

APPENDIX A-1

STATE OF MISSISSIPPI

Office of the Governor



Executive Order

PUBLIC EMPLOYEES' RETIREMENT SYSTEM STUDY COMMISSION

WHEREAS, a comprehensive and thorough study of the Public Employees' Retirement System is necessary to ensure the solvency of the fund, to inform the public and current and future state employees, and to protect the interests of taxpayers, state employees, and retired state employees; and

WHEREAS, Mississippi should review the financial, investment, and management structure of PERS to ensure its long-term sustainability; and

WHEREAS, Mississippi is not unique in facing pension funding issues; in fact, many states across the nation have begun to look at ways to reform their public pension funds; and

WHEREAS, before further reforms to the state's pension fund are enacted, a thorough study should be conducted by knowledgeable and respected individuals to review all options with an eye toward informing and protecting both the beneficiaries (employees and retirees) and those who fund the system (taxpayers);

NOW, THEREFORE, I, Haley Barbour, Governor of the State of Mississippi, under and by virtue of the Constitution and laws of this state, do hereby promulgate the following executive order, effective immediately.

There is hereby created and established a Public Employees' Retirement System Study Commission. The commission shall be independent of the Public Employees' Retirement System, a state agency, and shall be charged with making recommendations on improving the financial, management, and investment structure of PERS. The responsibilities of the commission include, but are not limited to:

- Analyzing the financial structure and funding mechanism of PERS, including an analysis of the ratio of taxpayer to employee contributions;
- Analyzing the management structure of the agency, including the make up of the PERS Board of Trustees;
- Analyzing the investment structure of PERS, including any comparison to similarly-sized funds, as well as larger funds, with respect to performance and fees charged;
- Analyzing the legality of modifying the benefit structure for current and future state employees;
- Analyzing any and all actuarial assumptions for the PERS plan;
- Analyzing what experts have been engaged by PERS, what their responsibilities are, how much they are paid, and what benefits and services PERS receives from these experts; and
- Analyzing any other issue related to PERS that will help promote solvency and ensure the interests of taxpayers, state employees, and retired state employees are protected.

The Public Employees' Retirement System Study Commission shall be funded by any funds made available to the commission from any source, including local, state, and federal funds as well as private contributions.

The Commission shall consist of twelve (12) members, who shall be appointed by the Governor and shall serve at his will and pleasure. Legislative members shall serve in an ex-officio, nonvoting capacity. The Governor shall designate one member of the Commission to serve as its Chairman, who shall hold that post at the will and pleasure of the Governor. The Chairman has the exclusive authority to convene the Commission.

The Public Employees' Retirement System Study Commission shall meet at such time and in such location as determined by the chair of the commission. The commission shall provide a comprehensive analysis along with recommendations for improving the state's retirement system to the Legislature and Governor no later than November 15, 2011.

APPENDIX A-2

WHAT IS THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM (PERS)?

PERS is a governmental defined benefit plan qualified under Section 401(a) of the Internal Revenue Code of 1986, as amended, that was established by the state Legislature in 1952 to provide benefits to eligible Mississippi public employees working for state agencies, universities, community colleges, and public schools, as well as counties, cities, and other participating political subdivisions. Unlike a defined contribution plan (e.g., a 401(k)-type plan) where a member's retirement benefit is based on contributions and any investment earnings accumulated in that member's account, the plan determines a member's retirement benefit using a formula based on the member's average compensation, years of creditable service, and the benefit payment option selected at retirement.

The PERS trust fund operates on a fiscal year from July 1 through June 30. All funds are held in trust for the exclusive benefit of the members. Funding for PERS comes from three sources: employer contributions (including city, county, and state governmental entities); employee contributions; and investment earnings on those contributions. The system is administered by a 10-member PERS Board of Trustees, and any political subdivision or juristic entity within the State of Mississippi may elect to have its employees covered by PERS. The election is irrevocable.

Membership in PERS is a condition of employment and eligibility is granted upon hiring for all State agency and university employees. For those employed by political subdivisions and instrumentalities of the State, membership is contingent upon the PERS Board of Trustees' approval of the entity's participation in the plan. If approved, membership is a condition of employment and eligibility is granted upon hiring.

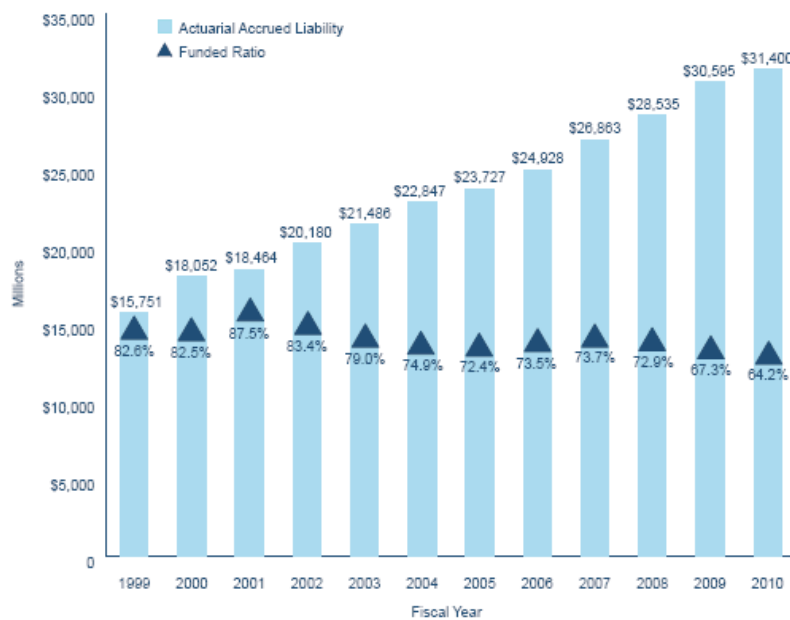
Participating employees hired on or before July 1, 2011, who are vested and retire at or after age 60 or those who retire regardless of age with at least 25 years of credited service are entitled to an annual retirement allowance, payable monthly for life, in an amount equal to 2 percent of their average compensation for each year of credited service up to and including 25 years, plus 2.5% for each year of credited service over 25 years. An annual cost-of-living adjustment is provided to retirees at a fixed rate of 3 percent until age 55; after 55, the COLA begins to compound annually. For members who entered the System before July 1, 2007, benefits vest upon completion of 4 years of membership service. For members who enter the System on or after July 1, 2007, benefits vest upon completion of 8 years of membership service. For members who enter the System on or after July 1, 2011, the benefit structure is slightly different, with the 2.5 percent retirement benefit multiplier beginning after 30 years of service; the 3 percent compounding of the COLA beginning at age 60; and an actuarially reduced benefit for those employees that retire at age 60 with less than 30 years of service. PERS also provides certain death and disability benefits. Retirees and beneficiaries have the option of maintaining health and other coverage at their own expense.

Beginning with fiscal year 2007, the Governmental Accounting Standards Board (GASB) Statement No. 25 required a maximum acceptable amortization period for the total unfunded actuarial liability for public pension systems of not more than 30 years. In order to comply with the GASB statement, the PERS Board has set the employer contribution rate for PERS-covered entities at 12 percent, a rate which will increase to 12.93 percent in January 2012 and is projected to increase to 14.26 percent in July 2012. The employee contribution is currently 9 percent of payroll, as a result of a special legislative session in 2010 during which the Legislature mandated an increase in the employee, or beneficiary, rate. The projected annual required contribution amount for Fiscal Year 2012 is \$735 million. At June 30, 2011, PERS was actuarially funded at 62.2 percent. The system's unfunded actuarially accrued liability (UAAL) was \$12.3 billion. The chart below demonstrates the system's liability and funded ratio since 1999.

PERS Actuarial Accrued Liability and Funded Ratio

Actuarial Accrued Liability: The actuarial present value of the plan's pension obligations as determined by the entry-age normal actuarial cost method.

Funded Ratio: The ratio of the assets of a pension plan to its liabilities. The ratio is determined by dividing the actuarial value of assets by the actuarial accrued liability.



Appendix A-3



Alternative Retirement Plan Designs

Hybrid Plans

By Paul Zorn

Hybrid plans can help governments reallocate retirement costs and risks while continuing to provide sustainable lifetime retirement benefits.

Over the last decade, economic, demographic, and political pressures have led state and local governments to consider alternatives to their traditional defined benefit (DB) pension plans. While a few have switched to defined contribution (DC) plans, others have turned to hybrid approaches that combine DB and DC plan features. Hybrid plans can help governments reallocate retirement costs and risks while continuing to provide sustainable lifetime retirement benefits.

A variety of hybrid plan designs exist, including pension equity plans, floor offset plans, target balance plans, cash balance plans, and combined DB/DC plans. However, only two designs are currently used by state and local governments: combined DB/DC plans and cash balance plans.

THE KINDS OF PLANS

Combined DB/DC Plans. Public-sector hybrid plans are often developed as separate but coordinated DB and DC plans. The DB portion of the benefit is typically funded by the employer, and benefits are based on a modest multiplier (e.g., 1 percent or 1.25 percent of final average salary) times years of service. Retirement eligibility and distribution options are usually similar to those of a DB plan, but might be less generous (e.g., based on a longer

period for determining final average salary or requiring later ages for retirement eligibility). The DC portion is typically based on mandatory minimum employee contributions, although additional voluntary employee contributions might be allowed. Upon retirement, the employee's DC account can be distributed as a lump sum or rolled over. In many cases, the DC account can be converted to an annuity.

Cash Balance Plans. While most public-sector hybrid plans use the combined DB/DC approach, a few are cash balance plans. Under this design, individual accounts are established for employees and credited with a fixed percentage of the employee's pay (e.g., 6 percent). In this respect, they function much like DC plans. Additionally, interest is credited to the individual's account based on a rate established by the plan. Consequently, in this respect, they are like DB plans, since the interest rate is guaranteed. Upon retirement, the accumulated account balance can be paid as a lump sum or converted to an annuity. Public-sector cash balance plans are often funded by both the employer and employees.

ALLOCATING RETIREMENT RISKS AND COSTS

Key retirement risks include investment risk, longevity risk, and inflation risk.

Exhibit I: Allocation of Key Risks in DC, DB, and Hybrid Plans

	DC Plan	DB Plan	Hybrid Plan
Investment Risk	Falls on the employee, since benefits are entirely based on the accumulated DC account balance	Falls on the employer, since investment shortfalls are made up through employer contributions	Falls on the employer for the DB portion of the benefit, and otherwise on the employee
Longevity Risk	Falls on the employee, since the DC account balance must be sufficient to fund benefits over the employee's lifetime	Falls on the employer, although the risk is mitigated by pooling the longevity risk over the group	Falls on the employer for the DB portion of the benefit, and possibly for the DC portion, if the DC benefit is taken as an annuity
Inflation Risk	Falls on the employee, since the DC account balance must be sufficient to maintain purchasing power through retirement	Falls on the employer to the extent that the benefit includes postemployment cost-of-living adjustments	Falls on the employer to the extent that the DB portion of the benefit provides postemployment cost-of-living adjustments

- Investment risk is the risk that investment earnings will fall short of the amount required to pay the benefits.
- Longevity risk is the risk that plan participants will live longer than expected and, therefore, require greater assets at retirement than originally assumed.
- Inflation risk is the risk that price increases will lower the benefit's purchasing power over time.

These risks affect retirement plan costs, since adverse risk experience (e.g., low investment returns) increases benefit costs, while favorable risk experience (e.g., high returns) lowers costs. Exhibit 1 shows how these risks are allocated to employers and employees through DC, DB, and hybrid plan designs.

Generally, the risks fall on the employee in DC plans and on the employer in DB plans, and in hybrid plans, the risks are allocated between the employer and employees. However, in DB plans, investment risk can be reduced through professionally directed asset allocation,

and investment costs can be reduced through negotiated investment management fees. Nevertheless, as a DB plan matures and the size of its fund increases, the investment risk grows in dollar amount and as a percentage of payroll.

There are two kinds of mortality risk — individual mortality risk and population mortality risk. In DC plans, employees must accumulate account balances that are sufficient to pay benefits over each individual employee's retired lifetime (e.g., to their 90s and beyond). In DB plans, the risk to individuals is pooled (i.e., averaged) over plan members. Consequently, DB plans need to fund benefits only over the average life-expectancy of the group (i.e., to their mid-80s). However, to the extent that longevity improves for the DB plan population as a whole, the risk falls on the employer.

Inflation risk falls on the employee in DC plans. In DB plans, pre-retirement inflation risk falls on the employer, to the extent that inflation causes final

average earnings to increase more rapidly than expected, and postemployment inflation risk falls on the employer, to the extent that the plan provides postemployment cost-of-living adjustments (COLAs).

There are other risks as well. For example, laws and regulations could change and add to the complexity of plan administration or potentially reduce benefits. Given recent changes to the rules and regulations regarding cash balance plans as a result of the 2006 Pension Protection Act, governments should consult with legal counsel before adopting hybrid plan designs other than the combined DB/DC type of plan. In addition, attention should be paid to issues regarding age discrimination.

EXAMPLES OF HYBRID PLANS

Hybrid plans have been established in a growing number of states, including Georgia, Hawaii, Michigan, Nebraska, Ohio, Oregon, Texas, Utah, and Washington. Two examples,

below, provide additional details about how the plans are structured. The examples are summarized from *The Evolution of Public Pension Plans: Past, Present and Future*, published by the National Conference on Public Employee Retirement Systems, and have been updated by representatives of the plans.

Municipal Employees' Retirement System of Michigan. In 2006, the Municipal Employees' Retirement System of Michigan (MERS) introduced its hybrid plan, which combines DB and DC components. The hybrid plan is optional for local governments and was designed to help governments control the costs of providing retirement benefits without having to switch to a DC plan. The DB benefit is funded solely by employer contributions. Participating employers can select one of three benefit multipliers: 1 percent, 1.25 percent, or 1.5 percent, which is then applied to three-year average final compensation for employees in the covered group. Once the multiplier is chosen, it cannot be changed. Participants become vested after six years of service and are eligible for retirement benefits at age 60, with no option for early retirement. The plan also provides disability and in-service death benefits, but it does not provide postemployment COLAs. With the sole exception of the choice of multiplier, the defined benefit provisions of the hybrid plan cannot be modified by collective bargaining or employer policy.

The negotiable portions of the DC benefit are employer contributions, vesting schedule, mandatory pre-tax employee contributions (if adopted by the local government), and the DB

to DC conversion option for active employees (at not less than 80 percent or more than 100 percent of the actuarial present value of the accrued benefit). Loans are not recommended but are allowed from the DC program, if adopted by the local government. Employees select investments from a variety of funds offered by the plan's administrator, including the MERS Total Market Fund (i.e., MERS's DB portfolio), offered at a low investment fee. The DC account balance can be taken as a lump sum, rolled over, or paid as an annuity purchased from an insurance carrier.

With the exception of those negotiable items identified above that are within the DB and DC components, no other hybrid plan provisions can be modified.

Texas Municipal Retirement System. The Texas Municipal Retirement System (TMRS) is a modified DB retirement plan that credits annual interest on contributions but does not guarantee an ultimate benefit amount. Created in 1947, TMRS provides retirement benefits to municipalities statewide. Each month, participating municipalities withhold a portion of each employee's salary and deposit it into a TMRS account held for the employee. The amount withheld is 5 percent, 6 percent, or 7 percent of the employee's gross salary, as determined by each local government, although a few municipalities are grandfathered at the 3 percent contribution level. Employer matching credits are set at 100 percent, 150 percent, or 200 percent. Interest is credited annually on the employee's account at a rate determined by the TMRS Board, based on the system's investment

income, with a minimum guaranteed rate of 5 percent.

In most TMRS municipalities, employees are vested after five years of service (although a few governments have elected to maintain 10-year vesting). Employees can retire at age 60 or older with 5 years of service credit (or 10 years for a few governments), or at any age with 20 or 25 years of service credit, depending on their government's option. At retirement, member contributions and interest credits are combined with the municipality's matching funds and other granted credits, and a monthly annuity is calculated based on these amounts and estimated life expectancy. The plan offers a variety of annuity options, including single-life annuities, joint and survivor annuities, and partial lump-sum options, all guaranteeing monthly payments for the retiree's life.

In addition, TMRS offers an optional updated service credit through which municipalities can elect to raise members' monthly benefits to prevent them from being eroded over time. Municipalities can also provide their retirees with COLAs amounting to 30 percent, 50 percent, or 70 percent of the Consumer Price Index, depending on the option elected by the municipality.

Note that under the TMRS plan design, contributions made by employers do not simply match employee contributions, but rather are determined annually by an actuarial valuation. Each employer's contributions reflect the mortality and service experience of employees covered by the fund, rates of return on plan assets, and the demographics of each municipality's workforce.

CONCLUSIONS

State and local government retirement plans have evolved over time as a result of the changing environments in which they operate. These pressures will continue well into the future. However, decisions to change plan design should be made only after careful consideration of the long-term costs and risks.

To provide guidance regarding hybrid plans, the GFOA developed a best practice, *Essential Design Elements of Hybrid Retirement Plans* (the full text of which is available at <http://www.gfoa.org/downloads/HybridPlansFINAL.pdf>). For employers considering hybrid retirement plans, the Best Practice recommends that decision makers consider the following questions:

- What is the role of the hybrid plan in providing retirement benefits? Is it

intended to replace the current DB or DC plan, or will it supplement the current DB or DC plan?

- What purpose is the hybrid plan intended to serve? Is it intended to control employer costs by reallocating retirement risks, or enhance the employer's ability to recruit and retain employees, or some other purpose?
- What are the short-term and long-term costs and/or savings that will likely result from the hybrid plan? This should include not only direct costs but also the total costs of compensation. Decision makers should also consider possible increases in administrative costs due to the more complicated features of hybrid plans.
- Will the resulting hybrid plan comply with the GFOA's Best Practices

for defined benefit and/or defined contribution retirement plans?

- Can the plan be sustained over the long term?

It is also important that changes in plan design be undertaken after careful consideration, professional advice, and legal assistance. Depending on the type of change, it might be advisable to consider some form of grandfathering for employees close to retirement. Furthermore, for hybrid plans other than combined DB/DC type plans, it is imperative to consider whether the hybrid plan or plan features comply with the 2006 Pension Protection Act and related regulations. ■

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Appendix A-4

GRS INSIGHT

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The GASB's Exposure Drafts on Pension Accounting and Financial Reporting

By Paul Zorn and James Rizzo¹

In This Issue

The GASB's Exposure Drafts set out proposed changes in pension accounting and financial reporting standards for state and local government employers and plans that provide pension benefits.

Exposure Drafts are usually the last public documents that the GASB issues before issuing the final statements, and so provide one last opportunity for public comment.

The GASB is requesting comments on the Exposure Drafts by September 30, 2011, and will hold public hearings in October. It is important for stakeholders to review the proposed changes, consider their impact, and provide comments.

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On July 8, 2011, the Governmental Accounting Standards Board (GASB) issued two Exposure Drafts (EDs) on proposed changes to pension accounting and financial reporting standards for state and local governments. The first, *Accounting and Financial Reporting for Pensions* (amending GASB Statement No. 27), details proposed standards that would apply to certain financial statements of governments that provide pension benefits. The second, *Financial Reporting for Pension Plans* (amending GASB Statement No. 25), details proposed standards for the financial statements of plans that administer the benefits. Readers should note that all of the GASB's decisions are considered tentative until approved as final. In addition, while the GASB's authority extends to accounting and financial reporting, it does not extend to the actuarial valuations performed for funding purposes.

The EDs are being issued after a lengthy deliberative process that included the issuance of an Invitation to Comment in 2009 and a Preliminary Views document in 2010. If adopted, the EDs would significantly change pension accounting and financial reporting for state and local governments by:

- Disconnecting state and local governmental pension accounting measures from the funding measures used to determine pension contributions;
- Requiring employers to recognize an unfunded pension obligation (i.e., the "net pension liability") as a balance sheet liability in their basic financial statements based on the market value of assets;
- Requiring employers to recognize a new measure of the pension expense in their basic financial statements that may have no relation to the actuarially determined contribution; and
- Replacing most of the current note disclosures and required supplementary information with information based on the new measures and removing disclosures showing the actuarial funded status of the benefits.

This article focuses on the GASB's proposed changes. However, to present the changes in context, the article begins by providing background on state and local government pensions and summarizing the GASB's current pension standards.

¹ Paul Zorn is director of governmental research for GRS and James Rizzo is a senior consultant and actuary. The authors would like to thank Alan Sonnanstine, David Kausch and Mary Ann Vitale at GRS for their comments and suggestions. However, the authors retain full responsibility for the accuracy of the information provided.

Single, Agent and Cost-Sharing Employers

A key distinction that the GASB makes in both the current and proposed standards is the distinction between single employers, agent employers and cost-sharing employers. As defined by the GASB:

- A “single employer plan” is a defined benefit pension plan used to provide pensions to employees of only one employer. The employer in such a plan is referred to as a “single employer.”
- An “agent multiple-employer plan” is a defined benefit pension plan that pools the assets of multiple employers for investment purposes, but each employer’s share of the pooled assets is legally available to pay pensions for only that employer’s employees. Employers participating in such plans are referred to as “agent employers.”
- A “cost-sharing multiple-employer plan” is a defined benefit pension plan that pools the assets and obligations of multiple employers and can use the assets to pay the pensions of any of the employers’ employees. Employers in these plans are referred to as “cost-sharing employers.”

These distinctions are important since, in both the current and proposed GASB standards, single and agent employers are subject to different pension accounting standards than cost-sharing employers.

Qualified Trusts or Equivalent Arrangements

Generally, state and local government pension benefits are provided through trusts or other arrangements that (1) receive actuarially determined contributions from employers, (2) invest the assets and contributions, and (3) pay benefits from the accumulated assets and investment earnings. The trusts are used to protect the assets and hold them for the exclusive benefit of the covered members.

Although trusts are formal legal arrangements, they have not been specifically defined in the accounting standards for state and local government pensions.² In the new EDs, the proposed standards would apply to defined benefit pensions or defined contribution pensions that are administered by “qualified trusts, or equivalent arrangements.” Borrowing from its work in GASB Statement No. 45, the GASB defines such arrangements as those in which:

- Employer contributions to the plan and investment earnings are irrevocable;
- Plan assets are dedicated to providing pensions to plan members in accordance with plan terms;

- Plan assets are legally protected from the creditors of: (1) the employer, (2) nonemployer entities that contribute to the plan, or (3) the plan administrator. In addition, to meet the GASB’s definition, assets would also have to be protected from the creditors of plan members.³

Apparently, to the extent pension benefits are not provided through qualified trusts, the GASB’s proposed standards would not apply. Plan documents and state law should be consulted to determine if the plan constitutes a qualified trust or similar arrangement. Future guidance is expected from the GASB for pension funds that do not satisfy the conditions for a qualified trust or similar arrangement.

Defined Benefit Pensions

Most of the GASB’s proposed changes apply to “defined benefit” (DB) pensions, i.e., pensions for which income and other benefits are defined by the benefit terms, including those stated as a specific dollar amount or as amounts based on age, years of service, or compensation. The GASB distinguishes DB pensions from “defined contribution” (DC) programs, which: (1) provide an individual account for each employee, (2) define the required employer contributions, and (3) provide that the employee’s benefit depends only on the amounts accumulated in the employee’s individual account (with adjustments for forfeitures and administrative costs).⁴ While the EDs include proposed standards for DC pensions, they are essentially the same as the current standards.

The GASB also distinguishes DB pensions from other post-employment retirement benefits (OPEBs), including retiree health care. To the extent the DB pension plan provides postemployment benefits other than retirement income (such as death benefits, life insurance and disability benefits), they would be considered DB pension benefits under the proposed standards.

However, such benefits provided outside of the DB pension plan, or any retiree health care benefits, would not be subject to the proposed pension standards. Instead, they would be subject to the current OPEB standards. (Note that the GASB has begun to review the OPEB standards and may propose changes that are similar to those provided in the pension EDs.)

The GASB’s Current Standards for DB Pensions

Generally speaking, accounting and reporting standards establish how financial items are defined and measured (e.g., what constitutes an “expense” or a “liability”) and where the items are displayed in the government’s financial report (e.g., the basic financial statements, notes to the financial

² However, qualified trusts are defined in the GASB’s accounting standards for “other postemployment benefits” (OPEBs).

³ *Accounting and Financial Reporting for Pensions*, paragraph 4.

⁴ *Accounting and Financial Reporting for Pensions*, paragraph 8.

statements, or other sections of the financial report). Items recognized in the basic financial statements (e.g., the balance sheet and operating statement) are seen as having greater weight than those disclosed in the notes to the financial statements or in required supplementary information.

Current Standards for Single and Agent Employers

The GASB's current standards set constraints on the actuarial methods and assumptions that may be used for accounting and reporting purposes, which include requiring:

- One of six approved actuarial cost methods be used to determine pension costs and liabilities. For the most part, these methods include the projection of salary and certain other factors in determining the normal cost of benefits;⁵
- The long-term expected rate of investment return be used to project future investment earnings and to discount the present value of future benefits; and
- The period for amortizing unfunded actuarial liabilities be limited to 30 years.

The current standards also allow the actuarial value of assets to reflect investment gains and losses that are averaged over time to smooth the impact of investment volatility on funded levels and contribution rates.

Under current standards, pension accounting measures are closely related to pension funding measures. For single and agent employers, the employer's "pension expense" is the "annual pension cost" (APC) determined using the same actuarial methods and assumptions used to determine the contributions necessary to fund the plan.⁶ It may or may not equal the actual employer contribution made to the plan, depending on the actual funding policy in place. In any event, the APC would usually be a reasonable and actuarially-based funding amount.

The APC consists of the employer's "annual required contribution" (ARC) plus certain adjustments if the employer has contributed more or less than the ARC over time. The ARC, in turn, is the actuarially determined cost of the benefits allocated to a given year (i.e., the "normal cost" or "service cost") plus the amortization of any unfunded actuarial accrued liabilities.

⁵ The six actuarial cost methods are entry age, frozen entry age, attained age, frozen attained age, projected unit credit, and aggregate. A seventh method, the unit credit cost method, is only acceptable for plans in which accumulated benefits are not affected by future salary levels, since this method does not include projections of either salary or service.

⁶ GASB Statement No. 27, *Accounting for Pensions by State and Local Government Employers*.

Also under current standards, a single or agent employer's balance sheet liability for pensions is the "net pension obligation" (NPO). It is calculated as the accumulated difference between the employer's annual pension cost and the employer's actual contributions to the plan since the effective date of GASB Statement No. 27 (i.e., for reporting periods beginning after June 15, 1997).

Current Standards for Cost-Sharing Employers

For cost-sharing employers, the current measure of pension expense is the employer's contractually required contributions to the plan, which may or may not be actuarially determined. The cost-sharing employer's balance sheet liability is the accumulated difference between the employer's contractually required contributions and the employer's actual contributions. Since the vast majority of cost-sharing employers pay their contractually required contributions, their current pension liabilities are generally zero (whether or not the employer's contractually required contribution was actuarially determined to fund the plan).

Disclosures and Required Supplementary Information

The current standards also require employers to disclose information about pension benefits in the notes to the financial statements and in other sections of the employer's financial report. Generally, these disclosures include, but are not limited to a description of the plan, annual required contributions and actual contributions. In addition, single employers and agent employers must also disclose: the actuarial value of plan assets, actuarial accrued liability, unfunded actuarial accrued liability, funded status, and related actuarial methods and assumptions.

The GASB's New Framework

As a result of its deliberations, the GASB applied its new conceptual framework to pension accounting and reporting. While the current standards are based on the employer's funding costs of providing pension benefits (i.e., the annual required contributions), the new proposed standards are based more on the GASB's view of the employer's pension liability. Several of the GASB's underlying concepts include:

- The employer incurs a pension obligation as a result of the exchange of employee services for compensation (referred to as the "employment exchange");
- The employment exchange should be viewed as an ongoing, career-long relationship;
- The pension plan is primarily responsible for paying pension benefits to the extent it has sufficient assets;

- The employer is primarily responsible for paying benefits to the extent the plan does not have sufficient assets; and
- The unfunded pension obligation meets the definition of liability under GASB Concepts Statement No. 4 and is measurable with sufficient reliability to be recognized in the basic financial statements.

