

Program Review

Florida Retirement System Pension Plan Valuation Met Standards

Report No. 12-09 July 2012

*Office of Program Policy Analysis & Government Accountability
an office of the Florida Legislature*



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R. Philip Twogood, Coordinator



The Florida Legislature

OFFICE OF PROGRAM POLICY ANALYSIS AND GOVERNMENT ACCOUNTABILITY



R. Philip Twogood, Coordinator

July 6, 2012

President of the Senate and
Speaker of the House of Representatives:

Section 112.658, *Florida Statutes*, directs the Office of Program Policy Analysis and Government Accountability to review the actuarial valuation of the Florida Retirement System Pension Plan to determine whether the valuation complies with the Florida Protection of Public Employee Retirement Benefits Act, Ch. 112, Part VII, *Florida Statutes*. The results of these reviews are presented to you in this report. To complete the reviews, we contracted with Gabriel Roeder Smith & Company to serve as our actuarial consultant. The review was supervised by Kara Collins-Gomez, Staff Director.

We wish to express our appreciation to the staff of the Florida Department of Management Services for their assistance.

Sincerely,

A handwritten signature in blue ink that reads "R. Philip Twogood".

R. Philip Twogood
Coordinator

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Summary

Florida Retirement System Pension Plan Valuation Met Standards

OPPAGA's actuarial consultant, Gabriel Roeder Smith & Company, reviewed the Florida Retirement System's 2011 valuation report and concluded that it was conducted in accordance with relevant state laws and rules and actuarial standards. Our consultant further concluded that the assumptions and methods used in the 2011 valuation were generally reasonable. The 2011 actuarial valuation determined that the plan had an unfunded actuarial liability of \$18 billion as of July 1, 2011.

Our consultant also made several noteworthy observations. For example, Gabriel Roeder Smith & Company noted that the 2011 valuation disclosed the actuarial present value of future benefits and the actuarial present values of future pay. However, these values do not take into account an assumption for the probability that system members will participate in the Deferred Retirement Option Program (DROP) and may understate the actuarial liability by \$912 million. As a result, our consultant continues to believe that future valuations should include such disclosures that fully reflect the effect of expected DROP participation (pages 23-24).

Additionally, our consultant noted that the payroll growth assumption overstates actual payroll growth experience. To address this issue, our consultant believes that future Florida Retirement System actuarial reports should include disclosure of the 10-year history of payroll growth (page 21).

Our consultant also believes that the 2011 valuation's use of a variation in the entry age normal actuarial cost method (ultimate entry age normal cost) appears aggressive because it produces relatively lower near term contributions when compared to the traditional entry age normal cost method (pages 24-25).

Finally, our consulting actuary noted that while not unreasonable, the inactive healthy mortality rate assumptions appear conservative because they produce relatively higher near term contributions (page 27).

Gabriel Roeder Smith & Company's report on the 2011 actuarial valuation is presented in its entirety in Appendix A, beginning on page 8. The Secretary of the Department of Management Services provided a written response to our preliminary report, which is reprinted in Appendix B, page 46.

Scope

Section 112.658, *Florida Statutes*, directs the Office of Program Policy Analysis and Government Accountability (OPPAGA) to employ an independent consulting actuary to review the 2011 actuarial valuation of the Florida Retirement System Pension Plan to determine whether it complies with provisions of the Florida Protection of Public Employee Retirement Benefits Act.¹ The act establishes reporting and disclosure standards for actuarial reports on state and local government retirement plans. These reports must address the adequacy of employer contribution rates, assess the plan's assets and projected liabilities, and use actuarial cost methods approved by the Employee Retirement Income Security Act of 1974 and as permitted under regulations prescribed by the U.S. Secretary of the Treasury. The act requires OPPAGA to use the same actuarial standards the Department of Management Services uses to monitor local government pension plans.

Our review objectives were to determine whether the Department of Management Services' consulting actuary conducted the 2011 actuarial valuation of the Florida Retirement System Pension Plan using generally accepted and statutorily required standards, methods, and procedures; whether the valuation's results were reasonable; and whether the plan continued to have sufficient assets to pay future benefits when due. To complete this review, OPPAGA contracted with Gabriel Roeder Smith & Company to serve as its actuarial consultant.

¹ Sections [112.60-67](#), *F.S.*

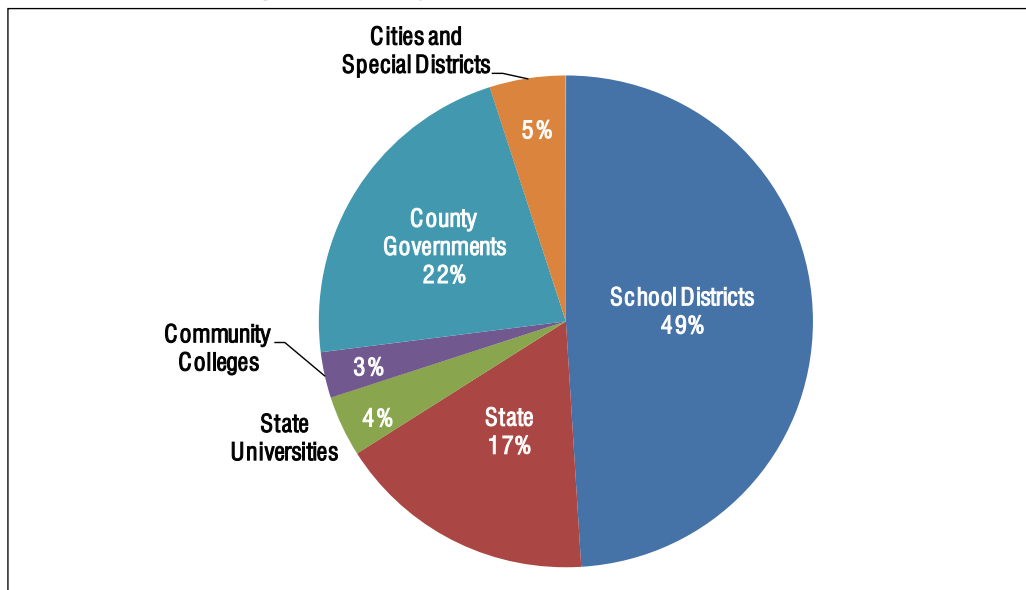
Background

Florida law requires the Department of Management Services to conduct an actuarial valuation of the Florida Retirement System (FRS) pension plan annually and report the results to the Legislature by December 31 prior to the next legislative session. The department contracted with Milliman to conduct the valuation, which will be used to

- determine the contribution rates needed to cover the plan's normal costs (the percentage of salary needed to be contributed each year to cover the cost of future benefits owed system members);
- determine the contribution rates needed to amortize any unfunded actuarial liability (the amount of pension liabilities not covered by contributions made at the normal cost rate or by investment of plan assets); and
- assess the system's funding status (the ability of system assets to cover its liabilities).

State law requires membership in the Florida Retirement System for all full- and part-time employees working in a regularly established position for a state agency, county government, district school board, state university, state college, or participating city or special district.² As shown in Exhibit 1, in Fiscal Year 2010-11, school district employees comprised the largest percentage of FRS members (49%), followed by county (22%) and state employees (17%).

Exhibit 1
School Districts Comprise the Largest Portion of FRS Members



Source: Division of Retirement. Percentages include both defined benefit and defined contribution members.

² Section [121.051\(1\)\(a\)](#), F.S.

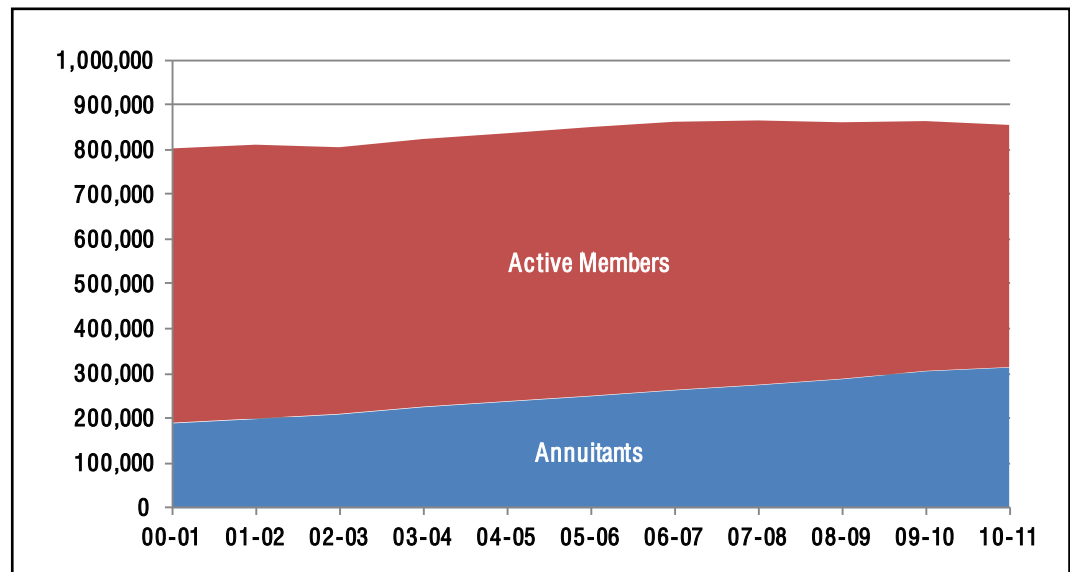
There are two FRS retirement plans. Florida Retirement System members may choose to join either the Investment Plan or the Pension Plan.

Under the Investment Plan, employers contribute a set percentage of employees' salaries to the plan each year and plan members selecting among 21 investment options. After working at least one year, retiring members of this plan receive the amount of money that has accrued. As of June 30, 2011, there were 103,045 participants in the Investment Plan, and the plan's net asset value was \$6.79 billion.³

For the Pension Plan, employers also contribute a set percentage of employees' salaries, with employees receiving a defined monthly benefit upon retirement if they have been FRS members for at least six years and meet other age and eligibility requirements.⁴ As of June 30, 2011, the Pension Plan's net asset value was \$126.6 billion, with 540,701 active participants and 312,689 retiree annuitants.⁵ Exhibit 2 shows changes in the numbers of active members and annuitants since Fiscal Year 2000-01.

Exhibit 2

The Number of Annuitants Is Growing Faster than the Number of Active FRS Pension Plan Members



Source: Division of Retirement.

³ Florida Retirement System Annual Report, Department of Management Services, July 1, 2010-June 30, 2011; State Board of Administration Public Employee Optional Retirement Program Trust Fund Financial Statements, Management's Discussion and Analysis and Other Reports, Ernst and Young, June 30, 2011 and 2010.

⁴ For employees joining the plan after July 1, 2011, the vesting period is eight years.

⁵ Data on pension plan membership is from Florida Retirement System Annual Report, Department of Management Services, July 1, 2010-June 30, 2011.

As of June 30, 2011, the Pension Plan's funding ratio (i.e., the ratio of the actuarial value of the plan's assets to the actuarial value of benefits owed to members and their beneficiaries) was 87.5%. This means that at that time, the plan did not have sufficient assets to pay current and future expected benefits for participants and their beneficiaries. Actuarially, the plan has a shortfall of \$18 billion.

Two state agencies administer the Pension Plan and Investment Plan. The Department of Management Services' Division of Retirement and the State Board of Administration (SBA) manage the two retirement plans. The division provides numerous administrative services for the Pension Plan, including enrolling members, tracking service credit, receiving and balancing employer reports of employer and employee contributions, and publishing actuarial and statistical information about the membership in its annual report. In addition, the division provides members with annual statements, benefit estimates, and, if requested, benefit counseling.⁶ For Fiscal Year 2011-12, the division had a legislative appropriation of \$36.6 million and 198 authorized positions.

The SBA invests FRS Pension Plan Trust Fund monies to help ensure that investment returns are sufficient to fund current and future pensioners. The board also administers the defined contribution Investment Plan. Its operational and administrative expenses are funded through fees derived from its investment management services and employer contributions to the retirement system. In Fiscal Year 2010-11, the board had a budget of \$31.9 million and 178.5 authorized positions.⁷

Recent retirement system reforms will affect future valuations. The 2011 Legislature enacted a number of policies that will affect the contributions and benefits of current and future members. Because these changes affect plan funding, the actuarial impact will have to be assessed in future valuations.⁸

The recent retirement system reforms include eliminating cost-of-living adjustments, reducing Deferred Retirement Option Program (DROP) benefits, increasing vesting periods for new employees, and establishing mandatory employee contributions.

