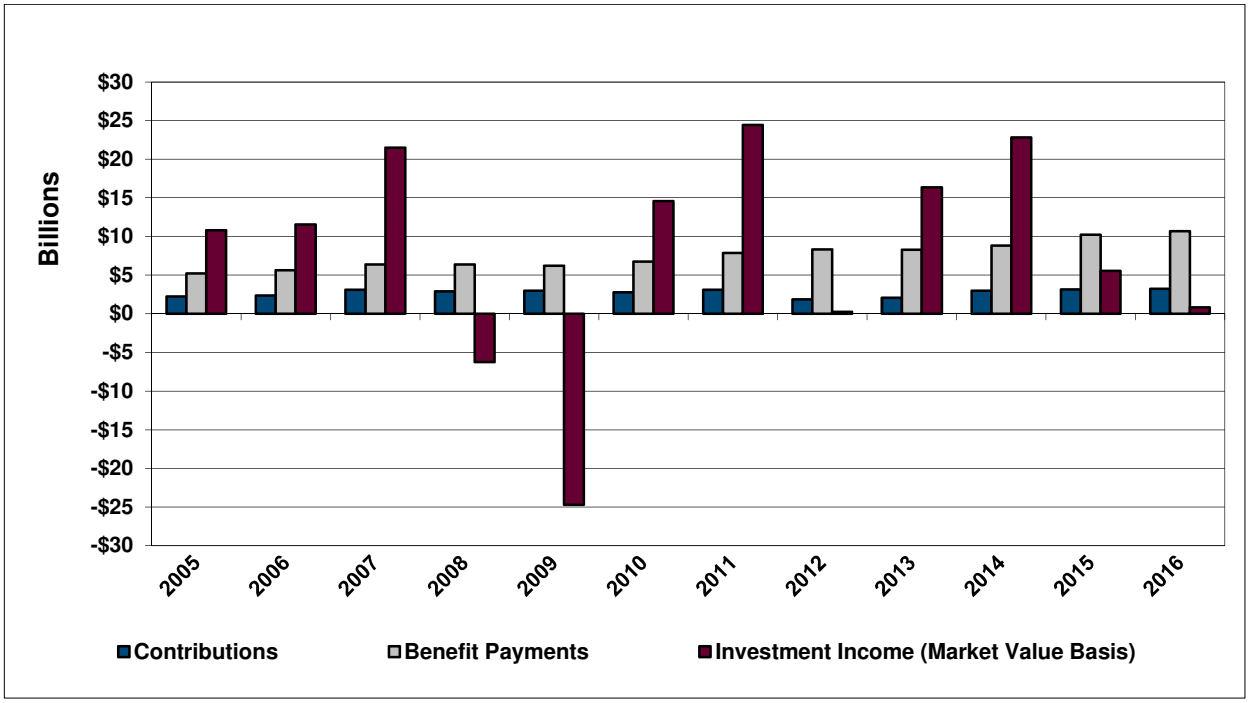


Chart C: Actuarially Calculated Pension Plan Contribution Rates[1] (as % of Payroll)

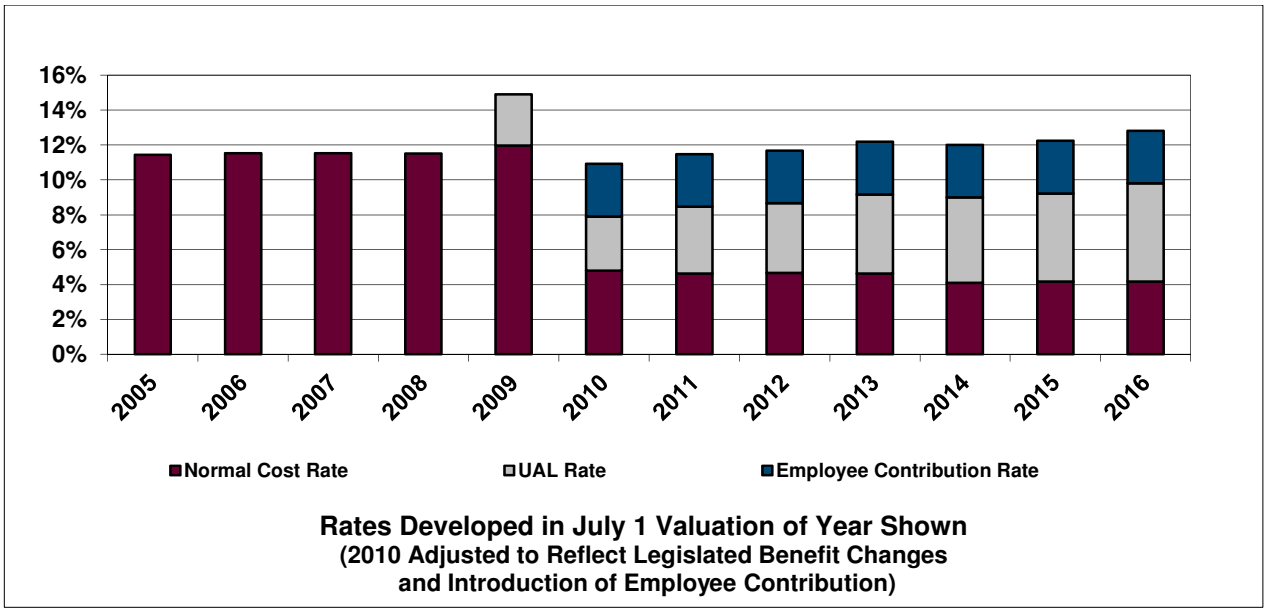
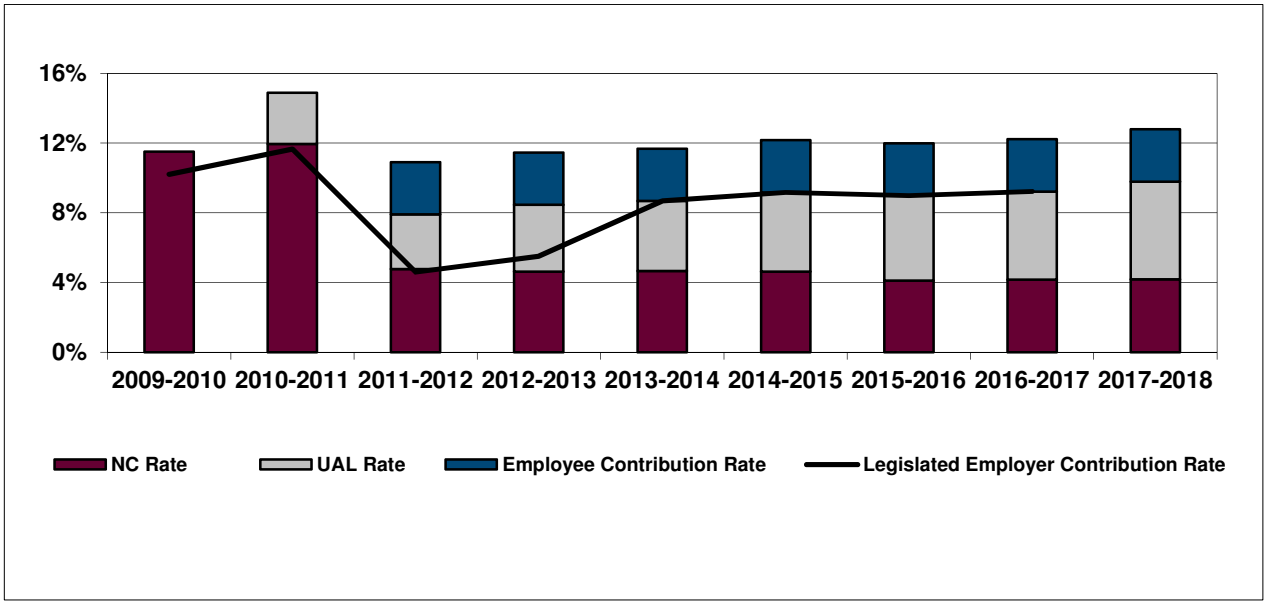


Chart D: Actuarially Calculated vs. Legislated Employer Contribution Rates (as % of Payroll)



[1] *Chart C shows the Pension Plan component of proposed contribution rates prior to blending with Investment Plan contribution rates to create proposed statutory contribution rates. Historically, the Florida Legislature has enacted contribution rates which are charged uniformly on combined Investment Plan and Pension Plan payroll. Chart C reflects the Pension Plan component of proposed blended statutory rates, consistent with Table 4-12.*

F. Summary Comments

We caution that the results herein are applicable only for the next plan year. More than anything, actual future investment results will impact long-term future contribution rates. The investment return assumption selected affects the timing and pattern of contributions but does not affect the long term cost of the plan, which is governed by the Fundamental Cost Equation [Benefit Payments + Expenses = Contributions + Actual Investment Returns].

- The most recent experience study covered the period from July 1, 2008 to June 30, 2013. Experience studies are performed every five years and compare actual plan experience to the assumptions used in the annual valuations. With the exceptions noted below, this valuation reflects the method and assumptions changes proposed by the 2014 Experience Study and first adopted by the 2014 FRS Actuarial Assumptions Conference for use in the July 1, 2014 valuation.
- Subsequent FRS Assumptions Conferences may, at the discretion of the Conference Principals, consider changes to items such as the investment return assumption, the cost allocation method, or modifications to other assumptions and methods. For this valuation, the 2016 FRS Assumptions Conference decreased the investment return assumption and modified the mortality assumption applied to members while in FRS-covered employment. Each change was made to better anticipate expected future experience.

Future proposed blended statutory rates for the System will be impacted by choice elections for the defined contribution FRS Investment Plan (IP), which is available as an alternative to the defined benefit FRS Pension Plan for members. The existence of the IP affects the FRS Pension Plan contribution rates insomuch as active members can elect to participate in either the FRS Pension Plan or the IP. Thus, member plan election decisions can affect the demographic composition of the FRS Pension Plan. Current IP membership is approximately 18% of total active membership.

We mention these caveats because the actuarial valuation process merely measures the impact of these factors on FRS Pension Plan costs and liabilities after they have occurred. Unanticipated benefit or salary changes, changes in member behavior (e.g., withdrawal rates, rates of retirement, etc.), or variations in actual investment return could necessitate changes in the actuarially calculated contribution rates.

Finally, we caution the readers of this report not to overemphasize the results of any single valuation as long-term trends are more important.

G. DROP Contribution Rate

The DROP (Deferred Retirement Option Program) started in 1998, with a study completed prior to the DROP's implementation showing an anticipated material cost increase due to its introduction. Since its introduction and consistent with legislative directive, employers have been charged a uniform DROP contribution rate on all DROP payroll without regard to a participant's membership class. In addition, the asset allocation developed in Table 2-5 is performed so that that the DROP's funded percentage is set equal to the composite funded percentage of the FRS Pension Plan.

The DROP contribution rate has two components: Normal Cost and UAL Cost. The Normal Cost is set to the composite FRS Pension Plan average employer-paid Normal Cost Rate of 4.17%. The calculation of the UAL Cost for the DROP is consistent with the calculation of the UAL Cost component of the other membership classes. Essentially, the DROP is allocated a share of plan assets such that the DROP's funded percentage is equal to the composite FRS Pension Plan's funded percentage. This asset allocation to DROP results in a UAL Cost for DROP payroll of 7.43%. The total DROP contribution rate (Normal Cost plus UAL Cost) in this valuation is 11.60%, compared to a DROP contribution rate of 11.27% in the prior valuation.

2. Assets

In many respects, an actuarial valuation can be considered similar to an inventory process. The inventory is taken annually as of the actuarial valuation date, which for this valuation is July 1, 2016. On that date the assets available for the payment of current and future benefits are appraised. These assets are compared with the inventory of Actuarial Liability. This inventory process leads to a method of calculating what contributions by members and/or their employers are needed to systematically eliminate any shortfall if future experience follows assumptions. Prior to publication of this report, preliminary results based on assumptions and methods used in the previous valuation were discussed with the 2016 FRS Actuarial Assumptions Conference.

This section of the report deals with the asset determination. In the next section, the Actuarial Liability will be discussed. Section 4 will deal with the process for determining actuarially calculated contribution rates in order to systematically eliminate any shortfall between the assets and Actuarial Liability.

Two measures of FRS Pension Plan assets are presented in the valuation:

The Market Value of Assets (MVA) provides the most accurate fair market "snapshot date" assessment of plan resources at a given date, and will be used on the balance sheet statements of position for the FRS Pension Plan and its participating employers for GASB financial reporting purposes.[1] It tends to be the more volatile of the two asset measures and is not used for determining the actuarially calculated contribution rates.

The Actuarial Value of Assets (AVA) is a second measure of FRS Pension Plan asset holdings. It is related to the Market Value of Assets, but uses a smoothing technique applied to mitigate year-to-year market fluctuations by recognizing actual single year investment returns different from the long-term assumption systematically over a multi-year period. The AVA is the basis for determining actuarially calculated contribution rates, and the smoothing technique is used to stabilize year-to-year contribution rate changes.

The actuarial smoothed asset valuation measure, implemented in 1989, reflects a five-year averaging methodology, as required by Section 121.031(3)(a) of Florida Statutes. Under this method, the expected actuarial value of assets is determined by crediting the rate of investment return assumed in the prior valuation (7.65%) to the prior year's actuarial value of assets. Then, 20% of the difference between the actual market value and the expected Actuarial Value of Assets is immediately recognized in the AVA. The Actuarial Value of Assets is also restricted by a 20% corridor around the Market Value of Assets, so that the AVA cannot be greater than 120% or less than 80% of the MVA. Table 2-3 presents the details of this calculation. As of July 1, 2016 the Actuarial Value of Assets is 102.6% of the Market Value of Assets.

Six tables are presented in this section, summarizing the financial resources of the FRS Pension Plan on July 1, 2016. Table 2-1 shows the reconciliation of valuation assets from June 30, 2015 to June 30, 2016. The assets are presented by category in Table 2-2. Table 2-3 provides a detailed development of the July 1, 2016 Actuarial Value of Assets. In Table 2-4, the Actuarial Value of Assets is initially allocated to each membership class, based on estimated cash flows. The table also shows the allocation of assets to/from the various classes from/to the DROP. Table 2-5 shows the derivation of the allocation of assets to/from the DROP in order that the DROP's funded percentage is equal to the funded percentage of the FRS Pension Plan as a whole. Finally, Table 2-6 presents rates of return for the 2015-2016 plan year and the two prior plan years.

[1] *The financial reporting information under GASB 67 requirements is issued under separate cover.*

The Market Value of Assets as of July 1, 2016 was based on information furnished to us by the Division of Retirement, Florida Department of Management Services. The values have been accepted for use in this report without audit, but have been reviewed for consistency and reasonableness, when compared to prior reports.

Table 2-1
Florida Retirement System
Reconciliation of Market Value of Assets Used for Valuation
DB Plan Trust

Market Value of Assets for Actuarial Valuation as of June 30, 2015	**$148,454,393,902**
Adjustment for Contribution Clearing Trust	-
Contributions by Source:	
Pension Contributions - Employer	2,438,659,458
Pension Contributions - Employees	703,045,504
Transfers from IP - Second Elections	54,889,558
Purchase of Time by Employees	7,671,311
Investment Income	
Interest Income	732,373,981
Dividend Income	1,856,399,033
Real Estate Income	481,636,140
Securities Lending income	52,954,963
Other	1,555,188,508
Less Investment Activity Expense	(555,437,751)
Less Securities Lending Expense	(12,959,914)
Other Income	3,657,861
Net Realized and Unrealized Appreciation	(3,293,230,449)
Pension Payments	(10,056,869,186) [1]
Contribution Refunds	(10,644,011)
Disbursements to IP - Second Elections	(612,301,153)
Administrative Expenses	(18,507,240)
Market Value of Assets for Actuarial Valuation as of June 30, 2016	**$141,780,920,515**

[1] *Includes Accrued DROP Liability of $411,260,011 representing single sum DROP benefits of members who retired from DROP on or before June 30, 2016.*

Table 2-2
Florida Retirement System Pension Plan
Summary of Market Value of Assets for Actuarial Valuation
(by Asset Category; $ in Thousands)

	Market Value as of July 1,	
ASSETS	**2015**	**2016**
Cash and cash equivalents	$725,276	$137,044
State Treasury Investment Pool	1,648	1,994
Total cash and cash equivalents	$726,924	$139,038
Investments:		
Certificates of Deposit	$1,936,529	$775,062
U.S. Government and Federally Guaranteed Obligations	7,622,315	11,074,341
Federal Agencies	9,458,712	7,725,369
Commercial Paper	5,867,392	3,516,125
Options	33	38,673
Repurchase Agreements	400,000	850,000
International Bonds and Notes	2,636,430	1,717,406
Bonds and Notes	7,735,700	6,593,710
Real Estate Contracts	10,142,273	10,581,549
International Equity Commingled	6,315,998	5,452,110
Short Term Investment Funds	12,264	1,097
Domestic Equity / Domestic Equity Commingled	43,387,207	41,029,902
Alternative Investment	19,596,357	22,440,286
International Equity	36,089,572	31,814,912
Total Investments	$151,200,782	$143,610,542
Receivables:		
Contributions receivable	210,653	155,931
Pending Investment Sales	1,477,146	1,499,740
Forward Contracts receivable	2,203,249	4,040,803
Other Receivables	539,212	1,031,730
Total receivables	$4,430,260	$6,728,204
Security Lending Collateral	$8,346,890	$1,915,672
Prepaid items; Furniture & Equipment net Accumulated Depreciation	8,992	8,139
Total Assets	$164,713,848	$152,401,595
LIABILITIES		
Accrued DROP liability [1]	308,550	411,260
Obligations under Security Lending Agreements	8,395,914	1,960,173
Pending Investment Purchases	4,984,157	3,168,482
Forward Contracts payable	2,198,673	4,008,032
Other Liabilities and Payables	372,160	1,072,727
Total Liabilities	$16,259,454	$10,620,674
FIDUCIARY NET POSITION		
Held in trust for pension benefits	**$148,454,394**	**$141,780,921**

[1] *Per our understanding, the accrued DROP liability represents lump sum DROP exit payments made early in the subsequent plan year for members exiting the DROP on or shortly before the asset measurement date.*

Table 2-3
Florida Retirement System Pension Plan
Development of 2016 Actuarial Value of Assets

1. FRS Market Value of Assets on June 30, 2015 for Actuarial Valuation	$148,454,393,902
2. Actuarial Value of Assets on July 1, 2015	$143,195,530,766
3. 2015/2016 Net Cash Flow (Contributions less Benefits and Expenses)	($7,494,055,759)
4. Preliminary Actuarial Value of Assets, July 1, 2016, if Items 2 and 3 earned an assumed rate of 7.65%	$146,369,285,478
5. Market Value of Assets, June 30, 2016 for Actuarial Valuation	$141,780,920,515
6. Net Assets (Actuarial Value Basis) Available for Benefits Prior to Application of 80%/20% Corridor 4 + ((5 - 4) x 20%)	$145,451,612,486
7. 120% of Market Value [120% (5)]	$170,137,104,618
8. 80% of Market Value [80% (5)]	$113,424,736,412
9. Actuarial Value of Assets on July 1, 2016 Lesser of (6) and (7), but not less than (8)	**$145,451,612,486**
10. Ratio of July 1, 2016 Actuarial Value of Assets to Market Value on June 30, 2016 for Actuarial Valuation	**102.59%**

Table 2-4
Florida Retirement System Pension Plan
Development of Actuarial Value of Assets by Membership Class
($ in Thousands)

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class -- Judicial	Leg-Atty-Cab	Local	Senior Management	DROP	Total System
1. Allocated Actuarial Value of Assets by Class, July 1, 2015	$99,357,656	$24,673,741	$73,096	$766,085	$55,138	$296,346	$2,352,843	$15,620,626	$143,195,531
2. Total Contribution for the Plan Year	1,782,481	891,984	888	41,441	3,359	20,514	128,033	335,566	3,204,266
3. Benefit Payments and other Disbursements	(6,828,288)	(1,643,454)	(6,646)	(78,494)	(6,954)	(42,329)	(211,456)	(1,880,701)	(10,698,322)
4. Allocated Investment Earnings on AVA Basis	6,770,615	1,698,899	4,910	52,268	3,730	19,957	161,593	1,038,165	9,750,137
5. Unadjusted Actuarial Value of Assets (1) + (2) + (3) + (4)	101,082,464	25,621,170	72,248	781,300	55,273	294,488	2,431,013	15,113,656	145,451,612
6. Net Reallocation (see Table 2-5)	1,813,210	712,174	375	43,075	2,296	11,692	92,545	(2,675,367)	0
7. Allocated Actuarial Value of Assets by Class, July 1, 2016: (5) + (6)	$102,895,674	$26,333,344	$72,623	$824,375	$57,569	$306,180	$2,523,558	$12,438,289	$145,451,612

Table 2-5
Florida Retirement System Pension Plan
Reallocation of Actuarial Value of Assets by Membership Class
($ in Thousands)

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class -- Judicial	Leg-Atty-Cab	Local	Senior Management	DROP	Total System
1. Actuarial Accrued Liability, July 1, 2016								$14,569,858	$170,374,609
2. Unadjusted Actuarial Value of Assets, July 1, 2016 prior to reallocation								15,113,656	145,451,612
3. Unfunded Actuarial Liability (UAL): (1) - (2)								($543,798)	$24,922,997
4. Aggregate Funded Percentage: (2) / (1)								103.73%	85.37%
5. DROP Assets Required to Meet Aggregate Funded Percentage: (1) x (4) [Total System] - (2)								($2,675,367)	
6. Proportion of DROP Liability by Class	0.6777	0.2662	0.0001	0.0161	0.0009	0.0044	0.0346	N/A	1.0000
7. Assets to be Reallocated	$1,813,210	$712,174	$375	$43,075	$2,296	$11,692	$92,545	($2,675,367)	$0

Table 2-6
Florida Retirement System Pension Plan
Rates of Return on Investments
(Assumes net cash flow occurs mid-year)

Asset Bases	2013/2014	2014/2015	2015/2016
Market Value	17.54%	3.76%	0.54%
Actuarial Value	9.95%	8.62%	6.99%

3. Liabilities

In the previous section, an actuarial valuation was compared to an inventory process, and an analysis was given of the inventory of assets of the FRS Pension Plan as of the valuation date, July 1, 2016. In this section, the discussion will focus on the future benefit commitments of the FRS Pension Plan, which will be referred to as its Actuarial Liability. In Section 5 other liability measures are presented based on accounting principles of the Financial Accounting Standards Board (FASB). Calculations required by the Governmental Accounting Standards Board (GASB) are developed and issued as part of a separate report. It is important to note that the accounting liabilities shown in Section 5 of this report and in the separate GASB report are for informational disclosure and comparison purposes, while the Actuarial Liability calculated in this section is used for determining the FRS Pension Plan actuarially calculated contribution rates prior to blending with FRS Investment Plan contribution rates to create blended proposed statutory rates.

A fundamental principle in financing a retirement program is that the projected cost of retirement benefits should be accrued during the period in which service is performed, rather than during the post-retirement period of benefit distribution. There are several methods that can be used in making such an allocation.

Consistent with the previous valuation's methodology and with preliminary 2016 valuation results discussed in October with the 2016 FRS Actuarial Assumptions Conference, the Pension Plan's Normal Cost and Actuarial Liability are calculated using the Ultimate Entry Age Normal (Ultimate EAN) actuarial cost allocation method. The actuarial cost method used does not affect the calculation of overall projected Pension Plan benefits (Present Value of Benefits), but it does affect the allocation of those benefits over a member's projected working career between past (Actuarial Liability), current year (Normal Cost) and all future year projected (Present Value of Future Normal Costs) service. The Present Value of Benefits is equal to the sum of the Actuarial Liability and the Present Value of Future Normal Costs.

For a system such as the FRS Pension Plan with two membership tiers, Ultimate EAN calculates the Normal Cost allocation for individual members as if each member participates in the tier available to new hires for his or her full working career. For members in Tier I, this means the Normal Cost under the Ultimate EAN method will be based on the benefit and retirement eligibility provisions of Tier II. Because Tier II results in lower expected benefit payments than under Tier I, the calculated Normal Cost Rate is lower than it would be if the plan provisions specific to the member's actual tier were used by the actuarial cost allocation method.

The actuarial cost allocation method does not affect the calculation of the Present Value of Benefits, which is based on the plan provisions specific to each member's enrollment date. The Actuarial Liability is the Present Value of Benefits minus the Present Value of Future Normal Costs. Thus, the Ultimate EAN method used in this valuation leads to a lower Normal Cost Rate and a higher Actuarial Liability for Tier I members than would be calculated under a method that based the Normal Costs of Tier I members on the Tier I benefit plan provisions.

The difference between the Actuarial Liability and the Actuarial Value of Assets accumulated as of the actuarial valuation date is referred to as the Unfunded Actuarial Liability (UAL). (If the difference is negative, the excess of the funds accumulated over the liabilities may be referred to as the surplus.) The UAL Contribution Rate is calculated in a manner such that the UAL will fully amortize in accordance with the schedules in Section 4 of this report if actual future experience follows the assumptions used in the valuation and contributions are made each year at levels equal to actuarially calculated contribution rates.

Please note that GASB Statements Nos. 67 & 68 do not permit the use of the Ultimate EAN cost allocation method for accounting calculations. The Ultimate EAN method and the GASB 67 & 68 mandated variation of Entry Age Normal (Individual EAN) will produce different Actuarial Liability and Normal Cost Rate results. Determining which EAN methodology (Ultimate or Individual) generates higher current contribution rates depends

on the period used to amortize the UAL. For the FRS Pension Plan, the amortization periods used in this report's contribution rate calculation methodology will lead to the Ultimate EAN methodology having lower current calculated contribution rates than the Individual EAN methodology. As the number of Tier I active participants decreases, the Individual EAN Normal Cost Rate would trend downward toward the Tier II Normal Cost Rate. When all Tier I active participants have left the workforce the Normal Cost Rates of the two variations will converge.

The UAL will grow with interest and Normal Cost, while contributions will reduce it.

Benefit improvements, actuarial gains and losses (variations in investment results and demographic changes from assumption), and changes in actuarial assumptions and methods will also have an effect on the Actuarial Liability and on the UAL.

After the amount of the UAL has been determined, as part of the rate calculation methodology used in the previous valuation and in preliminary 2016 valuation results discussed with the 2016 FRS Actuarial Assumptions Conference, the actuarially calculated contribution rates include a component for the amortization of the UAL. A schedule of contributions is established to amortize the UAL. In Section 4 of the report, we discuss the contribution schedules in detail.