The Net Pension Liability

Based on the new concepts, the GASB decided that the employer's basic financial statement liability for pension benefits should be a measure of the employer's unfunded pension obligation. Referred to as the "net pension liability" (NPL), it would be calculated as the employer's "total pension liability" (TPL) minus the employer's "plan net position" (PNP). Plan net position is essentially the fair (market) value of plan assets at the end of the employer's fiscal year.

The total pension liability is calculated by:

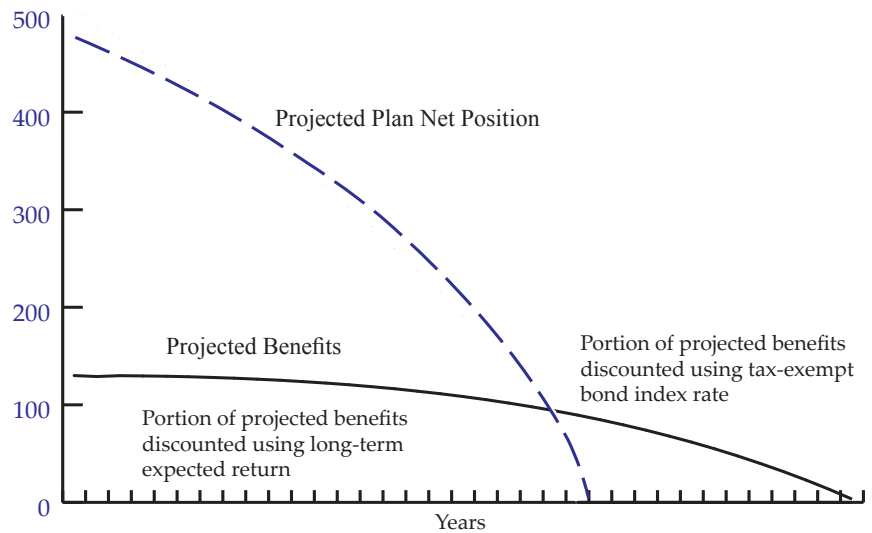
- Projecting future benefits arising from automatic COLAs (and ad hoc COLAs, to the extent they are substantively automatic⁷), as well as projected service and projected salaries;
- Discounting the present value of future benefits using a single discount rate (discussed further in the next section); and
- Allocating the cost of pension benefits over past, present, and future periods using the traditional entry age actuarial cost method with service costs determined as a level percent of projected payroll on an employee-by-employee basis.

The Single Discount Rate

Under the proposed standards the discount rate would be a single rate based on: (1) the long-term expected investment return to the extent current and expected future assets are sufficient to pay projected benefits, otherwise (2) a 30-year AA/Aa tax-exempt municipal bond index rate. Chart 1 may be helpful in illustrating the process for determining the proposed new single discount rate. (Note that the graph is intended as an illustration and does not represent an actual pension plan.)

⁷ In determining whether or not an ad hoc COLA is substantively automatic, the GASB suggests examining (1) the historical pattern of granting the COLAs, (2) consistency in the COLA amounts, and (3) whether there is evidence to conclude the COLAs might not be granted in the future.

Chart 1: Illustrative Projected Benefits and Projected Plan Net Position



In Chart 1, the solid line shows the benefits that are projected to be paid to current pension plan members (employees and retirees) over time. The dashed line shows the current market value of plan assets plus projected future contributions and investment earnings – minus benefits paid to current members. Note that plan assets become insufficient to pay current projected benefits after about 22 years (i.e., the cross-over point).

To determine the GASB's proposed discount rate for a plan with a cross-over point as illustrated in Chart 1, we would start by calculating two present values: (1) the present value of benefits up to the cross-over point would be discounted using the long-term expected return on plan investments (since these benefits would be covered by projected assets); and (2) the present value of the benefits after the cross-over point would be discounted using a 30-year AA/Aa (or equivalent rated) tax-exempt municipal bond index rate (since these benefits would not be covered by projected assets).

The new GASB discount rate would be the single discount rate that results in the present value of all benefit payments being equal to the sum of the present values in steps (1) and (2). This rate would then be used to calculate the total pension liability and, by extension, the net pension liability. Note that if current assets and projected future contributions and earnings are sufficient to cover all of the projected pension payments, the long-term expected return on plan investments would be used.

A key issue for many plans is how they will project contributions for current members. As provided in *Accounting and Financial Reporting for Pensions*, the projection of future contributions should be based on current contribution policies and practices and include all employer contributions intended to fund benefits of current or former employees and all contributions of current employees. However, it should not include:

(1) employer contributions intended to fund the service costs of future employees, or (2) contributions of future employees.⁸ For most plans that receive actuarially calculated employer contributions, the plan assets should be sufficient to pay the promised benefits and there would be no cross-over point. These plans would use the long-term expected rate of return for all liability measurement purposes.

The Pension Expense

The GASB's new measure of pension expense (PE) is also a significant change. Rather than reflecting the employer's actuarially determined annual required contributions, it essentially reflects the change in the employer's net pension liability, with deferred recognition of certain elements. Components of the new pension expense include:

- Service cost (i.e., normal cost);
- Interest on the total pension liability as of the beginning of the year;
- Changes in the total pension liability over the year (with certain deferrals);
- Differences between actual and projected earnings over the year (with certain deferrals);
- Projected investment returns over the year;
- Employee contributions; and
- Other changes in plan net position.

In calculating the new pension expense, "deferred outflows of resources" and "deferred inflows of resources" are used to defer recognition of certain changes in the total pension liability and to defer differences between actual and projected investment earnings over the year. The framework for these deferrals was established under Concepts Statement No. 4.

Under this framework, an increase in the net pension liability would be considered a "consumption" of net assets, and a decrease in the net pension liability would be considered an "acquisition" of net assets. In determining what constitutes the pension expense in this context, the GASB had to decide which portions of the change in net pension liability are applicable to the current reporting period and which portions are applicable to future reporting periods. If the change is applicable to the current period, it is recognized in the current period. If it is applicable to future periods, it is characterized as a deferred outflow of resources (or a deferred inflow of resources) and recognized over future years, with a portion recognized in the current period.

⁸ *Accounting and Financial Reporting for Pensions*, paragraph 23. See also Appendix C, Illustration 1, Table 1.

For any given year, the remaining unrecognized portions of current or prior changes in the net pension liability would be presented in the basic financial statements. These portions would be included in the deferred outflows of resources account, appearing just below the net assets, or the deferred inflows of resources, appearing just below the net liabilities.

Items Immediately Recognized in the Pension Expense

In considering which items of the pension expense are applicable to the current period, the GASB concluded that the service cost, annual interest on the total pension liability, and projected investment returns over the year should be immediately recognized in the pension expense. Moreover, any changes in the total pension liability due to changes in plan terms (i.e., benefits) should be immediately recognized.

In addition, the GASB decided that any changes in the total pension liability related to inactive employees (including retirees) should also be immediately recognized in the pension expense. This includes any changes in actuarial assumptions or differences between assumed and actual actuarial experience related to inactive members.

Items Deferred and Recognized in the Pension Expense

The GASB concluded that certain changes in the total pension liability due to active employees should be deferred and recognized over a closed period equal to the weighted average remaining service lives of active members. These include changes in actuarial assumptions and actuarial gains or losses related to active employees.

The weighting would be designed to approximate the result that would occur if the changes in total pension liability were recognized for each employee individually over the employee's own expected remaining service life. This may be calculated using weights equal to each employee's own total pension liability.

In addition, differences between actual investment earnings and projected earnings would be deferred and recognized over a five-year closed period. The amortization would be accomplished using a systematic and rational method (e.g., straight line or other systematic amortization methods).

Changes Related to Cost-Sharing Employers

The GASB's EDs would also substantially change the way cost-sharing employers account for and report their pension liabilities and pension expenses. As mentioned above, in the discussion of current standards, cost-sharing employers report their contractually required contribution as their pension expense. In addition, they report the accumulated difference between their contractually required contributions

and their actual contributions as their pension liability on their balance sheet.

Under the GASB's proposed standards, cost-sharing employers would recognize their "proportionate share" of the cost-sharing plan's collective net pension liability, pension expense, and deferred outflows and inflows of resources. Cost-sharing plans would calculate these values for all employers collectively using the same methods as single-employer and agent plans.

A cost-sharing employer's proportionate share would be based on the employer's long-term contributions relative to the total long-term contributions of all employers in the plan. In addition, certain other differences would be deferred and recognized in the employer's pension expense over the weighted average remaining service lives of the plan's collective active employees. These include changes in an employer's net pension liability due to changes in the employer's proportionate share (compared to the prior period) and differences between the employer's actual contribution and its proportionate share of collective employer contributions.

Special Funding Situations

The GASB's proposed standards also establish new rules for "special funding situations." These situations occur when an entity other than a participating employer (i.e., a "nonemployer entity") has a legal responsibility to make contributions to the plan. This legal obligation can be either:

- **Conditional** - based on events or circumstances unrelated to the pensions or
- **Unconditional** - based on a fixed percent of the employing government's payroll, or on a fixed percent of the contribution requirement.

If the nonemployer's legal responsibility is conditional, the contribution is treated as an "on-behalf" contribution (similar to a grant). The employer recognizes its full net pension liability, pension expense, and related deferrals in its financial statements. In addition, the employer also recognizes the nonemployer's contribution as revenue. The nonemployer recognizes the contribution as a non-pension expense.

If the nonemployer's legal responsibility is unconditional, the nonemployer would recognize its proportionate share of the net pension liability, pension expense, and related deferred inflows and outflows of resources in its basic financial statements. If the nonemployer assumes a "substantial" portion of the pension liability, it would provide note disclosures and required supplementary information as if it were a participating employer. The employer would reflect the nonemployer's involvement in financing the pension benefits.

Frequency & Timing of Measures

Under the GASB's proposed standards, a full measurement of the employer's total pension liability should be made at least every two years. While the total pension liability measurement need not be at fiscal year end, it should be done no more than 24 months before the fiscal year end. If the full measurement is not done at fiscal year end, it should be projected to that date and updated to reflect all significant changes. The value of plan assets should reflect plan net position at fiscal year end.

Implications of the GASB's Changes

The GASB's proposed standards intentionally disconnect the pension accounting measures from the pension funding measures. Consequently, information about the actuarial funded status of the plan will no longer be available in the employer's financial statements. While information about the actuarially determined contributions to the plan will be available (for most employers) in the required supplementary information, a measure of the actuarial funded status of benefits will not.

The net pension liability will be included in the employer's balance sheet. Given current economic conditions, this measure of the unfunded liability will likely be quite large. Moreover, since it will be based on the fair (market) value of plan assets (and potentially on tax-exempt municipal bond yields) it will likely be very volatile.

With regard to the pension expense, changes in pension liabilities will be amortized over shorter periods, increasing the amount and volatility of the pension expense. Moreover, the pension expense will be significantly different from the actuarially determined contributions, likely causing confusion about the contributions that are required to fund the plan.

Employers participating in cost-sharing plans will need to recognize a proportionate share of the plan's net pension liability, pension expense, and deferred outflows and inflows of resources. Nonemployer entities with unconditional legal responsibility for plan funding will also need to recognize a proportionate share of the plan's net pension liability, pension expense, and deferred outflows and inflows.

Effective Dates and Transition

The effective dates for the proposed standards would be reporting periods beginning after June 15, 2012, for large single employers with a plan net position of \$1 billion or more in the first period ended after June 15, 2010. For all others, it would be reporting periods beginning after June 15, 2013.

(continued on page 8)

Summary of Current GASB Pension Standards for Governmental Employers Compared with Proposed Changes Presented in the GASB's Exposure Drafts			
For Employers in Single Employer and Agent Multiple-Employer Plans			
	Current Standards	Exposure Drafts	Implications
Pension Liability Recognized in the Employer's Financial Statements (Balance Sheet)	Net Pension Obligation (NPO) - measured as the cumulative difference between the employer's annual required contributions and actual contributions.	Net Pension Liability (NPL) - measured as the difference between the total pension liability (TPL) and the plan's net position (PNP) based on the fair (market) value of assets, with both determined as of the employer's fiscal year end.	Including the NPL on the employer's balance sheet is a major change. The NPL would likely be more volatile than the current unfunded accrued liability, causing confusion about the funded status of the benefits.
Pension Expense Recognized in the Employer's Financial Statements (Income Statement)	Annual Pension Cost (APC) - measured as the employer's "annual required contribution" (ARC) adjusted for interest on the NPO. The ARC is measured as the normal cost (i.e., "service cost") plus amortization of the unfunded actuarial accrued liability over a maximum of 30 years.	Pension Expense (PE) - measured as the current period service cost (based on the traditional entry age normal cost method and the "single discount rate"), plus: Immediate recognition of changes in the TPL due to: (1) interest on the TPL, (2) changes in plan benefits, (3) changes related to inactive members (including retirees), and (4) expected investment earnings; Deferred recognition over the remaining service lives of active members of: (1) changes in the TPL due to changes in assumptions for active employees and (2) differences between assumed and actual actuarial experience for active employees; and Deferred recognition over a closed 5-year period of the difference between actual and expected investment earnings.	The new measure of pension expense would be largely disconnected from the actuarial measure used to fund the benefits. The shorter deferral and recognition periods would increase the volatility of the new pension expense.
Allowed Actuarial Cost Methods	Entry age, Attained age, Projected unit credit, Aggregate, Frozen entry age, Frozen attained age.	Traditional entry age, with allocation of service costs as a level percentage of payroll over the employees' expected service starting at entry age.	Restrictions placed on the use of the entry age actuarial cost method could result in differences between the service cost used for accounting purposes and the normal cost used for funding purposes.
Discount Rate	Long-term expected rate of investment return on plan investments.	A single rate based on: (1) the long-term expected rate of return to the extent current and expected future assets are sufficient to pay projected benefits, (2) or otherwise a 30-year AA/Aa tax-exempt municipal bond index rate.	If tax-exempt municipal bond index rates are incorporated into the single discount rate, the accounting measures of the pension liability will be larger (under current economic conditions) and more volatile than the funding measures of the pension liability.
Asset Valuation Method	Market value or smoothed market value.	Fair (market) value of plan net assets.	Use of the fair (market) value would likely add volatility to the net pension liability and pension expense.
For Employers in Cost-Sharing Multiple-Employer Plans			
Pension Liability	Pension Liability - measured as the difference between the employer's contractually required contribution and the actual contribution.	Pension Liability - measured as the employer's proportionate share of the cost-sharing plan's collective net pension liability. The employer's proportionate share is based on the employer's long-term contributions relative to the collective long-term contributions of all employers in the plan.	Cost-sharing employers (and nonemployer entities with unconditional legal responsibility for plan funding) would show a new and significantly more volatile measure of the pension liability on their balance sheets.
Pension Expense	Contractually Required Contribution - measured as the employer's contractual contribution to the cost-sharing plan.	Pension Expense - measured as the employer's proportionate share of the cost-sharing plan's collective pension expense.	Cost-sharing employers (and nonemployer entities with unconditional legal responsibility for plan funding) would show a new pension expense that would be more volatile than their contractually required contributions.

In transitioning from current standards to the proposed new standards, the GASB states that the new standards should be reported as adjustments of prior periods, with restatement of financial statements for the affected periods. However, the GASB recognizes that it may not be practical for some governments to restate the deferred inflows and deferred outflows. If so, the GASB would not require beginning balances for the deferred inflows and outflows to be reported.

However, the GASB does expect the cumulative effect of applying the new statement to be reported as a restatement of beginning net position for the earliest period restated. Also, the financial statements should disclose the nature of any restatement and its effect in the period that the new standards are first applied. If the prior periods are not restated, the reasons should be explained.

Conclusion

The GASB has requested public comments on the Exposure Drafts by September 30, 2011, and will hold three public hearings in October. The final statements are expected to be released in June, 2012. Given that this is likely to be the last opportunity to comment on the GASB's proposed changes to public pension accounting and financial reporting standards, it is important for stakeholders to review the proposed changes, consider their impact, and provide comments.

The Exposure Drafts are on the GASB's website (www.gasb.org), under the Projects tab, on the "Documents for Public Comment" page.

Circular 230 Notice: Pursuant to regulations issued by the IRS, to the extent this communication concerns tax matters, it is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding tax-related penalties under the Internal Revenue Code or (ii) marketing or recommending to another party any tax-related matter addressed within. Each taxpayer should seek advice based on the individual's circumstances from an independent tax advisor.

Gabriel, Roeder, Smith & Company has provided consulting and actuarial services for benefit plans since 1938. We are dedicated to providing services that encourage sound financing, sensible benefit design, efficient administration, and effective communication of employee benefits.

Since its inception, GRS has placed special emphasis on services to the public sector. From our network of offices, we serve over 700 clients nationwide, including retirement systems, employers, employee organizations, and government agencies. We have worked with many of our clients for more than 30 years - some for more than 60 years. The far-ranging locations of our clients and the long associations we have enjoyed reflect the quality of the services we provide. Services offered by GRS include:

- Pension Plan Consulting
- GASB 43/45 OPEB Consulting
- Health and Welfare Benefit Consulting
- Retirement Technology Applications

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This newsletter and additional information about the firm may be found on the GRS website at:

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Appendix A-5

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF MISSISSIPPI
GOVERNOR'S PERS STUDY COMMISSION**

PLAN REVIEW

FALL 2011

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December 9, 2011

Governor's PERS Study Commission
Sillers Building, 19th Floor
550 High Street
Jackson, Mississippi 39201

Attention: Ms. Rebekah Staples

Re: PERS of Mississippi Review

Dear Commissioners:

Gabriel, Roeder, Smith & Company (GRS) is pleased to present this report of a review of the Public Employees' Retirement System of Mississippi (PERS). We are grateful to the Commission staff, Governor's staff and PERS staff for their cooperation throughout review process.

The purpose of this review is to evaluate the long-term sustainability of PERS in light of the stated goals and objectives of the Governor's PERS Study Commission (hereinafter referred to as the Commission) by reviewing and analyzing:

1. The current financial and funding structure;
2. The structure and plan provisions of PERS;
3. The actuarial assumptions;
4. Results based upon 10-year projections under varying scenarios.

The stated Goals and Objectives of the Commission are (reprinted, exactly as provided from the Commission):

1. Reduce the overall contributions (employer and employee) to less than 15% of pay within seven years (ensure reasonable ratio between employer and employee contributions – goal could be to achieve original ratio where employees paid 60% of the contribution and employer paid 40% - or at least closer to 50/50);
2. Eliminate as many distinctions between new hires and grandfathered employees as possible;
3. Structure the benefits consistent with a policy that does not encourage participants to stop working for the state or other participating employer prior to age 62;
4. Increase funding to a "healthy" (likely 80% funded status) over a seven-year period;
5. Simplify the administration;
6. Lower the vesting period;
7. Ensure best practices in all areas (financial, investment, management, etc) are in place.

In the spring of 2011 GRS performed an independent audit of PERS actuarial valuation, including a full replication of the June 30, 2010 valuation results. Our projections and analyses included in this report are based on the June 30, 2010 member data provided for that audit and the June 30, 2010 replication valuation. PERS provided GRS with specific permission to use the June 30, 2010 member data for this engagement.

The intended audience is the Commission. If this report is supplied to other parties, it should be done so only in its entirety. The authors of this report are available to the Commission to answer questions through the end of the consulting contract.

The recommendations contained in this report are based on the Goals and Objectives of the Commission as stated above. Different goals and objectives would result in different recommendations.

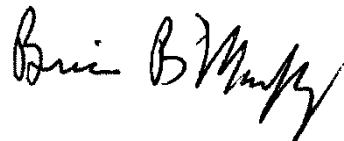
GRS is not the retained actuary for PERS. PERS and their retained actuary are responsible for establishing employer contributions for PERS. As such, they may use different assumptions and/or valuation programs that may not exactly replicate our results. The cost estimates contained in our report are intended to provide a general idea of magnitude of certain changes. We recommend that any changes that are under serious consideration be modeled by the PERS retained actuary before adoption to provide a more accurate estimate of the impact on employer contribution rates. Due to the time constraints of this project, we were not able to collect historical information (that would be available to the PERS retained actuary) to study whether or not special assumptions might be warranted for some of the cost estimates.

Brian B. Murphy is a Member of the American Academy of Actuaries (MAAA) as indicated, and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,



Kenneth G. Alberts, Project Manager



Brian B. Murphy, FSA, EA, MAAA

EXECUTIVE SUMMARY

Background

Gabriel, Roeder, Smith & Company (GRS) was asked to determine the sustainability of the Public Employees Retirement System of Mississippi (PERS) by reviewing the financial and funding structure of PERS as well as indicating the benefit provisions that the Commission should consider reviewing.

Caution is needed so as not to confuse “sustainability” with “affordability.” A plan can be sustainable, even if it is not pre-funded or if all the assets of the plan are prematurely paid out, as long as the annual benefit payments can continue to be made. We have seen examples of plans that were never pre-funded, but have been sustained for 40-50 years and continue to be sustained.

While pre-funding a retirement plan is not the only way to pay for retirement benefits, it is the most efficient way because you create a pool of assets which can be invested in the market and used to generate additional contributions toward future benefit payments. Contribution rates necessary to pre-fund a plan can vary in the short term due to:

- Benefit Changes
- Plan Experience
- Valuation Assumptions
- Funding Policy

However, the long term costs of the plan are dictated only by plan provisions and actual plan experience.

The first step in analyzing a retirement plan is to establish the goals and objectives against which the system will be measured. The importance of this step cannot be overstated. Different goals and objectives will result in a different analysis and different recommendations resulting from the review.

The Commission provided the following goals and objectives for use in this review (reprinted, exactly as provided from the Commission):

1. Reduce the overall contributions (employer and employee) to less than 15% of pay within seven years (ensure reasonable ratio between employer and employee contributions – goal could be to achieve original ratio where employees paid 60% of the contribution and employer paid 40% - or at least closer to 50/50);
2. Eliminate as many distinctions between new hires and grandfathered employees as possible;
3. Structure the benefits consistent with a policy that does not encourage participants to stop working for the state or other participating employer prior to age 62;
4. Increase funding to a “healthy” (likely 80% funded status) over a seven-year period;
5. Simplify the administration;
6. Lower the vesting period;
7. Ensure best practices in all areas (financial, investment, management, etc) are in place.

In reviewing the long-term sustainability of a plan, we look at the goals and objectives of the stakeholders and attempt to determine how well the plan design meets those goals and objectives. The process starts with an education regarding the operation of the plan, including an identification and estimate of the different risks involved in the operation of the plan. Many times it is then followed up with a review of how peer plans around the country are dealing with similar issues. The final step is to identify areas of the plan (provisions or policies) that can be modified to reduce certain risks.

One question we are frequently asked is "Is the Plan currently affordable?". It is important to note that this question cannot be answered by an outside consultant. While we can estimate the short and long term costs of the plan as well as identify the cost risks and their potential impact on long and short term costs, we cannot determine what the State of Mississippi can afford. Affordability must be determined by the stakeholders of the plan. Nothing in this report should be construed to suggest that the actuary is stating that any part of the plan is or is not affordable.

After sharing the survey information and the projection results that tested funded status and employer contribution rate sensitivity to various risk categories with the Commission, the Commission requested that we review plan provisions to indicate where changes could be made to reduce costs or improve the funded status of PERS.

Summary of Major Findings

Mississippi PERS is approximately 64% funded as of June 30, 2010, based on the actuarial value of assets. Although the fund earned a rate of return of approximately 24% on a market value basis in fiscal year 2011, we expect the funded status to decrease to approximately 62% based on the actuarial value of assets as of June 30, 2011, due to the continued smoothing of asset losses from prior years. Our baseline projections estimate that employer contributions will increase to approximately 14.3% of payroll before gradually reducing to approximately 11.4% of payroll over the next 10 years, assuming no future gains or losses (other than the investment gains and losses scheduled to be recognized in the future, as of June 30, 2011).

We compared PERS to 20 other peer plans in connection with this study. Based on those comparisons:

- PERS funded status of 64.2% is below the median of 75.3%;
- PERS assumed rate of wage inflation of 4.25% is above the median of 4.0%;
- PERS assumed rate of investment return is equal to the median assumption of 8%;
- PERS employee contribution rate is the second highest among the 20 plans;
- PERS employer contribution rate of 12.93% of payroll is below the median of 14.2%;
- PERS employer normal cost of 2.19% of payroll is the lowest of the 20 plans. The normal cost is the estimate of the cost of annual accruals of benefits during the current year. The employer normal cost will decrease to approximately 0.4% of payroll as Tier 4 members become the majority. This means that members will be funding most of their benefits, assuming a continuation of the 9.0% member contribution rate.

We also tested the sensitivity of the PERS employer contribution rate to future investment return scenarios and found that:

- If annual market returns are 9% (1% higher than assumed) over each of the next ten years, the employer rate would rise to approximately 14.25% of payroll and then gradually fall to 9.84% of payroll;
- If annual market returns are 7% (1% lower than assumed) over the next ten years, the employer rate would rise to 14.38% of payroll and then gradually fall to 12.82% of payroll.

PERS has certain benefit provisions that are potentially subject to manipulation by members (and possibly employers). Revising these provisions would have a minor effect on employer contribution rates, but would reduce the potential for abuse. We recommend consideration of these changes:

- Final Average Compensation (FAC)
 - Simplify the computation by only performing one computation, rather than four (and then taking the highest);
 - Use only consecutive periods in the FAC computation.
- Covered Compensation
 - Limit types of compensation included for System purposes (lump sums payable at retirement, extra or special duty pay, overtime, etc.);
 - Limit year-over-year increases in compensation that is includable in the computation of FAC (over entire career);
 - Using full time equivalent compensation for members not working full time for purposes of computing FAC (and crediting partial years of service).

In consideration of the Commission's Goals and Objectives we also recommend consideration of the following:

- COLA
 - Make COLA compound for all periods;
 - Relate COLA to changes in the Consumer Price Index (CPI) or some other inflation measure; for example, the COLA could be 3% but in no event more than the increase granted to Social Security recipients;
 - Delay the start of the COLA for five years after retirement for members who retire prior to age 60 and three years for members who retire after age 60 (or some other target age);
 - Eliminate the option to receive annual COLA in a lump sum (has no direct effect on costs but is a better benefit design);
 - These changes will result in a long-term reduction in cost of approximately 0.26% of payroll;
 - If these changes are applied to current members, then the near term employer contribution rate will decrease by approximately 1.0% to 1.7% of payroll, depending on whether current retirees are included or just current actives.

- **Benefit Multiplier**
 - Eliminate the increase in the benefit multiplier after 30 years of service (25 years for current members);
 - This change will reduce long term costs by approximately 0.06% of payroll.
- **Funding Policy**
 - Close the amortization period until the period reduces to ten years. This will slow down the reduction in the expected employer contribution rate over the next ten years and will accelerate the increase in funded status;
 - Reduce the starting amortization period to 25 years;
 - Establish a policy of funding any future benefit increases with a lump sum equal to the increase in the actuarial accrued liability;
 - Set a minimum employer contribution rate; for example regardless of the funded status of the System, the employer contribution rate would never be allowed to fall below the normal cost.
- **Extend the Tier 4 benefit reductions to current members for future service only**
- **Investment Policy**
 - Develop an investment policy that calls for de-risking the portfolio as the funded status increases. De-risking would be linked to a gradual reduction in the assumed investment return rate.
- **Risk Sharing**
 - Consider linking COLA to investment return in some manner;
 - Allow for employee contribution rates to decrease when employer contribution rates decrease (and conversely).