- Cost-of-Living Adjustment. For service earned on or after July 1, 2011, the 3% cost-of-living adjustment formula was eliminated.
- Participation in DROP. Members who enrolled in DROP before July 1, 2011, will continue to accrue interest at an effective annual rate of 6.5%, but members who joined the program on or after that date will earn interest at a reduced accrual rate of 1.3%.
- Retirement Age, Vesting, and Benefit Calculation. For employees in the Regular, Senior Management Services, Elected Officers, and Special Risk Administrative Support classes initially enrolling in the FRS on or after July 1, 2011, normal retirement eligibility was increased from age 62 to 65 or from 30 to 33 years of creditable service regardless of age. In addition, the number of years

⁶ Additionally, the division administers the Health Insurance Subsidy Program for eligible retirees and beneficiaries of the Pension and Investment Plans, the State University Service Optional Retirement Program, the Senior Management Service Optional Annuity Program, the Institute for Food and Agricultural Sciences Supplemental Retirement Program, and various pensions, including a supplemental benefit for certain Florida National Guard retirees and judges declared disabled by order of the Florida Supreme Court.

⁷ These resources are for all of the SBA's activities, not just for its Pension Plan and Investment Plan-related functions.

⁸ The department's consulting actuary assessed the fiscal impact of these system reforms in *Study Reflecting the Impact to the Florida Retirement System of Senate Bill #2100 3rd Engrossed, Enrolled*, Milliman, Inc., July 1, 2011.

required to vest in the Pension Plan was increased from six to eight years of creditable service.⁹ Finally, the definition of average final compensation was modified from five to eight highest fiscal years of compensation for creditable service prior to retirement.

- Employee Contributions. Beginning July 1, 2011, each retirement system member, except for DROP participants, must contribute 3% of their salaries to the FRS.

Findings

The Pension Plan's 2011 valuation was conducted in accordance with standards, and its assumptions and methods are reasonable

Our contracted actuary, Gabriel Roeder Smith & Company, replicated the results of the Department of Management Services' actuary and found no material differences in valuation results. Information provided by the department's actuary was sufficient for our consulting actuary to appraise the findings and arrive at reasonably similar results. In general, the Pension Plan's 2011 valuation was conducted in accordance with standards and its assumptions and methods were deemed reasonable.

However, our consulting actuary developed several additional findings, which are summarized below.

Treatment of DROP is non-traditional and may understate the actuarial liability. Gabriel Roeder Smith & Company continued to note that the department's actuary uses a non-traditional approach to calculate the DROP contribution. Our actuary notes that Milliman calculates the DROP contribution requirement in two steps. In the first step, the department's actuary determines the required contribution for each employee class (e.g., Regular, Special Risk, and Elected Officers classes), and in the second step, the department's actuary calculates the effect of DROP on the actuarial valuation and for measurement of the system's unfunded liability.

Our consulting actuary notes that the approach the department's actuary used to determine required contribution by class is non-traditional because it did not reflect the probability of future DROP participation by active members. Gabriel Roeder Smith & Company estimates that if the department's actuary factored in the future DROP participation by active members, this would have added another \$912 million to the unfunded actuarial liability—increasing it from \$18 billion to \$18.9 billion.

⁹ The 2011 Legislature also made changes to the retirement age and service requirements for employees in the Special Risk class that enroll in the FRS on or after July 1, 2011. For these employees, normal retirement eligibility was increased from age 55 to 60 or from 25 years to 30 years of service.

Payroll growth assumption exceeds actual payroll growth. Our consulting actuary continued to note that the department’s actuary used a 4% payroll growth assumption, which overstates actual payroll for the last two years. As shown in Exhibit 3, actual FRS payroll growth has averaged -2.18% since 2010.

Exhibit 3
Average FRS Payroll Growth in the Last Two Years Was About 2%

Fiscal Year Ended	Payroll Growth
June 30, 2011	-1.42%
June 30, 2010	-2.94%
Average	-2.18%

Source: July 1, 2011 Actuarial Valuation of the Florida Retirement System for the Office of Program Policy Analysis and Government Accountability, Gabriel Roeder Smith & Company, April 12, 2012.

Our consulting actuary reported that use of the 4% payroll growth assumption rather than the -2.18% average actual payroll growth for the past two years is not unreasonable, but noted that the department’s valuation report did not provide enough information to determine whether the assumption is in compliance with statutory requirements.

Actuarial methodology for entry age normal cost appears aggressive compared to the traditional method of calculating these costs. Gabriel Roeder Smith & Company reported that the department’s actuary used a non-traditional approach to the entry age normal actuarial cost method to determine the Pension Plan’s liabilities and normal cost. Specifically, our actuary believes that the approach used (ultimate entry age normal cost) is aggressive because it reduces the normal cost for current active members, and thus increases the unfunded actuarial liability. The resulting increase in the unfunded actuarial liability will be amortized over 30 years. Consequently, past and future normal costs will not accumulate to the present value of plan benefits upon retirement. Our actuary suggests that a traditional approach to the entry age normal cost method is appropriate for public sector plans because it produces costs that remain stable as a percentage of payroll over time.

Actuarial assumptions for the inactive healthy mortality rates appear conservative when compared to actual experience. Our consulting actuary continued to note that while not unreasonable, the inactive healthy mortality rates used by the department’s actuary continue to appear conservative. Consequently, our actuary believes that liabilities are overstated due to the use of conservative inactive mortality assumptions when compared to actual FRS inactive mortality experience. As with the payroll growth assumption, our actuary noted that the department’s valuation report did not provide enough information to determine whether the assumption complies with statutory requirements.

Conclusions

Gabriel Roeder Smith & Company noted several approaches that could be used to address issues noted in its review of the 2011 actuarial valuation of the Florida Retirement System Pension Plan. Specifically, the consultant continues to believe that the FRS actuarial valuation should

- disclose the 10-year history of payroll growth; and
- include disclosures of the normal costs and actuarial gains and losses fully reflecting the DROP, as well as the disclosure of the present value of future benefits fully reflecting the DROP.

Appendix A



ACTUARIAL REVIEW

OF THE

July 1, 2011 Actuarial Valuation

of the

Florida Retirement System

FOR THE

OFFICE OF PROGRAM POLICY ANALYSIS

AND GOVERNMENT ACCOUNTABILITY

Submitted by:

GRS

Gabriel Roeder Smith & Company

April 12, 2012

ACTUARIAL REVIEW - JULY 1, 2011 ACTUARIAL VALUATION OF THE
FLORIDA RETIREMENT SYSTEM

Gabriel Roeder Smith & Company

ACTUARIAL REVIEW - JULY 1, 2011 ACTUARIAL VALUATION OF THE
FLORIDA RETIREMENT SYSTEM

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Gabriel Roeder Smith & Company



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April 12, 2012

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Coordinator
Government Operations Policy Area
Office of Program Policy Analysis
and Government Accountability
111 West Madison St., Suite 312
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Re: FRS Actuarial Review

Dear Mr. Twogood:

As requested, we have completed our actuarial review of the July 1, 2011 Actuarial Valuation Report of the Florida Retirement System (FRS) prepared by Milliman, FRS actuaries.

Based upon this actuarial review, we find the actuarial assumptions and methods generally appropriately develop actuarial values of the System. We have also replicated key financial results of the July 1, 2011 Actuarial Valuation and find no material differences in the valuation results.

Our specific findings are:

1. The Department of Management Services' actuaries are generally in compliance with the requirements of Florida Statutes, Department rules, government accounting standards and actuarial standards of practice regarding their actuarial valuation of FRS. While the 4% payroll growth assumption may not be unreasonable, based upon the information in the actuarial valuation report, we are unable to ascertain whether the 4% payroll growth assumption is in compliance with F.S., 112.64(5)(a). Government Accounting Standards Board Statements 25 and 27 may also require use of a statutorily compliant payroll growth assumption.
2. The Department's actuaries for the most part use generally accepted actuarial cost methods, bases for assumptions and reporting standards. We believe the ultimate or replacement variation of the entry-age-normal actuarial cost method is aggressive and may not be compliant with State statute based upon the facts and circumstances of FRS. We have identified areas where documentation and considerations or refinements may be warranted.
3. The specific economic and demographic assumptions used are arrived at from a sufficient level of detail considered and are generally reasonable in light of recent experience. While not unreasonable, as previously noted, the assumed inactive healthy

Mr. R. Philip Twogood, Ph.D.
April 12, 2012
Page Two

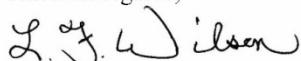
mortality rates appear conservative. As above, while the 4% payroll growth assumption may not be unreasonable, based upon the information in the actuarial valuation report, we are unable to ascertain whether the 4% payroll growth assumption is in compliance with F.S., 112.64(5)(a).

4. The Department's actuaries provide sufficient information as to the causes of gains, losses and net change in the unfunded liability to allow evaluation of specific factors. While much information is provided, additional disclosures and refinements may add value.
5. The Department's actuaries' actuarial report for the most part adequately provides necessary information that another actuary, unfamiliar with the situation, would require to appraise the findings and arrive at reasonably similar results. FRS is a complicated System. We have identified information of a comparative nature that would be helpful in this regard.
6. We have found other aspects of the Department's actuaries' report where further disclosure and further consideration may be warranted.

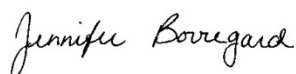
We wish to thank Mr. Garry Green and Mr. Robert Dezube of Milliman for their assistance without which this review could not have been completed.

We look forward to responding to any questions or comments from the interested parties. If you should have any questions concerning the above, please do not hesitate to contact us.

Sincerest regards,



Lawrence F. Wilson, A.S.A.
Senior Consultant and Actuary



Jennifer M. Borregard, E.A.
Senior Analyst

Enclosure

Gabriel Roeder Smith & Company

ACTUARIAL REVIEW - JULY 1, 2011 ACTUARIAL VALUATION OF THE
FLORIDA RETIREMENT SYSTEM

Introduction

Gabriel Roeder Smith & Company

ACTUARIAL REVIEW - JULY 1, 2011 ACTUARIAL VALUATION OF THE
FLORIDA RETIREMENT SYSTEM

I. Introduction

As a matter of policy the Office of Program Policy Analysis and Government Accountability (OPPAGA) engages an independent reviewing actuary to conduct various actuarial reviews and analyses. The scope of this work includes an actuarial review of the annual actuarial valuation report and periodic experience study.

The work to be reviewed is produced by the current Department of Management Services' actuaries - Milliman with Mr. Robert Dezube as FRS actuary.

This actuarial review is a review of the July 1, 2011 Actuarial Valuation Report and includes a replication of the July 1, 2011 Actuarial Valuation liabilities.

The scope of this project is limited to reviewing the work of Milliman to the degree necessary to express opinions regarding the accuracy and reasonableness of the following:

1. Compliance with the requirements of Florida Statutes, Department rules, government accounting standards and actuarial standards of practice regarding their actuarial valuation of FRS.
2. Use of generally accepted actuarial cost methods, bases for assumptions and reporting standards.
3. Use of specific economic and demographic assumptions arrived at from a sufficient level of detail considered and are generally reasonable in light of recent experience.
4. Provision of sufficient information as to the causes of gains, losses and net change in the unfunded liability to allow evaluation of specific factors.
5. Adequacy of actuarial report in providing necessary information that another actuary, unfamiliar with the situation, would find information to appraise the findings and arrive at reasonably similar results.
6. Aspects of the Department's actuaries work and report that are insufficient.

ACTUARIAL REVIEW - JULY 1, 2011 ACTUARIAL VALUATION OF THE
FLORIDA RETIREMENT SYSTEM

Executive Summary

Gabriel Roeder Smith & Company

ACTUARIAL REVIEW - JULY 1, 2011 ACTUARIAL VALUATION OF THE
FLORIDA RETIREMENT SYSTEM

II. Executive Summary

We have reviewed the July 1, 2011 Actuarial Valuation Report prepared by Milliman (Department of Management Service's retained valuation actuaries). We find the actuarial assumptions and methods generally develop appropriate actuarial values for FRS. We have also replicated the results of the July 1, 2011 Actuarial Valuation and find no material differences in the valuation results.

In reviewing actuarial assumptions and methods, it is important to recognize that there is not a single *correct* set of actuarial assumptions and methods. There is a range of reasonableness within which individual assumptions, methods and the entire valuation basis may fall. Assumptions may be characterized as conservative (producing relatively higher near term contributions) or aggressive (producing relatively lower near term contributions) within this range. Alternate acceptable actuarial assumptions and methods impact the incidence of required contributions.

In this light, we have the following comments on the July 1, 2011 Actuarial Valuation.

1. **Compliance with requirements of the Florida Statutes, Department rules, government accounting standards and actuarial standards of practice:** Overall, the actuarial valuation is compliant with these requirements. However, the treatment of the Deferred Retirement Option Program (DROP) appears to continue to be somewhat nontraditional. While the 4% payroll growth assumption may not be unreasonable, based upon the information in the actuarial valuation report, we are unable to ascertain whether the 4% payroll growth assumption is in compliance with F.S., 112.64(5)(a). Government Accounting Standards Board Statements 25 and 27 may also require use of a payroll growth assumption compliant with State statute.
2. **Use of generally accepted actuarial cost methods, bases for assumptions and reporting standards:** Generally, the Actuarial Valuation meets these requirements. We believe the *ultimate* or *replacement* variation of the entry-age-normal actuarial cost method is aggressive and may not be compliant with State statute based upon the facts and circumstances of FRS. The treatment of the Deferred Retirement Option Program (DROP) continues to be a somewhat nontraditional *actuarial cost method*.
3. **Economic and demographic assumptions arrived at from a sufficient level of detail considered and collective effect of all assumptions:** For the most part, the actuarial assumptions are reasonably related to plan experience based upon the results of the latest Experience Study. The actuarial assumptions developed from the Experience Study have been modified based upon Milliman's Studies on House Bill 479 and Senate Bill 2100. While not unreasonable, the inactive healthy mortality rates continue to appear conservative. We find the actuarial assumptions internally consistent including consistent recognition of anticipated inflation in the economic assumptions.