Table 3-1 contains a breakdown of the Actuarial Liabilities and Unfunded Actuarial Liabilities in the FRS Pension Plan for the 2015 valuation and the 2016 valuation. In Table 3-2, the 2016 liabilities are shown for each membership class.

Legislation enacted in 2001 "walls off," for 25 years, the actuarial gains arising from former FRS Pension Plan participants electing to participate in the FRS Investment Plan. The "walled off" amount is called the contingent liability. The Actuarial Liabilities generally do not include the contingent liability. However, surplus, if any, used for contribution rate reductions is net of the contingent liability. Table 3-3 shows the contingent liability and the number of current active participants, by class, who elected to transfer from the FRS Pension Plan to the FRS Investment Plan during the original 2002-2003 election periods available to FRS Pension Plan members who were active when the Investment Plan first became available for participation.

Table 3-1
Florida Retirement System Pension Plan
Actuarial Liabilities
($ in Thousands)

	July 1, 2015 Valuation	July 1, 2016 Valuation
1. Actuarial Liabilities for:		
(a) Active Members	$54,324,062	$54,444,492
(b) Retired, Disabled and Beneficiary Members	88,519,139	96,445,460
(c) Terminated Vested Members	4,647,199	4,914,799
(d) DROP	18,058,528	14,569,858
2. Total Actuarial Liability	$165,548,928	$170,374,609
3. Actuarial Value of Assets	$143,195,531	$145,451,612
4. Unfunded Actuarial Liability / (Surplus)	$22,353,397	$24,922,997
5. Investment Plan Contingent Liability [1]	$232,350	$231,815
6. Surplus Available for Rate Reduction	$0	$0

[1] See Table 3-3.

Table 3-2
Florida Retirement System Pension Plan
Actuarial Liabilities by Membership Class
July 1, 2016
($ in Thousands)

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class -- Judicial	Leg-Atty-Cab	Local	Senior Management	DROP	Total System
1. Present Value of Benefits for:									
a. Active Members	$48,383,348	$18,664,020	$11,628	$524,399	$26,169	$177,559	$1,895,776	$0	$69,682,899
b. Retired, Disabled and Beneficiary Members	73,511,906	18,904,029	74,688	844,590	82,227	458,976	2,569,044	14,569,858	111,015,318
c. Terminated Vested Members	4,089,487	632,388	1,144	17,467	8,205	18,169	147,939	0	4,914,799
d. Total Present Value of Benefits (a)+(b)+(c)	125,984,741	38,200,437	87,460	1,386,456	116,601	654,704	4,612,759	14,569,858	185,613,016
2. Present Value of Future Normal Cost (Actives):	$9,147,556	$5,672,807	$1,184	$109,777	$3,268	$26,185	$277,630	$0	$15,238,407
3. Actuarial Liabilities for:									
a. Active Members (1a) - (2)	$39,235,792	$12,991,213	$10,444	$414,622	$22,901	$151,374	$1,618,146	$0	$54,444,492
b. Retired, Disabled and Beneficiary Members (1b)	73,511,906	18,904,029	74,688	844,590	82,227	458,976	2,569,044	14,569,858	111,015,318
c. Terminated Vested Members (1c)	4,089,487	632,388	1,144	17,467	8,205	18,169	147,939	0	4,914,799
d. Total Actuarial Liability (a)+(b)+(c)	$116,837,185	$32,527,630	$86,276	$1,276,679	$113,333	$628,519	$4,335,129	$14,569,858	$170,374,609
4. Actuarial Value of Assets	$102,895,674	$26,333,344	$72,623	$824,375	$57,569	$306,180	$2,523,558	$12,438,289	$145,451,612
5. Unfunded Actuarial Liability / (Surplus)	$13,941,511	$6,194,286	$13,653	$452,304	$55,764	$322,339	$1,811,571	$2,131,569 [1]	$24,922,997
6. Present Value of Future Pay	$164,453,168	$39,609,873	$18,631	$757,237	$36,886	$238,413	$3,997,077	$0	$209,111,285

[1] *This is a bookkeeping item. DROP liabilities include the total present value of benefits to all members currently in DROP. When a member leaves DROP, their liability is transferred to the class of membership from which they retired.*

Table 3-3
Florida Retirement System Investment Plan
Contingent Actuarial Liabilities
July 1, 2016
($ in Thousands)

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class -- Judicial	Leg-Atty-Cab	Local	Senior Management	DROP	Total System
As of July 1, 2015									
Contingent Liability	$213,548	$9,367	($30)	($654)	$151	$102	$9,866	NA	$232,350
Participant Counts	6,108	178	1	4	3	8	152	NA	6,454
As of July 1, 2016									
Contingent Liability [1 & 2]	$213,212	$9,007	($32)	($704)	$162	$109	$10,061	NA	$231,815
Participant Counts	5,665	159	1	4	3	8	144	NA	5,984

[1] *The contingent liability is not included in the actuarial liabilities of FRS and is removed from the surplus.*

[2] *The contingent liability as of July 1, 2016 is calculated as the July 1, 2003 contingent liability increased by thirteen years of interest, adjusted for the proportion of original transfers remaining in the Investment Plan.*

4. Contributions

Differences between the Actuarial Liabilities and the assets can be made up through (1) future contributions in excess of the Normal Costs to amortize the shortfall and/or (2) actual future investment returns in excess of assumed returns. An actuarial valuation sets out a schedule of future contributions that will fully amortize Unfunded Actuarial Liability in a systematic manner if future experience follows the assumptions. By contrast, in prior years when the FRS Pension Plan had an actuarial surplus, legislated contribution rates were generally below the Normal Cost Rate. In this section we develop and present the FRS Pension Plan contribution rates proposed to be effective for the Plan Year beginning July 1, 2017 based on the July 1, 2016 membership data. Under separate cover, the FRS Pension Plan contribution rates calculated in this valuation are blended with contribution rates for the FRS Investment Plan to develop proposed blended statutory contribution rates for the Plan Year beginning July 1, 2017.

First, we present a description of the actuarial method used to determine the actuarially calculated FRS Pension Plan contribution rates for the 2017-2018 plan year. This is followed by a series of tables presenting the details of our calculations.

A. Funding Methods

The actuarial cost method used to determine the pattern of future contributions is called the Ultimate Entry Age Normal (Ultimate EAN) actuarial cost allocation method. Under this method (as is the case for most actuarial cost allocation methods), the contribution rates calculated have two components:

- Normal Cost Rate
- UAL Contribution Rate, which amortizes the UAL if future experience follows assumptions.

These components are described in more detail below.

1. Normal Cost Rate

Under the Ultimate EAN method, the Normal Cost Rate is that level percentage of pay which would fully fund a member's benefit at retirement, if paid from the year of entry (i.e., "entry age") to the year of retirement if future experience were to exactly match the actuarial assumptions. For a system such as the FRS Pension Plan with two membership tiers, Ultimate EAN determines the Normal Cost allocation for individual members as if each member participates in the tier available to new hires for his or her full working career. For members in Tier I, this means the Normal Cost Rate under the Ultimate EAN method will be based on the benefit and retirement eligibility provisions of Tier II. Because Tier II results in lower expected benefits than under Tier I, the calculated Normal Cost Rate is lower than it would be if the plan provisions specific to the member's actual tier were used. This lower Normal Cost Rate leads to a higher Actuarial Liability, all else equal, as is discussed below.

We have determined the Normal Cost Rates for the FRS Pension Plan separately by membership class and type of benefit (e.g., retirement, disability). These are summarized in Table 4-1.

2. UAL (Unfunded Actuarial Liability) Contribution Rate

The Actuarial Liability is the difference between the Present Value of Projected Benefits (PVB) and the Present Value of Future Normal Costs (PVFNC). Because the Ultimate EAN cost allocation method produces lower Normal Costs than would be determined if each individual's tier-specific benefit and retirement eligibility provisions were used, the Actuarial Liability is higher under Ultimate EAN than it would be if the cost allocation method used tier-specific plan provisions applicable to each member.

The term "fully funded" is often applied to a system where contributions at the Normal Cost Rate are projected to be completely adequate to fully fund the projected future benefits of all existing members if future experience follows assumptions. Currently, most systems are not fully funded. This can be because contributions for the estimated value of benefits earned in a year have not been fully made, benefit improvements for past service are granted but then are funded gradually over future years, or actual experience has not been as favorable as assumed. Under these circumstances, a UAL exists. For the FRS Pension Plan, there has been a UAL for every valuation since the July 1, 2009 valuation. Prior to that time, the Actuarial Value of Assets exceeded the Actuarial Liability for the valuations from 1998 through 2008 and no UAL existed in those valuations.

Tables 4-2 through 4-10 show how the UAL contribution rates were derived for the FRS Pension Plan. Table 4-2 shows the calculations on a composite basis, while Tables 4-3 through 4-10 show the calculations for each individual membership class and sub-class and for the DROP.

As part of the funding policy selected by the Florida Legislature, the actuarially calculated contribution rate is based on a “layered” approach that includes closed 30-year charge and credit bases for the amortization of the UAL. Starting in the 1998 actuarial valuation, the Legislature required all UAL bases in existence at that time to be considered fully amortized, since the Plan was in a surplus position. Since then, new amortization bases were created whenever there were changes in plan provisions or changes in assumptions pursuant to an experience study or other action by the FRS Assumptions Conference to modify actuarial assumptions or methods. Since a UAL currently exists, all experience gains and losses are also subject to amortization. In this valuation, we show the amortization base of each plan/assumption change since 1998 and amortization bases for experience gains/losses starting in 2009. The plan changes include those attributable to House Bill 479 in 2009 (enacted, effective July 1, 2010), Senate Bill 2100 in 2011, and Senate Bill 7012 in 2016.

For a given base of UAL amortization, annual amortization payments in non-inflation-adjusted dollars are calculated as increasing by 3.25% per year (“level percent of projected payroll amortization”), consistent with the valuation’s long-term annual payroll growth assumption as adopted by the FRS Actuarial Assumptions Conference. If future experience follows the actuarial assumptions, this should result in amortization payments that align with the assumed growth in overall compensation. Please note that with the current closed amortization periods of 30 years, amortization payments will not be large enough to cover interest on the UAL for several years, which means that as a dollar amount the UAL for each amortization base is expected to grow for a period of time subsequent to its establishment. Under current assumptions, the expected UAL for a newly established amortization base will grow until the amortization period is down to 18 years remaining. After that time, the amortization payments will be large enough that the amortization payments will cover both interest and principal, and the UAL as a dollar amount will be projected to decrease in each subsequent year. After approximately 20 years, the unamortized balance for the base will be approximately at the same level (in non-inflation-adjusted dollars) as the initial amount of the base.

The benefit changes legislated by Senate Bill 2100 reduced the Normal Cost, PVFNC and the PVB for current and future active members. All members initially enrolled before July 1, 2011 (Tier I) will continue to earn benefits at levels greater than those annually earned by members initially enrolled on or after July 1, 2011 (Tier II). While the base benefits are higher for Tier I members than Tier II members, the projected benefit levels for Tier I members are decreased from what they would have been absent Senate Bill 2100, due to the determination of the annual COLA percentage being based on the ratio of pre-July 2011 service to total service.

As noted on the prior page, the Actuarial Liability is defined as PVB less PVFNC. For some membership classes the decrease in the PVFNC from Senate Bill 2100 was larger than the decrease in the PVB, resulting in an increase in an Actuarial Liability. For the remaining membership classes, the decrease in the PVFNC from Senate Bill 2100 was smaller than the decrease in the PVB, resulting in a decrease in the Actuarial Liability. The variation is due to the different demographics, benefit multipliers and unique interrelation of the modified benefit provisions

of each membership class. The PVB will be lower in future valuations than it would have been had Senate Bill 2100 not been adopted.

B. Employer Contribution Rates

Table 4-11 presents the actuarially calculated 2017-2018 employer contribution rates for the FRS Pension Plan prior to blending with FRS Investment Plan contribution rates to create 2017-2018 blended proposed statutory rates.

The reader should note that the payroll base for UAL Cost contributions is larger than the payroll base for Normal Cost contributions. Florida Statute requires the employers of certain defined contribution program participants to make UAL Cost contributions based on their payroll. The payroll base for UAL Cost contributions includes approximately $3.1 billion of payroll for employees who are not currently participating in the FRS Pension Plan or the FRS investment Plan. Thus, the total contribution shown is an arithmetic sum, but the actual contribution percentages will be determined on a blended rate basis so that employers pay the same contribution rate for FRS Pension Plan members and FRS Investment Plan members.

Table 4-12 compares the legislated employer contribution rates to those calculated in the actuarial valuations for the prior plan years. The legislated rates for the 2014-2015 through 2016-2017 plan years were the same as the actuarially calculated rates in the 2013 through 2015 actuarial valuations, respectively.

Table 4-1
Florida Retirement System Pension Plan
Normal Cost Rates by Decrement
July 1, 2016

	Regular	Special Risk	Special Risk Administrative	----- Elected Officers' Class ----- Judicial	Leg-Atty-Cab	Local	Senior Management	DROP	Total
1. Vested Benefits and Early Retirement	1.21%	1.81%	1.47%	1.50%	3.38%	2.76%	1.23%	NA	1.31%
2. Regular Retirement	3.65%	11.32%	3.74%	12.09%	4.88%	7.61%	4.82%	NA	4.88%
3. Non-Duty Death	0.20%	0.33%	0.15%	0.73%	0.34%	0.46%	0.24%	NA	0.22%
4. Line of Duty Death	0.02%	0.41%	0.01%	0.03%	0.02%	0.03%	0.02%	NA	0.08%
5. Non-Duty Disability	0.11%	0.14%	0.09%	0.30%	0.14%	0.17%	0.14%	NA	0.12%
6. Line of Duty Disability	0.01%	0.29%	0.01%	0.02%	0.01%	0.02%	0.01%	NA	0.05%
7. Refund of Employee Contributions	0.55%	0.27%	0.62%	0.06%	0.50%	0.32%	0.59%	NA	0.51%
8. Total Normal Cost	5.75%	14.57%	6.09%	14.73%	9.27%	11.37%	7.05%	NA	7.17%
9. Expected Employee Contributions	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	-3.00%	NA	-3.00%
10. Employer Normal Cost	2.75%	11.57%	3.09%	11.73%	6.27%	8.37%	4.05%	4.17% [1]	4.17%

[1] *DROP Normal Cost is set equivalent to the Pension Plan composite Normal Cost rate.*

Table 4-2
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2016
Composite Plan
($ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor[1]	Amortization Payment for FY 2016-2017	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor[1]	Amortization Payment for FY 2017-2018
June 30, 1999	Assumption Change from 1998 Experience Study	14	$ (380,169)	10.4338	$ (36,436)	13	$ (371,267)	9.9008	$ (37,499)
June 30, 2000	Special Risk 65% In-Line-Of-Duty Disability (2000)	15	(2,484)	10.9712	(226)	14	(2,438)	10.4645	(233)
June 30, 2000	Special Risk-Regular 12% Pre-2000 Retired Benefit Increase (2000)	15	316,451	10.9712	28,844	14	310,581	10.4645	29,679
June 30, 2004	Assumption Change from 2003 Experience Study	19	(3,510,741)	12.9097	(271,945)	18	(3,495,467)	12.5007	(279,621)
June 30, 2009	Assumption Change from 2008 Experience Study	24	6,897,391	14.9194	462,312	23	6,942,035	14.6160	474,962
June 30, 2009	2008-2009 Experience (Gains) / Losses	24	21,644,953	14.9194	1,450,797	23	21,785,051	14.6160	1,490,495
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	24	(6,331,340)	14.9194	(424,371)	23	(6,372,320)	14.6160	(435,983)
June 30, 2009	2009-2010 Plan Changes (HB 479)	24	(1,308,895)	14.9194	(87,731)	23	(1,317,367)	14.6160	(90,132)
June 30, 2010	2009-2010 Experience (Gains) / Losses	25	1,170,509	15.2734	76,637	24	1,179,971	14.9891	78,722
June 30, 2010	2010-2011 Plan Changes (SB 2100)	25	(1,282,126)	15.2734	(83,945)	24	(1,292,491)	14.9891	(86,229)
June 30, 2011	2010-2011 Experience (Gains) / Losses	26	2,842,032	15.6129	182,031	25	2,869,205	15.3472	186,953
June 30, 2012	2011-2012 Experience (Gains) / Losses	27	(113,877)	15.9386	(7,145)	26	(115,121)	15.6908	(7,337)
June 30, 2013	2012-2013 Experience (Gains) / Losses	28	2,857,642	16.2509	175,845	27	2,892,418	16.0205	180,545
June 30, 2014	Assumption/Method Change from 2013 Experience Study	29	2,042,455	16.5505	123,407	28	2,069,670	16.3369	126,687
June 30, 2014	2013-2014 Experience (Gains) / Losses	29	(2,770,060)	16.5505	(167,370)	28	(2,806,971)	16.3369	(171,818)
June 30, 2015	2014-2015 Experience (Gains) / Losses	30	564,049	16.8379	33,499	29	572,168	16.6404	34,384
June 30, 2016	Special Risk 100% In-Line-Of-Duty Death (2016)		40,353			30	43,420	16.9317	2,564
June 30, 2016	2016 Assumption Changes		1,069,289			30	1,150,555	16.9317	67,953
June 30, 2016	2015-2016 Experience (Gains) / Losses		1,177,568 [2]			30	1,267,063	16.9317	74,834
	UAL as of Valuation Date		**$ 24,922,997**		$ 1,454,201		$ 25,308,696	Total:	$ 1,638,927

Projected FY 2017-2018 UAL Payroll: $ 29,084,860

NC Rate:	**4.17%**
UAL Contribution Rate:	**5.63%**
NCR + UALR:	**9.80%**

[1] The 2016-2017 amortization factors are based on the assumptions used in the July 1, 2015 actuarial valuation, which determined actuarially calculated contribution rates for 2016-2017.
The 2017-2018 amortization factors are based on the assumptions used in this July 1, 2016 actuarial valuation, which determines actuarially calculated contribution rates for 2017-2018.

[2] The experience (gains)/losses developed on this table and the subsequent tables in this section are derived using a methodology which assumes 2015-2016 UAL contributions precisely equal the scheduled UAL amortization payments.
Actual System contributions differ somewhat from the amortization schedules in this section, and there is no clear delineation in actual contributions received between Normal Cost and UAL contributions.
The UAL (gain)/loss shown in the Executive Summary is derived using a methodology which incorporates actual 2015-2016 contributions.

Table 4-3
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2016
Regular Class
($ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	**Description**	**Remaining Payments as of Valuation Date**	**Balance as of Valuation Date**	**Amortization Factor**	**Amortization Payment for FY 2016-2017**	**Remaining Payments one year after Valuation Date**	**Balance One Year After Valuation Date**	**Amortization Factor**	**Amortization Payment for FY 2017-2018**
June 30, 1999	Assumption Change from 1998 Experience Study	14	$ (289,611)	10.4338	$ (27,757)	13	$ (282,829)	9.9008	$ (28,566)
June 30, 2004	Assumption Change from 2003 Experience Study	19	(3,101,558)	12.9097	(240,250)	18	(3,088,064)	12.5007	(247,030)
June 30, 2009	Assumption Change from 2008 Experience Study	24	5,610,635	14.9194	376,064	23	5,646,950	14.6160	386,355
June 30, 2009	2008-2009 Experience (Gains) / Losses	24	34,466,996	14.9194	2,310,220	23	34,690,087	14.6160	2,373,435
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	24	(27,036,233)	14.9194	(1,812,158)	23	(27,211,227)	14.6160	(1,861,745)
June 30, 2009	2009-2010 Plan Changes (HB 479)	24	(1,029,006)	14.9194	(68,971)	23	(1,035,666)	14.6160	(70,858)
June 30, 2010	2009-2010 Experience (Gains) / Losses	25	1,304,825	15.2734	85,431	24	1,315,374	14.9891	87,755
June 30, 2010	2010-2011 Plan Changes (SB 2100)	25	(1,656,431)	15.2734	(108,452)	24	(1,669,822)	14.9891	(111,402)
June 30, 2011	2010-2011 Experience (Gains) / Losses	26	1,405,850	15.6129	90,044	25	1,419,291	15.3472	92,479
June 30, 2012	2011-2012 Experience (Gains) / Losses	27	505,255	15.9386	31,700	26	510,772	15.6908	32,552
June 30, 2013	2012-2013 Experience (Gains) / Losses	28	1,735,889	16.2509	106,818	27	1,757,014	16.0205	109,673
June 30, 2014	Assumption/Method Change from 2013 Experience Study	29	598,011	16.5505	36,132	28	605,979	16.3369	37,093
June 30, 2014	2013-2014 Experience (Gains) / Losses	29	(1,254,933)	16.5505	(75,824)	28	(1,271,655)	16.3369	(77,840)
June 30, 2015	2014-2015 Experience (Gains) / Losses	30	745,684	16.8379	44,286	29	756,417	16.6404	45,457
June 30, 2016	2016 Assumption Changes		724,692			30	779,769	16.9317	46,054
June 30, 2016	2015-2016 Experience (Gains) / Losses		1,211,446			30	1,303,515	16.9317	76,987
	UAL as of Valuation Date		**$ 13,941,511**		$ 747,284		$ 14,225,905	Total:	$ 890,397

Projected FY 2017-2018 UAL Payroll: $ 22,652,130

NC Rate: **2.75%**
UAL Contribution Rate: **3.93%**
NCR + UALR: **6.68%**

Table 4-4
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2016
Special Risk Class
($ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2016-2017	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2017-2018
June 30, 1999	Assumption Change from 1998 Experience Study	14	$ (87,682)	10.4338	$ (8,404)	13	$ (85,628)	9.9008	$ (8,649)
June 30, 2000	Special Risk 65% In-Line-Of-Duty Disability (2000)	15	(2,534)	10.9712	(231)	14	(2,487)	10.4645	(238)
June 30, 2000	Special Risk-Regular 12% Pre-2000 Retired Benefit Increase (2000)	15	316,451	10.9712	28,844	14	310,581	10.4645	29,679
June 30, 2004	Assumption Change from 2003 Experience Study	19	(633,621)	12.9097	(49,081)	18	(630,864)	12.5007	(50,466)
June 30, 2009	Assumption Change from 2008 Experience Study	24	551,084	14.9194	36,938	23	554,651	14.6160	37,948
June 30, 2009	2008-2009 Experience (Gains) / Losses	24	7,593,799	14.9194	508,990	23	7,642,950	14.6160	522,917
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	24	(2,519,827)	14.9194	(168,897)	23	(2,536,137)	14.6160	(173,518)
June 30, 2009	2009-2010 Plan Changes (HB 479)	24	(192,192)	14.9194	(12,882)	23	(193,436)	14.6160	(13,235)
June 30, 2010	2009-2010 Experience (Gains) / Losses	25	(414,555)	15.2734	(27,142)	24	(417,906)	14.9891	(27,881)
June 30, 2010	2010-2011 Plan Changes (SB 2100)	25	463,233	15.2734	30,329	24	466,978	14.9891	31,154
June 30, 2011	2010-2011 Experience (Gains) / Losses	26	261,996	15.6129	16,781	25	264,501	15.3472	17,235
June 30, 2012	2011-2012 Experience (Gains) / Losses	27	(563,423)	15.9386	(35,350)	26	(569,574)	15.6908	(36,300)
June 30, 2013	2012-2013 Experience (Gains) / Losses	28	496,841	16.2509	30,573	27	502,887	16.0205	31,390
June 30, 2014	Assumption/Method Change from 2013 Experience Study	29	1,348,015	16.5505	81,449	28	1,365,977	16.3369	83,613
June 30, 2014	2013-2014 Experience (Gains) / Losses	29	(878,959)	16.5505	(53,108)	28	(890,671)	16.3369	(54,519)
June 30, 2015	2014-2015 Experience (Gains) / Losses	30	(17,206)	16.8379	(1,022)	29	(17,454)	16.6404	(1,049)
June 30, 2016	Special Risk 100% In-Line-Of-Duty Death (2016)		40,353			30	43,420	16.9317	2,564
June 30, 2016	2016 Assumption Changes		230,656			30	248,186	16.9317	14,658
June 30, 2016	2015-2016 Experience (Gains) / Losses		201,856			30	217,197	16.9317	12,828
	UAL as of Valuation Date		**$ 6,194,286**		$ 377,787		$ 6,273,171	Total:	$ 418,134

Projected FY 2017-2018 UAL Payroll: $ 3,707,780

NC Rate:	**11.57%**
UAL Contribution Rate:	**11.28%**
NCR + UALR:	**22.85%**

Table 4-5
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2016
Special Risk Administrative Support Class
($ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2016-2017	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2017-2018
June 30, 1999	Assumption Change from 1998 Experience Study	14	$ (315)	10.4338	$ (30)	13	$ (308)	9.9008	$ (31)
June 30, 2000	Special Risk 65% In-Line-Of-Duty Disability (2000)	15	50	10.9712	5	14	49	10.4645	5
June 30, 2004	Assumption Change from 2003 Experience Study	19	10,578	12.9097	819	18	10,532	12.5007	842
June 30, 2009	Assumption Change from 2008 Experience Study	24	1,326	14.9194	89	23	1,334	14.6160	91
June 30, 2009	2008-2009 Experience (Gains) / Losses	24	19,927	14.9194	1,336	23	20,056	14.6160	1,372
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	24	(22,115)	14.9194	(1,482)	23	(22,258)	14.6160	(1,523)
June 30, 2009	2009-2010 Plan Changes (HB 479)	24	0	14.9194	0	23	0	14.6160	0
June 30, 2010	2009-2010 Experience (Gains) / Losses	25	1,193	15.2734	78	24	1,203	14.9891	80
June 30, 2010	2010-2011 Plan Changes (SB 2100)	25	(544)	15.2734	(36)	24	(548)	14.9891	(37)
June 30, 2011	2010-2011 Experience (Gains) / Losses	26	2,864	15.6129	183	25	2,892	15.3472	188
June 30, 2012	2011-2012 Experience (Gains) / Losses	27	593	15.9386	37	26	599	15.6908	38
June 30, 2013	2012-2013 Experience (Gains) / Losses	28	2,828	16.2509	174	27	2,863	16.0205	179
June 30, 2014	Assumption/Method Change from 2013 Experience Study	29	(5,822)	16.5505	(352)	28	(5,900)	16.3369	(361)
June 30, 2014	2013-2014 Experience (Gains) / Losses	29	6,596	16.5505	399	28	6,684	16.3369	409
June 30, 2015	2014-2015 Experience (Gains) / Losses	30	(5,774)	16.8379	(343)	29	(5,857)	16.6404	(352)
June 30, 2016	2016 Assumption Changes		455			30	490	16.9317	29
June 30, 2016	2015-2016 Experience (Gains) / Losses		1,813			30	1,950	16.9317	115
	UAL as of Valuation Date		**$ 13,653**		$ 877		$ 13,781	Total:	$ 1,046