Glossary of Abbreviations

ARC:	Actuarial required contribution (as defined by the Governmental Accounting Standards Statement No. 25)
COLA:	Post-retirement Cost-of-living-adjustment
EE:	Employee
ER:	Employer
FAC:	Final Average Compensation (or average compensation, as used in the PERS handbook)
FV or FVA:	Funding value of assets (a market related value that smoothes gains and losses over a period of years)
MV or MVA:	Market value of assets
NC:	Normal Cost (or regular annual contribution to fund benefits)
SS:	Social Security
UAAL:	Unfunded actuarial accrued liability (that portion of the actuarial accrued liability that is in excess of the assets)

SURVEY INFORMATION

State **AL**

RS Name **RS**

Actives	222,924	Investment Return Assumption	8.00%	Valuation Date	9/30/2010
Retirees	106,014	Wage Inflation Assumption	4.50%	Contribution Date (FY Beg)	10/1/2012

Covered Groups General, Public Safety, Teachers

Contribution Rates

Benefits

SS Participation: Yes
 Final Average Compensation Highest 3 of last 10 yrs

Normal Retirement Conditions (Age/Svc) 0/25, 60/10

Early Retirement Conditions (Age/Svc) NA

Vesting Condition 10 yrs

COLA ad hoc

Multiplier 2.0125%

Example Benefit (20 yrs) \$19,361

Percent of Final Pay (20 yrs, \$50K) 38.7%

Example Benefit (30 yrs) \$29,041

Percent of Final Pay (30 yrs, \$50K) 58.1%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment

Administration
 Benefits

Notes

ERS Total Contribution includes 0.15% for Death Benefits and 0.18% for Admin. Teachers Total Contribution includes 0.12% for Death Benefits, 0.05% for Term Life, and 0.21% for Admin. System covers State Police with different benefits and contributions.

Group 1	State
EE Rate 1	5.00%
ER Rate 1	11.05%
ER NC Rate 1	2.81%
ER UAAL Rate 1	7.91%

Group 2	Teachers
EE Rate 2	5.00%
ER Rate 2	11.16%
ER NC Rate 2	3.94%
ER UAAL Rate 2	6.84%

Group 3
EE Rate 3
ER Rate 3
ER NC Rate 3
ER UAAL Rate 3

Board of Trustees

Board of Trustees Count	13
Member	6
Employer	
Appointed	3
Ex Officio	4
Legislators	
Retired	2
Non-Civilian	

State **AR**
 RS Name **PERS**

Actives	45,394	Investment Return Assumption	8.00%	Valuation Date	6/30/2010
Retirees	25,880	Wage Inflation Assumption	4.00%	Contribution Date (FY Beg)	7/1/2011

Covered Groups General, Sheriffs/Deputies, Elected Officials

Contribution Rates

Benefits

SS Participation: Yes
 Final Average Compensation Highest 3 yrs

Normal Retirement Conditions (Age/Svc) 65/5, 0/28

Early Retirement Conditions (Age/Svc) 55/5, 0/25

Vesting Condition 5 yrs

COLA 3% compound

Multiplier 2.0000%

Example Benefit (20 yrs) \$19,241

Percent of Final Pay (20 yrs, \$50K) 38.5%

Example Benefit (30 yrs) \$28,861

Percent of Final Pay (30 yrs, \$50K) 57.7%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment

Administration

Benefits

Notes 2.0% multiplier reflects new benefit tier only. DROP program is available.

Group 1	State/Local
EE Rate 1	5.00%
ER Rate 1	13.47%
ER NC Rate 1	6.71%
ER UAAL Rate 1	6.76%
Group 2	
EE Rate 2	
ER Rate 2	
ER NC Rate 2	
ER UAAL Rate 2	
Group 3	
EE Rate 3	
ER Rate 3	
ER NC Rate 3	
ER UAAL Rate 3	

Board of Trustees

Board of Trustees Count	9
Member	6
Employer	
Appointed	
Ex Officio	3
Legislators	
Retired	
Non-Civilian	

State **AR**

RS Name **Teachers**

Actives	72,208	Investment Return Assumption	8.00%	Valuation Date	6/30/2010
Retirees	30,587	Wage Inflation Assumption	4.00%	Contribution Date (FY Beg)	7/1/2011

Covered Groups Teachers

Benefits

SS Participation: Yes
 Final Average Compensation Highest 3 consecutive yrs, 20% cap

Normal Retirement Conditions (Age/Svc) 60/5, 28

Early Retirement Conditions (Age/Svc) 0/25

Vesting Condition 5 yrs

COLA 3% simple

Multiplier 2.1500%

Example Benefit (20 yrs) \$20,684

Percent of Final Pay (20 yrs, \$50K) 41.4%

Example Benefit (30 yrs) \$31,026

Percent of Final Pay (30 yrs, \$50K) 62.1%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment

Administration
 Benefits

Notes Multiplier is 2.15% for contributory service and 1.39% for non-contributory service. Forward DROP program is available.

Contribution Rates

Group 1
 EE Rate 1 6.00%
 ER Rate 1 14.00%
 ER NC Rate 1 8.21%
 ER UAAL Rate 1 5.79%

Group 2
 EE Rate 2
 ER Rate 2
 ER NC Rate 2
 ER UAAL Rate 2

Group 3
 EE Rate 3
 ER Rate 3
 ER NC Rate 3
 ER UAAL Rate 3

Board of Trustees

Board of Trustees Count	15
Member	11
Employer	
Appointed	
Ex Officio	4
Legislators	4
Retired	3
Non-Civilian	

State **FL**

RS Name **RS**

Actives	655,367	Investment Return Assumption	7.50%	Valuation Date	7/1/2010
Retirees	302,978	Wage Inflation Assumption	4.00%	Contribution Date (FY Beg)	

Covered Groups General, Public Safety, Teachers

Contribution Rates

Benefits

SS Participation: Yes
 Final Average Compensation Highest 5 (8 if hired after 7/1/11) consecutive yrs

Normal Retirement Conditions (Age/Svc) 62/6, 0/30, Hired after 7/1/11: 65/8, 0/33

Early Retirement Conditions (Age/Svc) 0/6

Vesting Condition 6 yrs (8 if hired after 7/1/11)

COLA 3% compound, bifurcated at 7/1/11. None for those hired after 7/1/11.

Multiplier 1.6000%

Example Benefit (20 yrs) \$14,004

Percent of Final Pay (20 yrs, \$50K) 28.0%

Example Benefit (30 yrs) \$21,006

Percent of Final Pay (30 yrs, \$50K) 42.0%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment

Administration
 Benefits

Notes Employees hired after 7/1/11 contribute 3%. The FL Division of Retirement oversees the FRS.

Group 1	
EE Rate 1	0.00%
ER Rate 1	8.74%
ER NC Rate 1	
ER UAAL Rate 1	
Group 2	
EE Rate 2	
ER Rate 2	
ER NC Rate 2	
ER UAAL Rate 2	
Group 3	
EE Rate 3	
ER Rate 3	
ER NC Rate 3	
ER UAAL Rate 3	

Board of Trustees

Board of Trustees Count
 Member
 Employer
 Appointed
 Ex Officio
 Legislators
 Retired
 Non-Civilian

State **GA**
 RS Name **ERS**

Actives 68,567 Investment Return Assumption 7.50% Valuation Date 6/30/2010
 Retirees 38,518 Wage Inflation Assumption 3.75% Contribution Date (FY Beg) 7/1/2012

Covered Groups General, Public Safety

Benefits

SS Participation: Yes
 Final Average Compensation Highest 2 consecutive yrs

Normal Retirement Conditions (Age/Svc) 65/10, 0/30

Early Retirement Conditions (Age/Svc) 60/10, 0/25

Vesting Condition 10 yrs

COLA ad hoc

Multiplier 2.0000%

Example Benefit (20 yrs) \$19,615

Percent of Final Pay (20 yrs, \$50K) 39.2%

Example Benefit (30 yrs) \$29,423

Percent of Final Pay (30 yrs, \$50K) 58.8%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment

Administration
 Benefits

Notes GSEPS multiplier is 1%.

Contribution Rates

Group 1 **New Plan**
 EE Rate 1 1.25%
 ER Rate 1 14.90%
 ER NC Rate 1 6.32%
 ER UAAL Rate 1 8.58%

Group 2 **GSEPS (hybrid)**
 EE Rate 2 1.25%
 ER Rate 2 11.54%
 ER NC Rate 2 2.96%
 ER UAAL Rate 2 8.58%

Group 3
 EE Rate 3
 ER Rate 3
 ER NC Rate 3
 ER UAAL Rate 3

Board of Trustees

Board of Trustees Count 7

Member

Employer

Appointed 1

Ex Officio 3

Legislators

Retired

Non-Civilian

State **GA**

RS Name **Teachers**

Actives	222,046	Investment Return Assumption	7.50%	Valuation Date	6/30/2010
Retirees	87,617	Wage Inflation Assumption	3.75%	Contribution Date (FY Beg)	

Covered Groups Teachers

Benefits

SS Participation: Yes
 Final Average Compensation Highest 2 consecutive yrs, 2.5% + General Assembly increase cap

Normal Retirement Conditions (Age/Svc) 60/10, 0/30

Early Retirement Conditions (Age/Svc) 0/25

Vesting Condition 10 yrs

COLA 1.5% every six months depending on CPI

Multiplier 2.0000%

Example Benefit (20 yrs) \$19,615

Percent of Final Pay (20 yrs, \$50K) 39.2%

Example Benefit (30 yrs) \$29,423

Percent of Final Pay (30 yrs, \$50K) 58.8%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment

Administration
 Benefits

Notes

Contribution Rates

Group 1	
EE Rate 1	5.25%
ER Rate 1	9.74%
ER NC Rate 1	7.96%
ER UAAL Rate 1	1.78%
Group 2	
EE Rate 2	
ER Rate 2	
ER NC Rate 2	
ER UAAL Rate 2	
Group 3	
EE Rate 3	
ER Rate 3	
ER NC Rate 3	
ER UAAL Rate 3	

Board of Trustees

Board of Trustees Count	10
Member	
Employer	
Appointed	5
Ex Officio	2
Legislators	
Retired	1
Non-Civilian	

State **IA**
 RS Name **PERS**

Actives 165,660 Investment Return Assumption 7.50% Valuation Date 6/30/2010
 Retirees 93,692 Wage Inflation Assumption 4.00% Contribution Date (FY Beg) 7/1/2011

Covered Groups General, Teachers, Public Safety

Contribution Rates

Benefits

SS Participation: Yes
 Final Average Compensation Highest 3 yrs (includes OT, sick, vac.)

Normal Retirement Conditions (Age/Svc) 65/0, 62/20, Rule of 88, Non-regular:
 55/0, 50/22

Early Retirement Conditions (Age/Svc) 55/0

Vesting Condition 4 yrs

COLA ad hoc lump sum, max =
 3%*benefit*yrs retired

Multiplier 2.0000%

Example Benefit (20 yrs) \$19,241

Percent of Final Pay (20 yrs, \$50K) 38.5%

Example Benefit (30 yrs) \$28,861

Percent of Final Pay (30 yrs, \$50K) 57.7%

*FAC for the example benefit is based on a 4% annual increase per year resulting
 in a \$50,000 final year's pay.*

Board Authority

Investment

Administration

Benefits Limited

Notes

There are two Boards: The Investment Board handles investment policy and administration while the Benefit Advisory Committee makes recommendations on benefit structure. Employee contribution rates are actuarially determined.

Group 1	Regular	
EE Rate 1		5.38%
ER Rate 1		8.07%
ER NC Rate 1		4.49%
ER UAAL Rate 1		3.58%
Group 2	Special Service 1	
EE Rate 2		9.83%
ER Rate 2		9.83%
ER NC Rate 2		6.42%
ER UAAL Rate 2		3.41%
Group 3	Special Service 2	
EE Rate 3		6.65%
ER Rate 3		9.97%
ER NC Rate 3		9.15%
ER UAAL Rate 3		0.82%

Board of Trustees

Board of Trustees Count	11
Member	3
Employer	
Appointed	6
Ex Officio	1
Legislators	4
Retired	1
Non-Civilian	

State **IL**

RS Name **SERS**

Actives 64,143 Investment Return Assumption 7.75% Valuation Date 6/30/2010

Retirees 58,392 Wage Inflation Assumption 3.00% Contribution Date (FY Beg)

Covered Groups General, Public Safety

Contribution Rates

Benefits

SS Participation: Yes
 Final Average Compensation Highest 4 of last 10 yrs

Group 1
 EE Rate 1 8.00%
 ER Rate 1 32.25%
 ER NC Rate 1 11.66%
 ER UAAL Rate 1 20.59%

Normal Retirement Conditions (Age/Svc) 60/8, Rule of 85, Tier 2: 67/10

Group 2
 EE Rate 2
 ER Rate 2
 ER NC Rate 2
 ER UAAL Rate 2

Early Retirement Conditions (Age/Svc) 55/25, Tier 2: 62/10

Group 3
 EE Rate 3
 ER Rate 3
 ER NC Rate 3
 ER UAAL Rate 3

Vesting Condition 8 yrs

COLA 3% compound, Tier 2: min 3% and 1/2 of CPI

Multiplier 1.6700%

Example Benefit (20 yrs) \$15,761

Percent of Final Pay (20 yrs, \$50K) 31.5%

Example Benefit (30 yrs) \$23,642

Percent of Final Pay (30 yrs, \$50K) 47.3%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board of Trustees

Board of Trustees Count 13
 Member 6
 Employer
 Appointed 6
 Ex Officio 1
 Legislators
 Retired 2
 Non-Civilian

Board Authority

Investment

Administration
 Benefits

Notes Members not covered by SS contribute 4% and have a 2.2% multiplier. Public Safety employees contribute 10.5%.

State **KS**

RS Name **PERS**

Actives	153,386	Investment Return Assumption	8.00%	Valuation Date	12/31/2010
Retirees	69,081	Wage Inflation Assumption	4.00%	Contribution Date (FY Beg)	1/1/2014

Covered Groups General, Teachers

Benefits

SS Participation: Yes
 Final Average Compensation Highest 5 yrs, 7.5% cap (excludes additional comp.)

Normal Retirement Conditions (Age/Svc) 65/5, 60/30

Early Retirement Conditions (Age/Svc) 55/10

Vesting Condition 5 yrs

COLA 2% compound, beg. later of age 65 and 1 after ret.

Multiplier 1.7500%

Example Benefit (20 yrs) \$16,205

Percent of Final Pay (20 yrs, \$50K) 32.4%

Example Benefit (30 yrs) \$24,307

Percent of Final Pay (30 yrs, \$50K) 48.6%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment

Administration

Benefits

Notes Actuarial rate is 13.83% for State/School and 9.43% for Local.

Contribution Rates

Group 1	State/School
EE Rate 1	4.17%
ER Rate 1	9.97%
ER NC Rate 1	3.86%
ER UAAL Rate 1	6.11%
Group 2	Local Gov.
EE Rate 2	4.20%
ER Rate 2	7.94%
ER NC Rate 2	3.48%
ER UAAL Rate 2	4.46%
Group 3	
EE Rate 3	
ER Rate 3	
ER NC Rate 3	
ER UAAL Rate 3	

Board of Trustees

Board of Trustees Count	9
Member	2
Employer	
Appointed	6
Ex Officio	1
Legislators	
Retired	1
Non-Civilian	

State **LA**
 RS Name **SERS**

Actives	58,881	Investment Return Assumption	8.25%	Valuation Date	6/30/2010
Retirees	39,385	Wage Inflation Assumption	3.50%	Contribution Date (FY Beg)	7/1/2010

Covered Groups General, Public Safety

Benefits

SS Participation: No
 Final Average Compensation Highest 3 consecutive yrs 15% cap (base pay)

Normal Retirement Conditions (Age/Svc) 0/30, 60/10, 55/25

Early Retirement Conditions (Age/Svc) 0/20

Vesting Condition 10 yrs

COLA min of CPI and 2% (3% if inv. return > 8.25%), beg. age 60

Multiplier 2.5000%

Example Benefit (20 yrs) \$24,051

Percent of Final Pay (20 yrs, \$50K) 48.1%

Example Benefit (30 yrs) \$36,076

Percent of Final Pay (30 yrs, \$50K) 72.2%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment

Administration

Benefits

Notes Teachers are covered under separate system.

Contribution Rates

Group 1	State
EE Rate 1	8.00%
ER Rate 1	25.90%
ER NC Rate 1	7.00%
ER UAAL Rate 1	18.90%
Group 2	
EE Rate 2	
ER Rate 2	
ER NC Rate 2	
ER UAAL Rate 2	
Group 3	
EE Rate 3	
ER Rate 3	
ER NC Rate 3	
ER UAAL Rate 3	

Board of Trustees

Board of Trustees Count	9
Member	9
Employer	
Appointed	
Ex Officio	3
Legislators	
Retired	3
Non-Civilian	

State **LA**

RS Name **Teachers**

Actives	85,047	Investment Return Assumption	8.25%	Valuation Date	6/30/2010
Retirees	63,940	Wage Inflation Assumption	3.50%	Contribution Date (FY Beg)	7/1/2011

Covered Groups Teachers

Benefits

SS Participation: No
 Final Average Compensation Highest 3 consecutive, 10% cap

Normal Retirement Conditions (Age/Svc) 60/5, 55/25, 0/30

Early Retirement Conditions (Age/Svc) 60/5, 0/20

Vesting Condition 5 yrs

COLA min of CPI and 2% if FR>80% and inv. return <8.25%, min 3% and CPI is inv. Return >8.25%

Multiplier 2.5000%

Example Benefit (20 yrs) \$24,051

Percent of Final Pay (20 yrs, \$50K) 48.1%

Example Benefit (30 yrs) \$36,076

Percent of Final Pay (30 yrs, \$50K) 72.2%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment

Administration
 Benefits

Notes General and Public Safety members covered under separate system.

Contribution Rates

Group 1
 EE Rate 1 8.00%
 ER Rate 1 23.70%
 ER NC Rate 1 5.97%
 ER UAAL Rate 1 17.73%

Group 2
 EE Rate 2
 ER Rate 2
 ER NC Rate 2
 ER UAAL Rate 2

Group 3
 EE Rate 3
 ER Rate 3
 ER NC Rate 3
 ER UAAL Rate 3

Board of Trustees

Board of Trustees Count	16
Member	12
Employer	
Appointed	
Ex Officio	4
Legislators	
Retired	2
Non-Civilian	

State **MO**
 RS Name **PSRS**

Actives 118,205 Investment Return Assumption 8.00% Valuation Date 6/30/2010
 Retirees 42,907 Wage Inflation Assumption 5.00% Contribution Date (FY Beg) 7/1/2012

Covered Groups Teachers, School Employees

Contribution Rates

Benefits

SS Participation: No (Teachers), Yes (PEERS)
 Final Average Compensation Highest 3 consecutive yrs, 10% (20% PEERS) cap

Normal Retirement Conditions (Age/Svc) 60/5, 0/30, Rule of 80

Early Retirement Conditions (Age/Svc) 55/5, 0/25

Vesting Condition 5 yrs

COLA min of CPI and 5% compound

Multiplier 2.5000%

Example Benefit (20 yrs) \$24,051

Percent of Final Pay (20 yrs, \$50K) 48.1%

Example Benefit (30 yrs) \$36,076

Percent of Final Pay (30 yrs, \$50K) 72.2%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment

Administration
 Benefits

Notes Employer and Employees split total contribution rate.

Group 1	Teachers	
EE Rate 1		14.00%
ER Rate 1		14.00%
ER NC Rate 1		21.97%
ER UAAL Rate 1		6.03%
Group 2	PEERS	
EE Rate 2		6.63%
ER Rate 2		6.63%
ER NC Rate 2		11.01%
ER UAAL Rate 2		2.25%
Group 3		
EE Rate 3		
ER Rate 3		
ER NC Rate 3		
ER UAAL Rate 3		

Board of Trustees

Board of Trustees Count	7
Member	4
Employer	
Appointed	3
Ex Officio	
Legislators	
Retired	1
Non-Civilian	

State **MO**
 RS Name **SERS**
 Actives 53,478
 Retirees 33,251
 Covered Groups General

Investment Return Assumption 8.50% Valuation Date 6/30/2010
 Wage Inflation Assumption 4.00% Contribution Date (FY Beg) 7/1/2011

Contribution Rates

Benefits

SS Participation: Yes
 Final Average Compensation Highest 3 consecutive yrs (includes OT)

Group 1
 EE Rate 1 0.00%
 ER Rate 1 14.45%
 ER NC Rate 1 7.80%
 ER UAAL Rate 1 6.65%

Normal Retirement Conditions (Age/Svc) 62/5, Rule of 80, Hired after 2010:
 67/10, Rule of 90

Group 2
 EE Rate 2
 ER Rate 2
 ER NC Rate 2
 ER UAAL Rate 2

Early Retirement Conditions (Age/Svc) 57/5, Hired after 2010: 62/10

Vesting Condition 5 (10 if hired after 2010) yrs
 COLA 80% of CPI with 5% max, compound

Group 3
 EE Rate 3
 ER Rate 3
 ER NC Rate 3
 ER UAAL Rate 3

Multiplier 1.7000%
 Example Benefit (20 yrs) \$16,355
 Percent of Final Pay (20 yrs, \$50K) 32.7%
 Example Benefit (30 yrs) \$24,532
 Percent of Final Pay (30 yrs, \$50K) 49.1%

Board of Trustees

Board of Trustees Count 11
 Member 3
 Employer
 Appointed 6
 Ex Officio 2
 Legislators
 Retired 1
 Non-Civilian

Board Authority

Investment
 Administration
 Benefits

Notes Teachers and Local members covered under separate system. Temporary additional multiplier of 0.8% until age 62. A BackDROP benefit is available to employees hired before 2011. Employees hired after 2010 contribute 4%.

State **MS**

RS Name **PERS**

Actives	165,644	Investment Return Assumption	8.00%	Valuation Date	6/30/2010
Retirees	82,096	Wage Inflation Assumption	4.25%	Contribution Date (FY Beg)	7/1/2011

Covered Groups General, Teachers

Benefits

SS Participation: Yes
 Final Average Compensation Highest 4 yrs, 8% cap in final 2 yrs

Normal Retirement Conditions (Age/Svc) 0/25, 60/8

Early Retirement Conditions (Age/Svc) NA

Vesting Condition 4 yrs

COLA 3% simple to age 55, then compound

Multiplier 2.0000%

Example Benefit (20 yrs) \$18,875

Percent of Final Pay (20 yrs, \$50K) 37.8%

Example Benefit (30 yrs) \$29,493

Percent of Final Pay (30 yrs, \$50K) 59.0%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment

Administration
 Benefits

Notes 2.5% multiplier for service over 25 years.

Contribution Rates

Group 1
 EE Rate 1 9.00%
 ER Rate 1 12.93%
 ER NC Rate 1 2.18%
 ER UAAL Rate 1 10.75%

Group 2
 EE Rate 2
 ER Rate 2
 ER NC Rate 2
 ER UAAL Rate 2

Group 3
 EE Rate 3
 ER Rate 3
 ER NC Rate 3
 ER UAAL Rate 3

Board of Trustees

Board of Trustees Count	10
Member	8
Employer	
Appointed	1
Ex Officio	1
Legislators	
Retired	2
Non-Civilian	1

State **NC**

RS Name **RS**

Actives	469,072	Investment Return Assumption	7.25%	Valuation Date	12/31/2009
Retirees	138,172	Wage Inflation Assumption	3.50%	Contribution Date (FY Beg)	7/1/2011

Covered Groups General, Public Safety, Teachers

Contribution Rates

Benefits

SS Participation: Yes
 Final Average Compensation Highest 4 consecutive (includes vacation)

Normal Retirement Conditions (Age/Svc) 65/5, 60/25, 0/30, Public Safety: 55/5

Early Retirement Conditions (Age/Svc) 60/5, 50/20, Public Safety: 50/15

Vesting Condition 5 yrs

COLA ad hoc

Multiplier 1.8200%

Example Benefit (20 yrs) \$17,177

Percent of Final Pay (20 yrs, \$50K) 34.4%

Example Benefit (30 yrs) \$25,765

Percent of Final Pay (30 yrs, \$50K) 51.5%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment

Administration
 Benefits

Notes State Treasurer is the sole fiduciary of investments.

Group 1	State/Teachers	
EE Rate 1		6.00%
ER Rate 1		7.94%
ER NC Rate 1		5.12%
ER UAAL Rate 1		2.82%
Group 2	Local General/Fire	
EE Rate 2		6.00%
ER Rate 2		6.35%
ER NC Rate 2		
ER UAAL Rate 2		
Group 3	Local Law Enforcement	
EE Rate 3		6.00%
ER Rate 3		6.82%
ER NC Rate 3		
ER UAAL Rate 3		

Board of Trustees

Board of Trustees Count	14
Member	
Employer	
Appointed	12
Ex Officio	1
Legislators	
Retired	1
Non-Civilian	1

State **NM**

RS Name **PERA**

Actives 49,202 Investment Return Assumption 8.00% Valuation Date 6/30/2010

Retirees 27,249 Wage Inflation Assumption 4.50% Contribution Date (FY Beg)

Covered Groups All State and Local Employees (excludes Teachers, Judges and Vol. Fire)

Contribution Rates

Benefits

SS Participation: Yes (civilian), No (uniformed)
 Final Average Compensation Highest 3 consecutive yrs (base pay)

Group 1 **State Civilian**
 EE Rate 1 8.92%
 ER Rate 1 15.09%
 ER NC Rate 1
 ER UAAL Rate 1

Normal Retirement Conditions (Age/Svc) 65/5, 0/25, 60/20, Hired after 6/30/10: 0/30, Rule of 80, Municipal Uniformed: 0/20

Group 2 **Municipal Civilian***
 EE Rate 2 7.00%
 ER Rate 2 7.00%
 ER NC Rate 2

Early Retirement Conditions (Age/Svc) NA

ER UAAL Rate 2
 Group 3 **Municipal Uniformed#**
 EE Rate 3 7.00%
 ER Rate 3 10.00%
 ER NC Rate 3
 ER UAAL Rate 3

Vesting Condition 5 yrs

COLA 3% compound, begins 2.5-3.5 yrs after retirement

Multiplier 3.0000%

Example Benefit (20 yrs) \$28,861

Percent of Final Pay (20 yrs, \$50K) 57.7%

Example Benefit (30 yrs) \$38,481

Percent of Final Pay (30 yrs, \$50K) 77.0%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board of Trustees

Board of Trustees Count 14
 Member 9
 Employer
 Appointed
 Ex Officio 2
 Legislators
 Retired 2
 Non-Civilian

Board Authority

Investment

Administration
 Benefits

Notes 18 benefit groups. Maximum benefit is 80% of FAC for the 3% multiplier. Benefit multipliers range from 2.0-3.0% depending on group and contribution rate. *Range from 7-15.65% for EE and 7-11.65% for ER. #Range from 7-16.3% for EE and 10-21.25% for ER.

State **OR**
 RS Name **PERS**

Actives 176,750 Investment Return Assumption 8.00% Valuation Date 12/31/2009
 Retirees 110,642 Wage Inflation Assumption 3.75% Contribution Date (FY Beg) 7/1/2011

Covered Groups General, Public Safety, Teachers

Contribution Rates

Benefits

SS Participation: Yes
 Final Average Compensation Max of 3 highest calendar yrs and 3 last yrs

Normal Retirement Conditions (Age/Svc) 60/0, Public Safety: 55/0 OPSRP: 65/0, 58/30, Public Safety: 60/0, 53/25

Early Retirement Conditions (Age/Svc) 55/0, 0/30 Public Safety: 50/0, OPSRP: 55/5, Public Safety: 50/5

Vesting Condition 5 yrs
 COLA min CPI and 2%, compound

Multiplier 1.6700%
 Example Benefit (20 yrs) \$16,066
 Percent of Final Pay (20 yrs, \$50K) 32.1%
 Example Benefit (30 yrs) \$24,099
 Percent of Final Pay (30 yrs, \$50K) 48.2%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment
 Administration
 Benefits

Notes ER cont. rates are limited by a collar. 2% multiplier for public safety. OPSRP (hybrid plan): 1.5% multiplier for general and 1.8% for public safety; EE contributions are 6% and ER rates are 8.39% for general and 11.10% for public safety.