ACTUARIAL REVIEW - JULY 1, 2011 ACTUARIAL VALUATION OF THE
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4. **Disclosure of sources of gains and losses:** Actuarial gains and losses are identified by source in sufficient detail to evaluate specific factors (i.e. investment return, salary increases, etc.). The reported actuarial loss for the year ended June 30, 2011 was \$3.572 billion based upon the System provisions / actuarial assumptions in the July 1, 2010 Actuarial Valuation – a \$0.761 billion gain on investments offset by a \$4.333 billion loss on liabilities. For the previous year ended June 30, 2010, there was a reported actuarial loss of \$2.116 billion based upon the actuarial assumptions used for funding in the July 1, 2009 Actuarial Valuation – a \$2.855 billion loss on investments offset by a \$0.739 billion gain on liabilities. The reported reduction in unfunded accrued liability resulting from the change in System provisions / actuarial assumptions and methods used for funding was \$1.111 billion for System Year ended June 30, 2011. Reported actuarial gains and losses are substantially negatively impacted by continued use of the somewhat nontraditional treatment of the DROP.

The actuarial value of assets as of June 30, 2011 is less than the market value of assets by \$3.045 billion. The \$3.045 billion unrecognized investment gains are deferred and will be recognized over the next four years. As of June 30, 2010 unrecognized investment losses totaled \$11.419 billion.

As a subsequent event, the Actuarial Valuation Report shows the market value of assets decreased from \$129.1 billion as of June 30, 2011 to \$121.2 billion as of October 31, 2011.

Additional disclosures and refinement may be warranted.

5. **Disclosure of sufficient information that another actuary, unfamiliar with the situation, could appraise the findings and arrive at similar results:** The actuarial valuation provides significant information. FRS is complicated and the methods employed for certain benefits (DROP) and the allocation of contribution requirement by Class are somewhat non-traditional. It would be helpful to disclose relevant payroll information to demonstrate compliance with F.S., 112.64(5)(a).
6. **Other aspects of the Valuation:** The actuarial valuation report provides significant information. We believe disclosures of the present value of benefits and actuarial gain / (loss) fully reflecting expected future DROPs continue to be appropriate. The method used to determine the actuarial value of assets may warrant further review.

ACTUARIAL REVIEW - JULY 1, 2011 ACTUARIAL VALUATION OF THE
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Analysis

and

Recommendations

Gabriel Roeder Smith & Company

ACTUARIAL REVIEW - JULY 1, 2011 ACTUARIAL VALUATION OF THE
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III. Analysis and Recommendations

The following are detailed analyses and recommendations based upon our examination and review of the work of the Department of Management Services' actuaries as evidenced by the July 1, 2011 Actuarial Valuation Report to determine whether:

- A. *The Department of Management Services' actuaries are in compliance with the requirements of the Florida Statutes, Department rules, government accounting standards and actuarial standards of practice regarding their actuarial valuation of the Florida Retirement System pension plan.*

Overall, we believe the actuarial valuation may be generally compliant with these requirements.

However, we believe some of the requirements of the Florida Statutes and Department rules could conflict with government accounting standards and generally accepted actuarial standards of practice.

A-1 Payroll Growth Assumption

We believe the use of a 4% payroll growth assumption may not conform to F.S., 112.64(5)(a) requirements – payroll growth assumption should generally not exceed the average payroll growth for the latest 10-year period. In fact, the reported average annual actual payroll growth increase for the last two years is less than 4% (-2.18%) as disclosed in the last three annual actuarial valuation reports as follows:

Fiscal Year Ended	Payroll Growth
June 30, 2011	-1.42%
June 30, 2010	-2.94%
Two-Year Average	-2.18%

F.S., 112.64(5) (a) provides - *If the amortization schedule for unfunded liability is to be based on a contribution derived in whole or in part from a percentage of the payroll of the system or plan membership, the assumption as to payroll growth shall not exceed the average payroll growth for the 10 years prior to the latest actuarial valuation of the system or plan unless a transfer, merger, or consolidation of government functions or services occurs, in which case the assumptions for payroll growth may be adjusted and may be based on the membership of the retirement plan or system subsequent to such transfer, merger, or consolidation.*

As in our prior report, we continue to strongly recommend future actuarial valuation reports disclose relevant payroll information sufficient to ascertain compliance with F.S., 112.64(5)(a).

ACTUARIAL REVIEW - JULY 1, 2011 ACTUARIAL VALUATION OF THE
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Government Accounting Standards Board (GASB) Statements 25 and 27 may also require use of a statutory compliant payroll growth assumption to the extent the statutory compliant payroll growth assumption is used for funding.

Section 5.8 of the GASB *Comprehensive Implementation Guide 2010-2011* provides:

5.8 Consistent Application of Actuarial Methods and Assumptions

5.8.1. Q—If a plan has actuarial valuations performed using methods and assumptions that conform to the parameters (including, for example, the entry age actuarial cost method), may the plan or the employer(s) use different methods and assumptions for financial reporting purposes (financial statements, including notes, and RSI) as long as those methods and assumptions also conform to the parameters (for example, using the projected unit credit actuarial cost method rather than the entry age method)? (Q&A25/26/27-25) [Amended 2007]

A—No. For financial reporting purposes, there are two criteria: (1) actuarially determined pension information should be calculated in accordance with the parameters, consistently applied, and (2) the actuarial methods and assumptions used for financial reporting (plan and employer) should be the same as those used for funding requirement determinations—unless the methods and assumptions used for funding are different from the parameters. In that case, the methods and assumptions used for financial reporting should comply with the parameters, regardless of the methods and assumptions used in determining funding requirements.

Actuarial Cost (Funding) Method: An actuarial cost method is a set of techniques for conversion of the actuarial present values of benefits into contribution requirements. Actuarial methods are characterized by:

1. Normal Cost – the cost of the system without consideration of funded status.
2. Actuarial Accrued Liability – the assets which would have accumulated to date had contributions been made at the level of the normal cost since the date of the first benefit accrual, all actuarial assumptions had been exactly realized and there had been no benefit changes.

The total contribution produced by an actuarial cost method is the total of the normal cost and an amount to amortize any unfunded actuarial accrued liability.

The method used in prior valuations for FRS was the traditional Entry Age Normal Method. The normal cost under this method was the annual cost, expressed as a level percentage of pay, which will support the benefits of the System. Entry Age Normal is the most prevalent funding method

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in the public sector. It is appropriate for the public sector, in part, because it produces costs that remain stable as a percentage of payroll over time, resulting in intergenerational equity for taxpayers.

A-2 Deferred Retirement Option Program (DROP)

An additional area in which the application of the Entry Age Normal Method in the FRS actuarial valuation is non-traditional deals with the *policy* decision for treatment of the Deferred Retirement Option Program (DROP).

As stated on page I-13 of the July 1, 2011 Actuarial Valuation Report (Report) the DROP contribution requirement is determined on a two step approach. Based upon communication with the Department's actuary, we understand the process to proceed as follows:

Step 1 (1st bullet) – The liabilities are determined under the entry age normal actuarial cost method by Class utilizing assumed rates of future retirement that do not reflect the probability of entering the DROP. We understand current DROP members are treated as retired and included in their respective Class. The required contribution by Class is determined as the normal cost plus an unfunded accrued liability amortization cost (See Table IV - 4 of the Report).

Step 2 (2nd bullet) – The liabilities are re-determined under the entry age normal actuarial cost method utilizing assumed rates of future retirement that do reflect the probability of entering the DROP in the future. The required contribution for the DROP is determined as the increase in normal cost plus the increase in actuarial accrued liability amortized over 30 years as a level dollar amount assuming mid-year payment in the fiscal year following the Report year (See Table IV - 4 of the Report).

We understand for the remainder of the Report (excluding GASB accounting information) values are shown based upon Step 1 only.

For purposes of determining contribution amounts, the cost for the DROP may not have been determined under a GASB compliant actuarial cost method as defined under GASB Statements 25 and 27 (See Table IV - 4 of the Report).

1. The footnote to Table IV – 4 of the July 1, 2011 Actuarial Valuation Report states that ... *DROP (contribution) rates are special charges to cover the assumed cost of DROP participants; they are not Normal Cost or UAL Cost in the traditional sense.*
2. Paragraph 10.a. of GASB Statement 27 states *Benefits to be included – The actuarial present value of total projected benefits should include all pension benefits to be provided by the plan to plan members or beneficiaries in accordance with (1) the terms of the plan and (2) any additional statutory or contractual agreement(s) to provide pension benefits through the plan that are in force at the actuarial valuation date.*
3. Paragraph 10.d. of GASB Statement 27 states *Actuarial cost method – One of the following actuarial cost methods should be used: entry-age, frozen entry age, attained age, projected unit credit, or the aggregate actuarial cost method as described in Paragraph 40, Section B.*

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We believe all GASB accounting information has been presented based upon the Step 2 results.

Finally, we note for purposes of the measurement of the deficiency (actuarial accrued liability exceeds actuarial value of assets) the actuarial accrued liability is measured under Step 1. This measurement currently understates the amount of unfunded accrued liability since the Step 1 actuarial accrued liability does not reflect the actuarial accrued liability for expected future DROPs. F.S., 121.031(3)(f)(1) uses the term actuarial liabilities without further definition. We might have expected the use of the full actuarial accrued liability measured inclusive of expectations of future DROPs (Step 2).

We note the retirement assumption in the first year of eligibility may have been increased as an estimate of members who would have retired rather than enter the DROP if there were no DROP. While this is a step in the right direction it does not capture the full extent of expected future DROP enrollments. The continued nontraditional treatment of the DROP appears to have a significant impact on the size of the reported unfunded accrued liability (\$18.0 billion – no future DROPs vs. \$19.0 billion expected future DROPs).

The actuarial valuation shows that use of the actuarial accrued liability determined under the Step 2 approach would increase the reported July 1, 2011 unfunded accrued liability by \$911.7 million.

A-3 Ultimate or Replacement Entry Age Normal Actuarial Cost Method

An additional non-traditional approach to the Entry-Age-Normal Actuarial Cost Method is first used in the July 1, 2011 Actuarial Valuation. Under this variation of the Entry-Age-Normal Actuarial Cost Method, the normal cost is determined as if all active members are covered under the lower (Tier II) level of benefits applicable to members eligible after June 30, 2011. This has the effect of dramatically reducing the normal cost for current active members. The increase in unfunded accrued liability resulting from this method change is being amortized over 30 years. Unlike the traditional Entry-Age-Normal Actuarial Cost Method the accumulation of past and future normal costs will not accumulate to the present value of plan benefits upon retirement. Based upon the facts and circumstances of FRS, we believe this approach may not comply with State statute.

We note the Government Accounting Standards Board has recently issued an Exposure Draft (ED) for revisions to GASB #25 and #27 accounting standards for public retirement plans. Under the ED this modification is expressly prohibited as follows:

- 26. The entry age normal actuarial cost method should be used to attribute the actuarial present value of projected benefit payments of each employee to periods in accordance with the following:*
- a. Attribution should be made on an individual employee-by-employee basis.*
 - b. Each employee's service costs should be level as a percentage of that employee's projected pay. For purposes of this calculation, if an employee does not have projected pay, the projected inflation rate should be used in place of the projected salary increase rate.*
 - c. The beginning of the attribution period should be the first period in which the employee's*

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service accrues pensions under the benefit terms, notwithstanding vesting or other similar provisions.

d. The service costs of all pensions should be attributed through all assumed exit ages, through retirement.

e. Each employee's service costs should be determined based on the same benefit provisions reflected in that employee's actuarial present value of benefit payments.

While GASB requirements are for purposes of accounting, we believe this GASB requirement is derived from considerable analysis of the foibles of this non-traditional approach to the Entry-Age-Normal Actuarial Cost Method.

Finally, we note the *Review of 2012 Asset-Liability and Asset Allocation Update* presentation by Hewittenisknupp at the IAC meeting on March 19, 2012 included the following comment about this non-traditional approach to the Entry-Age-Normal Actuarial Cost Method:

Impact of Pension Funding and/or Benefit Policy Changes

Later?

– Could include a change in the actuarial cost method (switch to “traditional” Entry Age, from the current “ultimate” Entry Age method).

– Issues here would also be considered by the FRS Actuarial Assumption Estimating Conference.

Upon switching from the traditional Entry-Age-Normal Actuarial Cost Method to the Ultimate or Replacement variation of the Entry-Age-Normal Actuarial Cost Method consideration should be given to the amortization of the increased unfunded actuarial accrued liability resulting from this change. This increase is being amortized over the maximum allowable period (30 years) under State statute from current date utilizing the 4% payroll growth assumption. A less aggressive approach to funding this increase may be appropriate (i.e. reducing the amortization period, etc.).