Projected FY 2017-2018 UAL Payroll: $ 2,443

NC Rate: **3.09%**
UAL Contribution Rate: **42.81%**
NCR + UALR: **45.90%**

Table 4-6
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2016
Elected Officers' Class: Judicial Subclass
($ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2016-2017	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2017-2018
June 30, 1999	Assumption Change from 1998 Experience Study	14	$ 41	10.4338	$ 4	13	$ 40	9.9008	$ 4
June 30, 2004	Assumption Change from 2003 Experience Study	19	27,951	12.9097	2,165	18	27,829	12.5007	2,226
June 30, 2009	Assumption Change from 2008 Experience Study	24	20,255	14.9194	1,358	23	20,386	14.6160	1,395
June 30, 2009	2008-2009 Experience (Gains) / Losses	24	512,397	14.9194	34,344	23	515,713	14.6160	35,284
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	24	(277,956)	14.9194	(18,631)	23	(279,755)	14.6160	(19,140)
June 30, 2009	2009-2010 Plan Changes (HB 479)	24	(25,599)	14.9194	(1,716)	23	(25,764)	14.6160	(1,763)
June 30, 2010	2009-2010 Experience (Gains) / Losses	25	(22,262)	15.2734	(1,458)	24	(22,442)	14.9891	(1,497)
June 30, 2010	2010-2011 Plan Changes (SB 2100)	25	3,200	15.2734	210	24	3,226	14.9891	215
June 30, 2011	2010-2011 Experience (Gains) / Losses	26	84,680	15.6129	5,424	25	85,490	15.3472	5,570
June 30, 2012	2011-2012 Experience (Gains) / Losses	27	6,627	15.9386	416	26	6,699	15.6908	427
June 30, 2013	2012-2013 Experience (Gains) / Losses	28	107,475	16.2509	6,613	27	108,783	16.0205	6,790
June 30, 2014	Assumption/Method Change from 2013 Experience Study	29	24,481	16.5505	1,479	28	24,807	16.3369	1,518
June 30, 2014	2013-2014 Experience (Gains) / Losses	29	(54,135)	16.5505	(3,271)	28	(54,856)	16.3369	(3,358)
June 30, 2015	2014-2015 Experience (Gains) / Losses	30	5,392	16.8379	320	29	5,470	16.6404	329
June 30, 2016	2016 Assumption Changes		6,746			30	7,259	16.9317	429
June 30, 2016	2015-2016 Experience (Gains) / Losses		33,011			30	35,520	16.9317	2,098
	UAL as of Valuation Date		**$ 452,304**		$ 27,258		$ 458,404	Total:	$ 30,528

Projected FY 2017-2018 UAL Payroll: $ 106,175

NC Rate: **11.73%**
UAL Contribution Rate: **28.75%**
NCR + UALR: **40.48%**

Table 4-7
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2016
Elected Officers' Class: Legislature/Attorney/Cabinet Subclass
($ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2016-2017	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2017-2018
June 30, 1999	Assumption Change from 1998 Experience Study	14	$ 2	10.4338	$ 0	13	$ 2	9.9008	$ 0
June 30, 2004	Assumption Change from 2003 Experience Study	19	2,104	12.9097	163	18	2,095	12.5007	168
June 30, 2009	Assumption Change from 2008 Experience Study	24	2,033	14.9194	136	23	2,046	14.6160	140
June 30, 2009	2008-2009 Experience (Gains) / Losses	24	62,261	14.9194	4,173	23	62,664	14.6160	4,287
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	24	(35,607)	14.9194	(2,387)	23	(35,837)	14.6160	(2,452)
June 30, 2009	2009-2010 Plan Changes (HB 479)	24	(808)	14.9194	(54)	23	(814)	14.6160	(56)
June 30, 2010	2009-2010 Experience (Gains) / Losses	25	2,898	15.2734	190	24	2,922	14.9891	195
June 30, 2010	2010-2011 Plan Changes (SB 2100)	25	132	15.2734	9	24	133	14.9891	9
June 30, 2011	2010-2011 Experience (Gains) / Losses	26	8,536	15.6129	547	25	8,617	15.3472	561
June 30, 2012	2011-2012 Experience (Gains) / Losses	27	(3,996)	15.9386	(251)	26	(4,040)	15.6908	(257)
June 30, 2013	2012-2013 Experience (Gains) / Losses	28	19,078	16.2509	1,174	27	19,310	16.0205	1,205
June 30, 2014	Assumption/Method Change from 2013 Experience Study	29	(2,938)	16.5505	(178)	28	(2,977)	16.3369	(182)
June 30, 2014	2013-2014 Experience (Gains) / Losses	29	(905)	16.5505	(55)	28	(917)	16.3369	(56)
June 30, 2015	2014-2015 Experience (Gains) / Losses	30	(7,163)	16.8379	(425)	29	(7,266)	16.6404	(437)
June 30, 2016	2016 Assumption Changes		568			30	611	16.9317	36
June 30, 2016	2015-2016 Experience (Gains) / Losses		9,569			30	10,296	16.9317	608
	UAL as of Valuation Date		**$ 55,764**		$ 3,043		$ 56,846	Total:	$ 3,770
								Projected FY 2017-2018 UAL Payroll:	$ 6,748
								NC Rate:	**6.27%**
								UAL Contribution Rate:	**55.87%**
								NCR + UALR:	**62.14%**

Table 4-8
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2016
Elected Officers' Class: Local Subclass
($ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2016-2017	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2017-2018
June 30, 1999	Assumption Change from 1998 Experience Study	14	$ 5	10.4338	$ 0	13	$ 5	9.9008	$ 0
June 30, 2004	Assumption Change from 2003 Experience Study	19	35,378	12.9097	2,740	18	35,225	12.5007	2,818
June 30, 2009	Assumption Change from 2008 Experience Study	24	11,818	14.9194	792	23	11,895	14.6160	814
June 30, 2009	2008-2009 Experience (Gains) / Losses	24	242,587	14.9194	16,260	23	244,157	14.6160	16,705
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	24	(60,063)	14.9194	(4,026)	23	(60,452)	14.6160	(4,136)
June 30, 2009	2009-2010 Plan Changes (HB 479)	24	(7,333)	14.9194	(491)	23	(7,380)	14.6160	(505)
June 30, 2010	2009-2010 Experience (Gains) / Losses	25	2,121	15.2734	139	24	2,139	14.9891	143
June 30, 2010	2010-2011 Plan Changes (SB 2100)	25	303	15.2734	20	24	305	14.9891	20
June 30, 2011	2010-2011 Experience (Gains) / Losses	26	14,103	15.6129	903	25	14,238	15.3472	928
June 30, 2012	2011-2012 Experience (Gains) / Losses	27	(5,744)	15.9386	(360)	26	(5,807)	15.6908	(370)
June 30, 2013	2012-2013 Experience (Gains) / Losses	28	110,173	16.2509	6,779	27	111,513	16.0205	6,961
June 30, 2014	Assumption/Method Change from 2013 Experience Study	29	(23,355)	16.5505	(1,411)	28	(23,666)	16.3369	(1,449)
June 30, 2014	2013-2014 Experience (Gains) / Losses	29	(10,377)	16.5505	(627)	28	(10,515)	16.3369	(644)
June 30, 2015	2014-2015 Experience (Gains) / Losses	30	(10,298)	16.8379	(612)	29	(10,446)	16.6404	(628)
June 30, 2016	2016 Assumption Changes		3,031			30	3,261	16.9317	193
June 30, 2016	2015-2016 Experience (Gains) / Losses		19,989			30	21,508	16.9317	1,270
	UAL as of Valuation Date		**$ 322,339**		$ 20,107		$ 325,980	Total:	$ 22,120

Projected FY 2017-2018 UAL Payroll: $ 44,917

NC Rate: **8.37%**
UAL Contribution Rate: **49.25%**
NCR + UALR: **57.62%**

Table 4-9
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2016
Senior Management Service Class
($ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2016-2017	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2017-2018
June 30, 1999	Assumption Change from 1998 Experience Study	14	$ (2,609)	10.4338	$ (250)	13	$ (2,548)	9.9008	$ (257)
June 30, 2004	Assumption Change from 2003 Experience Study	19	217,312	12.9097	16,833	18	216,367	12.5007	17,308
June 30, 2009	Assumption Change from 2008 Experience Study	24	65,157	14.9194	4,367	23	65,579	14.6160	4,487
June 30, 2009	2008-2009 Experience (Gains) / Losses	24	1,269,034	14.9194	85,060	23	1,277,248	14.6160	87,387
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	24	(288,045)	14.9194	(19,307)	23	(289,909)	14.6160	(19,835)
June 30, 2009	2009-2010 Plan Changes (HB 479)	24	(53,958)	14.9194	(3,617)	23	(54,307)	14.6160	(3,716)
June 30, 2010	2009-2010 Experience (Gains) / Losses	25	35,123	15.2734	2,300	24	35,407	14.9891	2,362
June 30, 2010	2010-2011 Plan Changes (SB 2100)	25	(92,019)	15.2734	(6,025)	24	(92,763)	14.9891	(6,189)
June 30, 2011	2010-2011 Experience (Gains) / Losses	26	132,449	15.6129	8,483	25	133,716	15.3472	8,713
June 30, 2012	2011-2012 Experience (Gains) / Losses	27	67,863	15.9386	4,258	26	68,603	15.6908	4,372
June 30, 2013	2012-2013 Experience (Gains) / Losses	28	380,280	16.2509	23,401	27	384,908	16.0205	24,026
June 30, 2014	Assumption/Method Change from 2013 Experience Study	29	(148,953)	16.5505	(9,000)	28	(150,938)	16.3369	(9,239)
June 30, 2014	2013-2014 Experience (Gains) / Losses	29	60,101	16.5505	3,631	28	60,902	16.3369	3,728
June 30, 2015	2014-2015 Experience (Gains) / Losses	30	51,255	16.8379	3,044	29	51,992	16.6404	3,124
June 30, 2016	2016 Assumption Changes		28,646			30	30,823	16.9317	1,820
June 30, 2016	2015-2016 Experience (Gains) / Losses		89,934			30	96,769	16.9317	5,715
	UAL as of Valuation Date		**$ 1,811,571**		$ 113,179		$ 1,831,850	Total:	$ 123,808

Projected FY 2017-2018 UAL Payroll: $ 558,791

NC Rate: **4.05%**
UAL Contribution Rate: **22.16%**
NCR + UALR: **26.21%**

Table 4-10
Florida Retirement System Pension Plan
Unfunded Actuarial Liability (UAL) Bases
July 1, 2016
DROP
($ in Thousands)

(a)	(b)	(c)	(d)	(e)	(f) = (d) / (e)	(g)	(h)	(i)	(j) = (h) / (i)
Date Established	Description	Remaining Payments as of Valuation Date	Balance as of Valuation Date	Amortization Factor	Amortization Payment for FY 2016-2017	Remaining Payments one year after Valuation Date	Balance One Year After Valuation Date	Amortization Factor	Amortization Payment for FY 2017-2018
June 30, 2004	Assumption Change from 2003 Experience Study	19	$ (68,886)	12.9097	$ (5,336)	18	$ (68,586)	12.5007	$ (5,487)
June 30, 2009	Assumption Change from 2008 Experience Study	24	635,083	14.9194	42,568	23	639,194	14.6160	43,733
June 30, 2009	2008-2009 Experience (Gains) / Losses	24	(22,522,049)	14.9194	(1,509,586)	23	(22,667,825)	14.6160	(1,550,893)
June 30, 2009	Unrecognized (Gains)/Losses while in Surplus	24	23,908,507	14.9194	1,602,516	23	24,063,257	14.6160	1,646,366
June 30, 2010	2009-2010 Experience (Gains) / Losses	25	261,165	15.2734	17,099	24	263,276	14.9891	17,564
June 30, 2011	2010-2011 Experience (Gains) / Losses	26	931,552	15.6129	59,666	25	940,459	15.3472	61,279
June 30, 2012	2011-2012 Experience (Gains) / Losses	27	(121,052)	15.9386	(7,595)	26	(122,373)	15.6908	(7,799)
June 30, 2013	2012-2013 Experience (Gains) / Losses	28	5,078	16.2509	312	27	5,140	16.0205	321
June 30, 2014	Assumption/Method Change from 2013 Experience Study	29	253,015	16.5505	15,287	28	256,387	16.3369	15,694
June 30, 2014	2013-2014 Experience (Gains) / Losses	29	(637,450)	16.5505	(38,515)	28	(645,944)	16.3369	(39,539)
June 30, 2015	2014-2015 Experience (Gains) / Losses	30	(197,840)	16.8379	(11,750)	29	(200,688)	16.6404	(12,060)
June 30, 2016	2016 Assumption Changes		74,495			30	80,157	16.9317	4,734
June 30, 2016	2015-2016 Experience (Gains) / Losses		(390,049)			30	(419,693)	16.9317	(24,787)
	UAL as of Valuation Date		**$ 2,131,569**		$ 164,667		$ 2,122,759	Total:	$ 149,125
								Projected FY 2017-2018 UAL Payroll:	$ 2,005,876

NC Rate:	**4.17%**
UAL Contribution Rate:	**7.43%**
NCR + UALR:	**11.60%**

Table 4-11
Florida Retirement System Pension Plan
Actuarially Calculated Employer Contribution Rates
July 1, 2016 Valuation for Fiscal Year Beginning July 1, 2017

No surplus available for rate reduction

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class -- Judicial	Leg-Atty-Cab	Local	Senior Management	Composite (excluding DROP)	DROP [1]	Composite (including DROP)
1. Employer Normal Cost	2.75%	11.57%	3.09%	11.73%	6.27%	8.37%	4.05%	4.17%	4.17%	4.17%
2. UAL Cost	3.93%	11.28%	42.81%	28.75%	55.87%	49.25%	22.16%	5.50%	7.43%	5.63%
3. Total Employer Cost [(1) + (2)]	6.68%	22.85%	45.90%	40.48%	62.14%	57.62%	26.21%	9.67%	11.60%	9.80%
4. UAL Cost Paid from Surplus	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
5. Rate Reduction from Surplus	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
6. Total Adjusted Employer Contribution for FRS Trust Fund [(3) + (4) + (5)]	6.68%	22.85%	45.90%	40.48%	62.14%	57.62%	26.21%	9.67%	11.60%	9.80%

[1] *DROP rates are special charges to cover the assumed cost of DROP participants; they are not Normal Cost or UAL Cost in the traditional sense. See Section G of Executive Summary for discussion of the DROP contribution rate.*

Table 4-12
Florida Retirement System Pension Plan
Actuarially Calculated vs. Legislated Defined Benefit Plan Contribution Rates (Before Blending) [1 & 2 & 3]

Plan Year 2015-2016 and Plan Year 2016-2017 rates were set equal to the actuarially calculated rates
Plan Year 2017-2018 rates will be set by the Legislature during the 2017 Legislative Session

		Plan Year 2015-2016		Plan Year 2016-2017		Plan Year 2017-2018	
	Membership Class	Actuarially Calculated	Legislated	Actuarially Calculated	Legislated	Actuarially Calculated	Legislated
1.	Regular	5.93%	5.93%	6.21%	6.21%	6.68%	TBD
2.	Special Risk	21.85%	21.85%	22.24%	22.24%	22.85%	TBD
3.	Special Risk Administrative	38.72%	38.72%	35.49%	35.49%	45.90%	TBD
4.	Elected Officers' Class - Judicial	35.87%	35.87%	37.17%	37.17%	40.48%	TBD
5.	Elected Officers' Class - Leg-Atty-Cab	54.30%	54.30%	51.19%	51.19%	62.14%	TBD
6.	Elected Officers' Class - Local	53.67%	53.67%	52.99%	52.99%	57.62%	TBD
7.	Senior Management Service	24.72%	24.72%	25.18%	25.18%	26.21%	TBD
8.	Composite without DROP	8.78%	8.78%	9.14%	9.14%	9.67%	TBD
9.	DROP	11.22%	11.22%	11.33%	11.33%	11.60%	TBD
10.	Composite with DROP	8.99%	8.99%	9.32%	9.32%	9.80%	TBD

[1] *The above rates (applied to DB plan payroll) are combined with the Investment Plan contribution rates (applied to IP payroll) to derive the uniform blended rates employers contribute.*

[2] *Contribution rates showabove do not include the 3% required employee contribution rate.*

[3] *The Plan Year 2016-2017 rates shown in this table differ from those developed in the July 1, 2015 actuarial valuation due to the modification of Special Risk in-line-of-duty death benefit provisions by the Florida Legislature subsequent to the publication of the valuation report.*

5. Accounting Statement

The liabilities presented in this report differ by section regarding whether future anticipated salary increases or service credits are included in the calculation. Actuarial Liabilities in Sections 3 and 4 are determined for plan funding purposes and include a provision for the projected effects of future salary increases and future service performed by current FRS Pension Plan members.

Statement No. 67 of the Governmental Accounting Standards Board (GASB) is the current standard for pension plan accounting disclosure by governmental pension systems. GASB 67 information for the FRS Pension Plan as of July 1, 2016 was provided under separate cover in November 2016.[1] GASB 67 liability calculations also include a provision for the projected effects of future salary increases and future service performed by current FRS Pension Plan members, but use a different actuarial cost allocation method to be in compliance with GASB standards.

Accounting Standards Codification (ASC) 960 – Plan Accounting – Defined Benefit Pension Plans, formerly titled Statement No. 35 of the Financial Accounting Standards Board (FASB), specifies a different methodology for disclosure of certain information regarding pension plan funded status. Accounting liabilities calculated under ASC 960 do not include the effects of either projected future salary increases or projected future service performed.

The ASC 960 disclosures are intended to provide a "snap shot" view of how the Plan's assets compare to its liabilities if contributions stopped and accrued benefit claims had to be satisfied. The Accumulated Benefit Obligation (ABO) is determined based on each member's accrued benefit, that is, the benefit based on employee service performed and compensation earned up to the valuation date. We assume that the plan is ongoing and that members continue to terminate employment, retire, and otherwise act in accordance with the actuarial assumptions. Liabilities are discounted at the assumed valuation interest rate of 7.60% per annum.

Table 5-1 presents the ABO for the FRS Pension Plan determined as of July 1, 2016. All of the calculations presented in that table are based on the actuarial assumptions used in the valuation, as described in Appendix A, except salaries are not projected to increase and no future benefit service is credited for service performed after the valuation date. Values of the ABO are shown by type of member and by class. The active members' values are also divided between the employee-financed (accumulated member contributions) and employer-financed portions, with the employer-financed portions shown separately for vested benefits and non-vested benefits. For purposes of calculating the ABO post-Senate Bill 2100, we estimated the COLA percentage for each member as 3% multiplied by service through June 30, 2011, divided by projected total service at the time of retirement.

Table 5-2 presents the total ABO for the FRS Pension Plan for the current and two prior valuations. The trend of the Pension Plan's ASC 960 funded status, as measured by the ABO over a period of time, is one indication of the progress being made in accumulating sufficient assets to pay benefits when due. Past and future results are affected by changes in actuarial assumptions, benefit provisions, and accounting policies.

Table 5-3 reconciles the ABO determined as of the prior valuation, July 1, 2015, to the ABO as of July 1, 2016. This reconciliation indicates the impact of the assumption changes and plan changes, if any.

[1] *The valuation report in prior years included Table 5-4 which showed the Net Pension Obligation under GASB Statement No. 27. That exhibit has been discontinued since GASB Statement No. 27 is not applicable after plan year 2013-2014. Please refer to the separate GASB 67 report for financial reporting information.*

Table 5-1
Florida Retirement System Pension Plan
Accumulated Benefit Obligation - ASC 960
July 1, 2016
(All Amounts in Thousands)

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class -- Judicial	Leg-Atty-Cab	Local	Senior Management	DROP	Total
A. Accumulated Benefit Obligation									
1. Active Members									
a. Accumulated Member Contributions	$2,266,079	$425,630	$330	$13,018	$904	$5,414	$64,619	$0	$2,775,994
b. Employer-Financed Vested Benefits	19,412,985	6,071,245	5,791	251,466	12,898	97,230	902,886	0	26,754,501
c. Employer-Financed Non-Vested Benefits	819,665	210,988	224	7,135	906	3,768	21,740	0	1,064,426
d. Total	$22,498,729	$6,707,863	$6,345	$271,619	$14,708	$106,412	$989,245	$0	$30,594,921
2. Annuitants	$73,511,906	$18,904,029	$74,688	$844,590	$82,227	$458,976	$2,569,044	$14,569,858	$111,015,318
3. Other Inactive Members	$4,089,487	$632,388	$1,144	$17,467	$8,205	$18,169	$147,939	$0	$4,914,799
4. Total Accumulated Benefit Obligation	$100,100,122	$26,244,280	$82,177	$1,133,676	$105,140	$583,557	$3,706,228	$14,569,858	$146,525,038
B. Assets Available for Benefits									
1. Market	$100,298,947	$25,668,782	$70,790	$803,571	$56,116	$298,453	$2,459,872	$12,124,390	$141,780,921
2. Actuarial Basis	$102,895,674	$26,333,344	$72,623	$824,375	$57,569	$306,180	$2,523,558	$12,438,289	$145,451,612
C. Unfunded / (Surplus) Total Accumulated Benefit Obligation, Assets at:									
1. Market	($198,825)	$575,498	$11,387	$330,105	$49,024	$285,104	$1,246,356	$2,445,468	$4,744,117
2. Actuarial Basis	($2,795,552)	($89,064)	$9,554	$309,301	$47,571	$277,377	$1,182,670	$2,131,569	$1,073,426
D. Percent of Accumulated Obligation Funded, Assets at:									
1. Market	100.20%	97.81%	86.14%	70.88%	53.37%	51.14%	66.37%	83.22%	96.76%
2. Actuarial Basis	102.79%	100.34%	88.37%	72.72%	54.75%	52.47%	68.09%	85.37%	99.27%

Table 5-2
Florida Retirement System Pension Plan
Analysis of Funding Progress - ASC 960
(All Amounts in Thousands)

	July 1, 2014 Valuation Basis	July 1, 2015 Valuation Basis	July 1, 2016 Valuation Basis
A. Accumulated Benefit Obligation			
1. Active Members			
a. Accumulated Member Contributions	$1,801,623	$2,304,079	$2,775,994
b. Employer-Financed Vested Benefits	27,929,833	27,805,980	26,754,501
c. Employer-Financed Non-Vested Benefits	1,124,278	1,086,499	1,064,426
d. Total	$30,855,734	$31,196,558	$30,594,921
2. Annuitants	$81,702,688	$88,519,139	$96,445,460
3. Other Inactive Members	$5,390,172	$4,647,199	$4,914,799
4. DROP	$19,386,218	$18,058,528	$14,569,858
5. Total Accumulated Benefit Obligation	$137,334,812	$142,421,424	$146,525,038
B. Assets Available for Benefits			
1. Market	$150,014,292 [2]	$148,454,394	$141,780,921
2. Actuarial Basis	$138,621,201	$143,195,531	$145,451,612
C. Unfunded/(Surplus) Total Accumulated Benefit Obligation, Assets at:			
1. Market	($12,679,480)	($6,032,970)	$4,744,117
2. Actuarial Basis	($1,286,389)	($774,107)	$1,073,426
D. Percent of Accumulated Benefit Obligation Funded, Assets at:			
1. Market	109.23%	104.24%	96.76%
2. Actuarial Basis	100.94%	100.54%	99.27%
E. Annual Salaries[1]	$24,723,565	$25,063,048	$25,204,393
F. Unfunded/(Surplus) Accumulated Benefit Obligation as a Percent of Salary, Assets at:			
1. Market	-51.28%	-24.07%	18.82%
2. Actuarial Basis	-5.20%	-3.09%	4.26%

[1] *Includes Drop Salaries*

[2] *Reflects post-audit adjustment made to audited financial statements after publication of July 1, 2014 actuarial valuation report.*

Table 5-3
Florida Retirement System Pension Plan
Statement of Changes in Accumulated Benefit Obligation
(All Amounts in Thousands)

	ASC 960 Basis
Accumulated Benefit Obligation at July 1, 2015	$142,421,424
Increase (Decrease) During Year Attributable to:	
Increase for Interest Due to Decrease in Discount Period	$10,495,629
Benefits Paid - PY 2016	($10,643,432)
Benefits Accrued, & Other Gains/Losses	$3,318,939
Plan Provision / Assumption Changes	$932,478
Net Increase (Decrease)	$4,103,614
Accumulated Benefit Obligation at July 1, 2016	$146,525,038

Appendix A: Actuarial Methods, Procedures and Assumptions

The actuarial assumptions are intended to estimate the future experience of FRS Pension Plan members, employers and investments. Any variations in future actual experience from these assumptions will result in corresponding changes in actuarially calculated contribution rates.

Assumption Tables

A complete listing of all the assumptions, methods and procedures that are used in the 2016 actuarial valuation of the FRS Pension Plan are summarized on the following pages. These assumptions, methods, and procedures were approved by the 2016 FRS Actuarial Assumptions Conference and are based on the 2014 Experience Study. For this valuation, two assumption updates were approved by the 2016 FRS Actuarial Assumptions Conference:

- A decrease in the investment return assumption from 7.65% to 7.60%, which increased 2017-2018 composite FRS Pension actuarially calculated contribution rates by approximately 0.30% of payroll.
- An update to the mortality assumption for active employees, the cost impact of which was minor.

Data

Except where noted, the analysis in this valuation was based on data as of June 30, 2016, as provided by the Division of Retirement, Florida Department of Management Services. The data used in this valuation consists of financial information and records of age, service and income of active members, annuitants, and other inactive members entitled to future benefits. The Division of Retirement, Florida Department of Management Services is solely responsible for the validity, accuracy and comprehensiveness of this information; the results of our analysis can be expected to differ and may need to be revised if the underlying data supplied is incomplete or inaccurate.

Methods and Procedures

Actuarial cost method: The total cost of the FRS Pension Plan, over time, will be equal to the benefits paid and expenses less actual investment earnings and is not affected directly by the actuarial cost method. The actuarial cost method is simply a tool to allocate costs to past, current or future years and thus primarily affects the timing of cost recognition.

The FRS Pension Plan uses Entry Age Normal (EAN), which is the most commonly used general cost method approach for state pension systems. Conceptually, EAN sets the normal cost rate level as a percent of payroll over a member's full projected working career. There are different categories of EAN, including Individual EAN, which is by far the most commonly used EAN category, and Ultimate EAN, which is the category of EAN used by the FRS Pension Plan. Even each category of EAN contains different interpretations of how to calculate the key metrics. GASB Statements Nos. 67 & 68 mandate the use of a particular interpretation of Individual EAN for financial reporting purposes. GASB 67 & 68 information is provided under separate cover.