Group 1	State/Local
EE Rate 1	0.00%
ER Rate 1	15.05%
ER NC Rate 1	8.89%
ER UAAL Rate 1	6.16%
Group 2	School District
EE Rate 2	0.00%
ER Rate 2	18.81%
ER NC Rate 2	7.55%
ER UAAL Rate 2	11.26%
Group 3	Independent Employers
EE Rate 3	0.00%
ER Rate 3	13.91%
ER NC Rate 3	10.35%
ER UAAL Rate 3	3.56%

Board of Trustees

Board of Trustees Count	5
Member	1
Employer	
Appointed	
Ex Officio	1
Legislators	
Retired	1
Non-Civilian	

State **SC**

RS Name **RS**

Actives	231,858	Investment Return Assumption	8.00%	Valuation Date	7/1/2009
Retirees	124,286	Wage Inflation Assumption	4.00%	Contribution Date (FY Beg)	7/1/2011

Covered Groups General, Teachers, Public Safety

Contribution Rates

Benefits

SS Participation: Yes
 Final Average Compensation Highest 3 consecutive yrs (includes leave)

Normal Retirement Conditions (Age/Svc) 65/5, 0/28, Public Safety: 55/5, 0/25

Early Retirement Conditions (Age/Svc) 60/5, 55/25

Vesting Condition 5 yrs
 COLA min of 2% and CPI, compound

Multiplier 1.8200%
 Example Benefit (20 yrs) \$17,509
 Percent of Final Pay (20 yrs, \$50K) 35.0%
 Example Benefit (30 yrs) \$26,263
 Percent of Final Pay (30 yrs, \$50K) 52.5%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment
 Administration
 Benefits

Notes DC plan, State Optional Retirement Plan (SORP), is provided as an alternative to the DB plan. 2.14% multiplier for public safety.

Group 1	DB Plan	
EE Rate 1		6.50%
ER Rate 1		9.24%
ER NC Rate 1		
ER UAAL Rate 1		
Group 2	Public Safety	
EE Rate 2		6.50%
ER Rate 2		10.65%
ER NC Rate 2		
ER UAAL Rate 2		
Group 3	SORP (DC plan)	
EE Rate 3		6.50%
ER Rate 3		9.24%
ER NC Rate 3		
ER UAAL Rate 3		

Board of Trustees

Board of Trustees Count	8
Member	8
Employer	
Appointed	8
Ex Officio	
Legislators	
Retired	1
Non-Civilian	

State **TN**

RS Name **State/Teachers**

Actives	135,422	Investment Return Assumption	7.50%	Valuation Date	6/30/2009
Retirees	76,955	Wage Inflation Assumption	3.50%	Contribution Date (FY Beg)	7/1/2009

Covered Groups General, Public Safety, Teachers

Benefits

SS Participation: Yes
 Final Average Compensation Highest 5 consecutive yrs

Normal Retirement Conditions (Age/Svc) 0/30, 60/0

Early Retirement Conditions (Age/Svc) 0/25, 55/0

Vesting Condition 5 yrs

COLA min of CPI and 3%, compound

Multiplier 1.5000%

Example Benefit (20 yrs) \$13,890

Percent of Final Pay (20 yrs, \$50K) 27.8%

Example Benefit (30 yrs) \$20,835

Percent of Final Pay (30 yrs, \$50K) 41.7%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment

Administration
 Benefits

Notes

Contribution Rates

Group 1	State
EE Rate 1	0.00%
ER Rate 1	15.01%
ER NC Rate 1	8.56%
ER UAAL Rate 1	5.75%

Group 2	Teachers
EE Rate 2	5.00%
ER Rate 2	9.05%
ER NC Rate 2	5.76%
ER UAAL Rate 2	2.81%

Group 3
EE Rate 3
ER Rate 3
ER NC Rate 3
ER UAAL Rate 3

Board of Trustees

Board of Trustees Count	20
Member	
Employer	
Appointed	5
Ex Officio	9
Legislators	
Retired	1
Non-Civilian	1

State **UT**

RS Name **RS**

Actives	104,467	Investment Return Assumption	7.75%	Valuation Date	1/1/2010
Retirees	46,305	Wage Inflation Assumption	4.00%	Contribution Date (FY Beg)	1/1/2010

Covered Groups General, Teachers, Public Safety, Judges, Elected officials

Benefits

SS Participation: Yes
 Final Average Compensation Highest 3 (5 for contributory) consecutive years, 10%+CPI cap

Normal Retirement Conditions (Age/Svc) 0/30, 65/4, Public Safety: 0/20

Early Retirement Conditions (Age/Svc) 0/25, 60/20, 62/10

Vesting Condition 4 yrs

COLA min CPI and 4%, simple

Multiplier 2.0000%

Example Benefit (20 yrs) \$19,241

Percent of Final Pay (20 yrs, \$50K) 38.5%

Example Benefit (30 yrs) \$28,861

Percent of Final Pay (30 yrs, \$50K) 57.7%

FAC for the example benefit is based on a 4% annual increase per year resulting in a \$50,000 final year's pay.

Board Authority

Investment

Administration
 Benefits

Notes Utah RS also offers 401(k), 457, and IRA accounts. Public safety multiplier is 2.5% up to 20 yrs and 2.0% after.

Contribution Rates

Group 1	Non-Contributory
EE Rate 1	0.00%
ER Rate 1	14.51%
ER NC Rate 1	12.36%
ER UAAL Rate 1	2.15%

Group 2	Contributory
EE Rate 2	6.00%
ER Rate 2	11.83%
ER NC Rate 2	

ER UAAL Rate 2

Group 3

EE Rate 3

ER Rate 3

ER NC Rate 3

ER UAAL Rate 3

Board of Trustees

Board of Trustees Count 7

Member 2

Employer

Appointed 6

Ex Officio 1

Legislators

Retired

Non-Civilian

Ranking Based on Reported Percent of ARC Contributed (\$ Millions)

Rank	State	System	Fiscal Year End	ARC	ER Contributions	Percent Contributed
1	FL	RS	6/30/2010	\$ 2,447.4	\$ 2,716.6	111.0%
2	AR	Teachers	6/30/2010	\$ 362.6	\$ 389.3	107.3%
3	GA	ERS	6/30/2010	\$ 263.1	\$ 263.1	100.0%
3	OR	PERS	12/31/2009	\$ 630.8	\$ 561.3	100.0%
3	MS	PERS	6/30/2010	\$ 699.8	\$ 731.5	100.0%
3	AR	PERS	6/30/2010	\$ 169.6	\$ 169.6	100.0%
3	NC	RS	6/30/2010	\$ 483.2	\$ 483.2	100.0%
3	SC	RS	6/30/2010	\$ 818.5	\$ 818.5	100.0%
3	AL	RS	9/30/2010	\$ 1,165.1	\$ 1,165.1	100.0%
3	UT	RS	6/30/2010	\$ 564.1	\$ 564.1	100.0%
3	MO	SERS	6/30/2011	\$ 263.4	\$ 263.4	100.0%
3	TN	State/Teachers	6/30/2010	\$ 836.7	\$ 836.7	100.0%
3	GA	Teachers	6/30/2009	\$ 1,026.3	\$ 1,057.4	100.0%
4	IL	SERS	6/30/2010	\$ 1,177.3	\$ 1,095.5	93.1%
5	IA	PERS	6/30/2010	\$ 501.9	\$ 449.1	89.5%
6	NM	PERA	6/30/2010	\$ 328.2	\$ 291.7	88.7%
7	LA	SERS	6/30/2010	\$ 585.3	\$ 510.8	87.2%
8	LA	Teachers	6/30/2010	\$ 904.4	\$ 755.2	83.5%
9	MO	PSRS	6/30/2010	\$ 833.2	\$ 685.8	82.3%
10	KS	PERS	6/30/2011	\$ 686.9	\$ 505.7	74.1%

Ranking Based on Reported Member Contribution Rate (as a % of Payroll)

Rank	State	System	Fiscal Year End	Member Rate 1	Employer Rate 1	Member Rate 2	Employer Rate 2	Member Rate 3	Employer Rate 3
1	UT	RS	6/30/2010	0.00%	14.51%	6.00%	11.83%		
1	FL	RS	6/30/2010	0.00%	8.74%				
1	MO	SERS	6/30/2011	0.00%	14.45%	4.00%	14.45%		
1	TN	State/Teachers	6/30/2010	0.00%	15.01%	5.00%	9.05%		
2	GA	ERS	6/30/2010	1.25%	14.90%				
3	KS	PERS	6/30/2011	4.17%	9.97%	4.20%	7.94%		
4	AR	PERS	6/30/2010	5.00%	13.47%				
4	AL	RS	9/30/2010	5.00%	11.05%	5.00%	11.16%		
5	GA	Teachers	6/30/2009	5.25%	9.74%				
6	IA	PERS	6/30/2010	5.38%	8.07%	9.83%	9.83%	6.65%	9.97%
7	OR	PERS	12/31/2009	6.00%	8.39%	6.00%	11.00%		
7	NC	RS	6/30/2010	6.00%	7.94%	6.00%	6.35%	6.00%	6.82%
7	AR	Teachers	6/30/2010	6.00%	14.00%				
8	SC	RS	6/30/2010	6.50%	9.24%	6.50%	10.65%	6.50%	9.24%
9	LA	SERS	6/30/2010	8.00%	25.90%				
9	IL	SERS	6/30/2010	8.00%	32.25%				
9	LA	Teachers	6/30/2010	8.00%	23.70%				
10	NM	PERA	6/30/2010	8.92%	15.09%	15.65%	11.65%	16.30%	21.25%
11	MS	PERS	6/30/2010	9.00%	12.93%				
12	MO	PSRS	6/30/2010	14.00%	14.00%	6.63%	6.63%		

Ranking Based on Reported Employer Contribution Rate (as a % of Payroll)

Rank	State	System	Fiscal Year End	Member Rate 1	Employer Rate 1	Member Rate 2	Employer Rate 2	Member Rate 3	Employer Rate 3
1	NC	RS	6/30/2010	6.00%	7.94%	6.00%	6.35%	6.00%	6.82%
2	IA	PERS	6/30/2010	5.38%	8.07%	9.83%	9.83%	6.65%	9.97%
3	OR	PERS	12/31/2009	6.00%	8.39%	6.00%	11.00%		
4	FL	RS	6/30/2010	0.00%	8.74%				
5	SC	RS	6/30/2010	6.50%	9.24%	6.50%	10.65%	6.50%	9.24%
6	GA	Teachers	6/30/2009	5.25%	9.74%				
7	KS	PERS	6/30/2011	4.17%	9.97%	4.20%	7.94%		
8	AL	RS	9/30/2010	5.00%	11.05%	5.00%	11.16%		
9	MS	PERS	6/30/2010	9.00%	12.93%				
10	AR	PERS	6/30/2010	5.00%	13.47%				
11	AR	Teachers	6/30/2010	6.00%	14.00%				
11	MO	PSRS	6/30/2010	14.00%	14.00%	6.63%	6.63%		
12	MO	SERS	6/30/2011	0.00%	14.45%	4.00%	14.45%		
13	UT	RS	6/30/2010	0.00%	14.51%	6.00%	11.83%		
14	GA	ERS	6/30/2010	1.25%	14.90%				
15	TN	State/Teachers	6/30/2010	0.00%	15.01%	5.00%	9.05%		
16	NM	PERA	6/30/2010	8.92%	15.09%	15.65%	11.65%	16.30%	21.25%
17	LA	Teachers	6/30/2010	8.00%	23.70%				
18	LA	SERS	6/30/2010	8.00%	25.90%				
19	IL	SERS	6/30/2010	8.00%	32.25%				

Ranking Based on Reported Employer Normal Cost Rate (as a % of Payroll)

Rank	State	System	Fiscal Year End	ER NC Rate 1
1	MS	PERS	6/30/2010	2.18%
2	AL	RS	9/30/2010	2.81%
3	SC	RS	6/30/2010	3.36%
4	KS	PERS	6/30/2011	3.86%
5	IA	PERS	6/30/2010	4.49%
6	NC	RS	6/30/2010	5.12%
7	LA	Teachers	6/30/2010	5.97%
8	GA	ERS	6/30/2010	6.32%
9	AR	PERS	6/30/2010	6.71%
10	LA	SERS	6/30/2010	7.00%
11	MO	SERS	6/30/2011	7.80%
12	GA	Teachers	6/30/2009	7.96%
13	AR	Teachers	6/30/2010	8.21%
14	TN	State/Teachers	6/30/2010	8.56%
15	OR	PERS	12/31/2009	8.89%
16	NM	PERA	6/30/2009	10.54%
17	MO	PSRS	6/30/2010	10.99%
18	IL	SERS	6/30/2010	11.66%
19	UT	RS	6/30/2010	12.36%
	FL	RS	6/30/2010	n/a

Ranking Based on Reported Funded Status

Rank	State	Plan Name	Actuarial Funding Ratio	Actuarial Valuation Date
1	WI	Wisconsin Retirement System	99.8	12/31/2009
2	SD	South Dakota PERS	96.3	6/30/2010
3	DE	Delaware State Employees	96.0	6/30/2010
4	CO	Denver Employees	91.8	1/1/2010
5	CA	San Francisco City & County	91.1	7/1/2010
6	TX	Texas County & District	89.4	12/31/2010
7	CO	Denver Public Schools	88.9	12/31/2010
8	MO	St. Louis School Employees	88.4	1/1/2010
9	MN	Minnesota State Employees	87.3	7/1/2010
10	FL	Florida RS	86.6	7/1/2010
11	TX	Texas LECOS	86.3	8/31/2010
12	OR	Oregon PERS	85.8	12/31/2009
13	TX	Texas ERS	85.4	8/31/2010
14	ND	North Dakota PERS	85.1	6/30/2010
15	CA	San Diego County	84.3	6/30/2010
16	CA	Contra Costa County	83.8	12/31/2009
17	IL	Illinois Municipal	83.3	12/31/2010
18	TX	Texas Municipal	82.9	12/31/2010
19	TX	Texas Teachers	82.9	8/31/2010
20	UT	Utah Noncontributory	82.2	1/1/2010
21	MN	Duluth Teachers	81.7	7/1/2010
22	IA	Iowa PERS	81.4	6/30/2010
23	MO	Missouri Local	81.0	2/28/2010
24	MO	Missouri State Employees	80.4	6/30/2010
25	GA	Georgia ERS	80.1	6/30/2010
26	MO	Missouri PEERS	79.1	6/30/2010
27	ID	Idaho PERS	78.6	7/1/2010
28	MN	Minnesota Teachers	78.5	7/1/2010
29	NM	New Mexico PERF	78.5	6/30/2010
30	MO	Missouri Teachers	77.7	6/30/2010
31	VA	Fairfax County Schools	76.5	12/31/2009
32	MN	Minnesota PERF	76.4	6/30/2010
33	MI	Michigan Municipal	75.5	12/31/2009
34	OH	Ohio PERS	75.3	12/31/2009
35	PA	Pennsylvania State ERS	75.2	12/31/2010
36	WV	West Virginia PERS	74.6	7/1/2010
37	MT	Montana PERS	74.2	6/30/2010
38	AR	Arkansas PERS	74.1	6/30/2010
39	CO	Colorado Municipal	73.0	12/31/2009

Ranking Based on Reported Funded Status (Concluded)

Rank	State	Plan Name	Actuarial Funding Ratio
40	OH	Ohio Police & Fire	72.8
41	OH	Ohio School Employees	72.6
42	CA	California Teachers	71.5
43	NV	Nevada Regular Employees	71.2
44	AL	Alabama Teachers	71.1
45	ND	North Dakota Teachers	69.8
46	TX	City of Austin ERS	69.6
47	AZ	Phoenix ERS	69.3
48	NJ	New Jersey Police & Fire	68.9
49	AL	Alabama ERS	68.2
50	MN	St. Paul Teachers	68.0
51	NV	Nevada Police Officer and Firefighter	67.8
52	AZ	Arizona Public Safety Personnel	67.7
53	CO	Colorado State	67.0
54	OK	Oklahoma PERS	66.0
55	NM	New Mexico Teachers	65.7
56	KY	Kentucky County	65.5
57	MT	Montana Teachers	65.4
58	MD	Maryland Teachers	65.4
59	CO	Colorado School	64.8
60	MS	Mississippi PERS	64.2
61	KS	Kansas PERS	63.7
62	MA	Massachusetts Teachers	63.0
63	MD	Maryland PERS	62.8
64	NJ	New Jersey PERS	62.0
65	CT	Connecticut Teachers	61.4
66	KY	Kentucky Teachers	61.0
67	OH	Ohio Teachers	59.1
68	NJ	New Jersey Teachers	58.6
69	NH	New Hampshire Retirement System	58.5
70	LA	Louisiana SERS	57.7
71	LA	Louisiana Teachers	54.4
72	IL	Illinois Teachers	48.4
73	OK	Oklahoma Teachers	47.9
74	WV	West Virginia Teachers	46.5
75	IL	Illinois Universities	46.4
76	CT	Connecticut SERS	44.4
77	KY	Kentucky ERS	40.3
78	IL	Illinois SERS	37.4

Discussion of Survey Information

The survey information was taken from the Public Funds Survey (sponsored by NASRA and NCTR), the systems' annual reports and the systems' valuation reports.

For the funded status comparison, we included all plans that submitted data for the public funds survey with reported valuation dates between 12/31/2009 and 12/31/2010. For the other rankings, we focused on the 20 peer plans that we had previously gathered survey information for the Commission.

Caution should be exercised in using these rankings since a system could easily find itself at the bottom of such a ranking for a number of reasons that are not necessarily indicative of a problem, including (but not limited to) the following:

- being the most recent system to grant benefit increases for past service (this can cause the funded status to drop initially, even if the increases are being funded);
- granting larger benefit increases (more recently) than peer plans;
- using more conservative assumptions (mortality, investment return, pay increase, etc).

Also, please note that comparing the contribution rates and the normal cost rates was more difficult because many of the peer plans in the survey had different contribution rates for different subgroups. For this comparison, we attempted to use the contribution rates for the state employed civilian groups, to the extent that we were able to identify those specific rates.

A summary of the survey results follow:

	Funded Status	Percent of ARC Contributed	Member Contribution Rate*	Employer Contribution Rate*	Employer Normal Cost*
Best (Rank = 1)	99.8%	111.0%	0.0%	7.94%	2.18%
Worst	37.4%	74.1%	14.0%	32.25%	12.86%
Average/Median	72.2%/72.9%	100.0%/95.8%	5.3%/5.7%	14.2%/13.7%	7.1%/7.0%
PERS	64.2%	100.0%	9.0%	12.93%	2.18%
PERS Rank	60 out of 78	3 out of 10	11 out of 12	9 out of 19	1 out of 19
Basis	Based on 78 systems that reported valuation dates within a 6 month window around 6/30/2010.	Twenty (20) plans compared. Lowest rank was 10 after accounting for the 11 way tie for rank 3.	Twenty (20) plans compared. Lowest rank was 12 after accounting for tie rankings.	Twenty (20) plans compared. Lowest rank was 19 after accounting for tie rankings.	Twenty (20) plans compared. Employer normal cost not immediately available for Florida Retirement System.

* as a % of payroll.

BASELINE PROJECTIONS

PERS Baseline Projection, with Future Experience as Assumed

Results Section

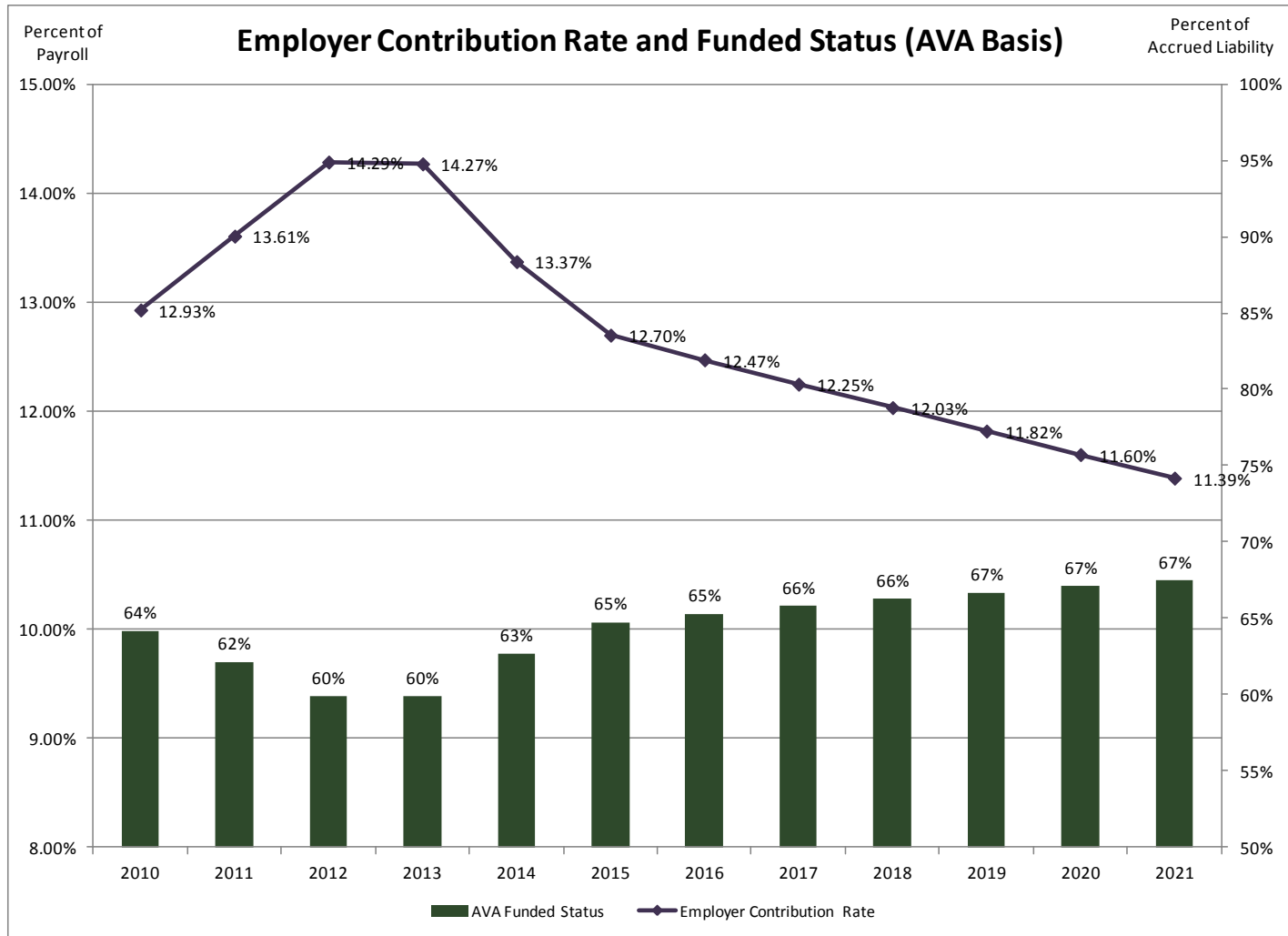
\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,008,507	6,263,869	6,530,083	6,807,612	7,096,935	7,398,555	7,712,994	8,040,796	8,382,530	8,738,787	9,110,186
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,550,679	36,175,114	37,824,696	39,497,742	41,211,144	42,969,695	44,773,097	46,613,061	48,492,455	50,415,122
Market Value of Assets (MVA)	16,788,214	20,377,457	21,604,706	22,908,058	24,246,294	25,574,101	26,905,674	28,270,953	29,661,448	31,080,302	32,530,973	34,017,023
Actuarial Value of Assets (AVA)	20,143,426	20,480,803	20,693,255	21,665,494	23,720,807	25,574,101	26,905,674	28,270,953	29,661,448	31,080,303	32,530,974	34,017,024
UAAL (AAL-AVA)	11,256,562	12,474,180	13,857,424	14,509,620	14,103,889	13,923,641	14,305,470	14,698,741	15,111,649	15,532,758	15,961,481	16,398,098
MVA Funded Status	53%	62%	63%	63%	64%	65%	65%	66%	66%	67%	67%	67%
AVA Funded Status	64%	62%	60%	60%	63%	65%	65%	66%	66%	67%	67%	67%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	10%	7%	11%	15%	15%	15%	14%	14%	14%	13%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.61%	23.29%	23.27%	22.37%	21.70%	21.47%	21.25%	21.03%	20.82%	20.60%	20.39%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.61%	14.29%	14.27%	13.37%	12.70%	12.47%	12.25%	12.03%	11.82%	11.60%	11.39%
Estimated Employer Dollars	776,819	852,245	932,840	971,349	949,005	939,427	961,909	984,843	1,008,680	1,032,744	1,056,981	1,081,385

Input Recapp

Projected Actual ROR	23.82%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Projected Payroll Growth	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period	30	30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	
Investment Return Assumption on and after 2011	8.00%											
Reset AVA to MVA in 2011?	No											

PERS Baseline Projection, with Future Experience as Assumed



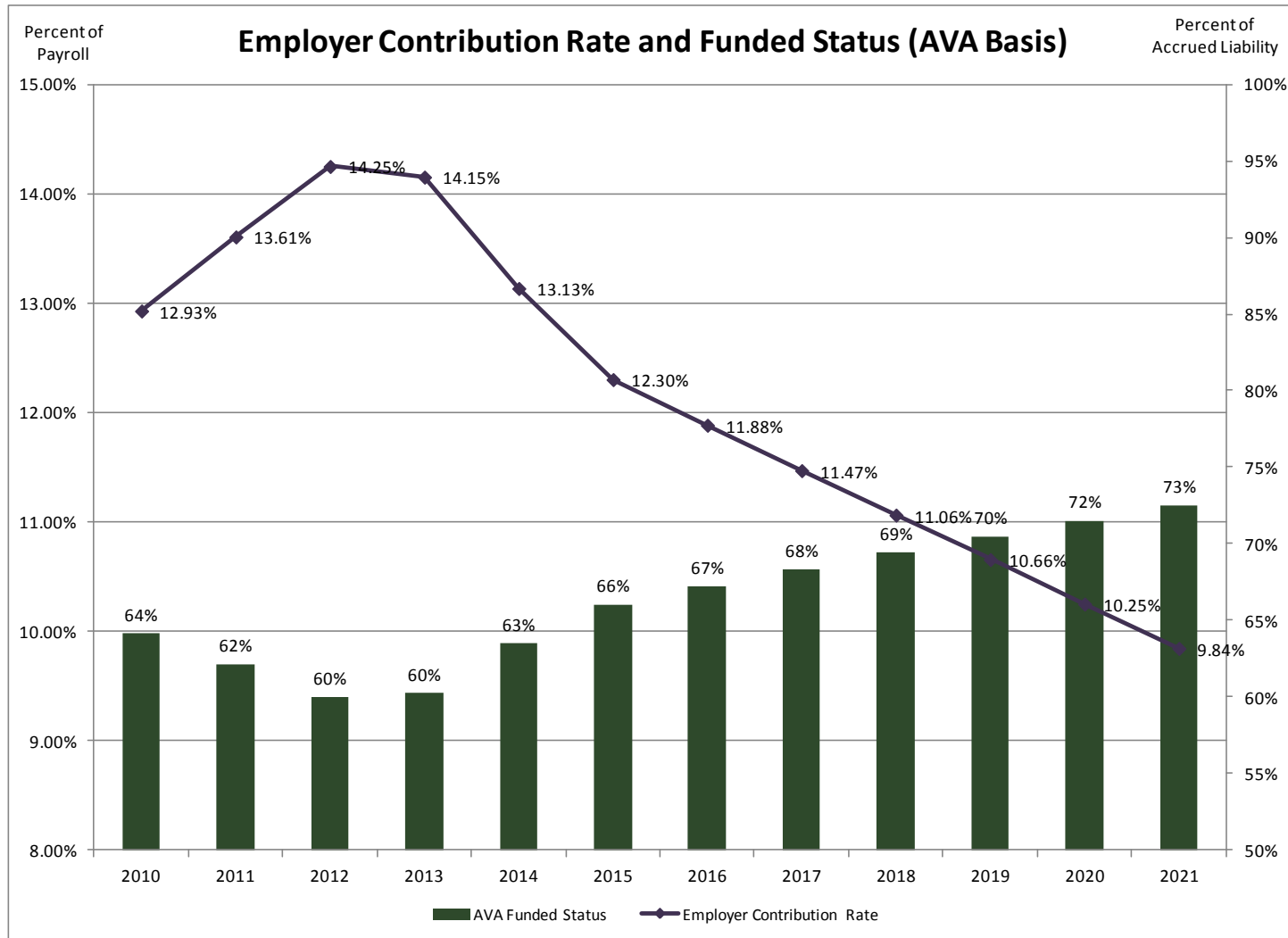
PERS Baseline Projection, with Actual Earnings of 9.0% over Next 10 Years