- B. *The Department's actuaries use generally accepted actuarial cost methods, bases for assumptions and reporting standards.*

For the most part, the actuarial valuation meets these requirements. The nontraditional treatment of DROPs understates plan liabilities. Our discussion of this aspect of the actuarial cost methods is included in paragraph A above.

The use of a 4% payroll growth assumption does not appear to be supported by the information disclosed in prior Actuarial Valuation Reports and System Annual Reports. F.S., 112.65(5) generally requires the payroll growth assumption NOT exceed the rate of payroll growth experience over the latest 10-year period. The July 1, 2011 Actuarial Valuation Report in conjunction with prior Actuarial Reports do not disclose the relevant payroll data. Our discussion of this aspect of the actuarial cost methods is included in paragraph A above.

The use of the non-traditional Entry-Age-Normal Actuarial Cost Method may not be consistent with State statute based upon the facts and circumstances of FRS. Our discussion of this aspect of

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the actuarial cost methods is included in paragraph A above.

Actuarial Assumptions

The retirement assumptions were updated and first implemented in the July 1, 2010 Actuarial Valuation based upon the Experience Study covering the five-year period ended June 30, 2008 as modified by the February 16, 2010 study on House Bill 479 which was enacted into law. The retirement assumptions were further updated and first implemented in the July 1, 2011 Actuarial Valuation based upon the Experience Study covering the five-year period ended June 30, 2008 as modified by the February 16, 2010 study on House Bill 479 which was enacted into law and further modified by the July 1, 2011 Study on Senate Bill 2100 which was enacted into law.

We believe that the updated assumptions generally better reflect prior experience and future expectations. However, as discussed in our review of the Experience Study for the 5-year period ended June 30, 2008, we believe the liabilities continue to be overstated due to the use of quite conservative inactive mortality assumptions when compared to observed FRS inactive mortality experience.

Process for Assumption Setting: The principles set forth in Actuarial Standards of Practice (ASOP) No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations* guide the proper selection of **economic assumptions**. In particular, they prescribe that the actuary develop a best estimate range for each economic assumption, and then recommend a specific point within that range. After completing the assumption process, the actuary should review the set of economic assumptions for consistency.

The principles set forth in ASOP No. 35, *Selection of Demographic and Other Noneconomic Actuarial Assumptions for Measuring Pension Obligations* guide the proper selection of the remaining actuarial assumptions. In particular, they prescribe the actuary use professional judgment to estimate possible future outcomes based on past experience and future expectations, and select assumptions based upon application of that professional judgment. The actuary should select reasonable demographic assumptions in light of the particular characteristics of the System that is the subject of the measurement. A reasonable assumption is one that is expected to appropriately model the contingency being measured and is not anticipated to produce significant cumulative actuarial gains or losses over the measurement period.

The following comments on the remaining actuarial assumptions remain valid.

1. **Early retirement / withdrawal rates** – Early retirement and withdrawal rates are combined due to the somewhat unusual early retirement eligibility under the System (completion of six years of service regardless of age). The valuation assumes early retirement (immediate reduced benefit commencement) for vested members leaving employment within ten (10) years of normal retirement. All other vested terminations are assumed to elect an unreduced deferred benefit commencing at normal retirement date.

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These rates reflect ten (10) year select and ultimate rates. It may be more common to use a select period that coincides with the vesting period (6 years vs. 10 years). Also, we are unaware of any analysis to determine experience relating to members electing immediate reduced benefits vs. deferring unreduced benefits to normal retirement date.

2. **Retirement rates and DROP** – We have discussed in detail issues relating to the treatment of current and future DROPs (see Paragraph A).

In brief, two sets of retirement rates are determined. Set 1 does not reflect the probability of entering the DROP. Set 2 reflects the probability of entering the DROP. The Actuarial Valuation Report is substantially based upon Set 1 retirement rates, which include an assumption that half of the members expected to enter the DROP would still elect to retire in the absence of the DROP.

As stated above, we believe the Report should substantially reflect Set 2 retirement rates. The allocation of the contribution to Classes could be included in the Report based upon Step 1 rates consistent with our understanding of policy decisions.

3. **Inactive mortality and disabled mortality rates** - The inactive mortality rates (separate male and female rates) used for all Classes were updated first effective in the July 1, 2009 Actuarial Valuation to reflect experience (lower than expected observed mortality). While not unreasonable, the inactive healthy mortality rates appear conservative.

Please refer to our actuarial review of the Experience Study covering the five-year period ended June 30, 2008 for a more detailed analysis.

- C. *The specific economic and demographic assumptions used are arrived at from a sufficient level of detail considered, and are reasonable in light of recent experience. Such analysis should also comment on the collective effect of all assumptions.*

Except for the economic assumptions referred to in Paragraph B, the actuarial assumptions were for the most part examined in the recently completed Experience Study.

In Paragraphs A and B (above), we have provided our insights regarding the economic and demographic assumptions in light of the Experience Study.

In Paragraphs A and B (above), we have provided our insights on the funding and the accounting expense and disclosure assumptions addressing the payroll growth assumption for purposes of amortization of the deficit.

- D. *The Department's actuaries provide sufficient information as to causes for gains, losses, and net change in the unfunded liability to allow evaluation of specific factors.*

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The July 1, 2011 Actuarial Valuation Report provides information on actuarial gains and losses and net change in unfunded liability on several different pages.

The Executive Summary of the Report breaks out gains and losses by source for the actuarial accrued liability. Gains and losses by source are first determined based upon the total actuarial accrued liability (exclusive of gains and losses from assumed investment return) followed by the effect on the unfunded actuarial accrued liability showing the loss from investment return.

The System experienced an actuarial **loss of \$3.572 billion** during fiscal year ended June 30, 2011 - \$0.761 billion gain from investments / \$4.333 billion loss from liabilities. In addition, this loss is impacted by the nontraditional treatment of liabilities for the DROP.

Liability actuarial (gains) / losses are reported by source on page I-6 of the Actuarial Valuation Report. We note that the most significant source of liability actuarial (gain) / loss identified this year is a \$9.262 billion loss due to *Active Retirement and DROP from Active*. Last year there was an actuarial gain of \$0.218 billion due to *Active Retirement* and an actuarial loss of 1.046 due to *Actives Entering DROP*. We believe the magnitude of this loss may have been exacerbated by eligible member concern over potential benefit reductions.

We also note a substantial loss of \$1.723 billion due to *Inactive Data Clean-Up*. During the previous two years, this substantial source of actuarial (gain) / loss resulted in losses of \$1.632 billion and \$1.533 billion, respectively. We understand part of this liability may result from an overstatement of mortality gains for the death of retired members who have elected joint and survivor benefits. We understand these overstated mortality gains are offset by losses included as part of the inactive data clean-up. We believe effort is warranted to maintain accurate data to ensure the validity of reported actuarial results.

We note a substantial gain (\$1.849 billion) due to the miscellaneous *Demographics / Other*. This is a substantial amount of unallocated experience gain (decreased from a gain of \$1.967 billion last year). We recommend this gain be analyzed by source.

We also note a \$1.189 billion gain from retiree mortality experience this year identified in the July 1, 2011 Actuarial Valuation Report. Gains from retiree mortality experience were also reported for fiscal years ended June 30, 2010 and 2009. Developing retiree mortality experience is consistent with our observation of the conservative nature of this assumption.

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E. *The Department's actuaries' actuarial report adequately provides necessary information that another actuary, unfamiliar with the situation, would find sufficient to appraise the findings and arrive at reasonably similar results.*

The Actuarial Valuation Report provides significant information - both in terms of importance and in volume. The FRS is complicated and the valuation methods employed are somewhat non-traditional for: (1) certain benefits (DROP), (2) the allocation of contribution requirement by Class and (3) the use of the Rate Stabilization Mechanism, when applicable.

In addition to our comments in the above paragraphs, we believe that additional information would be both helpful and appropriate. We are pleased to see the actuarial present value of future benefits and the actuarial present value of future pay disclosed. We note, however, these disclosures do not reflect the Step 2 assumptions for future DROPs.

As detailed later in our Review, we requested and were provided with these actuarial present values by Class further broken down by decrement. This detail was provided both under the retirement assumptions that do not recognize future DROPs (Step 1) and fully recognizing future DROPs (Step 2). This is the basis for our validation of the results of the actuarial valuation.

We believe disclosure of the 10-year history of payroll growth would be beneficial in light of the statutory requirement limiting this assumption to actual 10-year payroll growth experience.

We believe the actuarial valuation report could be further improved by providing additional prior year results along with side-by-side current year results as appropriate. The reader of the actuarial valuation report would gain insight from a ready comparison both in terms of changes in absolute value and percentage changes.

We may look to Chapter 60T-1, Florida Administrative Code which endorses the prior year / current year side by side comparison along with suggestions of key valuation disclosures.

F.A.C., Chapter 60T-1.003(4)(h) provides **Actuarial Reports...** (l) *A comparative summary of principal valuation results, essentially in the following format:*

*COMPARATIVE SUMMARY OF PRINCIPAL VALUATION RESULTS
(Not a required format – to be used as a guide only)*

	<i>Actuarial Valuation Prepared as of</i>	
	<i>Current Date</i>	<i>Prior Date</i>
<i>1. Participant Data</i>		
<i>Active members</i>	#	#
<i>Total annual payroll</i>	\$	\$
<i>Retired members and beneficiaries (other than disabled)</i>	#	#

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Total annualized benefit	\$	\$
Disabled members receiving benefits	#	#
Total annualized benefit	\$	\$
Terminated vested members	#	#
Total annualized benefit	\$	\$
2. Assets		
Actuarial value of assets	\$	\$
Market value of assets	\$	\$
3. Liabilities		
Present value of all future expected benefit payments:		
Active members	\$	\$
Retirement benefits	\$	\$
Vesting benefits	\$	\$
Disability benefits	\$	\$
Death benefits	\$	\$
Return of contribution	\$	\$
Total	\$	\$
Terminated vested members	\$	\$
Retired members and beneficiaries:		
Retired (other than disabled) and beneficiaries	\$	\$
Disabled members	\$	\$
Total	\$	\$
Total present value of all future expected benefit payments	\$	\$
Liabilities due and unpaid	\$	\$
*Actuarial accrued liability	\$	\$
*Unfunded actuarial accrued liability	\$	\$
*Refers to liabilities not funded by future normal cost contributions. Show amount, date and amortization period a establishment, and current amount of each such liability not amortized		
4. Actuarial present value of accrued benefits (to be determined in accordance with a. and b. below)		
Statement of actuarial present value of all accrued benefits		
Vested accrued benefits	\$	\$
Inactive members and beneficiaries	\$	\$
Active members (includes nonforfeitable accumulated member contributions in the amount of)	\$	\$

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Total value of all vested accrued benefits	\$	\$
Non-vested accrued benefits	\$	\$
Total actuarial present value of all accrued benefits	\$	\$
Statement of changes in total actuarial present value of all accrued benefits		
Actuarial present value of accrued benefits at beginning of year	\$	
Increase (decrease) during year attributable to (where applicable):		
Plan amendment	\$	
Changes in actuarial assumptions	\$	
Increase for interest and probability of payment due to decrease in discount period and benefits accrued	\$	
Benefits paid	\$	
Other changes (identify and state amount)	\$	
Net increase (decrease)	\$	
Actuarial present value of accrued benefits at end of year	\$	

a. Accrued benefits are those future promised benefits that are determined in accordance with the plan's provisions based on the service members have rendered to the actuarial valuation date. Accrued benefits are those payable under all applicable plan circumstances – retirement, death, disability, and termination of employment – to the extent they are deemed attributable to member service rendered to the valuation date. Benefits to be provided by insured contracts for which the plan sponsor has no future liability and which are excluded from plan assets are to be excluded from plan benefits.

b. All determinations are to be on a consistent basis. Any change is to be disclosed, together with an explanation. The exhibit entries for the actuarial valuation date as of which a change is made shall show the entries on a before and after change basis.

5. Pension cost (specify applicable funding period)

Normal cost (show cost for each benefit if so calculated and amount of administrative expenses, if applicable.)

Payment to amortize unfunded liability	\$	\$
Expected plan sponsor contribution (including normal cost, amortization payment and interest, as applicable)	\$	\$
As % of payroll	%	%
Amount to be contributed by members	\$	\$
As % of payroll	%	%

6. Past contributions

For each plan year since last report:

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Required plan sponsor contribution	\$ _____	\$ _____
Required member contribution	\$ _____	\$ _____
Actual contributions made by:		
Plan's sponsor	\$ _____	\$ _____
Members	\$ _____	\$ _____
Other (e.g., Chapters 175 or 185, F.S.)	\$ _____	\$ _____
7. Net actuarial gain (loss) (if applicable)	\$ _____	\$ _____
8. Other disclosures (where applicable)		
Present value of active member:		
Future salaries		
at attained age	\$ _____	\$ _____
at entry age	\$ _____	\$ _____
Future contributions		
at attained age	\$ _____	\$ _____
at entry age	\$ _____	\$ _____
Present value of future contributions from other sources (identify)	\$ _____	\$ _____
Present value of future expected benefit payments for active members at entry age	\$ _____	\$ _____

F. *Other aspects of the Department's actuaries' work and report are sufficient*

As stated above, the Actuarial Valuation Report provides significant information. We believe that disclosures of the normal costs and actuarial liabilities fully reflecting the DROP are appropriate.