Sponsors have autonomy to choose any cost method and identify any variation of that cost method for purposes of setting system funding policy. Ultimate EAN, which is used by the FRS, sets normal cost as if each member was initially enrolled on or after July 1, 2011 (Tier II). As such, normal cost is lower for Ultimate EAN than for Individual EAN, which sets normal cost in a manner that is representative of the tier in which the member actually participates. Cost methods do allocate benefits between past and projected future service, but do not affect the level of projected benefits; benefits are based on the actual tier of membership under either Ultimate EAN or Individual EAN. Compared to the Individual EAN method, the Ultimate EAN allocates fewer projected benefits to future service (via lower normal cost) and hence produces a higher actuarial accrued liability for past service as a counterbalance.

The interpretation of Ultimate EAN used in this 2016 valuation sets normal cost rates as if each member in the Pension Plan was in Tier II as noted above. The projected future service period used for calculating the present value of future normal costs is based on Tier I retirement timing assumptions for members in Tier I. This is the same method used in the prior valuation.

UAL amortization method: The Unfunded Actuarial Liability (UAL) is amortized as a level percentage of projected payroll on which UAL Rates are charged in an effort to maintain level contribution rates as a percentage of payroll during the specified amortization period if future experience follows assumptions.

New UAL arises each year and is calculated in each new actuarial valuation. The newly arising UAL can be either positive or negative, and can be due either to experience varying from assumptions or to changes in actuarial liability from modifications to assumptions, plan provisions or actuarial methods. Each year's newly arising UAL is currently amortized over a closed 30-year period as a level percent of the projected payroll on which UAL rates are charged.

Amortization periods longer than 20 years can incur significant negative amortization, wherein the calculated UAL increases for an extended period of time prior to final payoff even if all contributions are made and all assumptions are met. This was discussed and illustrated in Milliman's August 11, 2014 presentation materials to the FRS Actuarial Assumptions Conference.

Asset valuation method: This method recognizes actual investment performance different from the long-term assumption systematically. The expected Actuarial Value of Assets is determined by crediting the rate of investment return assumed in the prior valuation to the prior year's Actuarial Value of Assets. Then, 20% of the difference between the actual Market Value of Assets and the expected Actuarial Value of Assets is immediately recognized in the AVA. To ensure that the AVA remains reasonably close to the MVA, the asset method includes a corridor whereby the AVA must remain within 80% to 120% of MVA.

Economic Assumptions

Assumption	
Inflation	2.60%
Real wage growth	0.65%
Payroll growth	3.25% (sum of two items above)
Investment Return	7.60%

Demographic Assumptions

Mortality

Healthy Inactive Mortality (Post-Employment)

- Female Non-Disabled: RP2000 Generational, 100% Annuitant White Collar, Scale BB
- Male Non-Disabled (other than Special Risk): RP2000 Generational, 50% Annuitant White Collar / 50% Annuitant Blue Collar, Scale BB
- Male Non-Disabled (Special Risk): RP2000 Generational, 10% Annuitant White Collar / 90% Annuitant Blue Collar, Scale BB

Healthy Active Mortality (During Employment) *[Updated assumption for this valuation]*

- Female Non-Disabled: RP2000 Generational, 100% Combined Healthy White Collar, Scale BB
- Male Non-Disabled (other than Special Risk): RP2000 Generational, 50% Combined Healthy White Collar / 50% Combined Healthy Blue Collar, Scale BB
- Male Non-Disabled (Special Risk): RP2000 Generational, 10% Combined Healthy White Collar / 90% Combined Healthy Blue Collar, Scale BB
- For Special Risk members, 25% of future active member deaths are assumed to be in the line of duty
- For all other members, 2% of future active member deaths are assumed to be in the line of duty

Disabled Mortality

- Female Disabled (other than Special Risk): RP2000, 100% Disabled Female set forward two years, no projection scale
- Female Disabled (Special Risk): 60% RP2000 Disabled Female set forward two years / 40% Annuitant White Collar with no setback, no projection scale
- Male Disabled (other than Special Risk): RP2000, 100% Disabled Male setback four years, no projection scale
- Male Disabled (Special Risk): 60% RP2000 Disabled Male setback four years / 40% Annuitant White Collar with no setback, no projection scale

Retirement for Vested Terminated Members (Tier I and Tier II)

All current vested terminated members are assumed to begin receiving benefits on the normal retirement benefit age for the appropriate class and tier. All future members who terminate employment with a vested benefit are also assumed to commence benefit at the normal retirement benefit age.

Optional Form of Payment

All future retirees are assumed to elect the straight life (Option 1) form of benefit. For current retirees and members in DROP, the actual elected form is used.

Retirement Assumptions (Tier I)

DROP Entry at first retirement eligibility

	Regular		Special Risk and Special Risk Admin		All Other	
Age	Female	Male	Female	Male	Female	Male
45	0.0%	0.0%	20.0%	23.0%	0.0%	0.0%
46	0.0%	0.0%	20.0%	23.0%	0.0%	0.0%
47	0.0%	0.0%	20.0%	23.0%	0.0%	0.0%
48	27.0%	23.0%	20.0%	30.0%	30.0%	30.0%
49	27.0%	23.0%	20.0%	30.0%	32.5%	32.5%
50	27.0%	23.0%	20.0%	30.0%	35.0%	35.0%
51	27.0%	23.0%	20.0%	40.0%	37.5%	37.5%
52	27.0%	23.0%	30.0%	50.0%	40.0%	40.0%
53	27.0%	23.0%	20.0%	50.0%	42.5%	42.5%
54	27.0%	23.0%	20.0%	50.0%	45.0%	45.0%
55	33.0%	30.0%	31.0%	29.0%	47.5%	47.5%
56	33.0%	30.0%	20.0%	5.0%	50.0%	50.0%
57	48.0%	55.0%	5.0%	5.0%	52.5%	52.5%
58	48.0%	55.0%	5.0%	5.0%	55.0%	55.0%
59	55.0%	55.0%	5.0%	5.0%	57.5%	57.5%
60	55.0%	55.0%	5.0%	5.0%	60.0%	60.0%
61	55.0%	55.0%	5.0%	5.0%	62.5%	62.5%
62	45.5%	41.0%	5.0%	5.0%	50.0%	50.0%
63	5.0%	5.0%	5.0%	5.0%	15.0%	15.0%
64	5.0%	5.0%	5.0%	5.0%	15.0%	15.0%
65	5.0%	5.0%	5.0%	5.0%	15.0%	15.0%
66	5.0%	5.0%	5.0%	5.0%	15.0%	15.0%
67	5.0%	5.0%	5.0%	5.0%	15.0%	15.0%
68	5.0%	5.0%	5.0%	5.0%	15.0%	15.0%
69	5.0%	5.0%	5.0%	5.0%	15.0%	15.0%
70-79	5.0%	5.0%	0.0%	0.0%	15.0%	15.0%
80	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Immediate Retirement at first retirement eligibility

	Regular		Special Risk and Special Risk Admin		Elected Officers' (All Subclasses)		Senior Management Service Class	
Age	Female	Male	Female	Male	Female	Male	Female	Male
45	0.0%	0.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%
46	0.0%	0.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%
47	0.0%	0.0%	4.0%	7.0%	0.0%	0.0%	0.0%	0.0%
48	4.0%	4.0%	4.0%	7.0%	10.0%	10.0%	5.0%	5.0%
49	4.0%	4.0%	4.0%	7.0%	10.0%	10.0%	5.0%	5.0%
50	4.0%	4.0%	7.0%	7.0%	10.0%	10.0%	5.0%	5.0%
51	4.0%	4.0%	7.0%	7.0%	10.0%	10.0%	5.0%	5.0%
52	4.0%	4.0%	7.0%	7.0%	10.0%	10.0%	5.0%	5.0%
53	4.0%	4.0%	7.0%	7.0%	10.0%	10.0%	5.0%	5.0%
54	5.0%	4.0%	7.0%	7.0%	10.0%	10.0%	5.0%	5.0%
55	5.0%	5.0%	7.0%	6.0%	10.0%	10.0%	5.0%	5.0%
56	7.0%	5.0%	6.0%	6.0%	10.0%	10.0%	5.0%	5.0%
57	7.0%	5.0%	6.0%	6.0%	10.0%	10.0%	5.0%	5.0%
58	7.0%	5.0%	6.0%	6.0%	10.0%	10.0%	10.0%	10.0%
59	7.0%	5.0%	6.0%	6.0%	10.0%	10.0%	10.0%	10.0%
60	7.0%	5.0%	6.0%	6.0%	10.0%	10.0%	10.0%	10.0%
61	9.0%	8.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
62	9.0%	11.0%	15.0%	15.0%	10.0%	10.0%	10.0%	10.0%
63	9.0%	10.0%	20.0%	20.0%	10.0%	10.0%	5.0%	5.0%
64	9.0%	10.0%	25.0%	25.0%	10.0%	10.0%	5.0%	5.0%
65	15.0%	10.0%	30.0%	30.0%	10.0%	10.0%	5.0%	5.0%
66	10.0%	10.0%	35.0%	35.0%	10.0%	10.0%	5.0%	5.0%
67	10.0%	10.0%	35.0%	35.0%	10.0%	10.0%	5.0%	5.0%
68	10.0%	10.0%	35.0%	35.0%	10.0%	10.0%	5.0%	5.0%
69	10.0%	10.0%	35.0%	35.0%	10.0%	10.0%	5.0%	5.0%
70-79	10.0%	10.0%	100.0%	100.0%	10.0%	10.0%	5.0%	5.0%
80	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Retirement Assumptions (Tier I) continued

Combined DROP/Immediate Retirement at first retirement eligibility

	Regular		Special Risk and Special Risk Admin		Elected Officers' (All Subclasses)		Senior Management Service Class	
Age	Female	Male	Female	Male	Female	Male	Female	Male
45	0.0%	0.0%	24.0%	27.0%	0.0%	0.0%	0.0%	0.0%
46	0.0%	0.0%	24.0%	27.0%	0.0%	0.0%	0.0%	0.0%
47	0.0%	0.0%	24.0%	30.0%	0.0%	0.0%	0.0%	0.0%
48	31.0%	27.0%	24.0%	37.0%	40.0%	40.0%	35.0%	35.0%
49	31.0%	27.0%	24.0%	37.0%	42.5%	42.5%	37.5%	37.5%
50	31.0%	27.0%	27.0%	37.0%	45.0%	45.0%	40.0%	40.0%
51	31.0%	27.0%	27.0%	47.0%	47.5%	47.5%	42.5%	42.5%
52	31.0%	27.0%	37.0%	57.0%	50.0%	50.0%	45.0%	45.0%
53	31.0%	27.0%	27.0%	57.0%	52.5%	52.5%	47.5%	47.5%
54	32.0%	27.0%	27.0%	57.0%	55.0%	55.0%	50.0%	50.0%
55	38.0%	35.0%	38.0%	35.0%	57.5%	57.5%	52.5%	52.5%
56	40.0%	35.0%	26.0%	11.0%	60.0%	60.0%	55.0%	55.0%
57	55.0%	60.0%	11.0%	11.0%	62.5%	62.5%	57.5%	57.5%
58	55.0%	60.0%	11.0%	11.0%	65.0%	65.0%	65.0%	65.0%
59	62.0%	60.0%	11.0%	11.0%	67.5%	67.5%	67.5%	67.5%
60	62.0%	60.0%	11.0%	11.0%	70.0%	70.0%	70.0%	70.0%
61	64.0%	63.0%	15.0%	15.0%	72.5%	72.5%	72.5%	72.5%
62	54.5%	52.0%	20.0%	20.0%	60.0%	60.0%	60.0%	60.0%
63	14.0%	15.0%	25.0%	25.0%	25.0%	25.0%	20.0%	20.0%
64	14.0%	15.0%	30.0%	30.0%	25.0%	25.0%	20.0%	20.0%
65	20.0%	15.0%	35.0%	35.0%	25.0%	25.0%	20.0%	20.0%
66	15.0%	15.0%	40.0%	40.0%	25.0%	25.0%	20.0%	20.0%
67	15.0%	15.0%	40.0%	40.0%	25.0%	25.0%	20.0%	20.0%
68	15.0%	15.0%	40.0%	40.0%	25.0%	25.0%	20.0%	20.0%
69	15.0%	15.0%	40.0%	40.0%	25.0%	25.0%	20.0%	20.0%
70-79	15.0%	15.0%	100.0%	100.0%	25.0%	25.0%	20.0%	20.0%
80	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Deferred Retirement subsequent to first retirement eligibility

	Regular		Special Risk and Special Risk Admin		All Other	
Age	Female	Male	Female	Male	Female	Male
45	0.0%	0.0%	3.0%	3.0%	0.0%	0.0%
46	0.0%	0.0%	3.0%	3.0%	0.0%	0.0%
47	0.0%	0.0%	3.0%	3.0%	0.0%	0.0%
48	2.0%	2.0%	4.0%	4.0%	5.0%	5.0%
49	2.0%	2.0%	4.0%	4.0%	5.0%	5.0%
50	2.0%	2.0%	4.0%	4.0%	5.0%	5.0%
51	2.0%	2.0%	4.0%	4.0%	5.0%	5.0%
52	2.0%	2.0%	5.0%	5.0%	5.0%	5.0%
53	2.0%	2.0%	5.0%	5.0%	5.0%	5.0%
54	2.0%	2.0%	5.0%	5.0%	5.0%	5.0%
55	2.0%	2.0%	5.0%	5.0%	5.0%	5.0%
56	2.0%	2.0%	5.0%	5.0%	5.0%	5.0%
57	2.0%	2.0%	5.0%	5.0%	5.0%	5.0%
58	3.5%	2.0%	5.0%	5.0%	5.0%	5.0%
59	5.0%	2.0%	5.0%	5.0%	5.0%	5.0%
60	5.0%	5.0%	7.0%	7.0%	5.0%	5.0%
61	5.0%	5.0%	9.0%	9.0%	5.0%	5.0%
62	12.0%	11.0%	20.0%	20.0%	15.0%	15.0%
63	8.0%	8.0%	20.0%	20.0%	11.0%	11.0%
64	8.0%	8.0%	20.0%	20.0%	11.0%	11.0%
65	15.0%	13.0%	20.0%	20.0%	15.0%	15.0%
66	15.0%	13.0%	25.0%	25.0%	15.0%	15.0%
67	15.0%	13.0%	25.0%	25.0%	15.0%	15.0%
68	15.0%	13.0%	25.0%	25.0%	15.0%	15.0%
69	15.0%	13.0%	25.0%	25.0%	15.0%	15.0%
70-79	15.0%	13.0%	100.0%	100.0%	15.0%	15.0%
80	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Retirement Assumptions (Tier II)

DROP Entry at first retirement eligibility

	Regular		Special Risk and Special Risk Admin		All Other	
Age	Female	Male	Female	Male	Female	Male
45	0.0%	0.0%	20.0%	23.0%	0.0%	0.0%
46	0.0%	0.0%	20.0%	23.0%	0.0%	0.0%
47	0.0%	0.0%	20.0%	23.0%	0.0%	0.0%
48	27.0%	23.0%	20.0%	30.0%	30.0%	30.0%
49	27.0%	23.0%	20.0%	30.0%	32.5%	32.5%
50	27.0%	23.0%	20.0%	30.0%	35.0%	35.0%
51	27.0%	23.0%	20.0%	40.0%	37.5%	37.5%
52	27.0%	23.0%	30.0%	50.0%	40.0%	40.0%
53	27.0%	23.0%	20.0%	50.0%	42.5%	42.5%
54	27.0%	23.0%	20.0%	50.0%	45.0%	45.0%
55	33.0%	30.0%	20.0%	50.0%	47.5%	47.5%
56	33.0%	30.0%	20.0%	50.0%	50.0%	50.0%
57	48.0%	55.0%	20.0%	50.0%	52.5%	52.5%
58	48.0%	55.0%	20.0%	50.0%	55.0%	55.0%
59	55.0%	55.0%	20.0%	50.0%	57.5%	57.5%
60	55.0%	55.0%	31.0%	29.0%	60.0%	60.0%
61	55.0%	55.0%	20.0%	5.0%	62.5%	62.5%
62	55.0%	55.0%	5.0%	5.0%	62.5%	62.5%
63	55.0%	55.0%	5.0%	5.0%	62.5%	62.5%
64	55.0%	55.0%	5.0%	5.0%	62.5%	62.5%
65	45.5%	41.0%	5.0%	5.0%	50.0%	50.0%
66	5.0%	5.0%	5.0%	5.0%	15.0%	15.0%
67	5.0%	5.0%	5.0%	5.0%	15.0%	15.0%
68	5.0%	5.0%	5.0%	5.0%	15.0%	15.0%
69	5.0%	5.0%	5.0%	5.0%	15.0%	15.0%
70-79	5.0%	5.0%	0.0%	0.0%	15.0%	15.0%
80	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Immediate Retirement at first retirement eligibility

	Regular		Special Risk and Special Risk Admin		Elected Officers' (All Subclasses)		Senior Management Service Class	
Age	Female	Male	Female	Male	Female	Male	Female	Male
45	0.0%	0.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%
46	0.0%	0.0%	4.0%	4.0%	0.0%	0.0%	0.0%	0.0%
47	0.0%	0.0%	4.0%	7.0%	0.0%	0.0%	0.0%	0.0%
48	4.0%	4.0%	4.0%	7.0%	10.0%	10.0%	5.0%	5.0%
49	4.0%	4.0%	4.0%	7.0%	10.0%	10.0%	5.0%	5.0%
50	4.0%	4.0%	7.0%	7.0%	10.0%	10.0%	5.0%	5.0%
51	4.0%	4.0%	7.0%	7.0%	10.0%	10.0%	5.0%	5.0%
52	4.0%	4.0%	7.0%	7.0%	10.0%	10.0%	5.0%	5.0%
53	4.0%	4.0%	7.0%	7.0%	10.0%	10.0%	5.0%	5.0%
54	5.0%	4.0%	7.0%	7.0%	10.0%	10.0%	5.0%	5.0%
55	5.0%	5.0%	7.0%	6.0%	10.0%	10.0%	5.0%	5.0%
56	7.0%	5.0%	6.0%	6.0%	10.0%	10.0%	5.0%	5.0%
57	7.0%	5.0%	6.0%	6.0%	10.0%	10.0%	5.0%	5.0%
58	7.0%	5.0%	6.0%	6.0%	10.0%	10.0%	10.0%	10.0%
59	7.0%	5.0%	6.0%	6.0%	10.0%	10.0%	10.0%	10.0%
60	7.0%	5.0%	6.0%	6.0%	10.0%	10.0%	10.0%	10.0%
61	9.0%	8.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
62	9.0%	8.0%	15.0%	15.0%	10.0%	10.0%	10.0%	10.0%
63	9.0%	8.0%	20.0%	20.0%	10.0%	10.0%	10.0%	10.0%
64	9.0%	8.0%	25.0%	25.0%	10.0%	10.0%	10.0%	10.0%
65	15.0%	11.0%	30.0%	30.0%	10.0%	10.0%	10.0%	10.0%
66	10.0%	10.0%	35.0%	35.0%	10.0%	10.0%	5.0%	5.0%
67	10.0%	10.0%	35.0%	35.0%	10.0%	10.0%	5.0%	5.0%
68	10.0%	10.0%	35.0%	35.0%	10.0%	10.0%	5.0%	5.0%
69	10.0%	10.0%	35.0%	35.0%	10.0%	10.0%	5.0%	5.0%
70-79	10.0%	10.0%	100.0%	100.0%	10.0%	10.0%	5.0%	5.0%
80	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Retirement Assumptions (Tier II) continued

Combined DROP/Immediate Retirement at first retirement eligibility

	Regular		Special Risk and Special Risk Admin		Elected Officers' (All Subclasses)		Senior Management Service Class	
Age	Female	Male	Female	Male	Female	Male	Female	Male
45	0.0%	0.0%	24.0%	27.0%	0.0%	0.0%	0.0%	0.0%
46	0.0%	0.0%	24.0%	27.0%	0.0%	0.0%	0.0%	0.0%
47	0.0%	0.0%	24.0%	30.0%	0.0%	0.0%	0.0%	0.0%
48	31.0%	27.0%	24.0%	37.0%	40.0%	40.0%	35.0%	35.0%
49	31.0%	27.0%	24.0%	37.0%	42.5%	42.5%	37.5%	37.5%
50	31.0%	27.0%	27.0%	37.0%	45.0%	45.0%	40.0%	40.0%
51	31.0%	27.0%	27.0%	47.0%	47.5%	47.5%	42.5%	42.5%
52	31.0%	27.0%	37.0%	57.0%	50.0%	50.0%	45.0%	45.0%
53	31.0%	27.0%	27.0%	57.0%	52.5%	52.5%	47.5%	47.5%
54	32.0%	27.0%	27.0%	57.0%	55.0%	55.0%	50.0%	50.0%
55	38.0%	35.0%	27.0%	56.0%	57.5%	57.5%	52.5%	52.5%
56	40.0%	35.0%	26.0%	56.0%	60.0%	60.0%	55.0%	55.0%
57	55.0%	60.0%	26.0%	56.0%	62.5%	62.5%	57.5%	57.5%
58	55.0%	60.0%	26.0%	56.0%	65.0%	65.0%	65.0%	65.0%
59	62.0%	60.0%	26.0%	56.0%	67.5%	67.5%	67.5%	67.5%
60	62.0%	60.0%	37.0%	35.0%	70.0%	70.0%	70.0%	70.0%
61	64.0%	63.0%	30.0%	15.0%	72.5%	72.5%	72.5%	72.5%
62	64.0%	63.0%	20.0%	20.0%	72.5%	72.5%	72.5%	72.5%
63	64.0%	63.0%	25.0%	25.0%	72.5%	72.5%	72.5%	72.5%
64	64.0%	63.0%	30.0%	30.0%	72.5%	72.5%	72.5%	72.5%
65	60.5%	52.0%	35.0%	35.0%	60.0%	60.0%	60.0%	60.0%
66	15.0%	15.0%	40.0%	40.0%	25.0%	25.0%	20.0%	20.0%
67	15.0%	15.0%	40.0%	40.0%	25.0%	25.0%	20.0%	20.0%
68	15.0%	15.0%	40.0%	40.0%	25.0%	25.0%	20.0%	20.0%
69	15.0%	15.0%	40.0%	40.0%	25.0%	25.0%	20.0%	20.0%
70-79	15.0%	15.0%	100.0%	100.0%	25.0%	25.0%	20.0%	20.0%
80	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Deferred Retirement subsequent to first retirement eligibility

	Regular		Special Risk and Special Risk Admin		All Other	
Age	Female	Male	Female	Male	Female	Male
45	0.0%	0.0%	3.0%	3.0%	0.0%	0.0%
46	0.0%	0.0%	3.0%	3.0%	0.0%	0.0%
47	0.0%	0.0%	3.0%	3.0%	0.0%	0.0%
48	2.0%	2.0%	4.0%	4.0%	5.0%	5.0%
49	2.0%	2.0%	4.0%	4.0%	5.0%	5.0%
50	2.0%	2.0%	4.0%	4.0%	5.0%	5.0%
51	2.0%	2.0%	4.0%	4.0%	5.0%	5.0%
52	2.0%	2.0%	5.0%	5.0%	5.0%	5.0%
53	2.0%	2.0%	5.0%	5.0%	5.0%	5.0%
54	2.0%	2.0%	5.0%	5.0%	5.0%	5.0%
55	2.0%	2.0%	5.0%	5.0%	5.0%	5.0%
56	2.0%	2.0%	5.0%	5.0%	5.0%	5.0%
57	2.0%	2.0%	5.0%	5.0%	5.0%	5.0%
58	3.5%	2.0%	5.0%	5.0%	5.0%	5.0%
59	5.0%	2.0%	5.0%	5.0%	5.0%	5.0%
60	5.0%	5.0%	7.0%	7.0%	5.0%	5.0%
61	5.0%	5.0%	9.0%	9.0%	5.0%	5.0%
62	5.0%	5.0%	20.0%	20.0%	5.0%	5.0%
63	5.0%	5.0%	20.0%	20.0%	5.0%	5.0%
64	5.0%	5.0%	20.0%	20.0%	5.0%	5.0%
65	12.0%	11.0%	20.0%	20.0%	15.0%	15.0%
66	8.0%	8.0%	25.0%	25.0%	11.0%	11.0%
67	8.0%	8.0%	25.0%	25.0%	11.0%	11.0%
68	15.0%	13.0%	25.0%	25.0%	15.0%	15.0%
69	15.0%	13.0%	25.0%	25.0%	15.0%	15.0%
70-79	15.0%	13.0%	100.0%	100.0%	15.0%	15.0%
80	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Line-of-Duty Disability Annual Rates

Age	SR Male	SR Female	Other Male	Other Female
20	0.010%	0.000%	0.000%	0.000%
21	0.010%	0.000%	0.000%	0.000%
22	0.010%	0.000%	0.000%	0.000%
23	0.010%	0.000%	0.000%	0.000%
24	0.010%	0.000%	0.000%	0.000%
25	0.010%	0.004%	0.001%	0.001%
26	0.010%	0.004%	0.001%	0.001%
27	0.010%	0.004%	0.001%	0.001%
28	0.010%	0.004%	0.001%	0.001%
29	0.010%	0.004%	0.001%	0.001%
30	0.010%	0.004%	0.001%	0.001%
31	0.010%	0.004%	0.001%	0.001%
32	0.010%	0.004%	0.001%	0.001%
33	0.010%	0.004%	0.001%	0.001%
34	0.010%	0.004%	0.001%	0.001%
35	0.010%	0.004%	0.001%	0.001%
36	0.010%	0.004%	0.001%	0.001%
37	0.010%	0.040%	0.001%	0.001%
38	0.020%	0.040%	0.001%	0.001%
39	0.020%	0.040%	0.001%	0.001%
40	0.020%	0.040%	0.001%	0.001%
41	0.020%	0.060%	0.004%	0.001%
42	0.020%	0.060%	0.004%	0.001%
43	0.020%	0.060%	0.004%	0.001%
44	0.040%	0.040%	0.004%	0.001%
45	0.060%	0.040%	0.004%	0.001%
46	0.080%	0.040%	0.004%	0.001%
47	0.100%	0.040%	0.004%	0.001%
48	0.120%	0.040%	0.004%	0.001%
49	0.140%	0.040%	0.004%	0.001%
50	0.140%	0.050%	0.006%	0.006%
51	0.100%	0.060%	0.006%	0.006%
52	0.100%	0.070%	0.006%	0.006%
53	0.100%	0.080%	0.006%	0.006%
54	0.100%	0.080%	0.006%	0.006%
55	0.100%	0.080%	0.006%	0.006%
56	0.100%	0.080%	0.006%	0.006%
57	0.100%	0.080%	0.006%	0.006%
58	0.100%	0.150%	0.006%	0.006%
59	0.100%	0.150%	0.010%	0.015%
60	0.140%	0.150%	0.010%	0.013%
61	0.180%	0.150%	0.010%	0.010%
62	0.220%	0.150%	0.010%	0.010%
63	0.260%	0.150%	0.010%	0.010%
64	0.300%	0.150%	0.010%	0.010%
65	0.260%	0.150%	0.010%	0.010%
66	0.240%	0.100%	0.010%	0.010%
67	0.200%	0.100%	0.010%	0.010%
68	0.100%	0.100%	0.010%	0.010%
69	0.100%	0.100%	0.010%	0.010%
70-79	0.100%	0.100%	0.010%	0.010%
80	0.100%	0.100%	0.001%	0.001%