Results Section

\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,008,507	6,263,869	6,530,083	6,807,612	7,096,935	7,398,555	7,712,994	8,040,796	8,382,530	8,738,787	9,110,186
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,550,679	36,175,114	37,824,696	39,497,742	41,211,144	42,969,695	44,773,097	46,613,061	48,492,455	50,415,122
Market Value of Assets (MVA)	16,788,214	20,377,457	21,806,544	23,339,644	24,935,172	26,546,887	28,187,719	29,886,340	31,635,316	33,438,850	35,301,533	37,228,132
Actuarial Value of Assets (AVA)	20,143,426	20,480,803	20,733,622	21,803,168	24,014,558	26,084,463	27,694,815	29,362,185	31,079,082	32,849,617	34,678,274	36,569,744
UAAL (AAL-AVA)	11,256,562	12,474,180	13,817,057	14,371,946	13,810,138	13,413,279	13,516,329	13,607,510	13,694,015	13,763,444	13,814,181	13,845,378
MVA Funded Status	53%	62%	63%	65%	66%	67%	68%	70%	71%	72%	73%	74%
AVA Funded Status	64%	62%	60%	60%	63%	66%	67%	68%	69%	70%	72%	73%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	10%	8%	13%	18%	19%	21%	22%	24%	25%	27%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.61%	23.25%	23.15%	22.13%	21.30%	20.88%	20.47%	20.06%	19.66%	19.25%	18.84%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.61%	14.25%	14.15%	13.13%	12.30%	11.88%	11.47%	11.06%	10.66%	10.25%	9.84%
Estimated Employer Dollars	776,819	852,245	930,524	963,450	932,152	910,145	916,633	922,234	927,344	931,231	933,782	934,925
Input Recapp												
Projected Actual ROR		23.82%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Projected Payroll Growth		4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period		30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		8.00%										
Reset AVA to MVA in 2011?		No										

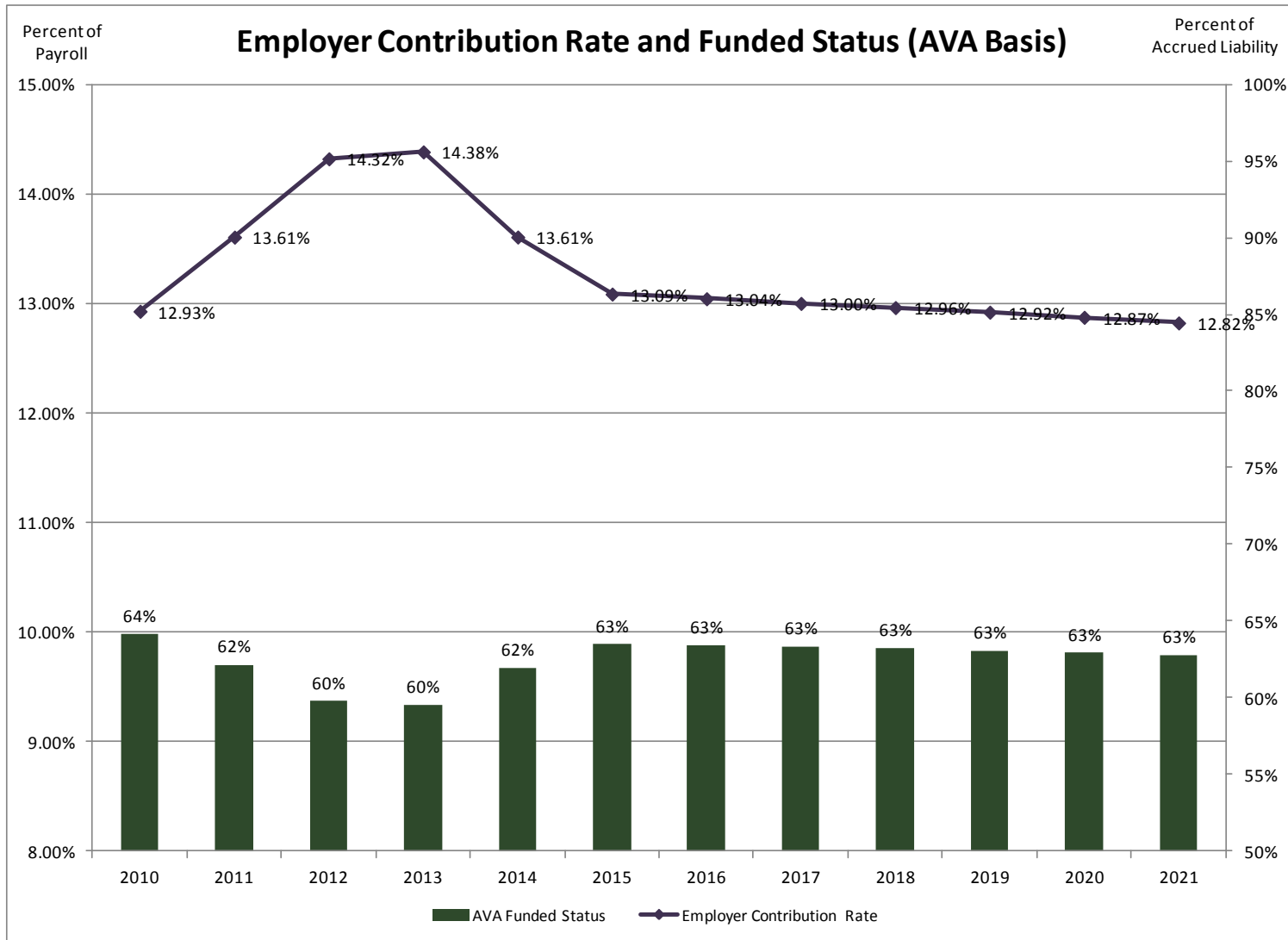
PERS Baseline Projection, with Actual Earnings of 9.0% over Next 10 Years



PERS Baseline Projection, with Actual Earnings of 7.0% over Next 10 Years

Results Section												
\$s in Thousands												
Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,008,507	6,263,869	6,530,083	6,807,612	7,096,935	7,398,555	7,712,994	8,040,796	8,382,530	8,738,787	9,110,186
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,550,679	36,175,114	37,824,696	39,497,742	41,211,144	42,969,695	44,773,097	46,613,061	48,492,455	50,415,122
Market Value of Assets (MVA)	16,788,214	20,377,457	21,402,869	22,480,486	23,570,215	24,628,407	25,671,212	26,730,470	27,797,231	28,874,193	29,964,326	31,070,660
Actuarial Value of Assets (AVA)	20,143,426	20,480,803	20,652,887	21,528,621	23,430,635	25,073,326	26,136,696	27,216,411	28,303,615	29,401,116	30,511,976	31,639,276
UAAL (AAL-AVA)	11,256,562	12,474,180	13,897,792	14,646,494	14,394,061	14,424,416	15,074,447	15,753,283	16,469,482	17,211,945	17,980,479	18,775,846
MVA Funded Status	53%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
AVA Funded Status	64%	62%	60%	60%	62%	63%	63%	63%	63%	63%	63%	63%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	9%	6%	9%	12%	10%	9%	7%	4%	3%	1%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.61%	23.32%	23.38%	22.61%	22.09%	22.04%	22.00%	21.96%	21.92%	21.87%	21.82%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.61%	14.32%	14.38%	13.61%	13.09%	13.04%	13.00%	12.96%	12.92%	12.87%	12.82%
Estimated Employer Dollars	776,819	852,245	935,156	979,202	965,654	968,158	1,006,028	1,045,346	1,086,584	1,129,085	1,172,819	1,217,805
Input Recapp												
Projected Actual ROR		23.82%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
Projected Payroll Growth		4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period		30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		8.00%										
Reset AVA to MVA in 2011?		No										

PERS Baseline Projection, with Actual Earnings of 7.0% over Next 10 Years



**PLAN PROVISIONS AND POLICIES TO
REVIEW**

Plan Provision Review

In looking at the goals and objectives of the Commission, there are several that control how we reviewed the plan provisions. The easiest goal to start with is Goal 5, "Simplify the plan administration." In line with this goal, the Commission has asked us to recommend ways in which plan provisions could be revised to reduce the opportunity for members to manipulate circumstances to result in larger pensions than intended. We therefore included recommendations in that area with the recommendations under Goal 5. These recommendations, if adopted, are not expected to materially affect the cost of the plan.

Final Average Compensation Provision

The PERS handbook currently describes how the final average compensation is calculated as follows:

"Average compensation is calculated using your four highest years of salary plus any unused leave payment up to 240 hours. The years do not have to be consecutive, but they do have to be the equivalent of not more than 48 months of earned compensation. To determine your four highest years, PERS considers these scenarios:

- four highest fiscal years of earned compensation;
- four highest calendar years of earned compensation;
- combination of four highest fiscal and calendar years of earned compensation that do not overlap; or
- final 48 months of earned compensation prior to termination of employment."

While we have no direct evidence of larger than expected final average compensations as a result of these provisions in PERS, we been given verbal anecdotal evidence about cases where individuals have manipulated their situations in order to increase their pensions. During the spring Audit, we recommended that PERS have their retained actuary study this activity in the regular experience study. We understand that the first study of this activity is scheduled for the 2012 experience study. We believe the following proposed changes would reduce the ability for this calculation to be manipulated, as well as simplifying the calculation:

- Perform only one calculation (i.e., either fiscal or calendar, but not both);
- Use only consecutive periods;
- Exclude or limit items of compensation that are not considered base pay from the calculation (overtime, unused leave pay, special or extracurricular pay, incentive pay, etc.)

In order to avoid disadvantages, members who step down to retirement, the calculation could be defined as the "Four highest consecutive years of compensation out of the last 10."

These changes are not expected to have a material impact on short term computed employer contribution rates. However the last item could reduce the dollar contributions, since it may have a downward effect on covered payroll. In addition, the Commission may want to consider these alternatives:

- Lengthening the final average period (from 4 years to a longer period);
- Using an indexed final average compensation (if the averaging period is greater than 5 years);
- Limiting the year to year increases in a member's covered compensation;
- Using full time equivalent compensation for covered members who are not full time (along with crediting partial years of service for benefit computations, but full years of service for eligibility);
- Limit members' ability to "stack" salaries from multiple positions held concurrently.

If the final average period was increased from 4 years to 5 years for new hires, we estimate that the long-term costs of PERS would decrease by approximately 0.23% of payroll.

The Commission could also consider a career average indexed retirement plan. In such a plan, each year's earnings are indexed out to the retirement year, and essentially all years of service are used in the calculation. This is similar to the Social Security method.

One of the common abuses that occur across the country in public retirement systems is known as salary "spiking." Spiking occurs when members are able to increase one or more of their years of covered compensation by:

- Loading up on overtime;
- Including lump sums that are payable at retirement;
- Taking on special duties right before retirement;
- Getting a large salary increase due to a promotion or change in jobs right before retirement.

This is known as spiking because the final average compensation is no longer reflective of the member's career income when this activity occurs. The longer the averaging period is, the less of an impact this spiking will have on the computation. However, using a longer final averaging period also subjects the average to more erosion from inflation. Therefore, we recommend using an indexed final average computation if the averaging period exceeds five years. By indexing the compensation in the final averaging period, the inflation erosion is reduced or eliminated. Examples of salary spiking and using an indexed final average computation are shown on the following page.

Salary Spiking Example

Year Prior to Retirement	Base Earnings	Overtime	Unused Leave Pay	Total Covered Earnings
1	\$ 50,000	\$ 20,000	\$ 5,769	\$ 75,769
2	\$ 47,847	\$ 5,000	\$ -	\$ 52,847
3	\$ 45,743	\$ 4,000	\$ -	\$ 49,743
4	\$ 43,606	\$ 5,000	\$ -	\$ 48,606
5	\$ 41,530	\$ 4,000	\$ -	\$ 45,530
6	\$ 40,716	\$ 3,000	\$ -	\$ 43,716
7	\$ 38,411	\$ 4,000	\$ -	\$ 42,411
8	\$ 35,566	\$ 5,000	\$ -	\$ 40,566
4-year average				\$ 56,741
5-year average				\$ 54,499
6-year average				\$ 52,702
7-year average				\$ 51,232
8-year average				\$ 49,899

Indexed Final Average Example

Year Prior to Retirement	Actual Earnings	Increase in Inflation Index	Increase in Inflation Index	Indexed Earnings
1	\$ 50,000	0.0%	0.0%	\$ 50,000
2	\$ 47,847	3.0%	3.0%	\$ 49,282
3	\$ 45,743	4.0%	7.1%	\$ 49,000
4	\$ 43,606	2.0%	9.3%	\$ 47,645
5	\$ 41,530	1.0%	10.4%	\$ 45,830
6	\$ 40,716	4.0%	14.8%	\$ 46,729
7	\$ 38,411	2.0%	17.1%	\$ 44,966
8	\$ 35,566	3.0%	20.6%	\$ 42,884
8-year average	\$ 42,927			\$ 47,042

We understand that PERS currently has a limit on the increases during the last 24 months in covered compensation that can be included in the computation of the final average compensation. However, we also understand (from PERS staff) that there are currently so many legislative exceptions to this limit that it almost never used to actually limit the computation. The example on the following page shows how our proposed limit would operate. The example shows two members who each get significant promotions late in their careers.

8% Limit on Annual Increases in Covered Compensation

Year Prior to Retirement	Member 1		Member 2	
	Actual Earning	Limited Earnings	Actual Earnings	Limited Earnings
1	\$ 50,000	\$ 45,000	\$ 50,000	\$ 50,000
2	\$ 41,667	\$ 41,667	\$ 47,847	\$ 47,847
3	\$ 39,835	\$ 39,835	\$ 45,743	\$ 45,743
4	\$ 37,974	\$ 37,974	\$ 43,606	\$ 42,742
5	\$ 36,166	\$ 36,166	\$ 41,530	\$ 39,576
6	\$ 35,457	\$ 35,457	\$ 40,716	\$ 36,644
7	\$ 33,450	\$ 33,450	\$ 33,930	\$ 33,930
8	\$ 30,972	\$ 30,972	\$ 31,417	\$ 31,417
4-year average	\$ 42,369	\$ 41,119	\$ 46,799	\$ 46,583
Limited average as a % of unlimited average	n/a	97.0%	n/a	99.5%

In this example, the members each receive a 20% increase in compensation due to a promotion. However, member 1 receives the higher salary only for the one year period prior to retirement, while member 2 receives the 25% increase six years prior to retirement. This example shows that, in general, the farther away from retirement that a large change in annual compensation occurs, the less the proposed 8% limit will affect the computation of the final average.

COLA Provision

Cost of living increases (COLA's) after retirement are common in public retirement systems. The purpose of a COLA is to protect the member's pension from erosion due to inflation. The table on the following page shows how the value of a flat dollar benefit (non-increasing) erodes in an inflationary environment.

Purchasing Power Example

Year after Retirement	Annual Pension	Inflation	Value of Pension Adjusted for Inflation	Current Purchasing Power as a % of Original Purchasing Power	Lost Purchasing Power
1	\$ 30,000	3.5%	\$ 30,000	100%	0%
2	\$ 30,000	3.5%	\$ 28,986	97%	3%
3	\$ 30,000	3.5%	\$ 28,005	93%	7%
4	\$ 30,000	3.5%	\$ 27,058	90%	10%
5	\$ 30,000	3.5%	\$ 26,143	87%	13%
6	\$ 30,000	3.5%	\$ 25,259	84%	16%
7	\$ 30,000	3.5%	\$ 24,405	81%	19%
8	\$ 30,000	3.5%	\$ 23,580	79%	21%
9	\$ 30,000	3.5%	\$ 22,782	76%	24%
10	\$ 30,000	3.5%	\$ 22,012	73%	27%
11	\$ 30,000	3.5%	\$ 21,268	71%	29%
12	\$ 30,000	3.5%	\$ 20,548	68%	32%
13	\$ 30,000	3.5%	\$ 19,853	66%	34%
14	\$ 30,000	3.5%	\$ 19,182	64%	36%
15	\$ 30,000	3.5%	\$ 18,533	62%	38%

Given that many retirees are expected to live 20-40 years after retirement, the value of their purchasing power later in life can be extremely reduced if no COLA is provided. In general, we believe that providing a post retirement COLA is an important aspect of the retirement system. Unfortunately, it can be one of the single most expensive provisions in a retirement system. We have estimated that approximately 25% of PERS normal cost and accrued liability are related to the post retirement COLA. In addition, we believe that the current PERS provisions are unusual in that 1) the calculation changes from simple to compound at a specific age and 2) the system allows members to elect to receive their COLA payments in a lump sum in the middle of the year. By having the COLA to change from simple to compound, the provisions are adding undue complexity to the system with minimal cost savings. By allowing the COLA to be paid in a lump sum (instead of monthly, throughout the year, the meaning of the COLA becomes lost.

Another area to consider is how well the COLA has fulfilled its intended purpose, historically. If we consider the schedule of retirement benefits from the June 30, 2011 valuation report by year of retirement, we can develop an estimate of the average lost purchasing power of current retired members by year of retirement as measured by the Consumers Price Index for Urban Wage Earners and Clerical Workers (CPI-U). The chart on the next page details this estimate.

Retirants and Beneficiaries as of June 30, 2011								
Year of Ret.	June CPI-U	Agregate Change in CPI	Average Annual Change in CPI	Number currently on Rolls	<u>\$Millions</u>		<u>\$Millions Estimated</u>	
					Benefits, Excluding COLA	Actual COLA	COLA if Fully Indexed	
2011	225.72	0.00%		2,908	\$56.89	\$0.02	\$0.00	Actual > Fully Indexed
2010	217.97	3.56%	3.56%	5,762	113.88	0.38	\$4.05	
2009	215.69	4.65%	2.30%	4,639	82.20	2.34	\$3.82	
2008	218.82	3.16%	1.04%	4,783	88.81	5.31	\$2.80	Actual > Fully Indexed
2007	208.35	8.34%	2.02%	4,371	77.79	6.96	\$6.49	Actual > Fully Indexed
2006	202.90	11.25%	2.15%	4,489	77.09	9.38	\$8.67	Actual > Fully Indexed
2005	194.50	16.05%	2.51%	4,253	70.09	10.82	\$11.25	
2004	189.70	18.99%	2.51%	4,392	75.54	14.17	\$14.34	
2003	183.70	22.88%	2.61%	3,955	64.30	14.25	\$14.71	
2002	179.90	25.47%	2.55%	4,074	66.19	17.07	\$16.86	Actual > Fully Indexed
2001	178.00	26.81%	2.40%	3,982	62.13	18.39	\$16.66	Actual > Fully Indexed
2000	172.40	30.93%	2.48%	3,458	55.65	18.66	\$17.21	Actual > Fully Indexed
1999	166.20	35.81%	2.58%	2,741	40.66	15.20	\$14.56	Actual > Fully Indexed
1998	163.00	38.48%	2.54%	2,738	39.97	16.61	\$15.38	Actual > Fully Indexed
1997	160.30	40.81%	2.47%	2,680	35.66	16.43	\$14.55	Actual > Fully Indexed
1996	156.70	44.05%	2.46%	2,848	39.91	20.12	\$17.58	Actual > Fully Indexed
1995	152.50	48.01%	2.48%	2,251	28.68	15.75	\$13.77	Actual > Fully Indexed
1994	148.00	52.51%	2.51%	2,114	25.49	15.03	\$13.39	Actual > Fully Indexed
1993	144.40	56.32%	2.51%	2,053	23.53	15.06	\$13.25	Actual > Fully Indexed
1992	140.20	61.00%	2.54%	2,458	31.24	21.51	\$19.06	Actual > Fully Indexed
1991	136.00	65.97%	2.57%	1,909	22.23	16.43	\$14.66	Actual > Fully Indexed
1990	129.90	73.77%	2.67%	1,517	16.86	13.40	\$12.44	Actual > Fully Indexed
1989	124.10	81.89%	2.76%	1,218	11.60	9.78	\$9.50	Actual > Fully Indexed
1988	118.00	91.29%	2.86%	1,000	9.06	8.17	\$8.27	
1987	113.50	98.87%	2.91%	836	7.22	6.90	\$7.14	
1986	109.50	106.14%	2.94%	1,555	16.17	16.88	\$17.16	
1985	107.60	109.78%	2.89%	701	6.29	6.70	\$6.90	
1984	103.70	117.67%	2.92%	658	5.23	5.88	\$6.15	
1983	99.50	126.86%	2.97%	470	3.30	3.92	\$4.18	
1982	97.00	132.70%	2.96%	431	2.99	3.77	\$3.97	
1981	90.60	149.14%	3.09%	432	2.76	3.65	\$4.12	
1980	82.70	172.94%	3.29%	326	2.10	2.91	\$3.64	
1979	72.30	212.20%	3.62%	200	1.22	1.75	\$2.58	
1978	65.20	246.20%	3.83%	183	0.98	1.48	\$2.41	
1977	60.70	271.86%	3.94%	158	0.81	1.29	\$2.19	
1976	56.80	297.40%	4.02%	572	2.42	4.53	\$7.19	
Total				83,115	\$1,267	\$361	\$351	

The chart shows that, in aggregate, the system is currently paying out approximately \$10 million annually more in COLA benefits than it would if the COLA program were limited by the CPI-U. It also indicates that the members who retired in 1989-2002, 2006-2008 and 2011 are, on average, receiving more in COLA than they lost through inflation, as measured by the CPI-U index. Note there could be odd data issues that resulted in a COLA being paid to the retirees that retired in 2011, such as in incorrect date of retirement, a rehired retiree, or a beneficiary that came on the rolls after the member satisfied COLA eligibility.

We recommend the following changes to the COLA provision:

- Make COLA compound for all periods;
- Eliminate the option to receive annual COLA in a lump sum (has no effect on costs);
- Relate COLA to changes in CPI or some other inflation measure (with a maximum);
- Delay the start of the COLA for 5 years after retirement for members who retire prior to age 60 or 3 years for members who retire after age 60 or on account of disability.

Making the COLA compound for all years will not have a significant impact on computed employer contributions (resulting in a long term increase of less than 0.05% of payroll, if applied to new hires). Eliminating the lump sum payment of the COLA will have no effect on the computed employer contribution rate (and no effect on the cost of PERS). Relating the COLA to an inflation index may not have an effect on the computed contribution rate (depending on how the PERS actuary recognizes the change). However, it will reduce long-term costs if there are periods in the future where the increase in inflation is less than 3%. It also prevents a situation from occurring where members who retire during low periods of inflation could actually increase their purchasing power by receiving a fixed 3% increase.

If all these changes are adopted, we estimate that the long-term costs of PERS will decrease by approximately 0.26% of payroll. If these changes are applied to current members, then we have the following:

Present Provisions:

- COLA is simple to age 55 and compound for all periods thereafter.
- No delay in the COLA is applied after commencement of retirement benefits.

Proposed Provisions:

- COLA is compound for all periods.
- A 5 year delay in the COLA commencement applies to members who retire prior to age 60. A 3 year delay in the COLA applies to members who retire after age 60.

Cost Increase (Decrease) Due to Proposed Benefits	
Employer Normal Cost	(0.26%)
Unfunded Accrued Liability %	<u>(1.41%)</u>
Total Change in Contributions	(1.67%)
Unfunded Accrued Liability \$	\$ (1,479,809,304)
Estimated Funded Status	67%
Estimated Increase in First Year Employer Dollar Contributions	\$ (96,225,208)

Other similar changes might include:

- Delay COLA for 5 years after retirement, but not later than age 62;
- Delay COLA until Normal Retirement Age (age 65 under Tier 4);
- Reduce COLA amount, but perform periodic lost purchasing power studies to determine ad-hoc COLA increases to restore any lost purchasing power since the last study.

The Committee also requested that we value the following proposals:

Proposed Provisions (COLA Freeze Version 1):

- Provide no additional COLA increases for 3 years for all members;
- All other plan provisions are unchanged;
- COLA increases granted in the past continue unchanged;
- After 3 years, COLA increases resume in accordance with the current plan provisions.

Cost Increase (Decrease) Due to Proposed Benefits	
Employer Normal Cost	(0.05%)
Unfunded Accrued Liability %	<u>(1.24%)</u>
Total Change in Contributions	(1.29%)
Unfunded Accrued Liability \$	\$ (1,295,809,292)
Estimated Funded Status	67%
Estimated Increase in First Year Employer Dollar Contributions	\$ (74,329,652)

In valuing this proposal, we assumed that the COLA payment to all eligible current and future retirees and beneficiaries would be in accordance with the following table:

Fiscal Year	Annual COLA Increase Percent
2011	0%
2012	0%
2013	0%
2014 and thereafter	3%

Delaying the implementation date of this proposal by one or two years is not expected to substantially affect results (assuming that there are 3 years without additional COLA increases, beginning on the implementation date). Our results are contingent on the assumption that the periods of 0% COLA increases do not result in periods of increases (after the 3 year freeze) that are greater than 3%.

Proposed Provisions (COLA Freeze Version 2):

- Provide no additional COLA increases for 3 years for all members;
- All other plan provisions are unchanged;
- COLA increases granted in the past continue unchanged;
- After 3 years, COLA increases resume in accordance with the current plan provisions, except that the amount of the COLA is based on changes in the CPI, but not more than 3%.

Cost Increase (Decrease) Due to Proposed Benefits	
Employer Normal Cost	(0.22%)
Unfunded Accrued Liability %	(1.90%)
Total Change in Contributions	(2.12%)
Unfunded Accrued Liability \$	\$ (1,985,090,996)
Estimated Funded Status	67%
Estimated Increase in First Year Employer Dollar Contributions	\$ (122,154,156)

In valuing this proposal, we assumed that the COLA payment to all eligible current and future retirees and beneficiaries would be in accordance with the following table:

Fiscal Year	Assumed Annual COLA Increase Percent
2011	0%
2012	0%
2013	0%
2014 and thereafter	2.8%

Delaying the implementation date of this proposal by one or two years is not expected to substantially affect results (assuming that there are 3 years without additional COLA increases, beginning on the implementation date). The 2.8% represented the estimated average COLA that we assume after studying historical increases in CPI-U. The historical increases in the CPI-U are shown below:

Period Ending in 2010	Average of the Average Annual Change in CPI-U	Average of the Average Annual Change in CPI-U, after Limiting Change to 3%	Difference
5 years	2.23%	2.02%	-0.21%
10 years	2.39%	2.24%	-0.15%
20 years	2.59%	2.44%	-0.15%
30 years	3.30%	2.59%	-0.71%

In setting the COLA assumption, it could be argued that the current assumed rate of inflation is greater than 3.0% and therefore the cap of 3% should be used as the COLA assumption. If PERS actuary uses this analysis, then the change in the computed contribution rate would be similar to Version 1 and any periods of COLAs granted less than 3% (after the initial 3 year freeze) would generate a liability gain in the year they occur.

Benefit Multiplier

The formula for calculating a member's retirement benefit is:

$$\begin{aligned} & 2.0\% \times \text{service, up to 25 years (30 for Tier 4 members)} \times \text{FAC} \\ & + 2.5\% \times \text{service in excess of 25 years (30 for Tier 4 members)} \times \text{FAC} \end{aligned}$$

The 2.0% and 2.5% factors are now as benefit multipliers. Of the 20 peer plans surveyed, 2.0% was the median rate for plans that cover members that are also covered in Social Security, while the average rate was 1.92%. However, historically, plans whose members are covered by Social Security have provided lesser benefits. A multiplier on the order of 1.5% or 1.6% could still provide a very meaningful benefit. Only 4 of the plans had a higher multiplier and one of those, MOSERS, pays the higher multiplier only for a temporary period for members retiring prior to age 62 who become eligible under a "rule or 80" condition. To simplify the benefit and reduce the cost of benefits, we propose modifying PERS to eliminate the change in the multiplier. Our proposed formula would then be 2.0% for all years of service.