F.S. 121.031(3)(a) provides *The valuation of plan assets shall be based on a 5-year averaging methodology such as that specified in the United States Department of Treasury Regulations, 26 C.F.R. s. 1.412(c)(2)-1, or a similar accepted approach designed to attenuate fluctuations in asset values.*

The July 1, 2011 actuarial value of assets method starts with the July 1, 2010 actuarial value of assets and determines an expected actuarial value of assets as of July 1, 2011 assuming the expected fund return (7.75% for fiscal 2011) recognizing non-investment cash flows. The July 1, 2011 actuarial value of assets is the July 1, 2011 expected actuarial value plus 20% of the excess (deficiency) of July 1, 2011 market value of assets over the July 1, 2011 expected value of assets.

We believe this actuarial value of assets method is an acceptable method under Treasury regulations, complies with Florida statute (rolling 5-year average) and meets the requirements of Actuarial Standard of Practice No. 44 Selection and Use of Asset Valuation Methods for Pension Valuations. However, we note that under prior IRS rules, a private retirement plan covered by the above Treasury regulation would require prior IRS approval to switch from another approved method to this method. This is not the case with pre-approved methods. We believe that a method subject to automatic approval may be preferable.

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A deficiency of the current actuarial value of assets method is that if actual investment returns exactly matched expected investment returns over the 5-year averaging period, the actuarial value under this method would NOT equal the market value.

The Financial Accounting Standards Board has undertaken a project to codify their accounting standards. The codification of FAS 35 referenced in the Actuarial Valuation Report has been updated to Actuarial Standards Codification (ASC) 960. We recommend future Actuarial Valuation Reports conform to this change in accounting nomenclature.

With respect to the ASC 960 disclosures we were surprised to see the ABO decrease for current active members as result of Senate Bill 2100. While this may be a gray area, we would not have expected the present value of accumulated benefits to decrease as a result of Senate Bill 2100.

ASOP No. 35, Selection of Demographic and Other Noneconomic Actuarial Assumptions for Measuring Pension Obligations was updated for deviation language effective May 1, 2011. Section 4.1.1 of ASOP No. 35 has been revised in two ways. *First, the actuary's disclosure around mortality should be sufficient to allow another qualified actuary to understand the assumption made for future improvement. Second, if the actuary assumes zero future improvement, the actuary needs to disclose that assumption explicitly.*

Page A-6 of the Actuarial Valuation Report states: *Mortality rates for all members once in retirement status are based on the RP-2000 Healthy White Collar tables for males and females, as projected from the year 2000 to the valuation year. If the System Actuary is not assuming mortality improvement (beyond the valuation date), we recommend an explicit statement so disclosing no future mortality improvement is assumed beyond the valuation date.*

As a subsequent event, we understand Circuit Judge Jackie L. Fulford, Circuit Judge in Leon County, Florida, has entered an order on summary judgment in the case challenging the Florida Legislature's 2011 changes to the Florida Retirement System. The Court found certain provisions of Senate Bill 2100 constitute an unconstitutional impairment of plaintiffs' contract with the State of Florida, an unconstitutional taking of private property without full compensation, and an abridgment of the rights of public employees to collectively bargain over conditions of employment. If upheld, we understand Judge Fulford's ruling would require the State to refund the 3% member contribution which has been deducted from members' pay since July 1, 2011, and restore the cost of living adjustment. Clearly, should this ruling stand, we would expect a significant increase in reported System liabilities and costs.

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Replication of July 1, 2011

Actuarial Valuation Results

Gabriel Roeder Smith & Company

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IV. Replication of key financial results of the July 1, 2011 Actuarial Valuation

In this phase of the review, GRS reviewed the calculated values (present value of benefits) supplied by the FRS actuaries subdivided by Class and type of benefit for active members (i.e., service retirement, vesting and reduced retirement, ordinary and service disability, ordinary and service death, and refunds of contributions) and pensioners by category (retirees, terminated vested members and current DROPS) divided by Class. In addition, we reviewed the calculation of the present values of future salaries divided by Class.

The following tables compare the results of the System actuaries and GRS calculations of present value of benefits and future compensation for each Class under regular retirement rates and increased retirement rates that reflect anticipated future DROPS.

GRS established quantitative measures to determine whether, on a present value line by line basis (i.e., retired members, beneficiaries, active retirement, death, disability, etc.), results calculated separately by GRS and the System actuaries agreed with each other to within reasonable tolerances. One of our quantitative tests is the ratio of the line present value calculated by GRS to the line present value calculated by the System actuaries. To PASS this test requires a difference not in excess of 5.0%. This test is sensitive to the size of the line present value that is measured in thousand dollar increments. For example, the present value for duty disability for active Special Risk Administrative (No Future DROP Retirement Rates) (SRA) Class members is 154. A GRS calculation of above 161 or below 147 would fail this 5.0% test. In fact, GRS calculated 165, which is only off by eleven (11) but fails the percentage test (7.14%).

Measure Two of our quantitative test is the ratio of the difference between the line present value calculation of the System actuaries and the GRS line present value calculation divided by the total liability calculated by the System actuaries. To PASS this test requires a ratio within 0.5%. The present value for duty disability for active Special Risk Administrative (No Future DROP Retirement Rates) (SRA) Class members mentioned above clearly passes this test (0.01%) as expected due to the minimal dollar difference. A PASS is assigned to each line present value only if Measure One or Measure Two is passed.

Every line liability PASSES for all Classes and for both retirement rate assumption sets and in our opinion our results have verified the calculations of the Department's actuaries. Our results should not replace the results of the System actuaries. Our calculations are sufficient only for the purpose intended (actuarial review) and are not suitable for any other purpose.

Gabriela Roeder Smith & Company

<u>FLORIDA RETIREMENT SYSTEM</u>			GRAND TOTAL - - No Future DROPs Retirement Rates				
(\$ 000)			Liability Ratio		Liability Test		
<u>Active PVFB</u>	<u>Milliman</u>	<u>GRS</u>	<u>Individual</u>	<u>Total</u>	<u>Individual</u>	<u>PVFB</u>	
					<u>5%</u>	<u>0.5%</u>	<u>Composite</u>
Withdrawal / Early Retirement	\$ 10,035,068	\$ 9,913,391	(0.0121)	(0.0007)	Pass	Pass	Pass
Retirement	59,387,062	61,573,353	0.0368	0.0134	Pass	Fail	Pass
Non-Duty Death	1,314,248	1,436,397	0.0929	0.0007	Fail	Pass	Pass
Duty Death	491,545	559,035	0.1373	0.0004	Fail	Pass	Pass
Non-Duty Disability	1,816,621	1,951,447	0.0742	0.0008	Fail	Pass	Pass
Duty Disability	557,315	604,495	0.0847	0.0003	Fail	Pass	Pass
Return of Contributions	53,773	59,505	0.1066	0.0000	Fail	Pass	Pass
Subtotal	\$ 73,655,632	\$ 76,097,623	0.0332	0.0150	Pass	N/A	Pass
Less PVF Contributions	1,498	1,498	0.0000	0.0000	Pass	Pass	Pass
Total Active PVFB	\$ 73,654,134	\$ 76,096,125	0.0332	0.0150	Pass	N/A	Pass
Count	533,486	533,486	0.0000	N/A	Pass	N/A	Pass
Active PVF Salary:	\$ 230,925,825	\$ 238,313,910	0.0320	N/A	Pass	N/A	Pass
<u>Inactive PVFB</u>							
Retirees	\$ 64,903,070	\$ 66,005,372	0.0170	0.0068	Pass	Fail	Pass
Terminated Vesteds	4,637,774	4,675,123	0.0081	0.0002	Pass	Pass	Pass
DROPs	20,084,177	20,274,438	0.0095	0.0012	Pass	Pass	Pass
Total Inactive	\$ 89,625,021	\$ 90,954,933	0.0148	0.0081	Pass	N/A	Pass
Total	\$ 163,279,155	\$ 167,051,058	0.0231	0.0231	Pass	N/A	Pass

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<u>FLORIDA RETIREMENT SYSTEM</u>			GRAND TOTAL - - No Future DROPs Retirement Rates				
(\$ 000)			Liability Ratio		Liability Test		
<u>Active PVFB</u>	<u>Milliman</u>	<u>GRS</u>	<u>Individual</u>	<u>Total</u>	<u>Individual</u>	<u>PVFB</u>	
					<u>5%</u>	<u>0.5%</u>	<u>Composite</u>
Withdrawal / Early Retirement	\$ 10,035,068	\$ 9,913,391	(0.0121)	(0.0007)	Pass	Pass	Pass
Retirement	59,387,062	61,573,353	0.0368	0.0134	Pass	Fail	Pass
Non-Duty Death	1,314,248	1,436,397	0.0929	0.0007	Fail	Pass	Pass
Duty Death	491,545	559,035	0.1373	0.0004	Fail	Pass	Pass
Non-Duty Disability	1,816,621	1,951,447	0.0742	0.0008	Fail	Pass	Pass
Duty Disability	557,315	604,495	0.0847	0.0003	Fail	Pass	Pass
Return of Contributions	53,773	59,505	0.1066	0.0000	Fail	Pass	Pass
Subtotal	\$ 73,655,632	\$ 76,097,623	0.0332	0.0150	Pass	N/A	Pass
Less PVF Contributions	1,498	1,498	0.0000	0.0000	Pass	Pass	Pass
Total Active PVFB	\$ 73,654,134	\$ 76,096,125	0.0332	0.0150	Pass	N/A	Pass
Count	533,486	533,486	0.0000	N/A	Pass	N/A	Pass
Active PVF Salary:	\$ 230,925,825	\$ 238,313,910	0.0320	N/A	Pass	N/A	Pass
<u>Inactive PVFB</u>							
Retirees	\$ 64,903,070	\$ 66,005,372	0.0170	0.0068	Pass	Fail	Pass
Terminated Vesteds	4,637,774	4,675,123	0.0081	0.0002	Pass	Pass	Pass
DROPs	20,084,177	20,274,438	0.0095	0.0012	Pass	Pass	Pass
Total Inactive	\$ 89,625,021	\$ 90,954,933	0.0148	0.0081	Pass	N/A	Pass
Total	\$ 163,279,155	\$ 167,051,058	0.0231	0.0231	Pass	N/A	Pass

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<u>FLORIDA RETIREMENT SYSTEM</u>		Special Risk Admin (SRA) -- No Future DROPs Retirement Rates						
(\$ 000)				Liability Ratio		Liability Test		
		Milliman	GRS	Individual	Total	Individual	PVFB	
<u>Active PVFB</u>						5%	0.5%	Composite
Withdrawal / Early Retirement	\$ 2,244	\$ 2,397	0.0682	0.0017	Fail	Pass	Pass	Pass
Retirement	8,019	8,078	0.0074	0.0006	Pass	Pass	Pass	Pass
Non-Duty Death	107	86	(0.1963)	(0.0002)	Fail	Pass	Pass	Pass
Duty Death	63	67	0.0635	0.0000	Fail	Pass	Pass	Pass
Non-Duty Disability	189	198	0.0476	0.0001	Pass	Pass	Pass	Pass
Duty Disability	154	165	0.0714	0.0001	Fail	Pass	Pass	Pass
Return of Contributions	1	2	1.0000	0.0000	Fail	Pass	Pass	Pass
Subtotal	\$ 10,777	\$ 10,993	0.0200	0.0023	Pass	N/A	Pass	Pass
Less PVF Contributions	0	0	0.0000	0.0000	Pass	Pass	Pass	Pass
Total Active PVFB	\$ 10,777	\$ 10,993	0.0200	0.0023	Pass	N/A	Pass	Pass
Count	45	45	0.0000	N/A	Pass	N/A	Pass	Pass
Active PVF Salary:	\$ 16,230	\$ 16,604	0.0230	N/A	Pass	N/A	Pass	Pass
<u>Inactive PVFB</u>								
Retirees	\$ 75,488	\$ 76,299	0.0107	0.0088	Pass	Fail	Pass	Pass
Terminated Vesteds	1,596	1,609	0.0081	0.0001	Pass	Pass	Pass	Pass
DROPs	4,092	4,142	0.0122	0.0005	Pass	Pass	Pass	Pass
Total Inactive	\$ 81,176	\$ 82,050	0.0108	0.0095	Pass	N/A	Pass	Pass
Total	\$ 91,953	\$ 93,043	0.0119	0.0119	Pass	N/A	Pass	Pass