Non-Duty Disability Annual Rates

Age	SR Male	SR Female	Other Male	Other Female
20	0.020%	0.000%	0.000%	0.000%
21	0.020%	0.000%	0.010%	0.010%
22	0.020%	0.000%	0.010%	0.010%
23	0.020%	0.000%	0.010%	0.010%
24	0.020%	0.000%	0.010%	0.010%
25	0.020%	0.020%	0.010%	0.010%
26	0.020%	0.020%	0.010%	0.010%
27	0.020%	0.020%	0.010%	0.010%
28	0.030%	0.020%	0.010%	0.010%
29	0.030%	0.020%	0.010%	0.010%
30	0.030%	0.020%	0.010%	0.010%
31	0.030%	0.020%	0.010%	0.010%
32	0.030%	0.020%	0.010%	0.010%
33	0.030%	0.030%	0.010%	0.010%
34	0.030%	0.030%	0.020%	0.010%
35	0.030%	0.030%	0.020%	0.010%
36	0.030%	0.030%	0.020%	0.020%
37	0.030%	0.030%	0.020%	0.020%
38	0.030%	0.030%	0.020%	0.020%
39	0.030%	0.030%	0.020%	0.020%
40	0.030%	0.030%	0.020%	0.020%
41	0.030%	0.030%	0.040%	0.040%
42	0.030%	0.060%	0.040%	0.040%
43	0.030%	0.060%	0.040%	0.040%
44	0.030%	0.060%	0.080%	0.040%
45	0.030%	0.060%	0.080%	0.060%
46	0.030%	0.060%	0.080%	0.060%
47	0.080%	0.060%	0.080%	0.100%
48	0.080%	0.110%	0.080%	0.100%
49	0.080%	0.110%	0.120%	0.100%
50	0.080%	0.110%	0.160%	0.100%
51	0.080%	0.110%	0.200%	0.140%
52	0.080%	0.110%	0.200%	0.140%
53	0.050%	0.110%	0.200%	0.140%
54	0.050%	0.110%	0.200%	0.140%
55	0.050%	0.110%	0.250%	0.160%
56	0.050%	0.110%	0.250%	0.180%
57	0.050%	0.110%	0.250%	0.200%
58	0.050%	0.110%	0.300%	0.220%
59	0.050%	0.110%	0.300%	0.240%
60	0.050%	0.110%	0.300%	0.260%
61	0.050%	0.110%	0.200%	0.200%
62	0.050%	0.110%	0.150%	0.140%
63	0.050%	0.110%	0.100%	0.080%
64	0.050%	0.110%	0.100%	0.080%
65	0.050%	0.110%	0.100%	0.080%
66	0.050%	0.110%	0.040%	0.080%
67	0.050%	0.110%	0.040%	0.040%
68	0.050%	0.110%	0.040%	0.040%
69	0.050%	0.110%	0.040%	0.040%
70-79	0.050%	0.110%	0.040%	0.040%
80	0.050%	0.110%	0.040%	0.040%

Withdrawal – Other Terminations of Employment Annual Rates

Regular – Male										
Combined Years of Service	Attained Age 20	25	30	35	40	45	50	55	60	65
0	32.8%	27.2%	25.8%	25.8%	24.4%	24.4%	23.4%	27.4%	27.4%	27.4%
1	25.4%	18.5%	15.4%	14.3%	12.6%	12.5%	12.2%	12.2%	12.2%	12.2%
2	22.7%	17.2%	14.0%	12.8%	12.0%	11.6%	10.7%	10.7%	10.7%	10.7%
3	18.4%	14.6%	13.2%	12.6%	10.7%	10.3%	9.4%	9.3%	9.3%	9.3%
4	15.8%	12.7%	11.8%	10.9%	9.0%	8.8%	7.9%	7.8%	7.8%	7.8%
5	11.7%	9.7%	8.8%	8.5%	7.4%	6.8%	6.0%	6.8%	6.8%	6.8%
6	11.1%	8.5%	7.8%	7.5%	6.7%	6.5%	5.5%	5.4%	5.4%	5.4%
7	11.1%	8.4%	7.1%	6.8%	6.2%	6.0%	5.3%	5.2%	5.1%	5.1%
8	11.0%	7.7%	6.4%	6.2%	5.8%	5.1%	4.6%	4.4%	4.3%	4.3%
9	10.0%	6.3%	5.5%	5.3%	5.3%	5.1%	4.6%	4.3%	4.2%	4.2%
10+	9.8%	6.2%	4.7%	4.2%	3.0%	2.7%	3.0%	4.5%	5.3%	3.7%

Regular – Female										
Combined Years of Service	Attained Age 20	25	30	35	40	45	50	55	60	65
0	30.3%	26.6%	25.4%	25.4%	24.4%	24.4%	23.2%	23.2%	23.2%	23.2%
1	25.8%	19.8%	16.9%	15.9%	14.0%	13.9%	13.4%	13.4%	13.4%	13.4%
2	22.1%	17.1%	14.5%	13.5%	12.1%	11.9%	11.0%	11.0%	11.0%	11.0%
3	17.4%	13.0%	11.6%	11.2%	10.0%	9.8%	8.8%	8.7%	8.7%	8.7%
4	15.4%	12.9%	11.3%	10.9%	9.1%	8.8%	8.4%	8.3%	8.3%	8.3%
5	13.5%	10.7%	9.4%	9.0%	7.0%	6.7%	6.2%	6.1%	6.1%	6.1%
6	11.4%	9.7%	8.7%	8.0%	6.5%	6.5%	5.9%	5.8%	5.8%	5.8%
7	11.3%	9.2%	8.1%	7.8%	6.3%	6.1%	5.5%	5.4%	5.4%	5.4%
8	10.5%	7.8%	7.1%	6.8%	6.1%	5.8%	5.5%	5.4%	5.4%	5.4%
9	10.2%	7.1%	6.5%	6.2%	5.0%	4.7%	4.6%	4.5%	4.5%	4.5%
10+	11.6%	5.3%	5.4%	4.6%	3.3%	3.0%	3.0%	3.0%	3.0%	3.0%

Withdrawal (continued)

Elected Officers' Class: Local – Male										
Combined Years of Service	Attained Age 20	25	30	35	40	45	50	55	60	65
0	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%	8.2%
1	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%
2	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%
3	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
4	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
5	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
6	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%
7	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%	2.4%
8	13.8%	13.8%	13.8%	13.8%	13.8%	13.8%	13.6%	13.4%	13.3%	11.5%
9	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.6%	4.4%	4.3%	2.5%
10+	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.6%	5.3%	5.2%	3.5%

Elected Officers' Class: Local – Female										
Combined Years of Service	Attained Age 20	25	30	35	40	45	50	55	60	65
0	0	0	0	0	0	0	0	0	0	0
1	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
2	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
3	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
4	18.1%	18.1%	18.1%	18.1%	18.1%	18.1%	18.1%	18.1%	18.1%	18.1%
5	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%
6	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
7	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
8	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	11.9%	11.7%	11.6%	10.2%
9	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.1%	2.8%	2.7%	1.0%
10+	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.1%	3.9%	3.8%	2.4%

Withdrawal (continued)

Elected Officers' Class: Leg-Atty-Cab – Male										
Combined Years of Service	Attained Age 20	25	30	35	40	45	50	55	60	65
0	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%	4.2%
1	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%
2	11.7%	11.7%	11.7%	11.7%	11.7%	11.7%	11.7%	11.7%	11.7%	11.7%
3	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
4	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
5	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
6	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%	10.6%
7	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
8	20.2%	20.2%	20.2%	20.2%	20.2%	20.8%	20.0%	18.7%	18.4%	16.7%
9	6.6%	6.6%	6.6%	6.6%	6.6%	7.2%	6.4%	5.2%	4.9%	3.1%
10+	6.7%	6.7%	6.7%	6.7%	6.7%	7.1%	6.6%	5.7%	5.5%	4.2%

Elected Officers' Class: Leg-Atty-Cab – Female										
Combined Years of Service	Attained Age 20	25	30	35	40	45	50	55	60	65
0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%
2	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%	15.9%
3	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
4	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%	16.3%
5	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
6	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
7	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
8	17.8%	17.8%	17.8%	17.8%	17.8%	18.4%	17.6%	16.3%	16.0%	14.3%
9	3.5%	3.5%	3.5%	3.5%	3.5%	4.1%	3.3%	2.1%	1.8%	0.0%
10+	10.8%	10.8%	10.8%	10.8%	10.8%	11.4%	10.6%	9.4%	9.1%	7.3%

Withdrawal (continued)

Elected Officers' Class: Judicial – Male										
Combined Years of Service	Attained Age 20	25	30	35	40	45	50	55	60	65
0	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
1	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
2	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
3	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
4	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
5	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
6	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
7	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
8	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
9	1.3%	1.3%	1.3%	1.2%	1.2%	1.2%	1.1%	0.8%	0.7%	0.5%
10+	2.0%	2.0%	2.0%	1.9%	1.9%	1.9%	1.7%	1.3%	1.1%	0.7%

Elected Officers' Class: Judicial – Female										
Combined Years of Service	Attained Age 20	25	30	35	40	45	50	55	60	65
0	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
1	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
2	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
3	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
4	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%
5	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
6	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
7	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
8	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
9	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.4%	1.1%	1.0%	0.8%
10+	2.9%	2.9%	2.9%	2.7%	2.7%	2.7%	2.4%	2.0%	1.8%	1.4%

Withdrawal (continued)

Senior Management – Male										
Combined Years of Service	Attained Age 20	25	30	35	40	45	50	55	60	65
0	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%
1	21.0%	17.5%	15.5%	14.6%	14.1%	14.1%	14.1%	14.1%	14.1%	14.1%
2	21.0%	17.5%	15.5%	14.6%	14.1%	14.1%	14.1%	14.1%	14.1%	14.1%
3	19.5%	18.5%	17.7%	17.1%	16.7%	16.4%	16.2%	16.0%	16.0%	16.0%
4	15.5%	14.9%	14.5%	13.6%	12.9%	12.6%	12.4%	12.3%	12.2%	12.2%
5	10.9%	10.5%	10.0%	9.7%	9.3%	8.6%	8.2%	8.1%	8.0%	8.0%
6	10.6%	10.3%	9.8%	9.3%	9.0%	8.7%	8.4%	8.3%	8.1%	8.1%
7	10.5%	10.2%	9.7%	9.2%	8.8%	8.5%	8.3%	8.1%	8.0%	8.0%
8	9.6%	9.5%	9.1%	8.8%	8.5%	8.3%	8.1%	8.0%	7.9%	7.8%
9	6.6%	6.6%	6.3%	6.1%	5.9%	5.7%	5.6%	5.4%	5.3%	5.3%
10+	4.8%	4.8%	4.1%	3.6%	3.2%	2.9%	3.0%	3.1%	3.5%	2.6%

Senior Management – Female										
Combined Years of Service	Attained Age 20	25	30	35	40	45	50	55	60	65
0	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%
1	15.5%	13.0%	11.8%	11.1%	10.8%	10.8%	10.8%	10.8%	10.8%	10.8%
2	18.3%	16.0%	14.7%	13.8%	13.4%	13.2%	13.2%	13.2%	13.2%	13.2%
3	17.1%	16.2%	15.5%	15.0%	14.6%	14.3%	14.1%	14.0%	14.0%	14.0%
4	12.1%	11.3%	10.5%	9.9%	9.4%	9.0%	8.7%	8.6%	8.5%	8.5%
5	12.1%	11.3%	10.5%	9.9%	9.4%	9.0%	8.7%	8.6%	8.5%	8.5%
6	10.9%	10.6%	10.1%	9.7%	9.4%	9.1%	8.8%	8.7%	8.5%	8.5%
7	10.3%	10.1%	9.6%	9.2%	8.8%	8.6%	8.4%	8.2%	8.1%	8.1%
8	7.7%	7.6%	7.1%	6.8%	6.5%	6.2%	6.0%	5.9%	5.8%	5.7%
9	7.4%	7.4%	6.9%	6.5%	6.1%	5.8%	5.5%	5.3%	5.1%	5.1%
10+	4.8%	4.8%	3.9%	3.2%	2.7%	2.4%	2.1%	1.9%	1.9%	1.9%

Withdrawal (continued)

Special Risk – Male										
Combined Years of Service	Attained Age 20	25	30	35	40	45	50	55	60	65
0	21.4%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%
1	10.3%	9.8%	9.5%	8.8%	8.0%	7.3%	6.5%	5.8%	5.3%	5.3%
2	8.6%	8.1%	7.7%	7.4%	6.8%	6.0%	5.3%	4.7%	4.7%	4.7%
3	8.4%	7.9%	7.5%	7.2%	6.7%	6.0%	5.3%	4.7%	4.7%	4.7%
4	7.5%	7.0%	6.7%	6.5%	6.0%	5.5%	5.0%	4.6%	4.6%	4.6%
5	5.3%	5.3%	5.3%	5.3%	4.8%	4.3%	3.8%	3.3%	3.3%	3.3%
6	5.2%	5.2%	5.2%	5.1%	4.6%	4.1%	3.6%	3.2%	3.2%	3.2%
7	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
8	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%
9	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%	2.6%
10+	2.3%	2.3%	2.1%	2.0%	1.9%	1.8%	1.8%	1.8%	1.8%	1.8%

Special Risk – Female										
Combined Years of Service	Attained Age 20	25	30	35	40	45	50	55	60	65
0	21.3%	21.3%	21.3%	21.3%	21.3%	21.3%	21.3%	21.3%	21.3%	21.3%
1	15.5%	14.2%	13.2%	12.2%	11.2%	10.2%	9.2%	8.4%	8.4%	8.4%
2	12.3%	11.6%	10.6%	9.6%	8.6%	7.6%	6.6%	5.8%	5.8%	5.8%
3	10.3%	9.8%	9.3%	8.8%	8.3%	7.6%	6.6%	5.6%	5.6%	5.6%
4	9.7%	9.2%	8.7%	8.4%	7.6%	7.0%	6.4%	5.4%	5.4%	5.4%
5	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	6.1%	5.3%	5.3%	5.3%
6	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.9%	5.1%	5.1%	5.1%
7	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
8	4.2%	4.2%	4.2%	4.2%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%
9	4.2%	4.2%	4.2%	4.1%	4.1%	4.1%	4.0%	4.0%	4.0%	4.0%
10+	1.9%	1.9%	1.7%	1.5%	2.5%	2.5%	1.6%	4.0%	4.0%	4.0%

Withdrawal (continued)

Special Risk Administrative – Male										
Combined Years of Service	Attained Age 20	25	30	35	40	45	50	55	60	65
0	14.6%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%	13.9%
1	11.3%	10.8%	10.3%	9.9%	9.7%	9.5%	9.4%	9.4%	9.4%	9.4%
2	10.4%	9.7%	9.3%	8.9%	8.7%	8.5%	8.4%	8.4%	8.4%	8.4%
3	9.7%	9.1%	8.7%	8.3%	7.9%	7.8%	7.7%	7.6%	7.6%	7.6%
4	8.8%	8.3%	8.0%	7.8%	7.6%	7.4%	7.4%	7.4%	7.4%	7.4%
5	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
6	4.4%	4.4%	4.4%	4.2%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
7	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%	3.8%
8	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
9	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%	3.3%
10+	3.9%	3.9%	3.6%	3.4%	3.2%	3.3%	3.6%	7.5%	7.5%	7.5%

Special Risk Administrative – Female										
Combined Years of Service	Attained Age 20	25	30	35	40	45	50	55	60	65
0	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%	22.5%
1	19.4%	18.0%	17.1%	16.5%	16.1%	15.9%	15.7%	15.7%	15.7%	15.7%
2	17.5%	16.9%	16.5%	16.2%	15.9%	15.8%	15.7%	15.7%	15.7%	15.7%
3	20.3%	19.8%	19.3%	19.0%	18.7%	18.6%	18.4%	18.4%	18.4%	18.4%
4	20.8%	20.2%	19.8%	19.4%	19.0%	18.8%	18.7%	18.7%	18.7%	18.7%
5	18.8%	18.8%	18.8%	18.8%	18.8%	18.8%	18.8%	18.8%	18.8%	18.8%
6	18.7%	18.7%	18.7%	18.7%	18.7%	18.7%	18.7%	18.7%	18.7%	18.7%
7	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%	17.9%
8	17.8%	17.8%	17.7%	17.7%	17.7%	17.6%	17.6%	17.6%	17.6%	17.6%
9	17.8%	17.8%	17.8%	17.8%	17.7%	17.7%	17.6%	17.6%	17.6%	17.6%
10+	18.4%	18.4%	18.1%	17.8%	17.6%	17.7%	18.0%	21.0%	21.0%	21.0%

Individual Member Salary Increase Assumptions

- (Based on 2.60% inflation assumption)

							-- Elected Officers' Class --							
	Regular		Special Risk		Special Risk Admin		Local		Leg-Atty-Cab		Judicial		Senior Management	
Combined Years of Service	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
0	7.80%	7.60%	7.60%	7.80%	4.60%	7.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%		
1	5.50%	5.70%	5.90%	6.50%	4.60%	7.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	6.60%	7.10%
2	5.00%	5.30%	5.60%	6.10%	4.60%	7.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	6.20%	6.40%
3	5.00%	5.10%	5.60%	6.00%	4.60%	7.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	6.20%	6.10%
4	4.90%	5.00%	5.60%	6.00%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	5.30%	5.40%
5	4.80%	4.90%	5.60%	6.00%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	5.30%	5.00%
6	4.80%	4.80%	5.60%	5.90%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	5.30%	5.00%
7	4.70%	4.80%	5.50%	5.70%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.80%	4.70%
8	4.60%	4.70%	5.50%	5.70%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.80%	4.70%
9	4.60%	4.70%	5.50%	5.70%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.80%	4.70%
10	4.60%	4.50%	5.50%	5.60%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.80%	4.70%
11	4.50%	4.50%	5.30%	5.60%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.80%	4.70%
12	4.40%	4.50%	5.30%	5.40%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.80%	4.70%
13	4.40%	4.50%	5.20%	5.40%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.80%	4.70%
14	4.40%	4.50%	5.20%	5.30%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.80%	4.30%
15	4.40%	4.40%	5.20%	5.30%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.80%	4.30%
16	4.40%	4.40%	5.00%	5.30%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.80%	4.30%
17	4.40%	4.40%	5.00%	5.30%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.30%	4.30%
18	4.30%	4.30%	5.00%	5.30%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.30%	4.30%
19	4.30%	4.30%	5.00%	5.20%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.30%	4.30%
20	4.30%	4.30%	5.00%	5.20%	4.60%	6.00%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.30%	4.30%
21	4.20%	4.30%	5.00%	5.10%	4.60%	5.30%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.30%	4.30%
22	4.20%	4.30%	5.00%	5.00%	4.60%	5.30%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.30%	4.30%
23	4.10%	4.20%	5.00%	5.00%	4.60%	5.30%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.30%	4.30%
24	4.10%	4.10%	5.10%	5.40%	4.60%	5.30%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.30%	4.30%
25	4.00%	4.00%	5.10%	5.40%	4.60%	5.30%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.30%	4.00%
26	3.90%	4.00%	5.10%	5.40%	4.60%	5.30%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.30%	4.00%
27	3.80%	4.00%	5.10%	5.40%	4.60%	5.30%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.30%	4.00%
28	3.70%	3.90%	5.10%	5.40%	4.60%	5.30%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	4.30%	4.00%
29	4.00%	4.40%	5.10%	5.40%	4.60%	5.30%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	5.20%	4.70%
30+	4.00%	4.40%	5.10%	5.40%	4.60%	5.30%	4.10%	4.10%	5.20%	4.70%	4.10%	4.10%	5.20%	4.70%

Unused Annual Leave Available at Retirement

Membership Class	Hours
Regular	230
Special Risk	290
Senior Management	290
Others Not Listed Above	230

Eligible Survivors

It is assumed that 80% of deceased active members will have survivors eligible for lifetime benefits upon their death. Males are assumed to be three years older than their female spouses.

Commencement of Survivor Benefits

It is assumed that survivors of deceased active members will defer commencement of benefits until the following:

Membership Class / Tier	Member Age
Special Risk / Tier 1	45
Special Risk / Tier 2	50
Other classes/ Tier 1 and 2	55

Military Service and Out-of-State Service Credits

Active members are assumed to have purchased the following additional years of service credit.

Type of Service Credit	Special Risk Class		All other classes	
	Men	Women	Men	Women
Military Service Credit [1]	0.2818	0	0.1853	0
Out-of-State Service Credit [2]	0	0	0.0910	0.0910

[1] Pre-1987 hires only; service is eligible for the COLA.
[2] Service for pre-July 1, 2011 enrollees is eligible for the COLA; assumption applies to both tiers.

No extra service credit was assumed for TRS and IFAS participants.

Changes to the Actuarial Assumptions

The 2014 Experience Study was the most recent experience study review and informs most assumptions used in this valuation. For this valuation, the 2016 FRS Actuarial Assumptions Conference adopted new assumptions for investment return and for mortality during FRS-covered employment.

Appendix B: Summary of Plan Provisions

All actuarial calculations are based upon our understanding of Florida Statutes regarding the benefit and eligibility provisions of the retirement systems. These provisions are briefly summarized below for reference purposes, along with corresponding references to the Statutes. This summary encompasses the major provisions; it does not attempt to cover all of the detailed provisions.

Part I: Florida Retirement System (FRS)

The benefit, eligibility, and contribution provisions of the FRS are set forth in Chapter 121 of the Florida Statutes. Provisions relating to other State-administered retirement systems are set forth in other sections of the Florida Statutes, under Chapters 112, 122, and 238.

Effective Date

The effective date of the FRS was December 1, 1970. The FRS was created with closure and consolidation of the Teachers' Retirement System, the State and County Officers and Employees' Retirement System, and the Highway Patrol Pension Fund. In 1972, the Judicial Retirement System was also consolidated with the FRS. The FRS was created to provide a defined benefit retirement, disability, and survivor program for participating public employees. Social Security coverage is also required for all members.

Beginning in 2002, the FRS became one system with two primary programs, the existing defined benefit FRS Pension Plan and a defined contribution plan alternative known as the FRS Investment Plan (IP). The earliest that any member could participate in the IP was July 1, 2002.

As of July 1, 2007, the Institute for Food and Agricultural Sciences Supplemental Retirement Program was consolidated under the FRS as a closed group.

(Section 121.011(2))

Membership

Membership is a condition of employment for all new state, county, or other participating agency employees filling regularly established positions and employed on or after December 1, 1970, or who elected to transfer from an existing system. Employees may be full-time or part-time and can be elected, appointed, or employed in state government, county government, a state university, or a community college. A city or special district may join the FRS at its option.

Effective July 1, 1978, a member in an existing retirement system who is re-employed after termination of employment may remain in that system, provided his or her member contributions have not been withdrawn.

Members of the FRS Pension Plan when the FRS Investment Plan was created were provided an educational period about their plan choice options prior to a 90-day election period to elect between the FRS Pension Plan and the FRS Investment Plan (IP). Members newly hired after the IP became effective are provided five months after their month of hire to file an election between the two primary programs. Members who do not make an election default into the FRS Pension Plan.

After the initial active or default election to participate in the FRS Pension Plan or the FRS Investment Plan, the employee has one opportunity, at the employee's discretion before termination or retirement, to choose to move from the FRS Pension Plan to the FRS Pension Plan or vice versa.

(Sections 121.051, 121.4501)

Classification

There are five separate classes of members: Regular Class, Special Risk Class, Special Risk Administrative Support Class, Elected Officers' Class, and Senior Management Service Class. In addition, the Deferred Retirement Option Program (DROP) is available to FRS Pension Plan members who meet the requirements for normal retirement under the FRS Pension Plan.

Regular Class – members who are not classified as members of the Special Risk Class, Special Risk Administrative Support Class, Elected Officers' Class, or Senior Management Service Class.

Special Risk Class – members employed as law enforcement officers, emergency medical technicians, paramedics, firefighters, firefighter trainers, fire prevention inspectors, correctional officers, correctional probation officers, certain professional health care positions within the Department of Children and Family Services and the Department of Corrections, or certain forensic positions within a law enforcement agency, or a medical examiner's office who meet the criteria set forth in the Florida Retirement System law and administrative rules.

Special Risk Administrative Support Class – former Special Risk Class members employed as law enforcement officers, firefighters, correctional officers, or emergency medical technicians who have been moved or been re-assigned to non-Special Risk administrative support positions within a Florida Retirement System Special Risk employing agency.

Elected Officers' Class – members include the Governor, Lieutenant Governor, cabinet officers, legislators, Supreme Court justices, district court of appeals judges, circuit judges, county court judges, state attorneys, public defenders, and elected county officers. Also included are city and special district officers if the employer chose to place their elected officials in this class. All such elected officers may withdraw from the Florida Retirement System, elect membership in the Senior Management Service Class or, if state officers, elect membership in the Senior Management Service Optional Annuity Program.

Senior Management Service Class – members who hold positions in the Senior Management Service of the State of Florida; community college presidents; appointed school board superintendents; county and city managers; selected managerial staff of the Legislature; the Auditor General and managerial staff; the Executive Director of the Ethics Commission; the State University System Executive Service and university presidents; selected managerial staff of the State Board of Administration; judges of compensation claims; selected managerial staff with the Judicial Branch; Chief Deputy Court Administrator; capital collateral regional counsels and assistant capital collateral regional counsels; assistant state attorneys; assistant public defenders; assistant statewide prosecutors or assistant attorneys general; and non-elective managerial positions designated for SMSC membership by local government agencies. Members in this class have either chosen not to participate or are not eligible to participate in the elective Senior Management Service Optional Annuity Program for state senior managers or to withdraw from the FRS if employed by non-state employers. This class became effective February 1, 1987, and members of an existing retirement system and members of the Special Risk or Special Risk Administrative Support Classes who were employed prior to February 1, 1987, could elect to remain in such system or class.