The long term reduction in costs would be approximately 0.06% of payroll.

A greater reduction in formula would provide a greater savings. That savings would have to be shared with employees because employees currently pay almost all of the normal cost.

Eliminate as Many Plan Provision Distinctions Between New Hire and Current Members as Possible

This goal actually covers several different provisions, including vesting; eligibility for retirement; age for unreduced retirement, the age at which the COLA converts from simple to compound and the eligibility for the Partial Lump Sum Option. In order to estimate a cost for such a proposal, we valued the change in employer in the provisions that would provide Tier 4 benefits to 1) all new hires and to current members for future service only. Under this proposal, service rendered prior to the valuation date (June 30, 2010) was valued under Tier 1, 2 or 3, depending on when the member's date of hire.

Present Provisions:

- Tier 4 benefit provisions apply to all members hired on or after July 1, 2011*.

Proposed Provisions:

- Tier 4 benefit provisions apply to all members hired on or after July 1, 2011*;
- Tier 4 benefit provisions apply to current members for service accrued after July 1, 2011*. Service rendered prior to July 1, 2011 would continue to be covered under Tier 1, 2, or 3 provisions, as determined by date of hire.

Cost Increase Due to Proposed Benefits	
Employer Normal Cost	(1.86%)
Unfunded Accrued Liability %	<u>(0.13%)</u>
Total Change in Employer Contribution	(1.99%)
Unfunded Accrued Liability \$	\$ (133,125,142)
Estimated Funded Status	64%
Estimated Increase in First Year Employer Dollar Contributions	\$ (114,655,127)

** Since the cost estimates were based on a June 30, 2010 valuation date, June 30, 2010 was used as the date of change for this proposal.*

Present Provisions:

- Tier 4 benefit provisions apply to all members hired on or after July 1, 2011*.

Proposed Provisions:

- Tier 4 benefit provisions apply to all members hired on or after July 1, 2011*;
- Tier 4 benefit provisions apply to current members for service accrued after July 1, 2011*. Service rendered prior to July 1, 2011 would continue to be covered under Tier 1, 2, or 3 provisions, as determined by date of hire;
- Change Normal Retirement Eligibility under Tier 4 to:
 - o Age 62 or
 - o Age 55 with 30 years of service
- Change Early Retirement Eligibility under Tier 4 to:
 - o 30 years of service (benefits actuarially reduced from age 55)
- Change COLA provisions under Tier 4 so that first COLA is granted 1 year after retirement or at age 62, whichever is later (all COLA increases are compound);
- Change Vesting to 4 years.

Cost Increase Due to Proposed Benefits	
Employer Normal Cost	(1.61%)
Unfunded Accrued Liability %	<u>0.00%</u>
Total Change in Employer Contribution	(1.61%)
Unfunded Accrued Liability \$	\$ -
Estimated Funded Status	64%
Estimated Increase in First Year Employer Dollar Contributions	\$ (92,837,610)

* Since the cost estimates were based on a June 30, 2010 valuation date, June 30, 2010 was used as the date of change for this proposal.

Refunds and Vesting

PERS currently pays 3.5% interest on member contributions. In addition, the current valuation assumptions include an 8.0% investment return assumption and an assumption that all members who are vested will leave their contributions on deposit upon termination prior to retirement and draw a deferred retirement (referred to as a “0% forfeiture assumption”). The forfeiture assumption, in combination with the assumed arbitrage for deferred members (PERS pays 3.5% and assumes to earn 8.0%) and the high member contribution rate (9.0%), results in 4 year vesting provision being slightly less costly than an 8 year vesting provision when valued using the current valuation model. However, we expect that the actual difference in costs for these provisions is minimal. We recommend considering lowering the vesting period to 4 years.

Disability and Optional Forms of Payment Provisions

The following may not have a direct effect on employer contribution rates. However, they are aimed at reducing the experience risk that is borne by the system.

- Optional forms of Payment
 - Consider restricting named beneficiaries to spouses and/or immediate family members.
 - Use full actuarial equivalence if that is not being done.
- Disability
 - Review the administration of disability approvals. Although the number of disability retirants appears to be in range with our expectations, based on our observation of other systems, this could be reviewed to determine if there are areas of the administration or plan provisions that need to be modernized;
 - Consider insuring the disability benefits through an outside provider. We have a couple of clients who use an outside insurer to adjudicate and pay disability claims. The outside insurer also makes disability continuation determinations. These systems report a reduction in disability payments (and system costs) as a result of using the outside insurer.
 - Take into account the disabled condition when calculating option factors.

Member and Employer Contributions

One of the stated goals is to reduce member and employer contributions. This can be accomplished in the following ways:

1. Reduce benefit levels. In fact, this has been done for new hires. The long term cost of the Tier 4 benefits (based on the current valuation assumptions) is approximately 9.4% of covered payroll. Members are currently paying 9.0% of the 9.4% cost. Any cost reductions for new hires may need to be accompanied by a reduction in the member contribution rate. If not, PERS might find itself in the awkward position of charging future members more than the long term costs of their benefits. If it is determined that the valuation assumptions are too conservative, this will provide some additional margin to reduce employer contributions along with a reduction of benefits, but the future members will still be paying for the majority of the costs of their benefits.
2. Improve the funded status of PERS. As the funded status of PERS increases, the employer contribution requirements will decrease. Our baseline projections show employer contributions reducing to approximately 11.4% in 10 years. If that happens, the total contribution to PERS (employer plus employee) will be 20.4% and the members will be paying approximately 44% of the total. While this is still outside the target range for the stated goals and objectives, it is moving toward them. If the funding of the retirement system were more aggressive over the next 5 years, the employer contribution rates could fall even further. The chart and graph on the following page shows the funding level and employer contribution rates using the baseline projections (no gains or losses, beyond those already scheduled to be recognized), but using a funding policy of a 15 year period, reducing 1 year for each of the next 5 years, then increasing to 25 years and staying there. Under this scenario, the contribution goals are nearly reached within the 10 year projection period.

We do not necessarily recommend that contributions be allowed to decrease. Rather, PERS could consider de-risking the investment portfolio somewhat, lowering the assumed rate of return, and keeping contributions stable.

Major Plan Redesign

After discussions with the Commission, we developed a plan (major provisions only) that we believe met the goals and objectives of the Commission. The Commission used this information as a theoretical discussion to aid in their final decisions to recommend changes. The changes are discussed below.

Present Provisions:

- Tier 4 benefit provisions apply to all members hired on or after July 1, 2011*.

Proposed Provisions:

- *Normal Retirement Eligibility* (unreduced benefits) is Age 65;
- *Early Retirement Eligibility* (actuarially reduced from age 65) is the later of age 57 or attainment of 30 years of service;
- *Final Average Compensation* (FAC) is the highest 4 consecutive years out of the last 10;
- *Covered Compensation* is base pay;
- *Vesting* is 0% for service less than 4 years; 100% for service greater than or equal to 4 years;
- *Benefit Multiplier* is 1.75% times FAC times service (all years);
- *COLA* is based on changes in CPI, but not greater than 2.75%, compounded annually;
- *COLA* begins the later of 1 year after retirement or attainment of age 65;
- *Member Contributions* are 6.5% of covered compensation and earn 3.5% interest.

The long term employer cost of this program (the employer normal cost), based on current valuation assumptions is 0.33% of covered payroll.

We tested a theoretical what if scenario, in addition to estimating the long term costs of this program. That scenario is what would the employer contributions be if:

- All current actives were covered under this plan for all past service;
- All current retirees and deferred members were covered under the plan that they retired under; and
- The past employer contributions and actual investment return were unchanged from actual experience (note, if the plan had been changed in the past, the historical pattern of employer contributions may have been different and the 2010 market value of assets may have been different).

Under this theoretical scenario, the total employer contribution rate for FY 2012 would be approximately 5.5% of payroll.

** For purposes of this valuation, the retirement pattern was changed from the current assumption. Five percent of members eligible to retire under early retirement were assumed to retire each year from early retirement eligibility to age 65. Twenty percent of remaining members were assumed to retire each year from age 65 to age 74 and 100% of remaining members were assumed to retire at age 75.*

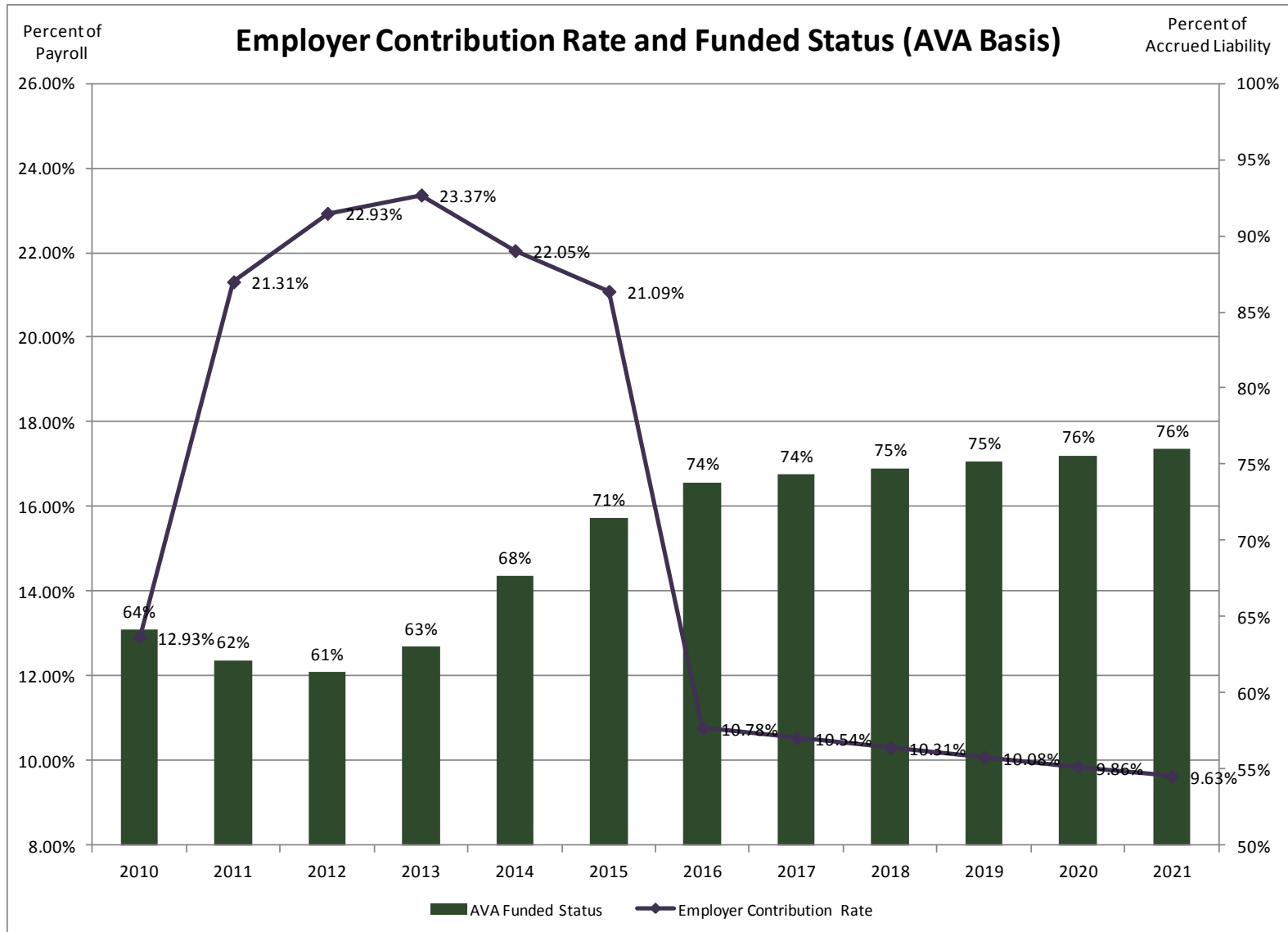
Results Section

\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,008,507	6,263,869	6,530,083	6,807,612	7,096,935	7,398,555	7,712,994	8,040,796	8,382,530	8,738,787	9,110,186
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,550,679	36,175,114	37,824,696	39,497,742	41,211,144	42,969,695	44,773,097	46,613,061	48,492,455	50,415,122
Market Value of Assets (MVA)	16,788,214	20,377,457	22,106,917	24,037,626	26,110,253	28,227,699	30,417,180	31,927,350	33,467,373	35,040,588	36,650,575	38,301,014
Actuarial Value of Assets (AVA)	20,143,426	20,480,803	21,195,465	22,795,061	25,584,766	28,227,699	30,417,180	31,927,350	33,467,372	35,040,587	36,650,575	38,301,013
UAAL (AAL-AVA)	11,256,562	12,474,180	13,355,214	13,380,053	12,239,929	11,270,044	10,793,964	11,042,345	11,305,725	11,572,473	11,841,880	12,114,109
MVA Funded Status	53%	62%	64%	66%	69%	71%	74%	74%	75%	75%	76%	76%
AVA Funded Status	64%	62%	61%	63%	68%	71%	74%	74%	75%	75%	76%	76%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	13%	14%	23%	31%	36%	36%	36%	36%	36%	36%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	30.31%	31.93%	32.37%	31.05%	30.09%	19.78%	19.54%	19.31%	19.08%	18.86%	18.63%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	21.31%	22.93%	23.37%	22.05%	21.09%	10.78%	10.54%	10.31%	10.08%	9.86%	9.63%
Estimated Employer Dollars	776,819	1,335,140	1,497,436	1,590,605	1,564,892	1,560,215	831,111	847,358	864,340	881,295	898,155	914,910

Input Recapp

Projected Actual ROR	23.82%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Projected Payroll Growth	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period	14	13	12	11	10	25	25	25	25	25	25	25
% of Payroll in Tier 4	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	50%
Investment Return Assumption on and after 2011	8.00%											
Reset AVA to MVA in 2011?	No											



Plan Policy Review

Assumptions

In the spring 2011 actuarial audit, GRS recommended that PERS reconsider the wage inflation assumption (also used as the payroll growth assumption), which had been increased from 4.00% to 4.25% in the preceding experience study. PERS actuary performed an experience study following the audit in which they continued to recommend the use of the 4.25% wage inflation. They also recommended that the investment return assumption be lowered from 8.00% to 7.50%. PERS retained actuary also indicated that the 8.00% investment return assumption and the 4.00% wage inflation assumption were in the reasonable range. From that information, the Board adopted an 8.00% investment return assumption and a 4.25% wage inflation assumption.

It is important to note that the chosen assumptions do not dictate the long term cost of the plan. The long term cost of the plan will be dictated by the benefit provisions and the plan's actual experience. However, the assumptions can affect the level of contribution rates in the short term. Using a 7.50% investment return assumption and a 4.0% wage inflation assumption will result in an increase in the employer contributions. In turn this will accelerate the improvement in funded status of the plan, which is one of the stated goals of the Commission.

In choosing the assumptions, stakeholders need to understand how the experience will affect future contributions, if the assumptions are too liberal (optimistic) or too conservative (pessimistic). If the economic assumptions are too liberal, contributions will start out low and increase over time as experience emerges. If the assumptions are too conservative, contributions will start out high and decrease over time, as experience emerges. While such movement in the contributions is not necessarily a problem (especially if the movement is small), caution does need to be exercised. If assumptions are overly conservative, an unnecessarily high burden may be placed on this generation of taxpayers and/or benefits may be unnecessarily reduced. If assumptions are overly liberal, a higher burden may be placed on future generations of taxpayers and/or current benefit levels may be increased to unaffordable levels.

In the "Additional Projection" section of our report, we show how the different assumptions (along with specific experience), are expected to affect valuation results over the next 10 years. Our analysis includes looking at the following scenarios:

Scenario	Investment Return		Payroll Growth	
	Assumed	Actual	Assumed	Actual
1	8.00%	7.50%	4.25%	4.25%
2	8.00%	7.00%	4.25%	4.25%
3	8.00%	8.50%	4.25%	4.25%
4	7.50%	8.00%	4.25%	4.25%
5	7.50%	7.50%	4.25%	4.25%
6	7.50%	7.00%	4.25%	4.25%
7	7.50%	7.50%	4.25%	4.00%
8	8.00%	8.00%	4.25%	4.00%
9	8.00%	7.00%	4.25%	4.00%
10	7.50%	7.50%	4.00%	4.00%

It is unfortunately true that the assumed interest rate can drive investment policy. We suggest that a plan be developed to lower the assumed interest rate in conjunction with a gradual de-risking of the investment portfolio.

Funding Policy

We understand PERS funding policy to be: the employer contribution rate will be the greater of 1) the employer contribution rate from the prior year; or 2) the rate necessary to pay the normal cost plus a 30 year amortization of the unfunded actuarial accrued liability (UAAL).

In line with the goal of improving the funded status of PERS, we recommend consideration of a more aggressive funding policy. One such funding policy was illustrated on pages 48-49. Others could be as simple as just closing (reducing it by 1 year, each year) the amortization period until such time as the fund has achieved a stronger funded status (such as 80% or 90%). In addition to the accelerated funding that this will yield, there may also be reporting advantages. The Governmental Accountings Standards Board (GASB) has recently issued new exposure drafts for Statements No. 25 and No. 27, which control how retirement systems (Statement No. 25) and Plan Sponsors (Statement No. 27) report pension liabilities in their annual reports. Under the currently proposed rules in the exposure draft, plans must use a blended interest rate to report liabilities under certain circumstances. The blended rate is a blend of a risk free interest rate and the assumed rate of return used in the valuation (if it qualifies as a market rate of return). As we currently understand the proposed rules (which are still subject to change) any plan that uses an open (or fixed) amortization period will be subject to this blending requirement. If the market rate/valuation assumption is 8.0% and the risk free rate is 4.0%, then PERS can expect to be required to use an investment rate of return assumption of 6.5% to 7.25% (depending on its level of funding at the time of the measurement) for determining liabilities that will need to be reported on its and the plan sponsors' balance sheets. A liability determined with this lower investment return assumption could be substantially higher than what will be shown in the valuation report. Please see the Appendix for our Newsletter which contains more details regarding the new proposed GASB rules.

In addition, we recommend that PERS consider creating a more detailed funding policy that provides guidance on additional situations that PERS may currently face or may face in the future. These situations include dealing with:

- Unfunded Actuarial Accrued Liabilities (UAAL) attributable to Retirees and Beneficiaries;
- UAAL attributable to new benefits (or benefit increases);
- A declining employer contribution due to an increased funded status;
- A volatile market environment;
- A high member contribution rate;
- Future gain and loss sharing.
- A plan for sharing the risks between members and the plan sponsor.

Examples of policies that deal with such situations include:

- Financing unfunded retiree liabilities over a period that does not exceed the expected lifetime of the group (such as 15 years). Along with this the policy should explicitly determine how the assets are applied in order to determine if there is a UAAL for retirees. This could be determined by applying all assets to the retiree liabilities or by applying the assets net of the active employee contributions to retiree liabilities. As of June 30, 2010, the former process would result in retiree liabilities being 100% funded while the latter process would result in retiree liabilities being 94.7% funded.

- Financing any new liabilities created from benefit changes in a lump sum or over an extremely short period (such as 1 to 5 years). While this is really a legislative decision, we have found legislatures are increasingly looking to retirement systems for guidance and recommendations in recent years. While the legislature is not bound by any PERS policy, such a policy would provide legislators with a best practices approach when they are making decisions and determining affordability.
- Establishing a minimum employer contribution. This policy could also include direction as to what to do with any portion of employer contribution (due to the minimum) above amounts that would otherwise be required. This could include funding a contribution stabilization fund, contributing to hybrid accounts, contributing to deferred compensation plans, etc.
- Determining if and when member contributions should be reduced or increased. While most of the investment and mortality risk is borne by employers in a defined benefit plan, some of that risk is shared with members in the form of increased member contributions or reduced benefits (both of which have occurred in this plan).

ADDITIONAL PROJECTIONS

Scenario 1: 8% assumed return; 7.5% actual; 4.25 assumed payroll growth; 4.25% actual

Results Section

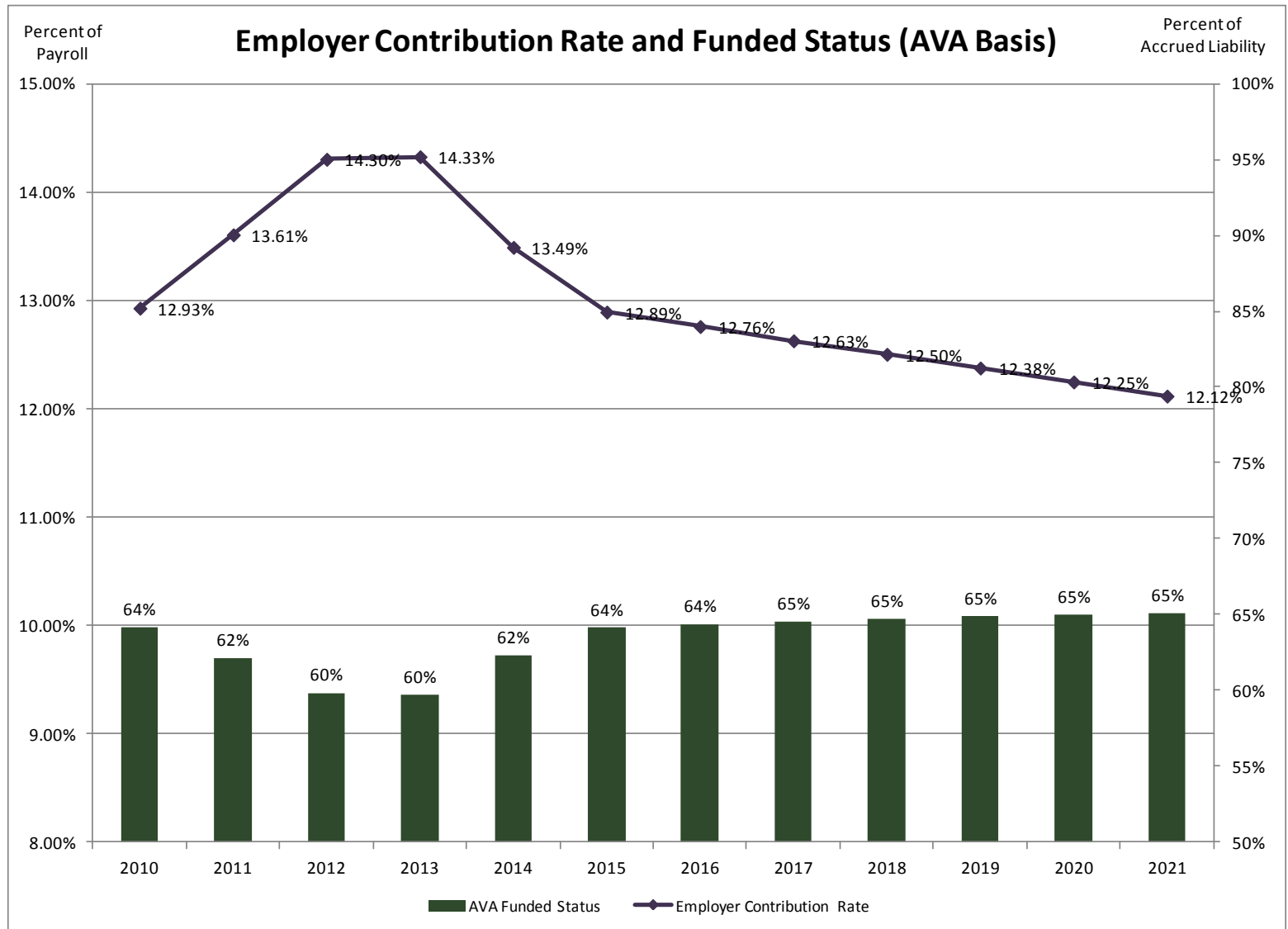
\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,008,507	6,263,869	6,530,083	6,807,612	7,096,935	7,398,555	7,712,994	8,040,796	8,382,530	8,738,787	9,110,186
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,550,679	36,175,114	37,824,696	39,497,742	41,211,144	42,969,695	44,773,097	46,613,061	48,492,455	50,415,122
Market Value of Assets (MVA)	16,788,214	20,377,457	21,503,788	22,693,770	23,906,662	25,097,899	26,282,579	27,491,526	28,715,958	29,958,736	31,223,011	32,512,012
Actuarial Value of Assets (AVA)	20,143,426	20,480,803	20,673,071	21,596,957	23,575,274	25,322,522	26,518,689	27,739,159	28,975,191	30,229,695	31,505,868	32,806,967
UAAL (AAL-AVA)	11,256,562	12,474,180	13,877,608	14,578,158	14,249,421	14,175,220	14,692,454	15,230,536	15,797,906	16,383,366	16,986,586	17,608,155
MVA Funded Status	53%	62%	62%	63%	63%	64%	64%	64%	64%	64%	64%	64%
AVA Funded Status	64%	62%	60%	60%	62%	64%	64%	65%	65%	65%	65%	65%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	10%	7%	10%	13%	12%	12%	10%	9%	8%	7%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.61%	23.30%	23.33%	22.49%	21.89%	21.76%	21.63%	21.50%	21.38%	21.25%	21.12%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.61%	14.30%	14.33%	13.49%	12.89%	12.76%	12.63%	12.50%	12.38%	12.25%	12.12%
Estimated Employer Dollars	776,819	852,245	933,998	975,282	957,355	953,861	984,112	1,015,354	1,048,053	1,081,547	1,115,795	1,150,810

Input Recapp

Projected Actual ROR	23.82%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%
Projected Payroll Growth	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period	30	30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	
Investment Return Assumption on and after 2011	8.00%											
Reset AVA to MVA in 2011?	No											

Scenario 1: 8% assumed return; 7.5% actual; 4.25 assumed payroll growth; 4.25% actual



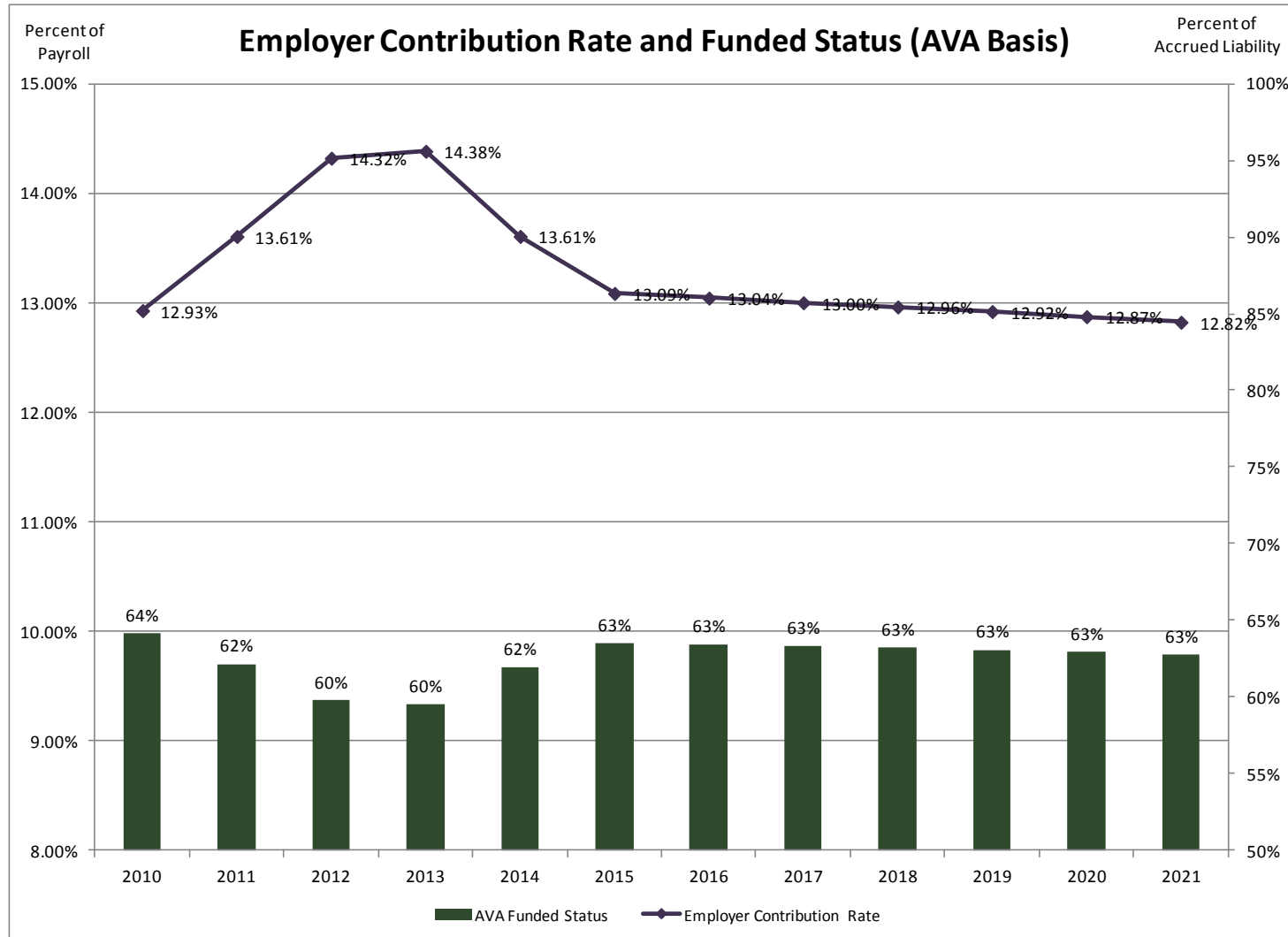
Scenario 2: 8% assumed return; 7.0% actual; 4.25 assumed payroll growth; 4.25% actual