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<u>FLORIDA RETIREMENT SYSTEM</u>		Special Risk (SR) -- No Future DROPs Retirement Rates						
(\$ 000)				Liability Ratio		Liability Test		
		Milliman	GRS	Individual	Total	Individual	PVFB	
<u>Active PVFB</u>						5%	0.5%	Composite
Withdrawal / Early Retirement	\$ 1,586,584	\$ 1,584,342	(0.0014)	(0.0001)	Pass	Pass	Pass	Pass
Retirement	15,400,507	15,936,661	0.0348	0.0153	Pass	Fail	Pass	Pass
Non-Duty Death	337,193	419,736	0.2448	0.0024	Fail	Pass	Pass	Pass
Duty Death	176,764	216,476	0.2247	0.0011	Fail	Pass	Pass	Pass
Non-Duty Disability	499,190	531,416	0.0646	0.0009	Fail	Pass	Pass	Pass
Duty Disability	411,647	444,616	0.0801	0.0009	Fail	Pass	Pass	Pass
Return of Contributions	5,696	9,342	0.6401	0.0001	Fail	Pass	Pass	Pass
Subtotal	\$ 18,417,581	\$ 19,142,589	0.0394	0.0207	Pass	N/A	Pass	Pass
Less PVF Contributions	0	0	0.0000	0.0000	Pass	Pass	Pass	Pass
Total Active PVFB	\$ 18,417,581	\$ 19,142,589	0.0394	0.0207	Pass	N/A	Pass	Pass
Count	61,133	61,133	0.0000	N/A	Pass	N/A	Pass	Pass
Active PVF Salary:	\$ 44,409,477	\$ 45,263,727	0.0192	N/A	Pass	N/A	Pass	Pass
<u>Inactive PVFB</u>								
Retirees	\$ 11,745,392	\$ 11,914,033	0.0144	0.0048	Pass	Pass	Pass	Pass
Terminated Vesteds	619,963	624,765	0.0077	0.0001	Pass	Pass	Pass	Pass
DROPs	4,186,248	4,237,152	0.0122	0.0015	Pass	Pass	Pass	Pass
Total Inactive	\$ 16,551,603	\$ 16,775,950	0.0136	0.0064	Pass	N/A	Pass	Pass
Total	\$ 34,969,184	\$ 35,918,539	0.0271	0.0271	Pass	N/A	Pass	Pass

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<u>FLORIDA RETIREMENT SYSTEM</u>		Senior Management (SM) -- No Future DROPs Retirement Rates					
(\$ 000)		Liability Test					
<u>Active PVFB</u>	Milliman	GRS	Liability Ratio		Individual	PVFB	Composite
			Individual	Total	5%	0.5%	
Withdrawal / Early Retirement	\$ 191,452	\$ 188,570	(0.0151)	(0.0007)	Pass	Pass	Pass
Retirement	1,583,122	1,610,499	0.0173	0.0065	Pass	Fail	Pass
Non-Duty Death	28,876	31,161	0.0791	0.0005	Fail	Pass	Pass
Duty Death	8,137	8,925	0.0968	0.0002	Fail	Pass	Pass
Non-Duty Disability	25,352	27,350	0.0788	0.0005	Fail	Pass	Pass
Duty Disability	3,830	4,222	0.1023	0.0001	Fail	Pass	Pass
Return of Contributions	1,060	1,098	0.0358	0.0000	Pass	Pass	Pass
Subtotal	\$ 1,841,829	\$ 1,871,825	0.0163	0.0071	Pass	N/A	Pass
Less PVF Contributions	0	0	0.0000	0.0000	Pass	Pass	Pass
Total Active PVFB	\$1,841,829	\$1,871,825	0.0163	0.0071	Pass	N/A	Pass
Count	5,381	5,381	0.0000	N/A	Pass	N/A	Pass
Active PVF Salary:	\$ 3,832,492	\$ 3,996,349	0.0428	N/A	Pass	N/A	Pass
<u>Inactive PVFB</u>							
Retirees	\$ 1,540,481	\$ 1,566,827	0.0171	0.0063	Pass	Fail	Pass
Terminated Vesteds	153,097	154,297	0.0078	0.0003	Pass	Pass	Pass
DROPs	667,163	676,554	0.0141	0.0022	Pass	Pass	Pass
Total Inactive	\$2,360,741	\$2,397,678	0.0156	0.0088	Pass	N/A	Pass
Total	\$4,202,570	\$4,269,503	0.0159	0.0159	Pass	N/A	Pass

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<u>FLORIDA RETIREMENT SYSTEM</u>		Regular (REG) + TRS + SCOERS + IFAS -- No Future DROPs Retirement Rates					
(\$ 000)		Liability Test					
<u>Active PVFB</u>	Milliman	GRS	Liability Ratio		Individual	PVFB	Composite
			Individual	Total	5%	0.5%	
Withdrawal / Early Retirement	\$ 8,183,748	\$ 8,068,688	(0.0141)	(0.0009)	Pass	Pass	Pass
Retirement	41,828,214	43,438,655	0.0385	0.0132	Pass	Fail	Pass
Non-Duty Death	926,079	958,897	0.0354	0.0003	Pass	Pass	Pass
Duty Death	302,065	329,153	0.0897	0.0002	Fail	Pass	Pass
Non-Duty Disability	1,278,437	1,378,325	0.0781	0.0008	Fail	Pass	Pass
Duty Disability	139,474	153,125	0.0979	0.0001	Fail	Pass	Pass
Return of Contributions	46,862	48,700	0.0392	0.0000	Pass	Pass	Pass
Subtotal	\$ 52,704,879	\$ 54,375,543	0.0317	0.0137	Pass	N/A	Pass
Less PVF Contributions	1,498	1,498	0.0000	0.0000	Pass	Pass	Pass
Total Active PVFB	\$ 52,703,381	\$ 54,374,045	0.0317	0.0137	Pass	N/A	Pass
Count	465,253	465,253	0.0000	N/A	Pass	N/A	Pass
Active PVF Salary:	\$ 181,320,115	\$ 187,666,973	0.0350	N/A	Pass	N/A	Pass
<u>Inactive PVFB</u>							
Retirees	\$ 50,485,823	\$ 51,371,306	0.0175	0.0073	Pass	Fail	Pass
Terminated Vesteds	3,809,817	3,840,729	0.0081	0.0003	Pass	Pass	Pass
DROPs	14,810,580	14,934,226	0.0083	0.0010	Pass	Pass	Pass
Total Inactive	\$ 69,106,220	\$ 70,146,261	0.0150	0.0085	Pass	N/A	Pass
Total	\$ 121,809,601	\$ 124,520,306	0.0223	0.0223	Pass	N/A	Pass

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<u>FLORIDA RETIREMENT SYSTEM</u>		Judicial (J) - No Future DROPs Retirement Rates						
(\$ 000)				Liability Ratio		Liability Test		
<u>Active PVFB</u>	<u>Milliman</u>	<u>GRS</u>	<u>Individual</u>	<u>Total</u>	<u>Individual</u>	<u>PVFB</u>		
					<u>5%</u>	<u>0.5%</u>	<u>Composite</u>	
Withdrawal / Early Retirement	\$ 37,776	\$ 37,035	(0.0196)	(0.0005)	Pass	Pass	Pass	
Retirement	411,648	421,103	0.0230	0.0067	Pass	Fail	Pass	
Non-Duty Death	16,424	19,878	0.2103	0.0025	Fail	Pass	Pass	
Duty Death	3,326	3,212	(0.0343)	(0.0001)	Pass	Pass	Pass	
Non-Duty Disability	10,298	10,773	0.0461	0.0003	Pass	Pass	Pass	
Duty Disability	1,674	1,778	0.0621	0.0001	Fail	Pass	Pass	
Return of Contributions	31	213	5.8710	0.0001	Fail	Pass	Pass	
Subtotal	\$ 481,177	\$ 493,992	0.0266	0.0091	Pass	N/A	Pass	
Less PVF Contributions	0	0	0.0000	0.0000	Pass	Pass	Pass	
Total Active PVFB	\$ 481,177	\$ 493,992	0.0266	0.0091	Pass	N/A	Pass	
Count	706	706	0.0000	N/A	Pass	N/A	Pass	
Active PVF Salary:	\$ 980,804	\$ 991,432	0.0108	N/A	Pass	N/A	Pass	
<u>Inactive PVFB</u>								
Retirees	\$ 608,386	\$ 621,342	0.0213	0.0092	Pass	Fail	Pass	
Terminated Vesteds	16,948	17,084	0.0080	0.0001	Pass	Pass	Pass	
DROPs	302,255	307,230	0.0165	0.0035	Pass	Pass	Pass	
Total Inactive	\$ 927,589	\$ 945,656	0.0195	0.0128	Pass	N/A	Pass	
Total	\$1,408,766	\$1,439,648	0.0219	0.0219	Pass	N/A	Pass	

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<u>FLORIDA RETIREMENT SYSTEM</u>		Legislative - Attorney - Cabinet (ESO) - No Future DROPs Retirement Rates						
(\$ 000)				Liability Ratio		Liability Test		
<u>Active PVFB</u>	<u>Milliman</u>	<u>GRS</u>	<u>Individual</u>	<u>Total</u>	<u>Individual</u>	<u>PVFB</u>		
					<u>5%</u>	<u>0.5%</u>	<u>Composite</u>	
Withdrawal / Early Retirement	\$ 6,033	\$ 5,806	(0.0376)	(0.0019)	Pass	Pass	Pass	
Retirement	16,349	16,708	0.0220	0.0030	Pass	Pass	Pass	
Non-Duty Death	682	837	0.2273	0.0013	Fail	Pass	Pass	
Duty Death	156	159	0.0192	0.0000	Pass	Pass	Pass	
Non-Duty Disability	392	417	0.0638	0.0002	Fail	Pass	Pass	
Duty Disability	71	77	0.0845	0.0000	Fail	Pass	Pass	
Return of Contributions	17	19	0.1176	0.0000	Fail	Pass	Pass	
Subtotal	\$ 23,700	\$ 24,023	0.0136	0.0027	Pass	N/A	Pass	
Less PVF Contributions	0	0	0.0000	0.0000	Pass	Pass	Pass	
Total Active PVFB	\$ 23,700	\$ 24,023	0.0136	0.0027	Pass	N/A	Pass	
Count	113	113	0.0000	N/A	Pass	N/A	Pass	
Active PVF Salary:	\$ 43,651	\$ 45,644	0.0457	N/A	Pass	N/A	Pass	
<u>Inactive PVFB</u>								
Retirees	\$ 65,053	\$ 65,752	0.0107	0.0058	Pass	Fail	Pass	
Terminated Vesteds	11,488	11,577	0.0077	0.0007	Pass	Pass	Pass	
DROPs	20,165	20,472	0.0152	0.0025	Pass	Pass	Pass	
Total Inactive	\$ 96,706	\$ 97,801	0.0113	0.0091	Pass	N/A	Pass	
Total	\$ 120,406	\$ 121,824	0.0118	0.0118	Pass	N/A	Pass	

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<u>FLORIDA RETIREMENT SYSTEM</u>		<u>Elected County Officials (ECO) - - No Future DROPs Retirement Rates</u>						
(\$ 000)				<u>Liability Ratio</u>		<u>Liability Test</u>		
<u>Active PVFB</u>	<u>Milliman</u>	<u>GRS</u>	<u>Individual</u>	<u>Total</u>	<u>5%</u>	<u>PVFB</u>	<u>0.5%</u>	<u>Composite</u>
Withdrawal / Early Retirement	\$ 27,231	\$ 26,553	(0.0249)	(0.0010)	Pass	Pass	Pass	Pass
Retirement	139,203	141,649	0.0176	0.0036	Pass	Pass	Pass	Pass
Non-Duty Death	4,887	5,802	0.1872	0.0014	Fail	Pass	Pass	Pass
Duty Death	1,034	1,043	0.0087	0.0000	Pass	Pass	Pass	Pass
Non-Duty Disability	2,763	2,968	0.0742	0.0003	Fail	Pass	Pass	Pass
Duty Disability	465	512	0.1011	0.0001	Fail	Pass	Pass	Pass
Return of Contributions	106	131	0.2358	0.0000	Fail	Pass	Pass	Pass
Subtotal	\$ 175,689	\$ 178,658	0.0169	0.0044	Pass	N/A	Pass	Pass
Less PVF Contributions	0	0	0.0000	0.0000	Pass	Pass	Pass	Pass
Total Active PVFB	\$ 175,689	\$ 178,658	0.0169	0.0044	Pass	N/A	Pass	Pass
Count	855	855	0.0000	N/A	Pass	N/A	Pass	Pass
Active PVF Salary:	\$ 323,056	\$ 333,181	0.0313	N/A	Pass	N/A	Pass	Pass
<u>Inactive PVFB</u>								
Retirees	\$ 382,447	\$ 389,813	0.0193	0.0109	Pass	Fail	Pass	Pass
Terminated Vesteds	24,865	25,062	0.0079	0.0003	Pass	Pass	Pass	Pass
DROPs	93,674	94,662	0.0105	0.0015	Pass	Pass	Pass	Pass
Total Inactive	\$ 500,986	\$ 509,537	0.0171	0.0126	Pass	N/A	Pass	Pass
Total	\$ 676,675	\$ 688,195	0.0170	0.0170	Pass	N/A	Pass	Pass