Deferred Retirement Option Program (DROP) – allows members of the FRS Pension Plan in any of the above five classes to elect to retire and have their FRS benefits accumulate in the FRS Trust Fund, earning interest, while the member continues to work for an FRS employer. DROP membership is for a specific and limited period.

(Sections 121.021(12), 121.0515, 121.052, 121.055, 121.091 (13))

Contributions

From January 1, 1975, for the state and for school boards, and from October 1, 1975, for other agencies, through June 30, 2011, the total cost of the System was paid by the participating employers.

Beginning July 1, 2011, all FRS Pension Plan and FRS Investment Plan members, except those FRS Pension Plan members participating in DROP, are required to pay member contributions equal to 3% of compensation. TRS members already pay required employee contributions. Member contributions do not accrue interest except for TRS members.

(Section 121.071 (2))

The employer contribution rates enacted for the July 1, 2016 – June 30, 2017 plan year are as follows:

		Special	Special Risk	Elected Officers Class			Senior	
	Regular	Risk	Administrative	Judicial	Leg-Atty-Cab	Local	Management	DROP
Defined Benefit Plan								
- Normal Cost Rate	2.84%	11.55%	3.19%	11.75%	6.58%	8.47%	4.18%	4.23%
- UAL Rate	3.37	10.69	32.30	25.42	44.61	44.52	21.00	7.10
- Total DB Rate	6.21	22.24	35.49	37.17	51.19	52.99	25.18	11.33
Investment Plan								
- Employer Rate	3.55%	13.15%	5.40%	10.96%	6.79%	8.75%	4.93%	n/a
- UAL Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	n/a
- Total IP Rate	3.55	13.15	5.40	10.96	6.79	8.75	4.93	n/a
Blended Uniform Contribution Rates								
- Normal Cost Rate	2.97%	11.80%	3.87%	11.68%	6.63%	8.55%	4.38%	4.23%
- UAL Rate	2.83	9.05	22.47	23.30	33.75	32.20	15.67	7.10
- Total Rate	5.80	20.85	26.34	34.98	40.38	40.75	20.05	11.33

The above rates exclude the 0.04% administrative charge for Investment Plan administration and education (except DROP), and the 1.66% for the financing of the Florida Health Insurance Subsidy program.

(Section 121.71)

Compensation

“Compensation” means the monthly salary paid a member by his or her employer for work performed arising from that employment.

(a) Compensation shall include:

1. Overtime payments paid from a salary fund.
2. Accumulated annual leave payments.
3. Payments in addition to the employee’s base rate of pay if all the following apply:
   a. The payments are paid according to a formal written policy that applies to all eligible employees equally;
   b. The policy provides that payments shall commence no later than the 11th year of employment;
   c. The payments are paid for as long as the employee continues his or her employment; and
   d. The payments are paid at least annually.

4. Amounts withheld for tax sheltered annuities or deferred compensation programs, or any other type of salary reduction plan authorized under the Internal Revenue Code.
5. Payments made in lieu of a permanent increase in the base rate of pay, whether made annually or in 12 or 26 equal payments within a 12-month period, when the member's base pay is at the maximum of his or her pay range. When a portion of a member's annual increase raises his or her pay range and the excess is paid as a lump sum payment, such lump sum payment shall be compensation for retirement purposes.

(b) Compensation for a member participating in the FRS Pension Plan or the FRS Investment Plan may not include:
1. Fees paid professional persons for special or particular services or salary payments made from a faculty practice plan authorized by the Board of Governors of the State University System for eligible clinical faculty at a college in a state university that has a faculty practice plan; or
2. Any bonuses or other payments prohibited from inclusion in the member's average final compensation.

(c) For all purposes under this chapter, the member's compensation or gross compensation contributed as employee-elective salary reductions or deferrals to any salary reduction, deferred compensation, or tax-sheltered annuity program authorized under the Internal Revenue Code shall be deemed to be the compensation or gross compensation which the member would receive if he or she were not participating in such program and shall be treated as compensation for retirement purposes under this chapter. Any public funds otherwise paid by an employer into an employee's salary reduction, deferred compensation, or tax-sheltered annuity program on or after July 1, 1990 (the date as of which all employers were notified in writing by the division to cease making contributions to the System Trust Fund based on such amounts), shall be considered a fringe benefit and shall not be treated as compensation for retirement purposes under this chapter. However, if an employer was notified in writing by the division to cease making such contributions as of a different date, that employer shall be subject to the requirements of said written notice.

(d) For any person who first becomes a member on or after July 1, 1996, compensation for any plan year shall not include any amounts in excess of the s. 401(a)(17), Internal Revenue Code limitation (as amended by the Omnibus Budget Reconciliation Act of 1993), which limitation of $150,000 effective July 1, 1996, shall be adjusted as required by federal law for qualified government plans and shall be further adjusted for changes in the cost of living in the manner provided by s. 401(a)(17)(B), Internal Revenue Code. For any person who first became a member prior to July 1, 1996, compensation for all plan years beginning on or after July 1, 1990, shall not include any amounts in excess of the compensation limitation (originally $200,000) established by s. 401(a)(17), Internal Revenue Code prior to the Omnibus Budget Reconciliation Act of 1993, which limitation shall be adjusted for changes in the cost of living since 1989, in the manner provided by s. 401(a)(17) of the Internal Revenue Code of 1991. This limitation, which has been part of the Florida Retirement System since plan years beginning on or after July 1, 1990, shall be adjusted as required by federal law for qualified government plans.

"Annual compensation" means the total compensation paid a member during a year. A "year" is 12 continuous months.

(Section 121.021(22) and (23))

FRS Pension Plan

Normal Retirement Benefit

Eligibility – Members initially enrolled before July 1, 2011 (Tier I)

- Regular Class
  1. 30 years of creditable service at any age.
  2. Age 62 and 6 or more years of creditable service.

  (Section 121.021(29)(a)(1))
- Special Risk Class
  1. 25 years of special risk service at any age; or
  2. Age 55 and 6 or more years of special risk service; or
  3. Age 52 and 25 years of creditable service, including special risk service and up to a maximum of four years of active duty wartime military service credit.
  4. 30 years of any creditable service, at any age, or age 62 and 6 or more years of creditable service (same requirement as the Regular Class).

  (Section 121.021(29)(b)(1))
- Special Risk Administrative Support Class

  (with six or more years of Special Risk Class service, the same requirements as apply to the Special Risk Class, otherwise same as apply to the Regular Class)

  (Sections 121.0515(8) and 121.021(29)(b)(1))
- Elected Officers' Class

  (same requirements as apply to Regular Class)

  (Section 121.021(29)(a)(1))
- Senior Management Service Class

  (same requirements as apply to Regular Class)

  (Section 121.021(29)(a)(1))

Eligibility – Members initially enrolled on and after July 1, 2011 (Tier II)

- Regular Class
  1. 33 years of creditable service at any age.
  2. Age 65 and 8 or more years of creditable service.

  (Section 121.021(29)(a)(2))
- Special Risk Class
  1. 30 years of special risk service at any age; or
  2. Age 60 and 8 or more years of special risk service; or
  3. 33 years of any creditable service, at any age, or age 65 and 8 or more years of creditable service (same requirement as the Regular Class).

  (Section 121.021(29)(b)(2))

- Special Risk Administrative Support Class

  (with eight or more years of Special Risk Class service, the same requirements as apply to the Special Risk Class, otherwise same as apply to the Regular Class)

  (Sections 121.0515(8) and 121.021(29)(b)(2))

- Elected Officers' Class

(same requirements as apply to Regular Class)

(Section 121.021(29)(a)(2))

- Senior Management Service Class

(same requirements as apply to Regular Class)

(Section 121.021(29)(a)(2))

Normal Form

Straight life benefit (Option 1), payable on the last state working day of each month, with a guarantee that benefits paid will at least equal member contributions.

(Section 121.091(1))

Optional Forms

10-year certain and life benefit (Option 2), 100% joint and contingent benefit (Option 3), or 66-2/3% joint and survivor benefit (Option 4). If the joint annuitant is the member's non-disabled child, payment ceases upon attainment of the joint annuitant's 25th birthday under the 100% and 66- 2/3% joint and survivor benefit.

(Section 121.091(6))

Dual Retirement

In the event a member accumulates retirement benefits to commence at different normal retirement ages by virtue of having performed duties for an employer which would entitle him or her to benefits as both a Special Risk Class member and a member of another class, the amount of the benefits payable shall be computed separately with respect to each such age, and the sum of such computed amounts shall be paid. Note that this does not apply to a Special Risk Administrative Support Class member with at least 6 years of Special Risk Class Membership (8 years for members enrolled on or after July 1, 2011) when the Special Risk and Special Risk Administrative Support Classes are the only memberships held because such a member is treated as a Special Risk Class member.

(Section 121.091(2))

Regular Benefit Amount

The monthly FRS Pension Plan allowance is the product of:

1. Average final compensation
   a. For members initially enrolled before July 1, 2011, the average of the highest five plan years of creditable service;
   b. For members initially enrolled on or after July 1, 2011, the average of the highest eight plan years of creditable service;
2. Creditable service during the applicable period; and
3. The appropriate benefit percentage for periods of service.

All benefits are limited to 100% of average final compensation.

(Sections 121.021(17), (24) and (25), 121.091(1))

The appropriate benefit percentages are as follows:

- For Members initially enrolled before July 1, 2011, for Creditable Service as a Regular Class member Subsequent to November 30, 1970:

Retirement at:	Percentage
Age 62 with 6 years of creditable service, or 30 years of creditable service	1.60%
Age 63 with 6 years of creditable service, or 31 years of creditable service	1.63
Age 64 with 6 years of creditable service, or 32 years of creditable service	1.65
Age 65 with 6 years of creditable service, or 33 years of creditable service	1.68

- For Members initially enrolled on or after July 1, 2011, for Creditable Service as a Regular Class member Subsequent to November 30, 1970:

Retirement at:	Percentage
Age 65 with 8 years of creditable service, or 33 years of creditable service	1.60%
Age 66 with 8 years of creditable service, or 34 years of creditable service	1.63
Age 67 with 8 years of creditable service, or 35 years of creditable service	1.65
Age 68 with 8 years of creditable service, or 36 years of creditable service	1.68

(Section 121.091(1))

Service as a Special Risk Class member:

Retirement on or After July 1, 2001 with Service Performed During:	Percentage
December 1, 1970 to September 30, 1974	2.00%
October 1, 1974 and thereafter	3.00

(Section 121.091(1))

- For Members initially enrolled before July 1, 2011, for Creditable Service as a Special Risk Administrative Support Class member Subsequent to November 30, 1970:

Retirement at:	Percentage
Age 55 with 6 years of creditable special risk service, or age 52 with 25 years of creditable service, which may include up to four years of active duty wartime military service, or 25 years of creditable special risk service	1.60%
Age 56 with 6 years of creditable special risk service, or age 53 with 26 years of creditable service, which may include up to four years of active duty wartime military service, or 26 years of creditable special risk service	1.63
Age 57 with 6 years of creditable special risk service, or age 54 with 27 years of creditable service, which may include up to four years of active duty wartime military service, or 27 years of creditable special risk service	1.65
Age 58 with 6 years of creditable special risk service, or age 55 with 28 years of creditable service, which may include up to four years of active duty wartime military service, or 28 years of creditable special risk service	1.68

- For Members initially enrolled on or after July 1, 2011, for Creditable Service as a Special Risk Administrative Support Class member Subsequent to November 30, 1970:

Retirement at:	Percentage
Age 60 with 8 years of creditable special risk service, or age 57 with 30 years of creditable service, which may include up to four years of active duty wartime military service, or 30 years of creditable special risk service	1.60%
Age 61 with 8 years of creditable special risk service, or age 58 with 31 years of creditable service, which may include up to four years of active duty wartime military service, or 31 years of creditable special risk service	1.63
Age 62 with 8 years of creditable special risk service, or age 59 with 32 years of creditable service, which may include up to four years of active duty wartime military service, or 32 years of creditable special risk service	1.65

Age 63 with 8 years of creditable special risk service, or age 60 with 33 years of creditable service, which may include up to four years of active duty wartime military service, or 33 years of creditable special risk service	1.68

(Section 121.0515(8) and 121.091(1))

- For Service as an Elected Officers' Class member:
  3% for each year of creditable service in such class, except 3-1/3% for service in the judicial class. Military service credit is at the rate for Regular Class members.
  (Sections 121.052(5)(a) and (d), 121.091(1))
- For Service as a Senior Management Service Class member:
  2% for each year of creditable service in such class, after January 31, 1987.
  (Section 121.055(4)(d))

Early Retirement

Eligibility

For members initially enrolled before July 1, 2011, six years of creditable service for all classes of membership.

For members initially enrolled on or after July 1, 2011, eight years of creditable service for all classes of membership.

(Section 121.021(30))

Benefit Amount

The normal retirement benefit accrued to the date of early retirement, reduced by 5/12% for each month that the early retirement date precedes the normal retirement date based upon age. The normal retirement date is as follows:

1. Special Risk Class members:
   a. Initially enrolled before July 1, 2011: Age 55
   b. Initially enrolled on or after July 1, 2011: Age 60
2. Members in all other Classes
   a. Initially enrolled before July 1, 2011: Age 62
   b. Initially enrolled on or after July 1, 2011: Age 65

(Sections 121.021(30), 121.091(3))

Non-Duty Disability Retirement

Eligibility

Members are eligible if totally and permanently disabled after completing at least 8 years of creditable service (or after 6 years if disability retirement is ordered for a judge by the Supreme Court).

Benefit Amount

Same as for normal retirement, but based on average final compensation and creditable service to the date of disability retirement.

Minimum Benefit Amount

25% of average final compensation.

If the Supreme Court orders disability retirement for a judge, the minimum is two-thirds of compensation at disability. This benefit for a defined benefit plan member is not paid from the FRS Trust Fund. This benefit for an Investment Plan member is paid from the FRS Trust Fund after the member's IP account balance is transferred to the FRS Trust Fund.

(Section 121.091(4))

Line-of-Duty Disability

Eligibility

Members are eligible if totally and permanently disabled during the actual performance of duty. There is no service credit requirement.

Benefit Amount

Same as for normal retirement, but based on average final compensation and creditable service to the date of disability retirement.

Minimum Benefit Amount

42% of average final compensation, except for the Special Risk and the Special Risk Administrative Support classes whose members are entitled to 65% of average final compensation.

If the Supreme Court orders disability retirement for a judge, the minimum is two-thirds of compensation at disability. This benefit for a defined benefit plan member is not paid from the FRS Trust Fund.

(Section 121.091(4))

Post-Retirement Death Benefits

Based on the optional form elected.

Non-Duty Pre-Retirement Death Benefits

Eligibility

Employment is terminated by death after vested for all classes of membership.

Benefit Amount

The normal or early retirement benefit amount for which the member would have been eligible had the member retired on his or her date of death and elected the 100% joint and survivor (Option 3) form of payment in favor of his or her beneficiary who is the surviving spouse or other eligible dependent. The monthly benefit is normally payable to the member's beneficiary for the beneficiary's lifetime. If the beneficiary is the member's non-disabled child, payment ceases upon attainment of the beneficiary's 25th birthday.

If the member is more than 10 years away from normal retirement age, the reduction is 5% for each year the member would be younger than the normal retirement age at retirement. There are exceptions if within 10 years of normal retirement:

1. For members initially enrolled before July 1, 2011, who were within 10 years of normal retirement eligibility, the reduction for early retirement is applied from the earlier of age 62 (age 55 for Special Risk Class and Special Risk Administrative Support Class members) or the date on which the member would have completed 30 years of creditable service, had he or she continued employment.
2. For members initially enrolled on or after July 1, 2011, who were within 10 years of normal retirement eligibility, the reduction for early retirement is applied from the earlier of age 65 (age 60 for Special Risk Class and Special Risk Administrative Support Class members) or the date on which the member would have completed 33 years of creditable service, had he or she continued employment. The value of this benefit may not be less than the member's accumulated contributions, if any.

(Sections 121.091(3) and (7))

Line-of-Duty Pre-Retirement Death Benefits

Eligibility

Member died during the actual performance of duty. There is no service credit requirement.

Benefit Amount

The surviving spouse will receive one-half of the member's monthly compensation at death. If the spouse dies, or if there is no surviving spouse, the monthly benefits continue until the youngest child is 18.

Effective July 1, 2016, an additional benefit equal to one-half the member's monthly compensation at death is payable to the surviving dependent(s) of Special Risk Class members killed in the line of duty on or after July 1, 2013. For such Special Risk Class members, surviving child payments may be extended to age 25 if the child is unmarried and enrolled as a full-time student.

A surviving spouse may elect to receive a non-duty death benefit in lieu of the duty death benefit.

(Section 121.091(7))

Vesting

Eligibility

For members initially enrolled before July 1, 2011, six years of creditable service for all classes of membership. For members initially enrolled on or after July 1, 2011, eight years of creditable service for all membership classes.

Benefit Amount

The normal or early retirement benefit amount based on average final compensation and creditable service to the date of termination.

(Sections 121.021(45), 121.091(5))

DROP – Deferred Retirement Option Program

Eligibility

Except as allowed by statute, notably for K-12 instructional personnel[1], members have a limited eligibility window during which they can elect to enter the DROP. A member initially becomes eligible to enter DROP in the same month he or she first becomes eligible to file for unreduced immediate retirement benefits. Eligibility windows differ by tier and membership class, and are initially reached via satisfying either service-only criteria or age-plus-service criteria.

For most members achieving DROP entry eligibility via service-only criteria, the window to enter DROP lasts more than 12 months, with the window's length varying by individual. (The window must be at least 12 months in length.) The window for members satisfying service-only eligibility criteria is shown in the table below.

DROP Entry Eligibility Window for Members Satisfying Service-Only Criteria

Membership Class	Tier	Window Opens	Window Closes
Special Risk	Tier I	25 Years of Service	53rd Birthday*
Special Risk	Tier II	30 Years of Service	56th Birthday*
All Other Classes	Tier I	30 Years of Service	58th Birthday*
All Other Classes	Tier II	33 Years of Service	61st Birthday*

*Or 12 months after the window opens, if later than the date listed above for the member

Members who do not reach unreduced retirement eligibility through service-only eligibility criteria become eligible to enter DROP upon satisfaction of age-plus-service criteria. For those members, the eligibility window to enter DROP lasts for 12 months.

DROP Entry Eligibility Window for Members Satisfying Age-Plus-Service Criteria

Membership Class	Tier	Window Opens	Window Closes
Special Risk	Tier I	Age 55 and 6 Years of Service	After 12 months
Special Risk	Tier II	Age 60 and 8 Years of Service	After 12 months
All Other Classes	Tier I	Age 62 and 6 Years of Service	After 12 months
All Other Classes	Tier II	Age 65 and 8 Years of Service	After 12 months

The maximum length of DROP participation is five years. As such, members who satisfy service-only criteria and enter DROP prior to age 60 are required to exit DROP and terminate FRS-covered employment prior to becoming eligible for Medicare benefits at age 65.

Benefit Amount

Effective July 1, 1998, eligible members can retire without terminating their employment during DROP participation. Monthly retirement benefits will be invested in the FRS Trust Fund, earning tax-deferred interest while the member continues to work for a maximum of 60 months. The interest credit for those entering the DROP prior to July 1, 2011, is 6.5% annually. For those entering the DROP after that date, it is 1.3% annually. Upon completion of the maximum five-year period, DROP participation ends and participants must terminate employment with all FRS employers. At that time, the participant will receive payment of the accumulated DROP benefits, and begin receiving his FRS monthly retirement benefit (in the same amount as determined at retirement, plus annual cost-of-living increases).

[1] *Instructional personnel in grades K-12 may defer DROP participation to any age.*

Effective July 1, 2003, participants employed in eligible instructional positions with a district school board, the Florida School for the Deaf and Blind, or a developmental research school can extend their participation beyond their initial 60-month period, for up to an additional 36 months. The employer must approve the request for DROP extension as well as the period of extension granted to an eligible DROP participant, if any, within the 36-month limit.

Disabled While in DROP

Participants that became disabled while participating in DROP will continue to accumulate the same monthly benefit in the FRS Trust Fund until termination. Since the normal retirement benefit commenced upon DROP participation, a disability benefit will not be issued.

Death While in DROP

The designated beneficiary of a participant who dies while participating in DROP will receive all accumulated DROP benefits, and a continuing monthly benefit, if the participant had elected Option 2, 3, or 4. Survivors of DROP participants are not eligible for FRS line-of-duty death benefits.

(Section 121.091 (13))

Return of Employee Contributions

A member who terminates employment but is not eligible to retire, receive a vested retirement allowance, or receive a disability pension will be entitled to a refund of any employee contributions. The beneficiary of a member who passes away before satisfying the requirement for a pre-retirement death benefit will be entitled to a refund of any employee contributions made by the member. No interest is credited on employee contribution accounts.

A vested terminated participant may elect to receive a return of employee contributions in lieu of a retirement benefit.

(Sections 121.071(2)(b), 121.091(7)(a), Sections 121.091(5)(a) and (c))

Cost-of-Living Adjustment

Senate Bill 2100 (2011) eliminated post-retirement benefit increases on benefits earned on and after July 1, 2011. FRS Pension Plan benefits earned before July 1, 2011 will receive post-retirement benefit increases of 3% per year. Tier II members (those initially enrolled on and after July 1, 2011) will receive no post-retirement benefit increases. Tier I members (those initially enrolled before July 1, 2011) will receive post-retirement benefit increases equal to 3% per year multiplied by a fraction, the numerator of which is service through June 30, 2011 and the denominator of which is total service at retirement. Cost-of-Living Adjustments take effect annually on July 1. A pro-rated rate may apply in the initial year of applicability.

(Section 121.101)

Additional Benefit Amount

In addition, members may receive an additional retirement allowance under the pre-1971 existing systems. The benefit is a percentage of average final compensation times the creditable service in that system up to November 30, 1970. The system percentages are:

State and County Officers and Employees' Retirement System:

2.00% for creditable service rendered under Division A prior to Social Security coverage; and 1.50% for creditable service rendered under Division B subsequent to Social Security coverage.

Teachers Retirement System:

Plan E: 2.00%

(Sections 121.091(1)(c), 122.28, 238.07(7)(a))

Minimum Benefit

Eligibility

The month following attainment of age 65 by a pensioner or, in the case of a beneficiary receiving the survivor's portion of a member's benefit, the 65th anniversary of the deceased member's birth. The member must have earned at least 10 years of creditable service and retired under normal retirement.

Benefit Amount

An eligible benefit recipient will receive a benefit adjustment to bring the benefit to the calculated minimum benefit. Effective July 1, 2016, the minimum monthly benefit is $30.43 multiplied by years of creditable service prior to application of the reduction factor for electing an optional form of payment. For retirements on or after July 1, 1987, creditable service for the minimum benefit calculation does not include any service earned on or after that date.

(Section 112.362)

FRS Investment Plan (IP)

The FRS Investment Plan (IP) is a defined contribution plan offered to eligible members as an alternative to the FRS Pension Plan. The plan is qualified under sec. 401(a) of the Internal Revenue Code.

Benefits

Under the IP, benefits accrue in individual member accounts funded by employer and employee contributions made on or after July 1, 2011, and earnings thereon. Benefits are provided through employee-directed investments offered by approved investment providers. Vested benefits are payable upon termination or death as a lump-sum distribution, direct rollover distribution, or periodic distribution. In addition to normal benefits and death benefits, the plan also provides disability coverage as described below.

(Sections 121.4501, 121.591)

Contributions

The employer contributions deposited in each participant's IP account are based upon allocation rates established by law for each membership class. This statutorily prescribed percentage of the participant's gross compensation for the reporting month is deducted from the total amount paid by the employer on behalf of all members in the same class of membership based on the uniform contribution rate established by law. Current IP allocation rates

are set forth in the following charts. The allocation rates shown in the first chart below do not include the 0.04% charge for FRS Investment Plan administration and education, the separate employer contribution assessed to fund the IP disability program, or the contribution of 1.66% for the financing of the Florida Health Insurance Subsidy program.

(Sections 121.71, 121.72)

Effective July 1, 2012, the employer allocations to the IP accounts are based on contribution rates as follows:

Classification	2016-2017 Plan Year Rates
Regular	3.30%
Special Risk	11.00
Special Risk Administrative Support	4.95
Elected Officers'	
- Judicial	10.23
- Leg/Atty/Cab	6.38
- Local	8.34
Senior Management Service	4.67

The employer contribution rates to fund the disability benefit under the IP are as follows:

Classification	2016-2017 Plan Year Rates
Regular	0.25%
Special Risk	1.33
Special Risk Administrative Support	0.45
Elected Officers'	
- Judicial	0.73
- Leg/Atty/Cab	0.41
- Local	0.41
Senior Management Service	0.26

(Section 121.73)

Effective July 1, 2016 the employer contribution rate to fund the line of duty death benefit for Special Risk Class members participating in the IP is as follows:

Classification	2016-2017 Plan Year Rate
Special Risk	0.82%

(Section 121.735)

Non-Duty Disability Retirement

Eligibility

Investment Plan participants who have completed at least eight years of creditable service (or six years of creditable service if disability retirement is ordered for a judge by the Supreme Court) are eligible for regular disability benefits if they become totally and permanently disabled due to injury or illness suffered while actively employed in an FRS-covered position. Upon approval for disability retirement, the IP participant may choose either to retain his/her IP account balance or to surrender his/her account balance to the FRS Pension Plan and receive guaranteed lifetime monthly disability benefits, assuming the member remains disabled.

Benefit Amount

If the disabled IP participant chooses to retain his/her account balance, he/she may elect to receive the normal benefit payable under the IP. If he/she elects to surrender the account balance and receive lifetime monthly disability benefits, the amount of each monthly payment is calculated in the same manner as provided for regular disability retirement under the FRS Pension Plan and is subject to the same threshold benefit amounts.

(Sections 121.091(4), 121.591(1) and (2))

Line-of-Duty Disability

Eligibility

IP participants are eligible for in-line-of-duty disability benefits if they become totally and permanently disabled due to injury or illness suffered during the actual performance of duty while actively employed in an FRS-covered position. There is no service credit requirement for in-line-of-duty disability benefits. Upon approval for disability retirement, the IP member may choose either to retain his/her IP account balance or to surrender his/her account balance to the FRS Pension Plan and receive guaranteed lifetime monthly disability benefits, assuming the member remains disabled.

Benefit Amount

If the disabled IP participant elects to retain his/her account balance, he/she may elect to receive the normal benefit payable under the IP. If he/she elects to surrender the account balance and receive lifetime monthly disability benefits, the amount of each monthly payment is calculated in the same manner as provided for line-of-duty disability retirement under the FRS Pension Plan, and is subject to the same threshold benefit amounts.