Results Section

\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,008,507	6,263,869	6,530,083	6,807,612	7,096,935	7,398,555	7,712,994	8,040,796	8,382,530	8,738,787	9,110,186
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,550,679	36,175,114	37,824,696	39,497,742	41,211,144	42,969,695	44,773,097	46,613,061	48,492,455	50,415,122
Market Value of Assets (MVA)	16,788,214	20,377,457	21,402,869	22,480,486	23,570,215	24,628,407	25,671,212	26,730,470	27,797,231	28,874,193	29,964,326	31,070,660
Actuarial Value of Assets (AVA)	20,143,426	20,480,803	20,652,887	21,528,621	23,430,635	25,073,326	26,136,696	27,216,411	28,303,615	29,401,116	30,511,976	31,639,276
UAAL (AAL-AVA)	11,256,562	12,474,180	13,897,792	14,646,494	14,394,061	14,424,416	15,074,447	15,753,283	16,469,482	17,211,945	17,980,479	18,775,846
MVA Funded Status	53%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%
AVA Funded Status	64%	62%	60%	60%	62%	63%	63%	63%	63%	63%	63%	63%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	9%	6%	9%	12%	10%	9%	7%	4%	3%	1%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.61%	23.32%	23.38%	22.61%	22.09%	22.04%	22.00%	21.96%	21.92%	21.87%	21.82%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.61%	14.32%	14.38%	13.61%	13.09%	13.04%	13.00%	12.96%	12.92%	12.87%	12.82%
Estimated Employer Dollars	776,819	852,245	935,156	979,202	965,654	968,158	1,006,028	1,045,346	1,086,584	1,129,085	1,172,819	1,217,805
Input Recapp												
Projected Actual ROR		23.82%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
Projected Payroll Growth		4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period		30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		8.00%										
Reset AVA to MVA in 2011?		No										

Scenario 2: 8% assumed return; 7.0% actual; 4.25 assumed payroll growth; 4.25% actual



Scenario 3: 8% assumed return; 8.5% actual; 4.25 assumed payroll growth; 4.25% actual

Results Section

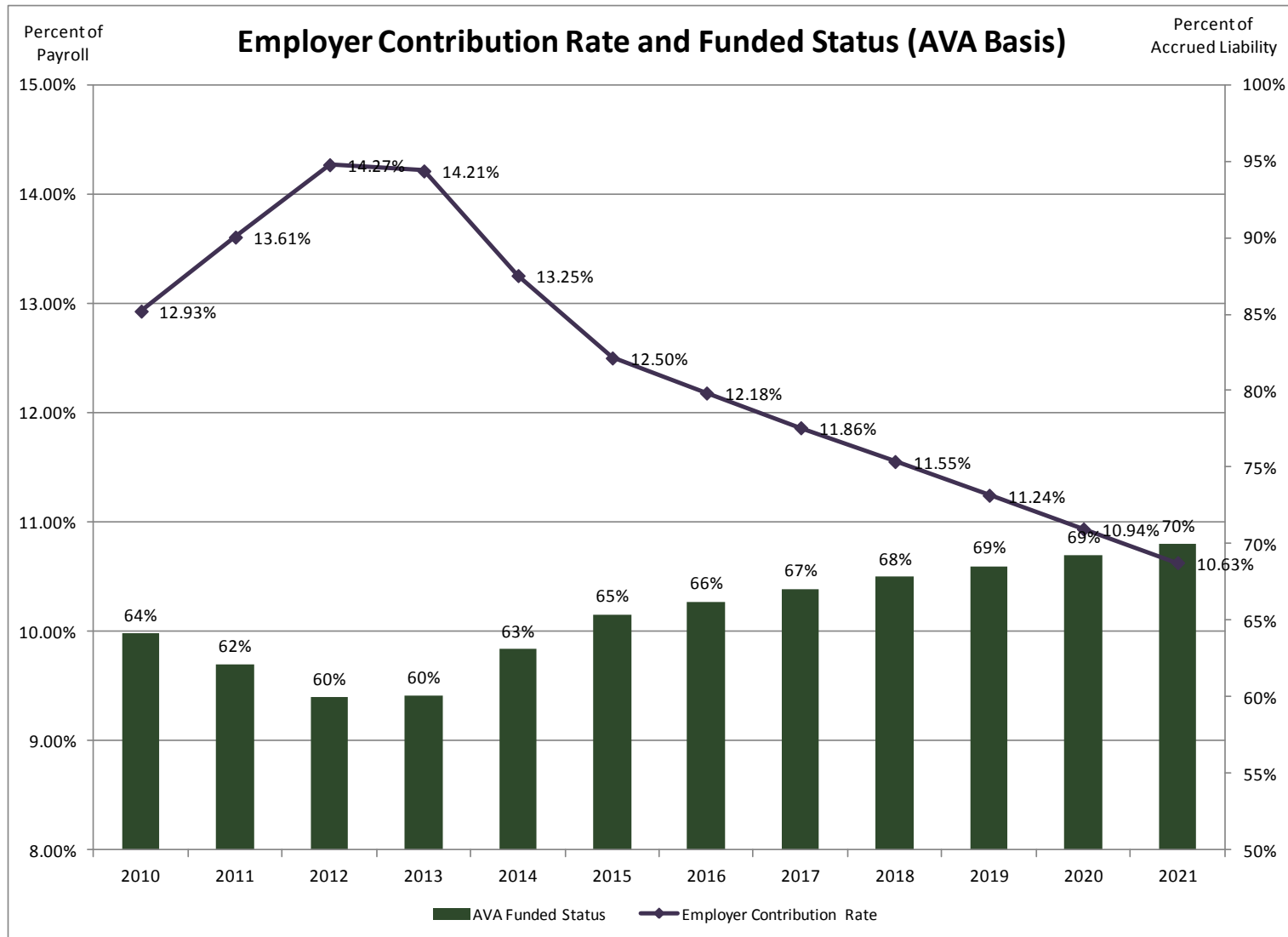
\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,008,507	6,263,869	6,530,083	6,807,612	7,096,935	7,398,555	7,712,994	8,040,796	8,382,530	8,738,787	9,110,186
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,550,679	36,175,114	37,824,696	39,497,742	41,211,144	42,969,695	44,773,097	46,613,061	48,492,455	50,415,122
Market Value of Assets (MVA)	16,788,214	20,377,457	21,705,625	23,123,349	24,589,125	26,057,075	27,540,664	29,069,105	30,634,347	32,239,970	33,889,901	35,588,198
Actuarial Value of Assets (AVA)	20,143,426	20,480,803	20,713,439	21,734,232	23,867,237	25,828,079	27,297,701	28,811,921	30,362,656	31,953,440	33,588,151	35,270,816
UAAL (AAL-AVA)	11,256,562	12,474,180	13,837,240	14,440,882	13,957,459	13,669,664	13,913,443	14,157,774	14,410,442	14,659,621	14,904,304	15,144,306
MVA Funded Status	53%	62%	63%	64%	65%	66%	67%	68%	68%	69%	70%	71%
AVA Funded Status	64%	62%	60%	60%	63%	65%	66%	67%	68%	69%	69%	70%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	10%	8%	12%	16%	17%	18%	18%	19%	19%	20%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.61%	23.27%	23.21%	22.25%	21.50%	21.18%	20.86%	20.55%	20.24%	19.94%	19.63%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.61%	14.27%	14.21%	13.25%	12.50%	12.18%	11.86%	11.55%	11.24%	10.94%	10.63%
Estimated Employer Dollars	776,819	852,245	931,682	967,406	940,604	924,855	939,417	953,805	968,449	982,649	996,326	1,009,450

Input Recapp

Projected Actual ROR	23.82%	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%
Projected Payroll Growth	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period	30	30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	50%
Investment Return Assumption on and after 2011	8.00%											
Reset AVA to MVA in 2011?	No											

Scenario 3: 8% assumed return; 8.5% actual; 4.25 assumed payroll growth; 4.25% actual



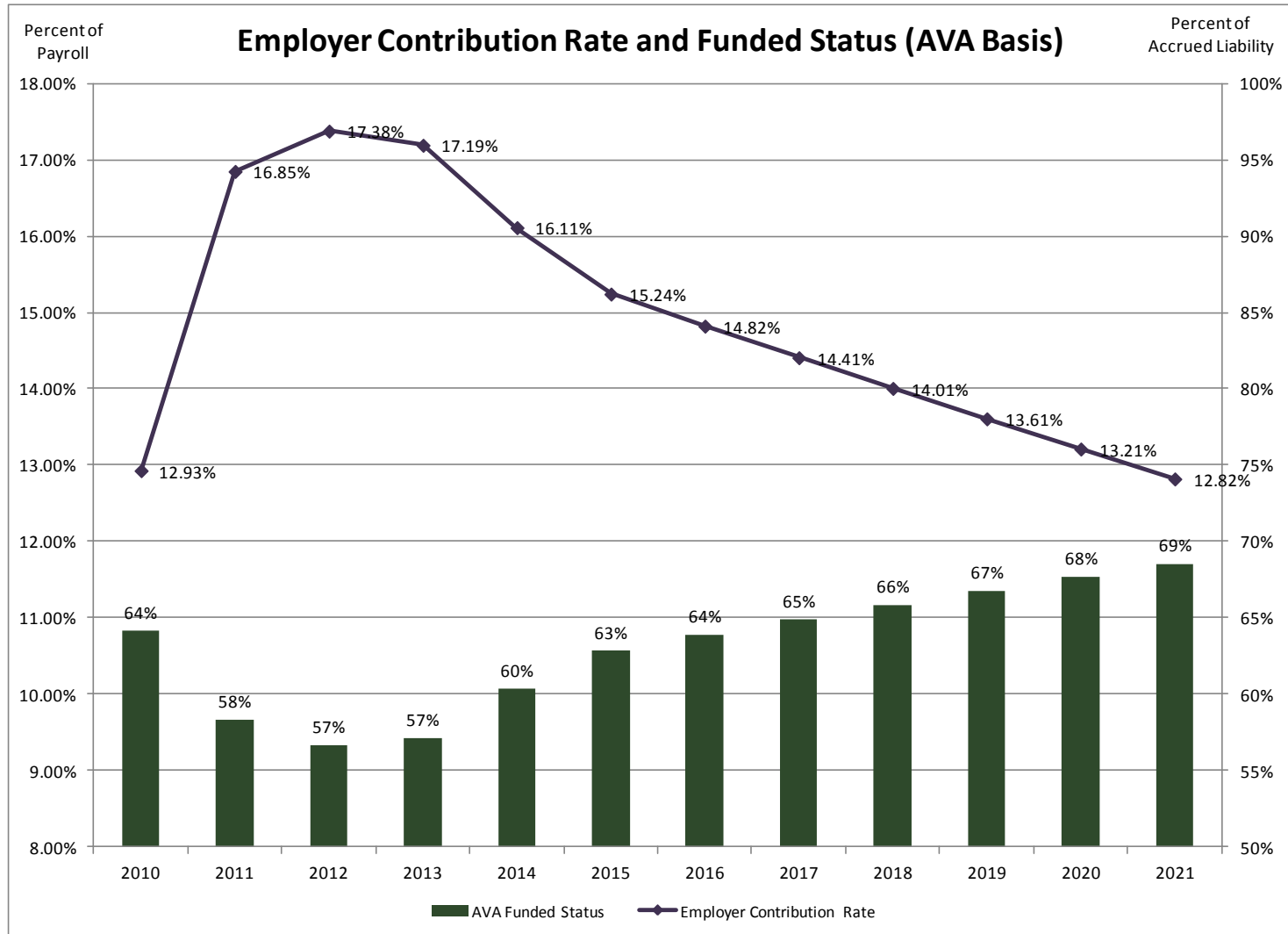
Scenario 4: 7.5% assumed return; 8.0% actual; 4.25 assumed payroll growth; 4.25% actual

Results Section

\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,008,507	6,263,869	6,530,083	6,807,612	7,096,935	7,398,555	7,712,994	8,040,796	8,382,530	8,738,787	9,110,186
Actuarial Accrued Liability (AAL)	31,399,988	34,998,192	36,666,519	38,364,229	40,087,753	41,835,446	43,624,208	45,458,793	47,338,856	49,256,075	51,213,307	53,214,369
Market Value of Assets (MVA)	16,788,214	20,377,457	21,815,925	23,346,044	24,926,189	26,510,566	28,112,802	29,763,166	31,453,638	33,187,846	34,969,748	36,803,421
Actuarial Value of Assets (AVA)	20,143,426	20,414,383	20,773,517	21,922,563	24,185,558	26,278,315	27,865,442	29,500,416	31,175,186	32,893,330	34,658,755	36,475,504
UAAL (AAL-AVA)	11,256,562	14,583,809	15,893,002	16,441,666	15,902,195	15,557,131	15,758,766	15,958,378	16,163,669	16,362,745	16,554,553	16,738,865
MVA Funded Status	53%	58%	59%	61%	62%	63%	64%	65%	66%	67%	68%	69%
AVA Funded Status	64%	58%	57%	57%	60%	63%	64%	65%	66%	67%	68%	69%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	15%	9%	8%	12%	17%	18%	19%	20%	21%	22%	23%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	25.85%	26.38%	26.19%	25.11%	24.24%	23.82%	23.41%	23.01%	22.61%	22.21%	21.82%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	16.85%	17.38%	17.19%	16.11%	15.24%	14.82%	14.41%	14.01%	13.61%	13.21%	12.82%
Estimated Employer Dollars	776,819	1,055,340	1,134,638	1,170,263	1,143,407	1,127,644	1,143,172	1,158,497	1,174,044	1,189,116	1,203,637	1,217,574
Input Recapp												
Projected Actual ROR		23.82%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Projected Payroll Growth		4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period		30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		7.50%										
Reset AVA to MVA in 2011?		No										

Scenario 4: 7.5% assumed return; 8.0% actual; 4.25 assumed payroll growth; 4.25% actual



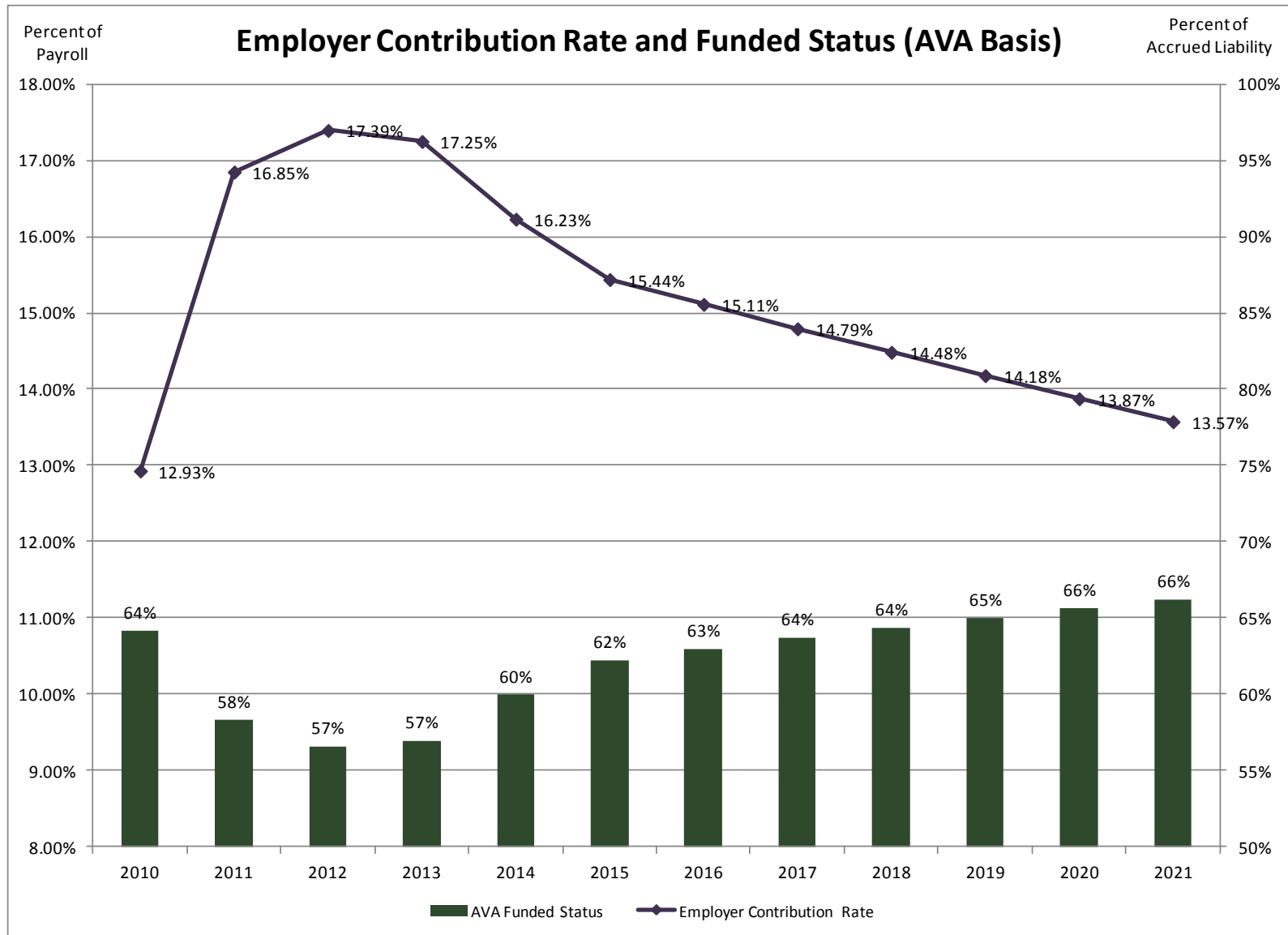
Scenario 5: 7.5% assumed return; 7.5% actual; 4.25 assumed payroll growth; 4.25% actual

Results Section

\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,008,507	6,263,869	6,530,083	6,807,612	7,096,935	7,398,555	7,712,994	8,040,796	8,382,530	8,738,787	9,110,186
Actuarial Accrued Liability (AAL)	31,399,988	34,998,192	36,666,519	38,364,229	40,087,753	41,835,446	43,624,208	45,458,793	47,338,856	49,256,075	51,213,307	53,214,369
Market Value of Assets (MVA)	16,788,214	20,377,457	21,714,498	23,129,656	24,581,621	26,025,202	27,474,796	28,961,438	30,476,707	32,023,835	33,606,353	35,227,885
Actuarial Value of Assets (AVA)	20,143,426	20,414,383	20,753,232	21,853,881	24,039,529	26,025,201	27,474,796	28,961,438	30,476,707	32,023,834	33,606,352	35,227,884
UAAL (AAL-AVA)	11,256,562	14,583,809	15,913,287	16,510,348	16,048,224	15,810,245	16,149,411	16,497,356	16,862,149	17,232,241	17,606,955	17,986,485
MVA Funded Status	53%	58%	59%	60%	61%	62%	63%	64%	64%	65%	66%	66%
AVA Funded Status	64%	58%	57%	57%	60%	62%	63%	64%	64%	65%	66%	66%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	15%	9%	7%	12%	15%	16%	16%	16%	17%	17%	17%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	25.85%	26.39%	26.25%	25.23%	24.44%	24.11%	23.79%	23.48%	23.18%	22.87%	22.57%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	16.85%	17.39%	17.25%	16.23%	15.44%	15.11%	14.79%	14.48%	14.18%	13.87%	13.57%
Estimated Employer Dollars	776,819	1,055,340	1,135,802	1,174,204	1,151,786	1,142,166	1,165,585	1,189,420	1,214,119	1,239,003	1,264,017	1,289,154
Input Recapp												
Projected Actual ROR		23.82%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%
Projected Payroll Growth		4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period		30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		7.50%										
Reset AVA to MVA in 2011?		No										

Scenario 5: 7.5% assumed return; 7.5% actual; 4.25 assumed payroll growth; 4.25% actual



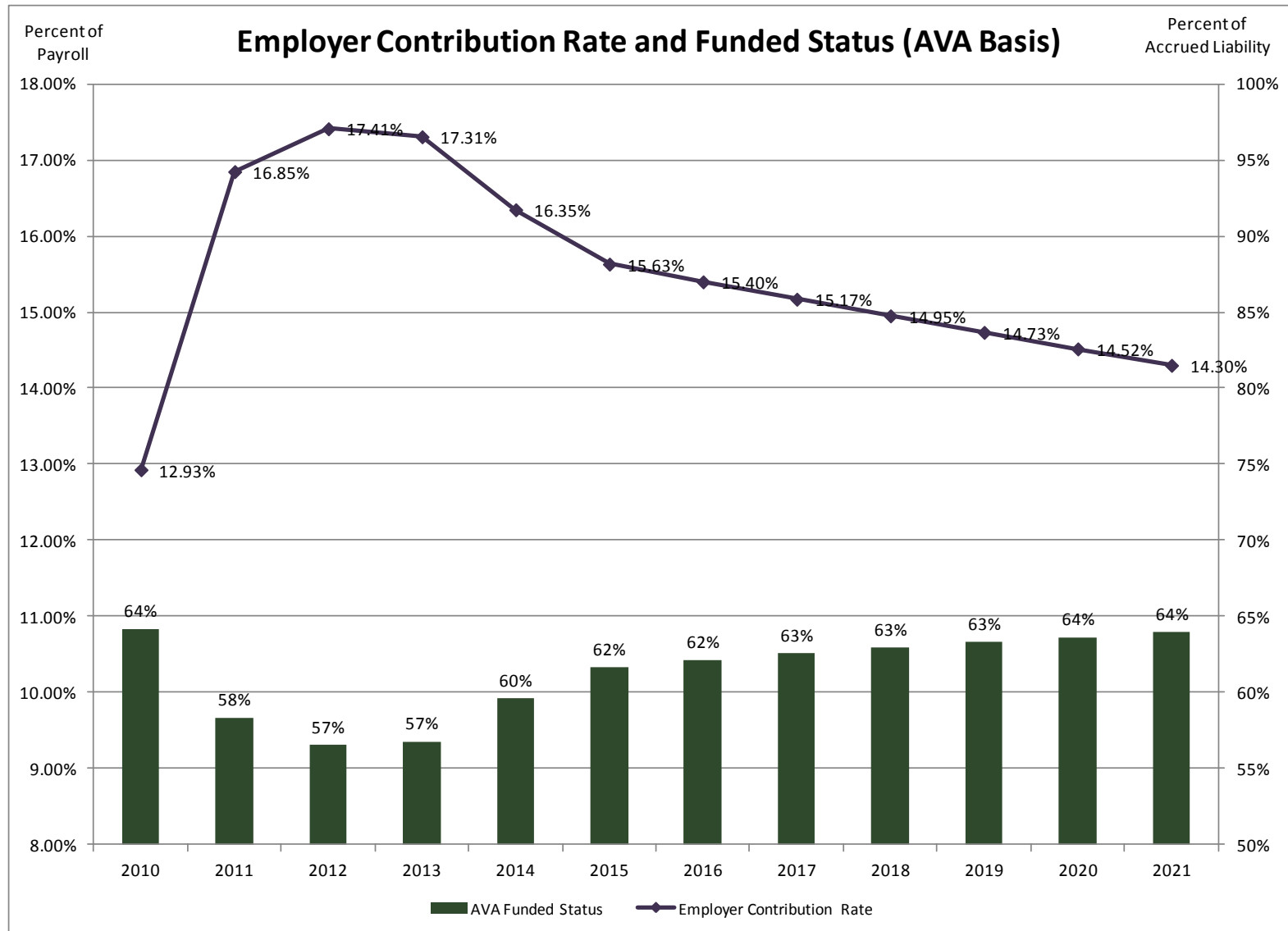
Scenario 6: 7.5% assumed return; 7.0% actual; 4.25 assumed payroll growth; 4.25% actual

Results Section

\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,008,507	6,263,869	6,530,083	6,807,612	7,096,935	7,398,555	7,712,994	8,040,796	8,382,530	8,738,787	9,110,186
Actuarial Accrued Liability (AAL)	31,399,988	34,998,192	36,666,519	38,364,229	40,087,753	41,835,446	43,624,208	45,458,793	47,338,856	49,256,075	51,213,307	53,214,369
Market Value of Assets (MVA)	16,788,214	20,377,457	21,613,072	22,914,276	24,240,264	25,546,624	26,848,691	28,178,414	29,527,112	30,897,762	32,293,618	33,718,006
Actuarial Value of Assets (AVA)	20,143,426	20,414,383	20,732,947	21,785,401	23,894,395	25,774,476	27,089,162	28,431,563	29,793,043	31,176,630	32,585,633	34,023,401
UAAL (AAL-AVA)	11,256,562	14,583,809	15,933,572	16,578,828	16,193,358	16,060,970	16,535,046	17,027,231	17,545,813	18,079,445	18,627,674	19,190,968
MVA Funded Status	53%	58%	59%	60%	60%	61%	62%	62%	62%	63%	63%	63%
AVA Funded Status	64%	58%	57%	57%	60%	62%	62%	63%	63%	63%	64%	64%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	15%	9%	7%	11%	14%	14%	14%	13%	12%	12%	12%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	25.85%	26.41%	26.31%	25.35%	24.63%	24.40%	24.17%	23.95%	23.73%	23.52%	23.30%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	16.85%	17.41%	17.31%	16.35%	15.63%	15.40%	15.17%	14.95%	14.73%	14.52%	14.30%
Estimated Employer Dollars	776,819	1,055,340	1,136,966	1,178,133	1,160,113	1,156,551	1,187,711	1,219,821	1,253,343	1,287,610	1,322,580	1,358,260
Input Recapp												
Projected Actual ROR		23.82%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
Projected Payroll Growth		4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period		30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		7.50%										
Reset AVA to MVA in 2011?		No										

Scenario 6: 7.5% assumed return; 7.0% actual; 4.25 assumed payroll growth; 4.25% actual