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<u>FLORIDA RETIREMENT SYSTEM</u>		<u>GRAND TOTAL - - Future DROPs Retirement Rates</u>						
(\$ 000)				<u>Liability Ratio</u>		<u>Liability Test</u>		
<u>Active PVFB</u>	<u>Milliman</u>	<u>GRS</u>	<u>Individual</u>	<u>Total</u>	<u>5%</u>	<u>PVFB</u>	<u>0.5%</u>	<u>Composite</u>
Withdrawal / Early Retirement	\$ 10,035,068	\$ 9,913,390	(0.0121)	(0.0007)	Pass	Pass	Pass	Pass
Retirement	60,289,666	62,394,012	0.0349	0.0128	Pass	Fail	Pass	Pass
Non-Duty Death	1,154,238	1,247,101	0.0805	0.0006	Fail	Pass	Pass	Pass
Duty Death	455,121	517,490	0.1370	0.0004	Fail	Pass	Pass	Pass
Non-Duty Disability	1,690,107	1,821,268	0.0776	0.0008	Fail	Pass	Pass	Pass
Duty Disability	514,563	559,055	0.0865	0.0003	Fail	Pass	Pass	Pass
Return of Contributions	53,773	55,997	0.0414	0.0000	Pass	Pass	Pass	Pass
Subtotal	\$ 74,192,536	\$ 76,508,313	0.0312	0.0141	Pass	N/A	Pass	Pass
Less PVF Contributions	1,498	1,498	0.0000	0.0000	Pass	Pass	Pass	Pass
Total Active PVFB	\$ 74,191,038	\$ 76,506,815	0.0312	0.0141	Pass	N/A	Pass	Pass
Count	533,486	533,486	0.0000	N/A	Pass	N/A	Pass	Pass
Active PVF Salary:	\$ 219,603,319	\$ 227,187,626	0.0345	N/A	Pass	N/A	Pass	Pass
<u>Inactive PVFB</u>								
Retirees	\$ 64,903,070	\$ 66,005,372	0.0170	0.0067	Pass	Fail	Pass	Pass
Terminated Vesteds	4,637,774	4,675,123	0.0081	0.0002	Pass	Pass	Pass	Pass
DROPs	20,084,177	20,274,438	0.0095	0.0012	Pass	Pass	Pass	Pass
Total Inactive	\$ 89,625,021	\$ 90,954,933	0.0148	0.0081	Pass	N/A	Pass	Pass
Total	\$ 163,816,059	\$ 167,461,748	0.0223	0.0223	Pass	N/A	Pass	Pass

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<u>FLORIDA RETIREMENT SYSTEM</u>		Special Risk Admin (SRA) -- Future DROPs Retirement Rates						
(\$ 000)				Liability Ratio			Liability Test	
<u>Active PVFB</u>	<u>Milliman</u>	<u>GRS</u>	<u>Individual</u>	<u>Total</u>	<u>Individual</u>	<u>PVFB</u>		
					<u>5%</u>	<u>0.5%</u>	<u>Composite</u>	
Withdrawal / Early Retirement	\$ 2,244	\$ 2,397	0.0682	0.0017	Fail	Pass	Pass	
Retirement	8,077	8,142	0.0080	0.0007	Pass	Pass	Pass	
Non-Duty Death	95	74	(0.2211)	(0.0002)	Fail	Pass	Pass	
Duty Death	58	61	0.0517	0.0000	Fail	Pass	Pass	
Non-Duty Disability	172	180	0.0465	0.0001	Pass	Pass	Pass	
Duty Disability	139	149	0.0719	0.0001	Fail	Pass	Pass	
Return of Contributions	1	2	1.0000	0.0000	Fail	Pass	Pass	
Subtotal	\$ 10,786	\$ 11,005	0.0203	0.0024	Pass	N/A	Pass	
Less PVF Contributions	0	0	0.0000	0.0000	Pass	Pass	Pass	
Total Active PVFB	\$ 10,786	\$ 11,005	0.0203	0.0024	Pass	N/A	Pass	
Count	45	45	0.0000	N/A	Pass	N/A	Pass	
Active PVF Salary:	\$ 14,988	\$ 15,412	0.0283	N/A	Pass	N/A	Pass	
Inactive PVFB								
Retirees	\$ 75,488	\$ 76,299	0.0107	0.0088	Pass	Fail	Pass	
Terminated Vesteds	1,596	1,609	0.0081	0.0001	Pass	Pass	Pass	
DROPs	4,092	4,142	0.0122	0.0005	Pass	Pass	Pass	
Total Inactive	\$ 81,176	\$ 82,050	0.0108	0.0095	Pass	N/A	Pass	
Total	\$ 91,962	\$ 93,055	0.0119	0.0119	Pass	N/A	Pass	

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<u>FLORIDA RETIREMENT SYSTEM</u>		Special Risk (SR) -- Future DROPs Retirement Rates						
(\$ 000)				Liability Ratio			Liability Test	
<u>Active PVFB</u>	<u>Milliman</u>	<u>GRS</u>	<u>Individual</u>	<u>Total</u>	<u>Individual</u>	<u>PVFB</u>		
					<u>5%</u>	<u>0.5%</u>	<u>Composite</u>	
Withdrawal / Early Retirement	\$ 1,586,584	\$ 1,584,342	(0.0014)	(0.0001)	Pass	Pass	Pass	
Retirement	15,707,798	16,228,238	0.0331	0.0148	Pass	Fail	Pass	
Non-Duty Death	305,504	377,326	0.2351	0.0020	Fail	Pass	Pass	
Duty Death	165,817	201,718	0.2165	0.0010	Fail	Pass	Pass	
Non-Duty Disability	465,165	495,944	0.0662	0.0009	Fail	Pass	Pass	
Duty Disability	380,724	411,532	0.0809	0.0009	Fail	Pass	Pass	
Return of Contributions	5,696	8,826	0.5495	0.0001	Fail	Pass	Pass	
Subtotal	\$ 18,617,288	\$ 19,307,926	0.0371	0.0196	Pass	N/A	Pass	
Less PVF Contributions	0	0	0.0000	0.0000	Pass	Pass	Pass	
Total Active PVFB	\$ 18,617,288	\$ 19,307,926	0.0371	0.0196	Pass	N/A	Pass	
Count	61,133	61,133	0.0000	N/A	Pass	N/A	Pass	
Active PVF Salary:	\$ 42,484,360	\$ 43,362,504	0.0207	N/A	Pass	N/A	Pass	
Inactive PVFB								
Retirees	\$ 11,745,392	\$ 11,914,033	0.0144	0.0048	Pass	Pass	Pass	
Terminated Vesteds	619,963	624,765	0.0077	0.0001	Pass	Pass	Pass	
DROPs	4,186,248	4,237,152	0.0122	0.0014	Pass	Pass	Pass	
Total Inactive	\$ 16,551,603	\$ 16,775,950	0.0136	0.0064	Pass	N/A	Pass	
Total	\$ 35,168,891	\$ 36,083,876	0.0260	0.0260	Pass	N/A	Pass	

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<u>FLORIDA RETIREMENT SYSTEM</u>		Senior Management (SM) - - Future DROPs Retirement Rates						
(\$ 000)							Liability Test	
<u>Active PVFB</u>	<u>Milliman</u>	<u>GRS</u>	<u>Liability Ratio</u>		<u>Individual</u>	<u>PVFB</u>	<u>Composite</u>	
			<u>Individual</u>	<u>Total</u>	<u>5%</u>	<u>0.5%</u>		
Withdrawal / Early Retirement	\$ 191,452	\$ 188,570	(0.0151)	(0.0007)	Pass	Pass	Pass	
Retirement	1,591,404	1,618,601	0.0171	0.0065	Pass	Fail	Pass	
Non-Duty Death	25,407	27,049	0.0646	0.0004	Fail	Pass	Pass	
Duty Death	7,483	8,242	0.1014	0.0002	Fail	Pass	Pass	
Non-Duty Disability	23,279	25,263	0.0852	0.0005	Fail	Pass	Pass	
Duty Disability	3,532	3,917	0.1090	0.0001	Fail	Pass	Pass	
Return of Contributions	1,060	1,042	(0.0170)	0.0000	Pass	Pass	Pass	
Subtotal	\$ 1,843,617	\$ 1,872,684	0.0158	0.0069	Pass	N/A	Pass	
Less PVF Contributions	0	0	0.0000	0.0000	Pass	Pass	Pass	
Total Active PVFB	\$1,843,617	\$1,872,684	0.0158	0.0069	Pass	N/A	Pass	
Count	5,381	5,381	0.0000	N/A	Pass	N/A	Pass	
Active PVF Salary:	\$ 3,622,223	\$ 3,791,776	0.0468	N/A	Pass	N/A	Pass	
<u>Inactive PVFB</u>								
Retirees	\$ 1,540,481	\$ 1,566,827	0.0171	0.0063	Pass	Fail	Pass	
Terminated Vesteds	153,097	154,297	0.0078	0.0003	Pass	Pass	Pass	
DROPs	667,163	676,554	0.0141	0.0022	Pass	Pass	Pass	
Total Inactive	\$2,360,741	\$2,397,678	0.0156	0.0088	Pass	N/A	Pass	
Total	\$4,204,358	\$4,270,362	0.0157	0.0157	Pass	N/A	Pass	

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<u>FLORIDA RETIREMENT SYSTEM</u>		Regular (REG) +TRS+SCOERS + IFAS - - Future DROPs Retirement Rates						
(\$ 000)							Liability Test	
<u>Active PVFB</u>	<u>Milliman</u>	<u>GRS</u>	<u>Liability Ratio</u>		<u>Individual</u>	<u>PVFB</u>	<u>Composite</u>	
			<u>Individual</u>	<u>Total</u>	<u>5%</u>	<u>0.5%</u>		
Withdrawal / Early Retirement	\$ 8,183,748	\$ 8,068,688	(0.0141)	(0.0009)	Pass	Pass	Pass	
Retirement	42,408,569	43,953,367	0.0364	0.0126	Pass	Fail	Pass	
Non-Duty Death	802,775	818,091	0.0191	0.0001	Pass	Pass	Pass	
Duty Death	277,504	303,280	0.0929	0.0002	Fail	Pass	Pass	
Non-Duty Disability	1,188,717	1,286,402	0.0822	0.0008	Fail	Pass	Pass	
Duty Disability	128,070	141,204	0.1026	0.0001	Fail	Pass	Pass	
Return of Contributions	46,862	45,784	(0.0230)	0.0000	Pass	Pass	Pass	
Subtotal	\$ 53,036,245	\$ 54,616,816	0.0298	0.0129	Pass	N/A	Pass	
Less PVF Contributions	1,498	1,498	0.0000	0.0000	Pass	Pass	Pass	
Total Active PVFB	\$ 53,034,747	\$ 54,615,318	0.0298	0.0129	Pass	N/A	Pass	
Count	465,253	465,253	0.0000	N/A	Pass	N/A	Pass	
Active PVF Salary:	\$ 172,189,174	\$ 178,700,822	0.0378	N/A	Pass	N/A	Pass	
<u>Inactive PVFB</u>								
Retirees	\$ 50,485,823	\$ 51,371,306	0.0175	0.0072	Pass	Fail	Pass	
Terminated Vesteds	3,809,817	3,840,729	0.0081	0.0003	Pass	Pass	Pass	
DROPs	14,810,580	14,934,226	0.0083	0.0010	Pass	Pass	Pass	
Total Inactive	\$ 69,106,220	\$ 70,146,261	0.0150	0.0085	Pass	N/A	Pass	
Total	\$122,140,967	\$124,761,579	0.0215	0.0215	Pass	N/A	Pass	

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<u>FLORIDA RETIREMENT SYSTEM</u>		Judicial (J) - - Future DROPs Retirement Rates					
(\$ 000)				Liability Test			
<u>Active PVFB</u>	<u>Milliman</u>	<u>GRS</u>	<u>Liability Ratio</u>		<u>Individual</u>	<u>PVFB</u>	<u>Composite</u>
			<u>Individual</u>	<u>Total</u>	<u>5%</u>	<u>0.5%</u>	
Withdrawal / Early Retirement	\$ 37,776	\$ 37,035	(0.0196)	(0.0005)	Pass	Pass	Pass
Retirement	416,391	425,602	0.0221	0.0065	Pass	Fail	Pass
Non-Duty Death	15,242	18,360	0.2046	0.0022	Fail	Pass	Pass
Duty Death	3,129	3,042	(0.0278)	(0.0001)	Pass	Pass	Pass
Non-Duty Disability	9,776	10,254	0.0489	0.0003	Pass	Pass	Pass
Duty Disability	1,587	1,690	0.0649	0.0001	Fail	Pass	Pass
Return of Contributions	31	197	5.3548	0.0001	Fail	Pass	Pass
Subtotal	\$ 483,932	\$ 496,180	0.0253	0.0087	Pass	N/A	Pass
Less PVF Contributions	0	0	0.0000	0.0000	Pass	Pass	Pass
Total Active PVFB	\$ 483,932	\$ 496,180	0.0253	0.0087	Pass	N/A	Pass
Count	706	706	0.0000	N/A	Pass	N/A	Pass
Active PVF Salary:	\$ 939,975	\$ 951,965	0.0128	N/A	Pass	N/A	Pass
<u>Inactive PVFB</u>							
Retirees	\$ 608,386	\$ 621,342	0.0213	0.0092	Pass	Fail	Pass
Terminated Vesteds	16,948	17,084	0.0080	0.0001	Pass	Pass	Pass
DROPs	302,255	307,230	0.0165	0.0035	Pass	Pass	Pass
Total Inactive	\$ 927,589	\$ 945,656	0.0195	0.0128	Pass	N/A	Pass
Total	\$1,411,521	\$1,441,836	0.0215	0.0215	Pass	N/A	Pass