(Sections 121.091(4), 121.591(1) and (2))

Teachers' Retirement System (TRS)

The benefit and contribution provisions of the Statutes for this closed system are set forth in Chapter 238 of the Florida Statutes. Certain provisions are from other sections of the Florida Statutes.

Effective Date

The effective date of the Retirement System was July 1, 1939.

(Section 238.02)

Membership

All employees who were teachers in public schools, employees of professional non-profit teachers associations, county superintendents, Department of Education employees and the staff of the Teachers' Retirement System, and who were employed prior to December 1, 1970, are members of the Teachers' Retirement System. TRS retirees are included with the Regular Membership Class in the valuation.

State and County Officers and Employees' Retirement System (SCOERS)

The benefit and contribution provisions of the Statutes are set forth in Chapter 122 of the Florida Statutes. Certain provisions are drawn from other sections of the Florida Statutes. This is a closed system that no longer includes any members in the high hazard or legislative categories. Effective with the July 1, 2013 valuation, there are no longer any actively employed members of this system. SCOERS retirees are included with the Regular Membership Class in the valuation.

Effective Date

The effective date of the Retirement System was July 1, 1955.

(Section 122.01(2))

Membership

All full-time employees of the state and its counties not covered by another system who were employed prior to December 1, 1970.

Institute of Food and Agricultural Sciences Supplemental Retirement Program (IFAS)

The benefit and contribution provisions of the Statutes are set forth in Chapter 121 of the Florida Statutes. Certain provisions are drawn from other sections of the Florida Statutes. This is a closed system. IFAS retirees are included with the Regular Membership Class in the valuation.

Effective Date

The effective date of the Supplemental Retirement Program was July 1, 1985.

(Section 121.40)

Membership

Employees hired on or before July 1, 1983 who:

a. hold both state and federal appointments while employed at the Institute,

b. are not entitled to any benefit from a state-supported retirement system or Social Security based on service as an employee of the Institute, and

c. are participants in the Federal Civil Service Retirement System.

Appendix C: Membership Data

This valuation is based upon the membership of the Pension Plan as of July 1, 2016.

The membership of the FRS Pension Plan includes employees of the State of Florida and participating political subdivisions. The membership is divided into several categories by membership class and subclass.

Tables C-1 through C-5 present distributions of annuitants (including beneficiaries of deceased members), and potential annuitants (terminated vested members). Shown in the tables are the numbers of persons receiving benefits and the total annual benefits.

Table C-6 summarizes the DROP membership and provides total annual benefits.

Table C-7 presents a summary by category of active membership, payroll, and accumulated employee contributions.

Tables C-8 through C-17 contain summaries of the active members in each category of membership. Values shown in the tables are the numbers of members and their average annual salaries. Table C-17 is the grand total of active members included in this valuation.

Table C-1
Florida Retirement System Pension Plan
Annuitants at July 1, 2016
Regular and Early Retirement by Age

Age	Number of Persons	Annual Benefits (in Thousands)
Under 50	2,948	$38,206
50 to 54	5,575	156,107
55 to 59	21,188	527,422
60 to 64	54,568	1,279,347
65 to 69	96,449	2,127,590
70 to 74	79,921	1,691,984
75 to 79	51,386	1,027,944
80 & Up	66,628	1,334,641
Total	378,663	$8,183,241

Table C-2
Florida Retirement System Pension Plan
Annuitants at July 1, 2016
Disability Retirement by Age

Age	Number of Persons	Annual Benefits (in Thousands)
Under 50	681	10,575
50 to 54	1,236	20,572
55 to 59	2,290	34,772
60 to 64	3,220	49,256
65 to 69	2,851	43,583
70 to 74	1,944	29,993
75 to 79	1,007	14,813
80 & Up	690	8,776
Total	13,919	$212,340

Table C-3
Florida Retirement System Pension Plan
Potential Annuitants at July 1, 2016
Vested Terminated Members by Age for the Regular, Senior Management Service, and Elected Officers' Classes

Age	Number of Persons	Annual Benefits (in Thousands)[1]
Under 30	462	$1,134
30 to 34	3,598	14,227
35 to 39	7,880	38,884
40 to 44	11,512	61,547
45 to 49	16,049	96,465
50 to 54	21,394	132,449
55 to 59	19,449	132,637
60 & Up	22,277	120,257
Total	102,621	$597,600

[1] *Deferred to Age 62*

Table C-4
Florida Retirement System Pension Plan
Potential Annuitants at July 1, 2016
Vested Terminated Members by Age for the Special Risk & Special Risk Administrative Support Classes

Age	Number of Persons	Annual Benefits (in Thousands)[2]
Under 30	64	$498
30 to 34	425	3,971
35 to 39	663	7,199
40 to 44	1,206	13,527
45 to 49	1,546	20,216
50 to 54	1,232	16,836
55 to 59	439	5,474
60 & Up	466	5,036
Total	6,041	$72,757

[2] *Deferred to Age 55*

Table C-5
Florida Retirement System Pension Plan
Annuitants and Potential Annuitants at July 1, 2016
All Types of Retirement by System

System	Annuitants	Potential Annuitants	Total
		Number of Persons	
Regular	351,636	101,196	452,832
Senior Management Service	4,163	1,090	5,253
Special Risk	34,153	6,026	40,179
Special Risk Administrative	170	15	185
EOC: Judicial	880	45	925
EOC: Legislative/Attorneys/Cabinet	217	84	301
EOC: Local	1,363	206	1,569
Total	392,582	108,662	501,244
		Annual Benefits (in Thousands)	
Regular	$6,631,427	$572,423	$7,203,850
Senior Management Service	205,157	19,966	225,123
Special Risk	1,420,240	72,654	1,492,894
Special Risk Administrative	6,568	103	6,671
EOC: Judicial	80,013	2,113	82,126
EOC: Legislative/Attorneys/Cabinet	7,755	974	8,729
EOC: Local	44,421	2,124	46,545
Total	$8,395,581	$670,357	$9,065,938

Table C-6
Florida Retirement System Pension Plan
Annuitants at July 1, 2016
DROP Members

Age	Number of Persons	Annual Benefits (in Thousands)
Under 50	495	$32,230
50 to 54	2,608	135,316
55 to 59	6,777	249,117
60 to 64	14,226	323,176
65 to 69	7,360	141,733
70 to 74	115	1,719
75 to 79	24	286
80 & Up	4	34
Total	31,609	$883,611

Table C-7
Florida Retirement System Pension Plan
Summary of Active Members at July 1, 2016

System	Number of Persons	Annual Salary (in Thousands)[1]	Accumulated Employee Contributions (in Thousands)
Regular	447,579	$18,615,180	$2,260,707
Senior Management Service	5,695	502,866	64,619
Special Risk	59,696	3,448,698	425,630
Special Risk Administrative	50	2,304	330
EOC: Judicial	696	99,526	13,018
EOC: Legislative/Attorneys/Cabinet	111	5,941	904
EOC: Local	772	39,563	5,414
Teachers' Retirement System (TRS)	16	1,709	5,372
Institute of Food and Agricultural Sciences (IFAS)	14	1,525	0
Total	514,629	$22,717,312	$2,775,994

[1] *The salary shown in Tables C-7 through C-17 represents the salaries of the FRS DB plan members on July 1, 2016. The payroll on which normal costs are determined ($22,797,335,000) equals the salaries for these DB plan members (excluding TRS and IFAS), adjusted to the middle of the plan year. The payroll on which UAL costs are charged additionally includes the payroll of certain other groups, and is described in Section 4 of the report.*

Table C-8
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2016
Regular Class

Count

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20	922	2										924
20 to 24	13,340	135	1									13,476
25 to 29	29,072	4,981	189									34,242
30 to 34	20,957	14,991	5,774	154								41,876
35 to 39	15,574	11,494	15,930	4,506	86							47,590
40 to 44	13,439	9,822	13,126	12,746	3,415	108						52,656
45 to 49	12,923	10,316	13,126	12,955	11,488	4,127	151					65,086
50 to 54	11,014	9,569	12,778	12,564	10,510	11,552	2,997	67				71,051
55 to 59	8,132	8,121	11,808	12,530	10,264	11,356	4,333	565	7			67,116
60 to 64	3,717	5,284	7,389	7,254	6,031	6,441	1,594	565	108	4		38,387
65 & Up	1,836	2,820	3,924	2,793	1,522	1,085	516	337	239	90	13	15,175
Total Count	130,926	77,535	84,045	65,502	43,316	34,669	9,591	1,534	354	94	13	447,579

Average Salary ($)

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20	9,243	25,098										9,277
20 to 24	21,729	22,214	42,100									21,735
25 to 29	31,482	36,452	32,970									32,213
30 to 34	32,335	41,049	42,748	43,586								36,932
35 to 39	31,403	40,579	46,702	48,271	49,241							40,370
40 to 44	30,764	39,109	45,164	51,597	54,255	53,740						42,524
45 to 49	30,582	37,839	43,113	48,888	57,658	57,367	55,153					44,437
50 to 54	30,325	36,792	41,066	45,183	53,571	60,953	60,217	59,665				45,462
55 to 59	29,352	36,972	40,707	44,070	50,775	57,426	64,594	60,605	47,447			45,586
60 to 64	27,856	36,392	40,834	43,791	49,826	55,982	62,922	65,155	58,144	57,870		44,805
65 & Up	19,900	30,953	37,229	41,040	46,024	53,856	63,591	79,866	83,340	87,529	108,641	39,667
Avg. Annual Salary	29,801	38,341	42,941	46,829	53,251	58,203	62,746	66,471	74,944	86,267	108,641	41,591

Table C-9
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2016
Special Risk Class

Count

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20	34	1										35
20 to 24	3,744	5										3,749
25 to 29	6,737	1,895	38									8,670
30 to 34	3,582	3,825	2,040	22								9,469
35 to 39	1,714	2,305	3,513	1,225	13							8,770
40 to 44	963	1,578	2,647	2,803	1,164	17						9,172
45 to 49	767	1,124	1,883	2,300	2,853	784	9					9,720
50 to 54	467	784	1,131	1,147	1,685	1,039	110					6,363
55 to 59	220	443	557	390	375	295	102	6				2,388
60 to 64	48	200	286	194	160	130	35	16	3			1,072
65 & Up	5	48	90	62	38	18	15	9	3			288
Total Count	18,281	12,208	12,185	8,143	6,288	2,283	271	31	6			59,696

Average Salary ($)

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20	23,087	48,355										23,808
20 to 24	34,186	40,256										34,194
25 to 29	40,294	47,293	50,987									41,871
30 to 34	41,884	54,477	62,628	61,291								51,485
35 to 39	41,922	55,612	66,840	68,822	70,117							59,301
40 to 44	41,524	54,678	66,790	73,328	76,485	90,979						65,327
45 to 49	43,254	54,320	66,534	71,543	79,750	83,161	89,683					69,712
50 to 54	46,904	56,531	64,344	68,765	76,937	77,129	79,468					68,582
55 to 59	50,270	56,189	63,981	64,654	69,978	67,786	77,518	83,109				63,420
60 to 64	46,381	54,025	60,522	59,592	65,903	71,743	70,220	91,608	123,850			61,630
65 & Up	34,461	49,481	60,547	64,815	70,852	87,445	70,619	93,748	71,196			63,883
Avg. Annual Salary	39,967	53,748	65,470	70,663	77,383	77,871	77,389	90,584	97,523			57,771

Table C-10
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2016
Special Risk Administrative Support Class

Count

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20												
20 to 24												
25 to 29		1										1
30 to 34		3	2									5
35 to 39			2	4								6
40 to 44			1	4	5							10
45 to 49				4	5	5						14
50 to 54		2	2			3						7
55 to 59			3		1	2						6
60 to 64												
65 & Up						1						1
Total Count		6	10	12	11	11						50

Average Salary ($)

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20												
20 to 24												
25 to 29		41,132										41,132
30 to 34		35,914	36,580									36,180
35 to 39			41,539	39,088								39,905
40 to 44			30,073	47,381	52,374							48,147
45 to 49				42,539	64,032	52,069						53,619
50 to 54		38,100	36,872			55,137						45,050
55 to 59			38,690		53,000	41,791						42,109
60 to 64												
65 & Up						42,584						42,584
Avg. Annual Salary		37,512	37,612	43,003	57,730	50,175						46,084

Table C-11
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2016
Elected Officers' Class: Judicial Subclass

Count

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20												
20 to 24												
25 to 29												
30 to 34												
35 to 39	9	2	3									14
40 to 44	13	13	14	14								54
45 to 49	14	22	25	29	20							110
50 to 54	21	23	24	26	25	21	1					141
55 to 59	12	34	28	40	34	32	13	1				194
60 to 64	9	18	21	30	26	23	8	2				137
65 & Up		11	17	10	5	2	1					46
Total Count	78	123	132	149	110	78	23	3				696

Average Salary ($)

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20												
20 to 24												
25 to 29												
30 to 34												
35 to 39	144,295	120,351	128,022									137,387
40 to 44	127,666	141,500	131,928	139,505								135,171
45 to 49	146,140	142,586	143,872	141,815	143,745							143,338
50 to 54	136,709	143,703	143,720	142,586	147,392	143,783	146,080					143,141
55 to 59	145,810	144,909	141,726	144,133	143,059	143,528	142,360	138,020				143,587
60 to 64	146,976	144,742	145,717	144,845	145,881	144,915	143,485	144,328				145,226
65 & Up		143,882	144,258	144,545	141,337	138,020	138,020					143,506
Avg. Annual Salary	140,355	143,392	142,105	143,148	144,757	143,864	142,724	142,225				142,997

Table C-12
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2016
Elected Officers' Class: Legislators/Attorney/Cabinet Subclass

Count

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20												
20 to 24												
25 to 29	2											2
30 to 34	3	4										7
35 to 39	2	5	2	1								10
40 to 44	1	3	5	2								11
45 to 49	3	4	6	3	2							18
50 to 54	2	3	5	1	2	2						15
55 to 59	4	4	3	6	1	2	2					22
60 to 64	1	4	2	3	1	1						12
65 & Up	1	2	6	3	1					1		14
Total Count	19	29	29	19	7	5	2			1		111

Average Salary ($)

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20												
20 to 24												
25 to 29	29,697											29,697
30 to 34	29,697	29,697										29,697
35 to 39	29,697	29,697	29,697	29,697								29,697
40 to 44	29,697	62,789	48,728	29,697								47,372
45 to 49	29,697	29,697	50,438	112,659	35,439							51,076
50 to 54	29,697	29,697	29,697	29,697	141,556	154,140						61,204
55 to 59	29,697	29,697	29,697	87,724	154,140	154,140	154,140					73,805
60 to 64	29,697	60,808	29,697	71,178	29,697	154,140						60,808
65 & Up	29,697	29,697	29,697	71,178	29,697					154,140		47,475
Avg. Annual Salary	29,697	37,411	37,269	74,220	81,075	154,140	154,140			154,140		53,521

Table C-13
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2016
Elected Officers' Class: Local Subclass

Count

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20												
20 to 24	1											1
25 to 29												
30 to 34	8	5	2									15
35 to 39	12	7	9	1								29
40 to 44	13	21	5	11	4							54
45 to 49	31	26	10	9	9	9	1					95
50 to 54	24	21	16	19	5	15	10	1				111
55 to 59	21	35	29	21	14	16	3	3				142
60 to 64	14	32	26	26	20	10	9	4				141
65 & Up	18	61	29	38	15	16	4	2	1			184
Total Count	142	208	126	125	67	66	27	10	1			772

Average Salary ($)

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20												
20 to 24	8,777											8,777
25 to 29												
30 to 34	39,905	19,497	52,085									34,726
35 to 39	25,607	45,449	59,039	37,461								41,180
40 to 44	40,571	55,908	73,279	36,041	68,388							50,702
45 to 49	30,229	47,468	54,535	48,027	58,204	93,984	136,840					49,004
50 to 54	34,075	49,365	60,803	59,067	63,969	91,554	112,398	96,831				61,834
55 to 59	33,183	40,615	49,805	60,489	65,735	85,069	89,894	99,588				54,104
60 to 64	34,054	41,853	51,786	63,316	49,344	68,002	84,297	92,931				53,943
65 & Up	24,354	40,485	37,902	57,643	47,771	67,468	57,139	33,996	3,600			45,075
Avg. Annual Salary	31,898	43,706	50,873	56,763	55,835	80,906	93,249	83,531	3,600			51,248

Table C-14
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2016
Senior Management Service Class

Count

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20												
20 to 24	4											4
25 to 29	477	4										481
30 to 34	392	226	25	1								644
35 to 39	128	148	159	36								471
40 to 44	59	81	156	205	58	7						566
45 to 49	50	87	132	230	263	97	10					869
50 to 54	69	70	106	141	231	339	88					1,044
55 to 59	47	68	109	125	156	279	114	8				906
60 to 64	25	55	72	89	96	135	32	15	4			523
65 & Up	3	34	46	37	25	16	9	9	7	1		187
Total Count	1,254	773	805	864	829	873	253	32	11	1		5,695

Average Salary ($)

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20												
20 to 24	39,734											39,734
25 to 29	43,673	63,976										43,842
30 to 34	48,525	57,921	68,379	45,526								52,589
35 to 39	53,805	66,403	73,445	87,354								66,958
40 to 44	83,086	81,250	83,985	85,001	91,600	79,058						84,587
45 to 49	83,517	81,030	95,160	94,285	102,653	96,809	92,194					95,261
50 to 54	96,893	99,343	100,629	97,272	102,939	108,315	98,541					102,673
55 to 59	115,423	100,385	94,196	101,004	105,452	109,977	114,212	91,194				105,991
60 to 64	104,460	104,644	93,690	111,940	113,247	113,966	132,453	145,357	141,821			111,508
65 & Up	79,652	127,681	117,206	120,869	118,563	160,963	136,155	166,396	169,762	124,971		128,446
Avg. Annual Salary	56,570	78,501	89,591	96,154	104,193	109,172	110,979	137,733	159,602	124,971		88,300

Table C-15
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2016
TRS – Teachers' Retirement System

Count

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20												
20 to 24												
25 to 29												
30 to 34												
35 to 39												
40 to 44												
45 to 49												
50 to 54												
55 to 59												
60 to 64												
65 & Up	1									13	2	16
Total Count	1									13	2	16

Average Salary ($)

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20												
20 to 24												
25 to 29												
30 to 34												
35 to 39												
40 to 44												
45 to 49												
50 to 54												
55 to 59												
60 to 64												
65 & Up	12,182									111,443	123,992	106,807
Avg. Annual Salary	12,182									111,443	123,992	106,807

Table C-16
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2016
IFAS – Institute of Food and Agricultural Sciences

Count

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20												
20 to 24												
25 to 29												
30 to 34												
35 to 39												
40 to 44												
45 to 49												
50 to 54												
55 to 59												
60 to 64						1	7					8
65 & Up							5	1				6
Total Count						1	12	1				14

Average Salary ($)

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20												
20 to 24												
25 to 29												
30 to 34												
35 to 39												
40 to 44												
45 to 49												
50 to 54												
55 to 59												
60 to 64						88,184	109,516					106,850
65 & Up							118,239	79,402				111,766
Avg. Annual Salary						88,184	113,151	79,402				108,957

Table C-17
Florida Retirement System Pension Plan
Member Counts and Average Salaries at July 1, 2016
Grand Totals of All Active Participants

Count

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20	956	3										959
20 to 24	17,089	140	1									17,230
25 to 29	36,288	6,881	227									43,396
30 to 34	24,942	19,054	7,843	177								52,016
35 to 39	17,439	13,961	19,618	5,773	99							56,890
40 to 44	14,488	11,518	15,954	15,785	4,646	132						62,523
45 to 49	13,788	11,579	15,182	15,530	14,640	5,022	171					75,912
50 to 54	11,597	10,472	14,062	13,898	12,458	12,971	3,206	68				78,732
55 to 59	8,436	8,705	12,537	13,112	10,845	11,982	4,567	583	7			70,774
60 to 64	3,814	5,593	7,796	7,596	6,334	6,741	1,685	602	115	4		40,280
65 & Up	1,864	2,976	4,112	2,943	1,606	1,138	550	358	250	105	15	15,917
Total Count	150,701	90,882	97,332	74,814	50,628	37,986	10,179	1,611	372	109	15	514,629

Average Salary ($)

	Years of Service											
Age	**Under 5**	**5 to 10**	**10 to 15**	**15 to 20**	**20 to 25**	**25 to 30**	**30 to 35**	**35 to 40**	**40 to 45**	**45 to 50**	**50 & Up**	**All Years**
Under 20	9,735	32,850										9,807
20 to 24	24,461	22,858	42,100									24,449
25 to 29	33,278	39,454	35,986									34,272
30 to 34	33,963	43,936	48,001	45,797								39,773
35 to 39	32,656	43,345	50,541	52,864	51,982							43,531
40 to 44	31,788	41,691	49,217	55,953	60,301	59,878						46,339
45 to 49	31,596	39,981	46,646	53,099	62,888	62,216	59,615					48,408
50 to 54	31,589	38,947	43,580	47,857	57,853	63,669	62,119	60,212				48,290
55 to 59	30,553	38,878	42,450	45,576	52,544	59,185	66,398	61,590	47,447			47,255
60 to 64	28,896	38,091	42,360	45,469	51,583	57,788	65,085	68,304	62,769	57,870		46,509
65 & Up	20,080	32,969	39,070	43,141	48,043	56,222	65,555	82,132	85,295	91,481	110,688	41,613
Avg. Annual Salary	31,316	40,906	46,290	50,207	57,289	60,783	64,673	68,606	77,619	90,248	110,688	44,143

Appendix D: Projections

Table D-1 presents a projection of total costs of the employers covered by the FRS Pension Plan (exclusive of the Investment Plan) during the five-year period following the actuarial valuation date, July 1, 2016. The contributions shown beginning with plan year 2017-2018 are based on the assumption that the contribution levels calculated in this report are extended throughout the projection period. The contributions shown for plan year 2016-2017 are based on the legislated rates (before blending) on page B-3 of this report.

Table D-2 reflects, for each membership class and DROP, the outstanding UAL balance of all amortization bases combined as of July 1, 2016. The table develops the associated duration of the amortization of the combined amortization bases.

Beginning in the July 1, 1998 actuarial valuation with the emergence of the surplus, all UAL bases in existence as that time were considered to be fully amortized. While the Plan was in surplus, the UAL amortization payment or credit was made from the surplus for certain post-1998 benefit increases and the 1998 and 2003 experience studies prior to any use of the surplus for contribution rate reductions or any other FRS uses. Now that the plan is no longer in surplus, the UAL payment is made by employers as part of the contribution rate.

Table D-3 estimates the UAL payment / (available surplus) for the next three plan years based on Florida law. The estimates are projections of the July 1, 2016 valuation results, and assume experience occurs as stated in the July 1, 2016 valuation.

All three tables reflect that no surplus is available for rate reduction. The amortization methodology recognizes the time value of money.

Table D-1
Florida Retirement System Pension Plan
Projection of Retirement Costs (Excluding Member Contributions)
July 1, 2016
Based on Contribution Rates Before Blending

(All Amounts in Millions)

	2016 -2017	2017 -2018	2018 -2019	2019 -2020	2020 -2021
A. Employer Normal Cost [1]	$1,055	$1,086	$1,121	$1,158	$1,195
B. UAL Payment / (Surplus Utilization) [2]	$1,419	$1,639 [2]	$1,692 [2]	$1,747 [2]	$1,804 [2]
C. Total	$2,474	$2,725	$2,813	$2,905	$2,999

[1] *Includes DROP contributions on behalf of DROP members.*

[2] *UAL Payment increase is based on assumed increasing payroll, but does not reflect the recognition and funding of deferred investment gains/losses.*

Table D-2
Florida Retirement System Pension Plan
Funding of UAL / (Surplus) by Duration of Amortization
July 1, 2016
($ in thousands)

Years to Amortize UAL

	Regular	Special Risk	Special Risk Administrative	-- Elected Officers' Class -- Judicial	Leg-Atty-Cab	Local	Senior Management	DROP
Valuation Date Outstanding UAL Balance / (Surplus)	$13,941,511	$6,194,286	$13,653	$452,304	$55,764	$322,339	$1,811,571	$2,131,569
UAL Cost / (Savings) Rate (see Table 4-11)	3.93%	11.28%	42.81%	28.75%	55.87%	49.25%	22.16%	7.43%
Projected UAL Payroll PY 2017 - 2018*	$22,652,130	$3,707,780	$2,443	$106,175	$6,748	$44,917	$558,791	$2,005,876
Annual Payment / (Savings) for PY 2017 - 2018	$890,397	$418,134	$1,046	$30,528	$3,770	$22,120	$123,808	$149,125
Amortization Period Calculated Assuming								
Level Dollar	NA **	NA **	36	NA **	NA **	NA **	NA **	NA **
Level Percent of Payroll	25	23	18	23	23	22	22	21

* *The UAL payroll includes salaries for defined contribution program members who pay only the UAL contribution rate.*

** *Current annual payment / (savings) will never accumulate to the UAL if the earned interest rate is 7.60%.*

Table D-3
Florida Retirement System Pension Plan
Projected Annual Payments of UAL Amortization Bases[1]
July 1, 2016

Projected PY 2017-2018 and Forward Based on 07/01/2016 Valuation Results and 07/01/2016 Assets

(All Amounts in Millions)

		2017 - 2018	2018 - 2019	2019 - 2020
1	Estimated Surplus Available Rate Stabilization Mechanism [2]	$0.0	$0.0	$0.0
2	(Increase)/Decrease in Available Surplus from prior year	$0.0	$0.0	$0.0
	UAL Bases			
3	12% Increase in Special Risk benefits (in pay status before 07/01/2000) [3]	$29.7	$30.6	$31.6
4	Special Risk Minimum In-Line-of-Duty Disability Increased to 65% [4]	($0.2)	($0.2)	($0.2)
5	1993 - 1998 Experience Study Assumption Changes [5]	($37.5)	($38.7)	($40.0)
6	1998 - 2003 Experience Study Assumption Changes [5]	($279.6)	($288.7)	($298.1)
7	2003 - 2008 Experience Study Assumption Changes	$475.0	$490.4	$506.3
8	2009 Experience (Gain)/Loss	$1,490.5	$1,538.9	$1,589.0
9	Unrecognized (Gains)/Losses while in Surplus	($436.0)	($450.2)	($464.8)
10	2009 Plan Change (House Bill 479)	($90.1)	($93.1)	($96.1)
11	2010 Experience (Gain)/Loss	$78.7	$81.3	$83.9
12	2010 Plan Change (Senate Bill 2100)	($86.2)	($89.0)	($91.9)
13	2011 Experience (Gain)/Loss	$187.0	$193.0	$199.3
14	2012 Experience (Gain)/Loss	($7.3)	($7.6)	($7.8)
15	2013 Experience (Gain)/Loss	$180.5	$186.4	$192.5
16	2008 - 2013 Experience Study Assumption/Method Changes	$126.7	$130.8	$135.1
17	2014 Experience (Gain)/Loss	($171.8)	($177.4)	($183.2)
18	2015 Experience (Gain)/Loss	$34.4	$35.5	$36.7
19	Special Risk 100% In-Line-Of-Duty Death (2016)	$2.6	$2.6	$2.7
20	2016 Assumption Changes	$68.0	$70.2	$72.4
21	2016 Experience (Gain)/Loss	$74.8	$77.3	$79.8
	Subtotal [(3) through (21)]	**$1,639.2**	**$1,692.1**	**$1,747.2**
22	Across the Board Rate Reduction of 0% [6]	$0.0	$0.0	$0.0
	Total [Subtotal + (22)]	**$1,639.2**	**$1,692.1**	**$1,747.2**
23	UAL payment / (Surplus Available) [(1) + Total] =	$1,639.2	$1,692.1	$1,747.2

[1] *Numbers exclude contributions to the Investment Plan.*

[2] *Projected surplus based on 07/01/2016 valuation results. Using amortization method that reflects interest.*

[3] *In the absence of a surplus there is an additional cost to the Special Risk Class of 0.80% attributable to the 12% increase in pre-2000 retired benefits.*

[4] *In the absence of a surplus there is an additional cost to the Special Risk Administrative Class of 0.19% and an additional cost to the Special Risk Class of -0.01% attributable to the Increase in Minimum ILOD Disability Benefit.*

[5] *In the absence of a surplus there is an additional charge or credit to each class. See Tables 4-2 through 4-10 for details.*

[6] *No surplus available for rate reduction.*

Appendix E: Comparisons/Reconciliation

This Appendix contains certain comparative information required by the state. The table below compares actual investment return, aggregate payroll growth, and individual salary increases with the actuarial assumptions.