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<u>FLORIDA RETIREMENT SYSTEM</u>		Legislative - Attorney - Cabinet (ESO) - - Future DROPs Retirement Rates					
(\$ 000)				Liability Test			
<u>Active PVFB</u>	<u>Milliman</u>	<u>GRS</u>	<u>Liability Ratio</u>		<u>Individual</u>	<u>PVFB</u>	<u>Composite</u>
			<u>Individual</u>	<u>Total</u>	<u>5%</u>	<u>0.5%</u>	
Withdrawal / Early Retirement	\$ 6,033	\$ 5,806	(0.0376)	(0.0019)	Pass	Pass	Pass
Retirement	16,328	16,655	0.0200	0.0027	Pass	Pass	Pass
Non-Duty Death	640	787	0.2297	0.0012	Fail	Pass	Pass
Duty Death	148	152	0.0270	0.0000	Pass	Pass	Pass
Non-Duty Disability	374	400	0.0695	0.0002	Fail	Pass	Pass
Duty Disability	68	74	0.0882	0.0000	Fail	Pass	Pass
Return of Contributions	17	19	0.1176	0.0000	Fail	Pass	Pass
Subtotal	\$ 23,608	\$ 23,893	0.0121	0.0024	Pass	N/A	Pass
Less PVF Contributions	0	0	0.0000	0.0000	Pass	Pass	Pass
Total Active PVFB	\$ 23,608	\$ 23,893	0.0121	0.0024	Pass	N/A	Pass
Count	113	113	0.0000	N/A	Pass	N/A	Pass
Active PVF Salary:	\$ 42,210	\$ 44,272	0.0489	N/A	Pass	N/A	Pass
<u>Inactive PVFB</u>							
Retirees	\$ 65,053	\$ 65,752	0.0107	0.0058	Pass	Fail	Pass
Terminated Vesteds	11,488	11,577	0.0077	0.0007	Pass	Pass	Pass
DROP Subtotal	20,165	20,472	0.0152	0.0026	Pass	Pass	Pass
Total Inactive	\$ 96,706	\$ 97,801	0.0113	0.0091	Pass	N/A	Pass
Total	\$ 120,314	\$ 121,694	0.0115	0.0115	Pass	N/A	Pass

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<u>FLORIDA RETIREMENT SYSTEM</u>		Elected County Officers (ECO) -- Future DROPs Retirement Rates					
(\$ 000)		Liability Ratio				Liability Test	
	Milliman	GRS	Individual	Total	Individual	PVFB	
					5%	0.5%	Composite
<u>Active PVFB</u>							
Withdrawal / Early Retirement	\$ 27,231	\$ 26,552	(0.0249)	(0.0010)	Pass	Pass	Pass
Retirement	141,099	143,407	0.0164	0.0034	Pass	Pass	Pass
Non-Duty Death	4,575	5,414	0.1834	0.0012	Fail	Pass	Pass
Duty Death	982	995	0.0132	0.0000	Pass	Pass	Pass
Non-Duty Disability	2,624	2,825	0.0766	0.0003	Fail	Pass	Pass
Duty Disability	443	489	0.1038	0.0001	Fail	Pass	Pass
Return of Contributions	106	127	0.1981	0.0000	Fail	Pass	Pass
Subtotal	\$ 177,060	\$ 179,809	0.0155	0.0041	Pass	N/A	Pass
Less PVF Contributions	0	0	0.0000	0.0000	Pass	Pass	Pass
Total Active PVFB	\$ 177,060	\$ 179,809	0.0155	0.0041	Pass	N/A	Pass
Count	855	855	0.0000	N/A	Pass	N/A	Pass
Active PVF Salary:	\$ 310,389	\$ 320,875	0.0338	N/A	Pass	N/A	Pass
<u>Inactive PVFB</u>							
Retirees	\$ 382,447	\$ 389,813	0.0193	0.0109	Pass	Fail	Pass
Terminated Vesteds	24,865	25,062	0.0079	0.0003	Pass	Pass	Pass
DROPs	93,674	94,662	0.0105	0.0015	Pass	Pass	Pass
Total Inactive	\$ 500,986	\$ 509,537	0.0171	0.0126	Pass	N/A	Pass
Total	\$ 678,046	\$ 689,346	0.0167	0.0167	Pass	N/A	Pass

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Appendix B



RICK SCOTT
Governor

DEPARTMENT OF MANAGEMENT
SERVICES

SCOTT STEWART
Interim Secretary

4050 Esplanade Way | Tallahassee, Florida 32399-0950 | Tel: 850.488.2786 | Fax: 850.922.6149

June 21, 2012

Mr. R. Phillip Twogood, Coordinator
Office of Program Policy Analysis and
Government Accountability
Claude Pepper Building Room 312
111 West Madison Street
Tallahassee, FL 32399-1450

Dear Mr. Twogood:

Pursuant to Section 11.51(5), Florida Statutes, this is our response to your report, **Florida Retirement System Pension Plan Valuation Met Standards**. Our response corresponds with the order of the preliminary and tentative findings and recommendations contained in the draft report.

If further information is needed concerning our response, please contact Steve Rumph, Inspector General or John Davis, Audit Director, at 488-5285.

Sincerely,

A handwritten signature in black ink that reads "Scott Stewart".

Scott Stewart
Interim Secretary

Attachment

cc: Sarabeth Snuggs, Director, Division of Retirement
David W. Martin, Auditor General
Kathy Dubose, Staff Director, Joint Legislative Auditing Committee
Kim Mills, Director of Auditing, Chief Inspector General's Office

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**Department of Management Services' Response
To the OPPAGA's Preliminary and Tentative Report**

***Florida Retirement System Pension Plan Valuation Met
Standards***

Overall Result: In general, the Pension Plan's 2011 valuation was conducted in accordance with standards and its assumptions and methods were deemed reasonable. However, our consulting actuary developed several additional findings, which are summarized below.

Conclusions: OPPAGA's actuary, Gabriel, Roeder, Smith & Company, continues to believe that the FRS actuarial valuation should:

- ***Disclose the 10-year history of payroll growth and***
- ***Include disclosures of the normal costs and actuarial gains and losses fully reflecting the DROP, as well as the disclosure of the present value of future benefits fully reflecting the DROP.***

Findings:

OPPAGA Finding #1: Treatment of Drop is non-traditional and may understate the actuarial liability.

Agency Response: The department agrees that the Deferred Retirement Option Program (DROP) funding method adopted by the Legislature is non-traditional. The department's consulting actuary continues to recommend a more traditional DROP funding method and has recommended a more traditional method since the program became effective July 1, 1998.

The 2011 valuation reflects the impact of the DROP funding method in current law. Actuarial special studies have been performed about changing the DROP funding method and have provided two traditional approaches for DROP funding. The most recent study was performed for consideration during the 2010 General Legislative Session. Should the Legislature change the DROP funding method, future valuations will reflect the adopted change.

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OPPAGA Finding #2: Payroll growth assumption exceeds actual payroll growth.

Agency Response: The department concurs that the payroll growth assumption exceeds the recent actual experience but assumptions are set for long-term usage and generally adjusted based on periodic experience studies. As required by section 216.136(10), Florida Statutes, actuarial assumptions are determined by the FRS Actuarial Assumption Conference. Actuarial assumptions can be changed at any time by the Assumption Conference.

At a minimum, the department's consulting actuary performs an experience study every five years and recommends assumption changes, if needed, based on the FRS Pension Plan experience. The next experience study will be for plan years 2008-09 through 2012-13 and any adopted recommendations will be incorporated into the 2014 FRS Pension Plan valuation.

When looking at payroll growth over time it should be noted that the payrolls for the State University System Optional Retirement Program, the Senior Management Service Optional Annuity Program, and the Deferred Retirement Option Program participants were not included in the payroll base for comparison while the FRS Pension Plan was in actuarial surplus.

The department's consulting actuary noted in his presentations to the FRS Actuarial Assumption Conference in 2010 and 2011 that based on recent experience the payroll growth assumption may need to be reviewed but other related economic assumptions should be reviewed at the same time. Inflation is a component of the payroll growth assumption, the individual salary scale assumption, and the investment return assumption. If inflation is being adjusted, all these assumptions should be reviewed for changes at the same time.

OPPAGA Finding #3: Actuarial methodology for entry-age-normal cost appears aggressive compared to the traditional method of calculating these costs.

Agency Response: The department's consulting actuary, Milliman, Inc., has consistently used the "ultimate" entry-age-normal cost method as the actuarial cost method since 1987. This cost method was adopted based on the methodology used by the previous actuary and because it provides a more predictable normal cost structure while an unfunded actuarial liability (UAL) must be paid off within 30 plan years as required in section 121.031(4), Florida Statutes.

The "traditional" entry-age-normal cost methods treat the fiscal impact of benefit changes differently than "ultimate" entry-age. Both versions of entry-age recognize and value all future benefits legislated for current and former plan participants. The

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difference is in the incidence of cost and what is allocated to the “past” and referred to as the actuarial liability and what is allocated to the “future” and referred to as the present value of future normal cost (PVFNC). Normal cost is the portion of PVFNC allocated to the current year. Ultimate entry-age bases PVFNC on the benefits legislated for new hires leading to a stable normal cost whereas “traditional” entry-age bases PVFNC in some manner on the benefits promised to current employees leading to a normal cost that will increase or decrease over the years. For example, when there is a benefit reduction such as the one enacted in 2011, the actuary’s recommended rates resulting from a traditional entry-age cost method would have significantly reduced the amount of savings that could be recognized to reduce employer contribution rates beginning in 2011-12, as the normal costs would have been higher. The savings would slowly emerge and would not be a level percent of pay.

We note that Gabriel, Roeder, Smith & Company is the consulting actuary to the Texas Teachers Retirement System, the Arkansas Public Employees Retirement System, and Arkansas State Police Retirement System; all these systems use the ultimate entry-age-normal cost method. We also note that James Rizzo, Senior Consultant and Actuary with Gabriel, Roeder, Smith & Company stated in his September 17, 2010, letter to the Director of Research and Technical Activities with the Governmental Accounting Standards Board about the preliminary views on changes to pension accounting and financial reporting by governmental employers made the following comments about entry-age-normal cost:

“There is a variation on the entry age normal cost method (called replacement life or ultimate entry age normal) that can be useful in certain circumstances to achieve given funding objectives of decision-makers. The method does not necessarily lower the current contributions, but it can. It is designed to level out the contributions (as a percent of pay) when there has been a significant change (up or down) in benefit formulas for future tiers of new employees or for the same group of employees for future years. Under the traditional entry age normal cost method, those two situations would result in contribution patterns that are designed to rise or decline for the whole group over time (because the benefit formulas change over time), although level as a percent of pay for each individual. Budget directors generally prefer level contribution rates for the group, or at least designed to be level if all the assumptions were met. So the replacement life or ultimate entry age raises and lowers the normal cost and amortization payments to achieve level contribution rates for the group over time.

For accounting and financial reporting purposes, I recommend the traditional version of entry age normal. Sometimes this variation of the entry age method is appropriate for funding purposes. However, for accounting and financial reporting purposes, I think the GASB should make all governments use the traditional entry age method, for reasons of (a) comparability among

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governments and (b) consistency with other principles the GASB has already embraced."

OPPAGA Finding #4: Actuarial assumptions for the inactive healthy mortality rates appear conservative when compared to actual experience.

Agency Response: The current actuarial assumptions for post-retirement healthy mortality rates are based on the RP-2000 Healthy White Collar tables for males and females. A generational approach is applied using Scale AA to account for future mortality improvement for non-disabled retirees and then adjusted for actual plan experience. This methodology is utilized to anticipate changes in mortality. Recommendations and resulting changes to these post-retirement mortality rates adopted by the FRS Actuarial Assumption Conference have been tied to the results of past experience studies. The upcoming experience study will provide more information in consideration of changing these assumptions. The Society of Actuaries is currently performing a Pension Plan Mortality Project and the results of this project will provide guidance for adjusting the post-retirement mortality rates for the FRS Pension Plan.