The next table reconciles the flow of participants from the 2015 actuarial valuation to the 2016 actuarial valuation, while the last table cross-references the required sections of 112.64 with this report.

Table E-1
Florida Retirement System Pension Plan
One-Year Comparisons

1. Annual Rate of Investment Return on Actuarial Value of Assets

Period Ending	Actual	Assumed
June 30, 2014	9.95%	7.75%
June 30, 2015	8.62%	7.65%
June 30, 2016	6.99%	7.65%

2. Annual Rate of Payroll Growth

Period Ending	Actual [1]	Assumed [1]
June 30, 2014	0.78%	4.00%
June 30, 2015	2.28%	3.25%
June 30, 2016	1.10%	3.25%

3. Individual Rates of Salary Increases for Regular Members and Special Risk Members

Year Ended June 30	Rate of Increase During Year		
	Regular Members	Special Risk	Assumed [2]
2014	5.7%	5.2%	5.85%
2015	4.8%	5.9%	4.59%
2016	4.7%	5.5%	4.59%

[1] *The payroll base compared is used for UAL cost calculations and includes payroll for DROP members and certain defined contribution plan participants for whom only UAL contributions are due.*

[2] *Individual rates of salary increase vary by age and service. Single Assumed rate shown above reflects the population and assumptions adopted with each experience study. The most recent experience study was for the period July 1, 2008 through June 30, 2013.*

Table E-2
Florida Retirement System Pension Plan
Data Reconciliation

	Active Participants	Disabled Participants	Retired Participants and Beneficiaries	DROP	Total
Number reported as of July 1, 2015	512,909	13,830	361,598	36,536	924,873
New Entrants[1]	61,775	0	0	0	61,775
Exits from Active Status[2] or DROP	(50,982)	397	21,859	(14,024)	(42,750)
DROP Entry	(9,073)	0	0	9,073	0
Cessation of benefit payments	NA	(569)	(11,302)	0	(11,871)
Other reported status changes, including changes from Terminated Vested status	0	261	6,508	24	6,793
Number reported as of July 1, 2016	514,629	13,919	378,663	31,609	938,820 [3]

[1] *Includes rehires*

[2] *Includes retirement, vested termination, IP transfer, non-vested termination and death*

[3] *The total count excludes 108,662 Terminated Vested participants*

Table E-3
Florida Retirement System Pension Plan
Cross Reference to Section 112.64 Reporting Requirements

Code Ref			Page/Section
	1	**General Information:**	
1.003 (3g)		Includes certification by the enrolled actuary (signed and dated)?	Cover Letter
1.003 (11)		Do procedures follow commonly accepted procedures and determinations?	Cover Letter
1.003 (4g)		Disclosure of events not taken into account by actuary?	Cover Letter
1.003 (4g)		Disclosure of trends not assumed to continue (by actuary)?	Executive Summary
	2	**Assumptions:**	**Page/Section**
1.003 (3e)		Description and explanation of all actuarial assumptions?	Appendix A
1.003 (3f)		Is there a comparison of actual to expected salary increases over the preceding 3-year period?	E-1
1.003 (3f)		Is there a comparison of actual to expected investment returns over the preceding 3-year period?	E-1
1.003 (6)		Do assumptions factor in actual experience?	Appendix A
1.003 (6)		Is impact of inflation considered?	A-3
1.003 (6)		Any consistent experience gains or losses to suggest assumption changes?	No
1.003 (7)		Listing of changed assumptions?	A-18
	3	**Plan Provisions & Funding Method:**	**Section**
1.003 (4c)		Contain a summary of plan provisions?	Appendix B
1.003 (4d)		Contain a detailed summary of funding method?	Appendix A
1.003 (5)		Does funding method provide a contribution sufficient to meet the NC and amortize the UAL?	Section 4
	4	**Assets & Method:**	**Exhibit**
1.003 (3a)		Is the MVA breakdown included (by cash, bonds, stocks, and other)?	2-2
1.003 (3a)		Is the "statement value" breakdown included?	No
1.003 (3a)		Is the derivation of AVA included?	2-3
1.003 (8)		Are administrative expenses being paid on a current basis?	2-1
		Asset reconciliation, including:	**Exhibit**
1.003 (4j)		- contributions by source	2-1
1.003 (4j)		- interest and dividends	2-1
1.003 (4j)		- realized gains / (losses)	2-1
1.003 (4j)		- unrealized appreciation	2-1
1.003 (4j)		- pension payments	2-1
1.003 (4j)		- contribution refunds	2-1
1.003 (4j)		- expenses	2-1
1.003 (4j)		- other receipts (identified)	2-1 (transfer)
1.003 (4j)		- other disbursements (identified)	2-1 (IP)

Code Ref			Page/Section
	5	**UAL & Amortization Schedule:**	**Exhibit**
1.003 (3b)		Include a plan to amortize any UAL?	4-2 & D-3
		Does amortization schedule of UAL exist (as of the valuation date) …	**Page**
1.003 (3c)		- on an annual basis for the next 3-years?	Exhibit D-3
1.003 (3c)		- for the final year?	No
1.003 (3c)		Is a statement as to how method was derived included?	A-2
1.003 (3d)		Is a description of actions taken to reduce the UAL included?	Section 4 Exec Summary
		Reconciliation of UAL (must include items below):	**Exhibit**
1.003 (4h)		- UAL for prior valuation (w/ start date)	Page 6
1.003 (4h)		- Normal Cost, contributions, & accrued interest	Page 6
1.003 (4h)		- Impact of changes (assumption, funding method, amendments, gain/loss)	4-2—4-10
1.003 (4h)		- UAL for current valuation	4-2—4-10
	6	**Results:**	**Exhibit**
1.003 (4a)		Valuation Date clearly indicated?	Page 1
1.003 (4e)		Are results separated by employee group?	3-2 and Sections 4 & 5
1.003 (4f)		Is there disclosure of any benefit and expense provided by and/or paid from plan assets for which no liabilities or current costs have been established?	Cover Letter
1.003 (4i)		Projection of emerging liabilities/cash flow needs for next 10-15 years (optional)	No
1.003 (4l)		Summary of principal results (for current and prior valuation) including:	
		- participant data (counts, total pay, total annual benefits by group)	Appendix C
		- assets (market and actuarial)	2-2, 2-3
		- PVB (split: active by decrement, tv, ret & ben, dis, and total)	3-2
		- PV of future benefit payments	3-2
		- AL and UAL, i.e., including amount, date, amortization period	3-2, 4-2
		- PVVB (by group), non-vested PVAB, Total PVAB	5-1, 5-2
1.003 (4l)		Reconciliation of PVAB, including:	
		- PVAB at beginning of year	5-3
		- changes due to amendment and/or assumptions	5-3
		- change due to decrease in discount period and benefits accrued	5-3
		- Benefits paid	5-3
		- Other changes	5-3
		- Net increase (decrease)	5-3
		- PVAB at end of year	5-3
1.003 (4l)		Pension Cost	
		- Normal cost (shown for each benefit and amount for admin expense)	4-1
		- Payment to amortize UAL	4-2—4-10
		- Expected plan sponsor contribution (i.e. total of above pieces with interest, also as % of pay)	4-11
		- Amount to be contributed by members (total and % of pay)	Pages B-3—B-4
1.003 (4l)		Past Contributions	
		- Required plan sponsor & member contribution	4-12
		- Actual contributions made by: plan sponsor, members, other	4-12
1.003 (4k)		Active member accumulated contributions with interest	5-2
1.003 (4l)		Net actuarial gain / loss	4-2—4-10

Code Ref			Page/Section
1.003 (4l)		Other (PVFS & PVFC at attained age and at entry age, PVFC from other sources, PVF Expected BP)	3-2
	7	**Data:**	**Exhibit**
1.003 (4i)		Are membership demographics and financial statistics included?	Appendix C
1.003 (4i)		Age/service table for actives included?	C-7—C-17
1.003 (4i)		Data reconciliation?	E-2
	8	**Contribution Rate:**	**Page**
1.003 (4a)		Applicable beginning and ending dates for recommended contribution indicated?	4
1.003 (4b)		Are ER and EE contribution rates adequate to meet benefits?	4
1.003 (4b)		Are contribution rate changes necessary to achieve or preserve funding?	Yes, Executive Summary and Exhibit 4-11
1.003 (7)		Is the impact of assumption or cost method changes indicated?	7, Exhibit 3-1
1.003 (9)		Were costs to be paid at a later date adjusted for interest and/or salary?	Yes 3—4
1.003 (10)		Is the effective date of recommended changes no later than the next fiscal year?	Yes 3—4

Appendix F: Glossary

The following definitions are largely excerpts from a list adopted in 1981 by the major actuarial organizations in the United States. In some cases the definitions have been modified for specific applicability to the FRS.

Accrued Benefit

The amount of an individual's benefit (whether or not vested) as of a specific date, determined in accordance with the terms of a pension plan and based on compensation and service to that date.

Accumulated Benefit Obligation (ABO)

The actuarial present value of benefits attributed by the pension benefit formula to employee service rendered before a specified date and based on employee service and compensation prior to that date.

Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disability, and retirement; changes in compensation, rates of investment earnings, and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; and other relevant items.

Actuarial Cost Method

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Liability.

Actuarially Equivalent

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

Actuarial Gain/Loss

A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions during the period between two Actuarial Valuation Dates, as determined in accordance with a particular Actuarial Cost Method.

Actuarial Liability (AL)

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

Actuarial Present Value of Pension Plan Benefits

Total projected benefits include all benefits estimated to be payable to plan members as a result of their service through the valuation date and their expected future service. The actuarial present value of total projected benefits as of the valuation date is the present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment.

Actuarial Valuation

The determination, as of a valuation date, of the Normal Cost, Actuarial Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

Actuarial Value of Assets (AVA)

The value of cash, investments and other property belonging to a pension plan, as used by the actuary for the purpose of an Actuarial Valuation.

Amortization

Paying an interest-bearing liability by gradual reduction through a series of installments, as opposed to one lump-sum payment.

Amortization Payment

That portion of the pension plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Liability.

Level Percent of Pay:	Produces a level series of payments when expressed as a percent of payroll. Cash payment increases in line with payroll growth assumption.
Level Dollar:	Produces a decreasing pattern of payments when expressed as a percent of payroll. Cash payment remains level.

Annual Pension Cost (APC)

Under GASB, when the Net Pension Obligation is positive, the APC is equal to the Annual Required Contribution plus the Interest on the beginning Net Pension Obligation minus the amortization of the Net Pension Obligation. When the Net Pension Obligation is negative, the APC is equal to the Annual Required Contribution minus the Interest on the beginning Net Pension Obligation plus the amortization of the Net Pension Obligation.

Annual Required Contribution (ARC)

Under GASB, this amount is equal to the Normal Cost plus the Amortization Payment. GASB does not require contributions to be equal to the ARC; however it requires the calculation and reporting of the ARC.

Entry Age Normal Actuarial Cost Method (EAN)

A method under which the Actuarial Present Value of the Projected Benefits of each individual included in an Actuarial Valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit ages. The portion of this Actuarial Present Value allocated to a valuation year is called the Normal Cost. The portion of this Actuarial Present Value not provided for at a valuation date by the Actuarial Present Value of future Normal Costs is called the Actuarial Liability.

Funded Ratio

Ratio of the assets of a pension plan to its liabilities.

Government Accounting Standards Board (GASB)

This Board sets standards of state and local accounting and financial reporting.

Interest Rate

The rate used to discount projected benefit payments to determine the present value in a valuation.

Market Value of Assets (MVA)

The price for which an asset could be sold at a particular date. May also be referred to as the Fair Value of Assets.

Normal Cost (NC)

That portion of the Actuarial Present Value of pension plan benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

Net Pension Obligation (NPO)

Under GASB, the cumulative difference between Annual Pension Cost and the employer's contributions to the plan, including the pension liability or asset at transition, if any.

Present Value (PV)/ Actuarial Present Value (APV)

The value of an amount or series of amounts or cash flows payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions, including selected interest rate.

Projected Benefits

Those pension plan benefit amounts which are expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and anticipated future compensation and service credits.

Unfunded Actuarial Liability

The excess of the Actuarial Liability over the Actuarial Value of Assets. When the Actuarial Value of Assets exceeds Actuarial Liabilities a surplus exists.

Valuation Date

The date as of which the liabilities are determined.

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December 2, 2016

Via E-Mail

Ms. Elizabeth Stevens
State Retirement Director
Florida Department of Management Services, Division of Retirement

Re: **Blended Proposed Statutory Rates for the 2017-2018 Plan Year Reflecting a Uniform UAL Rate for All Membership Classes and DROP**

Dear Director Stevens:

As requested, we have calculated the uniform or "blended" proposed statutory employer rates for the 2017-2018 plan year based on the statutory contributions for the FRS Investment Plan and the actuarially calculated 2017-2018 rates for the defined benefit FRS Pension Plan, as specified in the FRS 2016 Actuarial Valuation Report. The blended rates reflect a uniform Unfunded Actuarial Liability (UAL) Contribution Rate for all payroll bases on which the Blended UAL Contribution Rate is assessed.

Analysis

We determined the uniform blended 2017-2018 employer rate for each membership class and subclass of the Florida Retirement System by projecting contributions for both the FRS Pension Plan and the FRS Investment Plan. We did this by dividing the projected combined amount that would be contributed for both the FRS Pension Plan and the FRS Investment Plan by the total projected combined payroll for both plans. The uniform blended rate calculation assumes plan year 2017-2018 contributions for the FRS Pension Plan will be made at the actuarially calculated rate levels. The actuarially calculated rate levels are based on the July 1, 2016 actuarial valuation of the FRS Pension Plan, as presented in Table 4-11 of the FRS 2016 Actuarial Valuation Report. The FRS Investment Plan rates are the sum of the rates in Sections 121.72, 121.73, and 121.735 of Florida Statutes and assume those rates continue in effect during plan year 2017-2018. The employer contribution rates shown in the attached table are net of the 3% of payroll employee contribution rate.

The payroll for some employee groups is subject to only the UAL Cost component of the FRS Pension Plan's contribution rate (e.g. participants in SUSORP, SMSOAP, and SCCORP, and reemployed retirees not eligible for renewed membership in a state-sponsored retirement program). The payroll for those employee groups is included in the calculation of the Blended UAL Contribution Rate, but is excluded from the calculation of the Blended Normal Cost Contribution Rate.

Based on the data provided to us for this study, as of July 1, 2016 FRS Investment Plan payroll comprised between 16% and 17% of total payroll. On a headcount basis, FRS Investment Plan members constitute approximately 18% of active FRS membership.

Results

Table I shows the results of our study based on actual levels of participation in the FRS Pension Plan and the FRS Investment Plan as of July 1, 2016, projected to plan year 2017-2018 using the long-term payroll growth assumption of 3.25%.

Section A of the table includes the Normal Cost Rates as of July 1, 2016 of the FRS Pension Plan. Section A does not include the UAL Cost. UAL Cost Rates are applied to a larger total payroll than the Normal Cost Rates and are developed in a later section. Section A, line 3 shows the total employer Normal Cost of the FRS Pension Plan as the product of Normal Cost Rates and projected Normal Cost payroll.

Similarly, Section B calculates the total employer cost of the FRS Investment Plan as the product of applicable employer contribution rates in effect since July 1, 2016 and the projected FRS Investment Plan payroll. FRS Investment Plan payroll is projected as described above.

Section C of the table shows the sum of the FRS Pension Plan employer Normal Cost and FRS Investment Plan employer cost as dollars and as a percentage of total projected combined payroll (FRS Pension Plan projected Normal Cost payroll plus FRS Investment Plan projected payroll).

Section D of the table shows the UAL Cost as of July 1, 2016 of the FRS Pension Plan, as shown in Table 4-11 of the FRS 2016 Actuarial Valuation Report.

Section E shows the projected payroll of the FRS Investment Plan. There is no UAL Cost attributable to the FRS Investment Plan.

Section F calculates the “Blended” UAL Cost as dollars and as a percentage of total payroll (FRS Pension Plan projected UAL payroll plus FRS Investment Plan projected payroll).

Section G shows the final Blended Uniform Contribution Rates as the sum of the “Blended” Normal Cost Contribution Rates from Line (C3) and the “Blended” UAL Contribution Rates from Line (F3). The employers of employee groups subject to only the UAL Contribution Rate would contribute the “Blended” UAL Contribution Rates shown in Line (G2) of the table on applicable payroll. The Total Adjusted Contribution Rates shown in Line (G3) of the table will be applied to all other payroll subject to employer contributions.

The contribution rates shown in Table I exclude the 0.06% contribution rate for FRS Investment Plan administration and education (applied to all classes except DROP) and the 1.66% contribution rate for the Health Insurance Subsidy (HIS), which apply across the board to the FRS Pension Plan and the FRS Investment Plan.

The calculations are based on census and payroll data provided to us by the Florida Department of Management Services, Division of Retirement for the July 1, 2016 actuarial valuation. We have not audited or verified this data and other information. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete. These calculations are based on the Ultimate Entry Age actuarial cost allocation method, as described in the FRS 2016 Actuarial

Valuation Report for use in developing 2017-2018 actuarially calculated contribution rates for the FRS Pension Plan.

We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have not found material defects in the data. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Except where otherwise noted in this letter, this analysis is based on the FRS Pension Plan provisions, actuarial methods and actuarial assumptions as summarized in the FRS 2016 Actuarial Valuation Report as published on December 1, 2016. Further, the data used in these calculations were based on FRS Pension Plan data as summarized in the FRS 2016 Actuarial Valuation Report and FRS Investment Plan census data as of July 1, 2016 as provided to us by the Florida Department of Management Services, Division of Retirement. The results of our study depend on future experience conforming to those actuarial assumptions discussed earlier in this letter. Future actuarial measurements may differ significantly from the current measurements presented in this analysis due to many factors, including: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period) and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

Milliman's work product was prepared exclusively for the internal business use of Florida Department of Management Services, Division of Retirement. It is a complex technical analysis that assumes a high level of knowledge concerning the Florida Retirement System's operations, and uses Division data, which Milliman has not audited. To the extent that Milliman's work is not subject to disclosure under applicable public record laws, Milliman's worked may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions:

(a) The Florida Department of Management Services, Division of Retirement may provide a copy of Milliman's work, in its entirety, to the System's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the System.

(b) The Florida Department of Management Services, Division of Retirement may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

We are consulting actuaries for Milliman, Inc. We are also members of the American Academy of Actuaries, and meet their Qualification Standards to render the actuarial opinion contained herein.

Please call if you would like to further discuss this project.

Respectfully submitted,

Matt Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Daniel Wade, FSA, EA, MAAA
Principal and Consulting Actuary

Kathryn Hunter, FSA, EA, MAAA
Consulting Actuary

Enclosures

FLORIDA RETIREMENT SYSTEM
FISCAL IMPACT ANALYSIS

Proposed Statutory Blended Normal Cost Plus UAL Rates for 2017-2018 Plan Year
Please see the attached letter for details regarding data, assumptions, methodology, and plan provisions used
(Dollars in Thousands)

	Regular	Special Risk	Special Risk Administrative	------Elected Officers' Class---- Judicial	Leg-Atty-Cab	Local	Senior Management	Composite (excluding DROP)	DROP	Composite (including DROP)
Proposed Blended Statutory Normal Cost Contribution Rates										
A. Defined Benefit FRS Pension Plan Normal Cost										
1. Employer Cost										
a. Normal Cost Rate [1]	2.75%	11.57%	3.09%	11.73%	6.27%	8.37%	4.05%	4.17%	4.17%	4.17%
b. Rate Reduction Techniques	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
c. Total Adjusted Contribution Rate [2]										
-PYE 2018	2.75%	11.57%	3.09%	11.73%	6.27%	8.37%	4.05%	4.17%	4.17%	4.17%
2. Projected Payroll	$19,666,693	$3,660,654	$2,443	$104,867	$6,283	$41,686	$531,622	$24,014,248	$2,005,876	$26,020,124
3. Total Employer Normal Cost [(1c) x (2)]										
-PYE 2018	$540,834	$423,538	$75	$12,301	$394	$3,489	$21,531	$1,002,162	$83,645	$1,085,807
B. Defined Contribution FRS Investment Plan (IP) Employer Cost										
1. Employer Rates effective since July 1, 2016										
(Sec 121.72, Sec 121.73 and Sec 121.735)	3.55%	13.15%	5.40%	10.96%	6.79%	8.75%	4.93%	4.85%	0.00%	4.85%
2. Projected Payroll	$4,331,630	$663,273	$1,154	$10,089	$2,084	$17,850	$182,740	$5,208,820	$0	$5,208,820
3. Total Employer Cost [(1) x (2)]										
-PYE 2018	$153,773	$87,220	$62	$1,106	$142	$1,562	$9,009	$252,874	$0	$252,874
C. Total System Normal Cost (FRS Pension Plan + FRS Investment Plan)										
1. Total Normal Cost Contribution [(A3) + (B3)]	$694,607	$510,758	$137	$13,407	$536	$5,051	$30,540	$1,255,036	$83,645	$1,338,681
2. Total System Projected Payroll [(A2) + (B2)]	$23,998,323	$4,323,927	$3,597	$114,956	$8,367	$59,536	$714,362	$29,223,068	$2,005,876	$31,228,944
3. "Blended" Normal Cost Contribution Rate										
As a Percentage of Total Payroll [(C1) / (C2	2.89%	11.81%	3.81%	11.66%	6.41%	8.48%	4.28%	4.29%	4.17%	4.29%

[1] As reported in the July 1, 2016 actuarial valuation report - Table 4-11

[2] Rates shown do not include the Health Insurance Subsidy contribution rate or FRS Investment Plan education and administration assessment.

FLORIDA RETIREMENT SYSTEM
FISCAL IMPACT ANALYSIS

Proposed Statutory Blended Normal Cost Plus UAL Rates for 2017-2018 Plan Year
Please see the attached letter for details regarding data, assumptions, methodology, and plan provisions used
(Dollars in Thousands)

	Regular	Special Risk	Special Risk Administrative	------Elected Officers' Class---- Judicial	Leg-Atty-Cab	Local	Senior Management	Composite (excluding DROP)	DROP	Composite (including DROP)
Proposed Blended Statutory UAL Contribution Rates										
D. Defined Benefit FRS Pension Plan UAL Cost										
1. Employer UAL Cost [1 & 2]	3.93%	11.28%	42.81%	28.75%	55.87%	49.25%	22.16%	5.50%	7.43%	5.63%
2. Projected Payroll	$22,652,130	$3,707,780	$2,443	$106,175	$6,748	$44,917	$558,791	$27,078,984	$2,005,876	$29,084,860
3. Total Employer UAL Cost [(1) x (2)] -PYE 2018	$890,229	$418,238	$1,046	$30,525	$3,770	$22,122	$123,828	$1,489,758	$149,037	$1,638,795
E. Defined Contribution FRS Investment Plan	$4,331,630	$663,273	$1,154	$10,089	$2,084	$17,850	$182,740	$5,208,820	$0	$5,208,820
F. Total System UAL Cost (FRS Pension Plan + FRS Investment Plan)										
1. Total UAL Contribution [(D3)]	$890,229	$418,238	$1,046	$30,525	$3,770	$22,122	$123,828	$1,489,758	$149,037	$1,638,795
2. Total System Projected Payroll [(D2) + (E)]	$26,983,760	$4,371,053	$3,597	$116,264	$8,832	$62,767	$741,531	$32,287,804	$2,005,876	$34,293,680
3. "Blended" UAL Contribution Rate As a Percentage of Total Payroll [(F1) / (F2	3.30%	9.57%	29.08%	26.25%	42.69%	35.24%	16.70%	4.61%	7.43%	4.78%
Proposed Blended Statutory Uniform Contribution Rates [3]										
G: Total Employer Contribution Rate (FRS Pension Plan + FRS Investment Plan)										
1. "Blended" Normal Cost Contribution Rate [(C3	2.89%	11.81%	3.81%	11.66%	6.41%	8.48%	4.28%	4.29%	4.17%	4.29%
2. "Blended" UAL Contribution Rates [(F3)]	3.30%	9.57%	29.08%	26.25%	42.69%	35.24%	16.70%	4.61%	7.43%	4.78%
3. Total Adjusted Contribution Rate [2] -PYE 2018 [(G1) + (G2)]	6.19%	21.38%	32.89%	37.91%	49.10%	43.72%	20.98%	8.90%	11.60%	9.07%

[1] As reported in the July 1, 2016 actuarial valuation report - Table 4-11

[2] Rates shown do not include the Health Insurance Subsidy contribution rate or FRS Investment Plan education and administration assessment.

[3] Employers of employee groups subject to only the UAL contribution rate will pay the rates shown in line (G2).