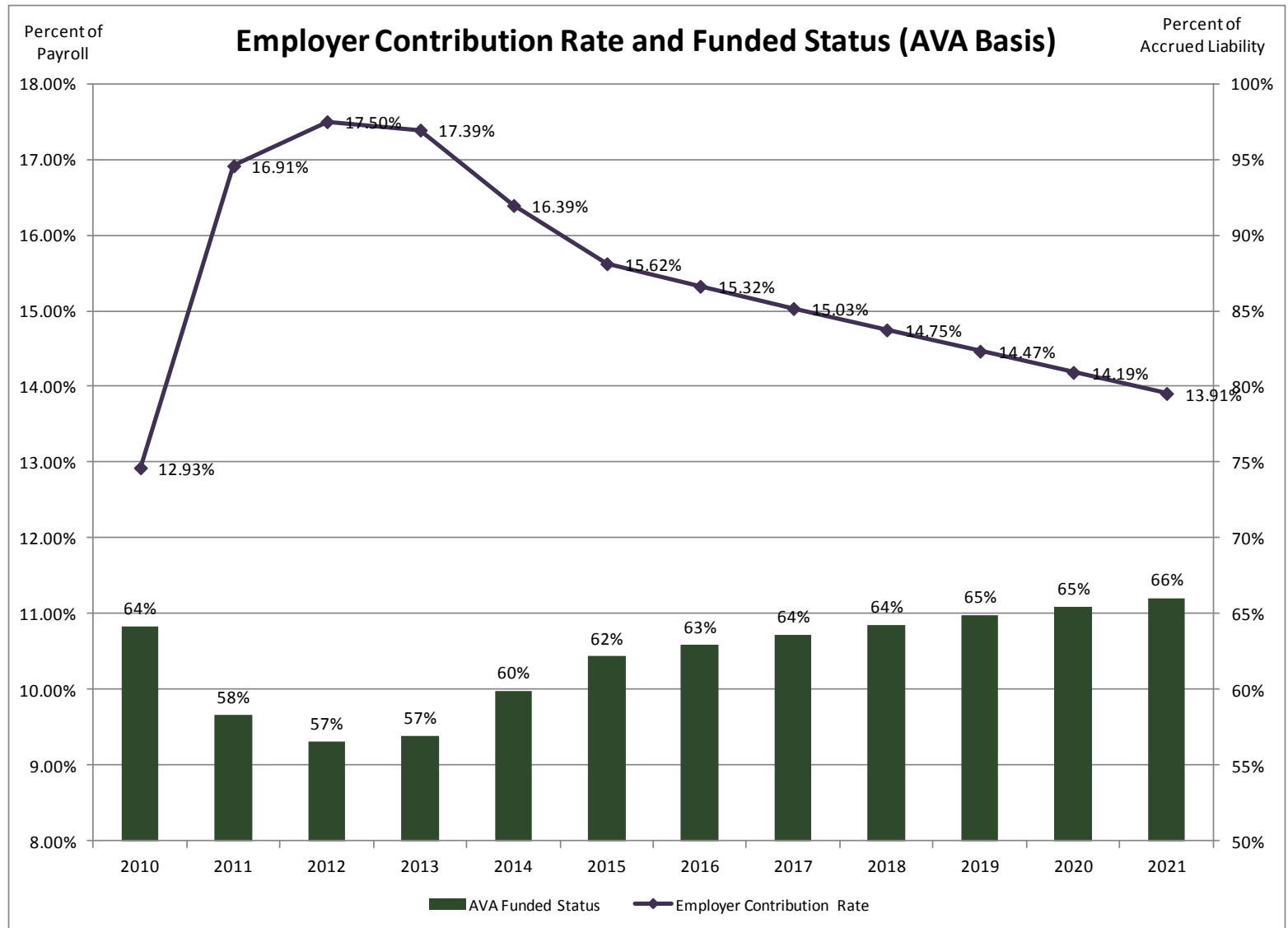
Scenario 7: 7.5% assumed return; 7.5% actual; 4.25 assumed payroll growth; 4.00% actual

Results Section

\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	5,994,098	6,233,862	6,483,217	6,742,546	7,012,247	7,292,737	7,584,447	7,887,825	8,203,338	8,531,471	8,872,730
Actuarial Accrued Liability (AAL)	31,399,988	34,998,192	36,664,651	38,358,358	40,075,444	41,813,941	43,590,391	45,409,157	47,269,464	49,162,526	51,090,684	53,057,198
Market Value of Assets (MVA)	16,788,214	20,377,457	21,710,766	23,119,836	24,563,052	25,994,884	27,429,360	28,897,149	30,389,391	31,908,834	33,458,484	35,041,392
Actuarial Value of Assets (AVA)	20,143,426	20,411,762	20,747,534	21,842,752	24,020,306	25,994,885	27,429,361	28,897,150	30,389,392	31,908,836	33,458,486	35,041,394
UAAL (AAL-AVA)	11,256,562	14,586,430	15,917,118	16,515,606	16,055,138	15,819,056	16,161,029	16,512,006	16,880,072	17,253,690	17,632,198	18,015,804
MVA Funded Status	53%	58%	59%	60%	61%	62%	63%	64%	64%	65%	65%	66%
AVA Funded Status	64%	58%	57%	57%	60%	62%	63%	64%	64%	65%	65%	66%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	15%	9%	7%	11%	15%	16%	16%	16%	16%	16%	16%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	25.91%	26.50%	26.39%	25.39%	24.62%	24.32%	24.03%	23.75%	23.47%	23.19%	22.91%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	16.91%	17.50%	17.39%	16.39%	15.62%	15.32%	15.03%	14.75%	14.47%	14.19%	13.91%
Estimated Employer Dollars	776,819	1,056,977	1,137,150	1,175,154	1,152,188	1,142,048	1,165,062	1,188,489	1,212,782	1,237,262	1,261,875	1,286,617
Input Recapp												
Projected Actual ROR		23.84%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%
Projected Payroll Growth		4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Amortization Period		30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		7.50%										
Reset AVA to MVA in 2011?		No										

Scenario 7: 7.5% assumed return; 7.5% actual; 4.25 assumed payroll growth; 4.00% actual



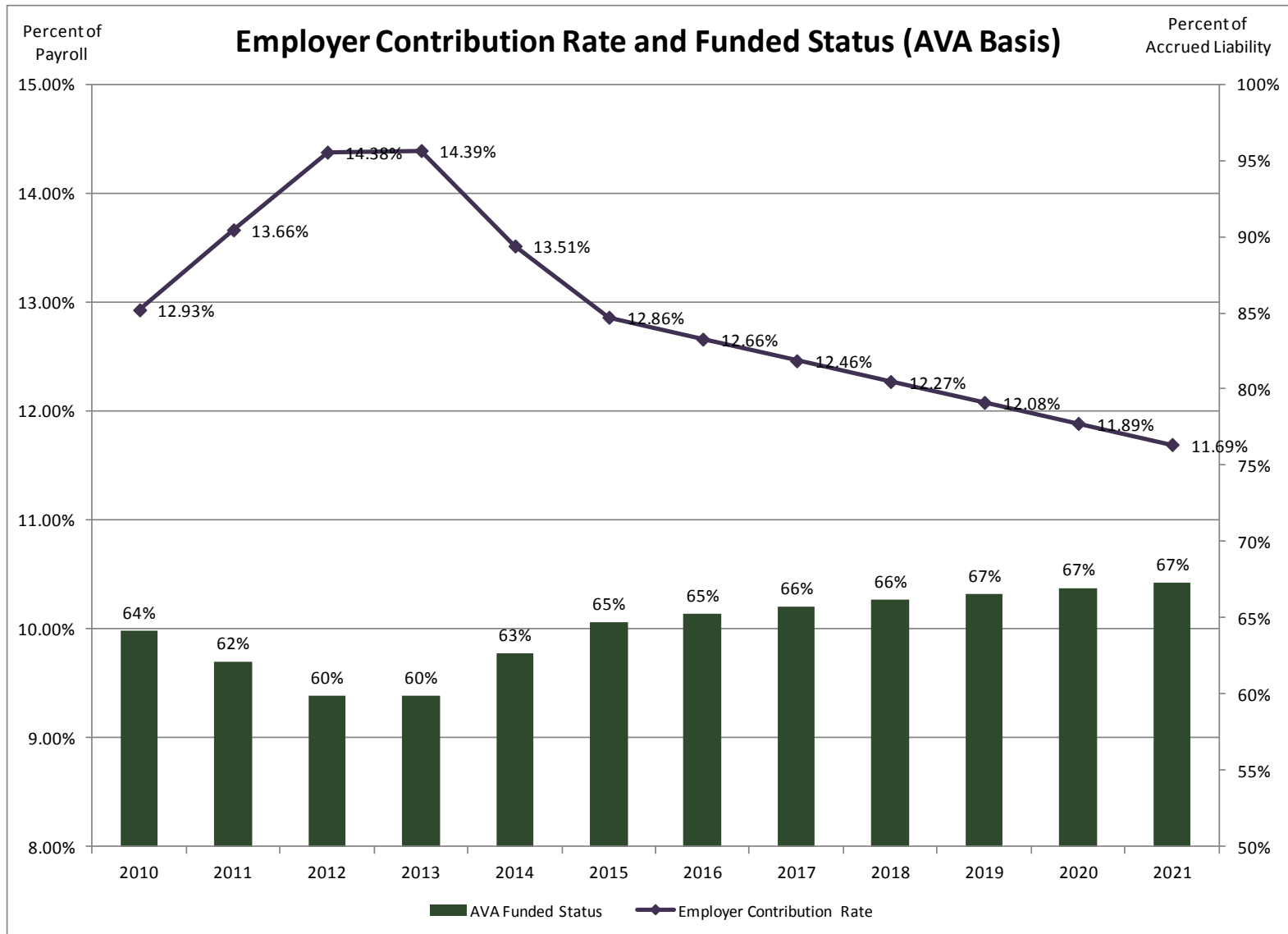
Scenario 8: 8.0% assumed return; 8.0% actual; 4.25 assumed payroll growth; 4.00% actual

Results Section

\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	5,994,098	6,233,862	6,483,217	6,742,546	7,012,247	7,292,737	7,584,447	7,887,825	8,203,338	8,531,471	8,872,730
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,549,004	36,169,838	37,813,616	39,478,353	41,180,603	42,924,792	44,710,218	46,528,144	48,380,953	50,271,954
Market Value of Assets (MVA)	16,788,214	20,377,457	21,601,374	22,899,261	24,229,611	25,546,795	26,864,661	28,212,805	29,582,321	30,975,892	32,396,476	33,847,084
Actuarial Value of Assets (AVA)	20,143,426	20,478,175	20,687,951	21,655,381	23,703,466	25,546,793	26,864,659	28,212,803	29,582,319	30,975,890	32,396,474	33,847,083
UAAL (AAL-AVA)	11,256,562	12,476,808	13,861,053	14,514,457	14,110,150	13,931,560	14,315,944	14,711,989	15,127,899	15,552,254	15,984,479	16,424,872
MVA Funded Status	53%	62%	63%	63%	64%	65%	65%	66%	66%	67%	67%	67%
AVA Funded Status	64%	62%	60%	60%	63%	65%	65%	66%	66%	67%	67%	67%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	10%	7%	11%	14%	15%	14%	14%	13%	13%	13%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.66%	23.38%	23.39%	22.51%	21.86%	21.66%	21.46%	21.27%	21.08%	20.89%	20.69%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.66%	14.38%	14.39%	13.51%	12.86%	12.66%	12.46%	12.27%	12.08%	11.89%	11.69%
Estimated Employer Dollars	776,819	853,789	934,300	972,632	949,974	940,125	962,466	985,273	1,009,003	1,032,981	1,057,155	1,081,522
Input Recapp												
Projected Actual ROR		23.84%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Projected Payroll Growth		4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Amortization Period		30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		8.00%										
Reset AVA to MVA in 2011?		No										

Scenario 8: 8.0% assumed return; 8.0% actual; 4.25 assumed payroll growth; 4.00% actual



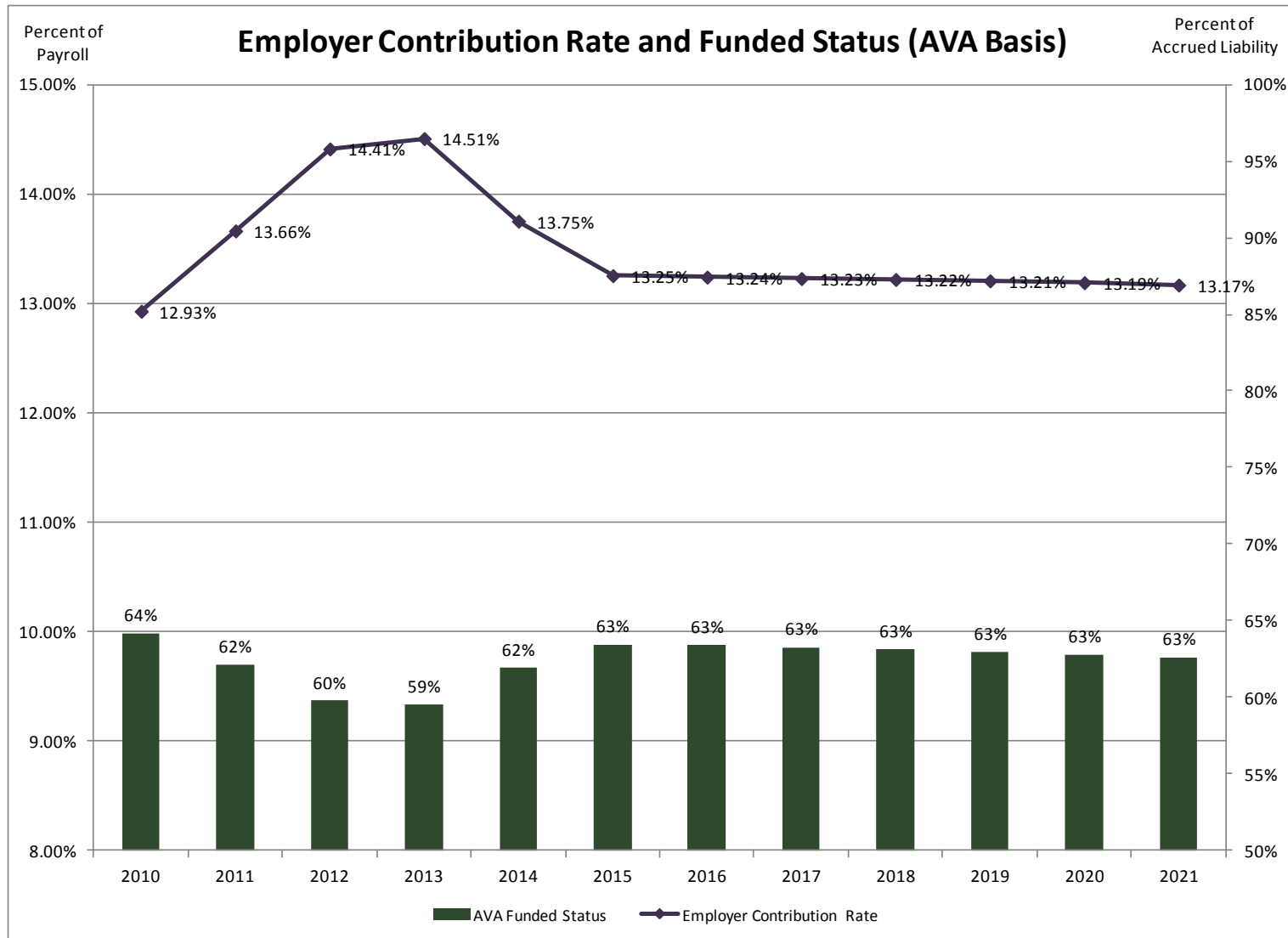
Scenario 9: 8.0% assumed return; 7.0% actual; 4.25 assumed payroll growth; 4.00% actual

Results Section

\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	5,994,098	6,233,862	6,483,217	6,742,546	7,012,247	7,292,737	7,584,447	7,887,825	8,203,338	8,531,471	8,872,730
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,549,004	36,169,838	37,813,616	39,478,353	41,180,603	42,924,792	44,710,218	46,528,144	48,380,953	50,271,954
Market Value of Assets (MVA)	16,788,214	20,377,457	21,399,553	22,471,764	23,553,734	24,601,524	25,630,971	26,673,605	27,720,100	28,772,741	29,834,046	30,906,551
Actuarial Value of Assets (AVA)	20,143,426	20,478,175	20,647,587	21,518,528	23,413,358	25,046,177	26,096,011	27,158,871	28,225,518	29,298,337	30,379,936	31,472,890
UAAL (AAL-AVA)	11,256,562	12,476,808	13,901,417	14,651,309	14,400,259	14,432,175	15,084,592	15,765,921	16,484,700	17,229,807	18,001,018	18,799,064
MVA Funded Status	53%	62%	62%	62%	62%	62%	62%	62%	62%	62%	62%	61%
AVA Funded Status	64%	62%	60%	59%	62%	63%	63%	63%	63%	63%	63%	63%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	9%	6%	9%	11%	10%	8%	6%	4%	2%	0%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.66%	23.41%	23.51%	22.75%	22.25%	22.24%	22.23%	22.22%	22.21%	22.19%	22.17%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.66%	14.41%	14.51%	13.75%	13.25%	13.24%	13.23%	13.22%	13.21%	13.19%	13.17%
Estimated Employer Dollars	776,819	853,789	936,621	980,503	966,659	968,916	1,006,672	1,045,887	1,087,035	1,129,460	1,173,130	1,218,066
Input Recapp												
Projected Actual ROR		23.84%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
Projected Payroll Growth		4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Amortization Period		30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		8.00%										
Reset AVA to MVA in 2011?		No										

Scenario 9: 8.0% assumed return; 7.0% actual; 4.25 assumed payroll growth; 4.00% actual



Scenario 10: 7.5% assumed return; 7.5% actual; 4.00% assumed payroll growth; 4.00% actual

Results Section

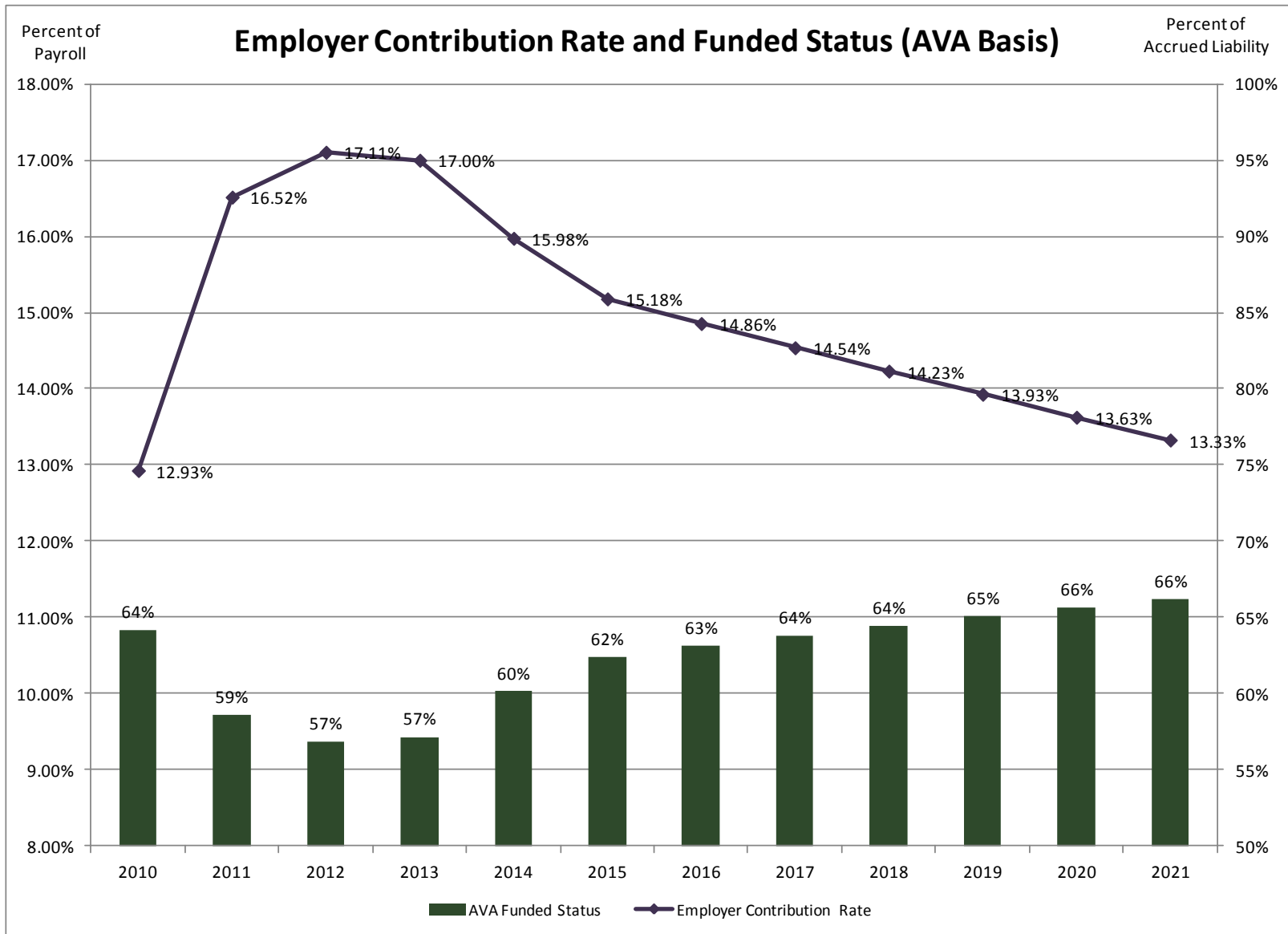
\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	5,994,098	6,233,862	6,483,217	6,758,754	7,046,001	7,345,456	7,657,638	7,983,087	8,322,368	8,676,069	9,044,802
Actuarial Accrued Liability (AAL)	31,399,988	34,823,201	36,461,776	38,125,011	39,808,830	41,513,058	43,254,285	45,036,935	46,860,299	48,715,672	50,605,492	52,533,127
Market Value of Assets (MVA)	16,788,214	20,377,457	21,684,999	23,065,728	24,482,191	25,886,436	27,292,581	28,731,446	30,194,255	31,683,852	33,203,354	34,755,935
Actuarial Value of Assets (AVA)	20,143,426	20,411,762	20,721,767	21,788,645	23,939,447	25,886,439	27,292,584	28,731,449	30,194,258	31,683,856	33,203,358	34,755,939
UAAL (AAL-AVA)	11,256,562	14,411,439	15,740,009	16,336,366	15,869,382	15,626,618	15,961,701	16,305,485	16,666,041	17,031,816	17,402,135	17,777,188
MVA Funded Status	53%	59%	59%	61%	61%	62%	63%	64%	64%	65%	66%	66%
AVA Funded Status	64%	59%	57%	57%	60%	62%	63%	64%	64%	65%	66%	66%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	15%	9%	7%	11%	15%	15%	16%	15%	15%	15%	16%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	25.52%	26.11%	26.00%	24.98%	24.18%	23.86%	23.54%	23.23%	22.93%	22.63%	22.33%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	16.52%	17.11%	17.00%	15.98%	15.18%	14.86%	14.54%	14.23%	13.93%	13.63%	13.33%
Estimated Employer Dollars	776,819	1,032,082	1,111,635	1,149,003	1,125,643	1,115,097	1,137,690	1,160,675	1,184,500	1,208,486	1,232,576	1,256,761

Input Recapp

Projected Actual ROR	23.84%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%
Projected Payroll Growth	4.00%	4.00%	4.00%	4.00%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period	30	30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	50%
Investment Return Assumption on and after 2011	7.50%											
Reset AVA to MVA in 2011?	No											

Scenario 10: 7.5% assumed return; 7.5% actual; 4.00% assumed payroll growth; 4.00% actual



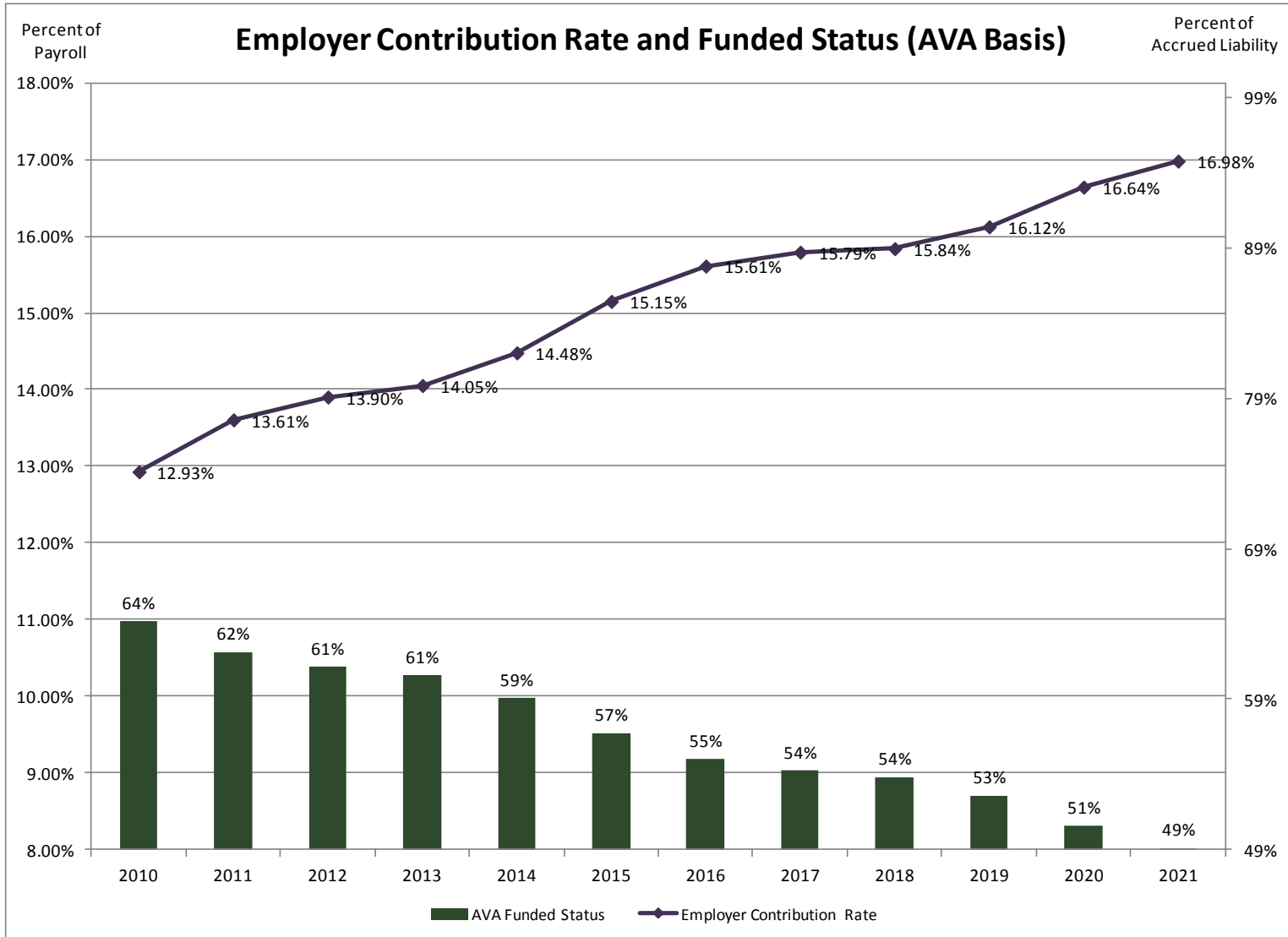
Scenario 11: Measuring Risk Areas: show how a repeat of the volatile market from 2007 to 2011 affects the projection

Results Section

\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,008,507	6,263,869	6,530,083	6,807,612	7,096,935	7,398,555	7,712,994	8,040,796	8,382,530	8,738,787	9,110,186
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,550,679	36,175,114	37,824,696	39,497,742	41,211,144	42,969,695	44,773,097	46,613,061	48,492,455	50,415,122
Market Value of Assets (MVA)	16,788,214	20,377,457	23,776,476	21,422,764	16,800,932	18,678,789	22,566,178	26,236,615	23,568,115	18,429,967	20,425,025	24,602,604
Actuarial Value of Assets (AVA)	20,143,426	20,480,803	21,127,609	21,921,048	22,350,466	22,410,856	22,684,250	23,304,687	24,101,659	24,522,627	24,530,638	24,756,449
UAAL (AAL-AVA)	11,256,562	12,474,180	13,423,070	14,254,066	15,474,230	17,086,886	18,526,893	19,665,008	20,671,439	22,090,434	23,961,817	25,658,673
MVA Funded Status	53%	62%	69%	59%	44%	47%	55%	61%	53%	40%	42%	49%
AVA Funded Status	64%	62%	61%	61%	59%	57%	55%	54%	54%	53%	51%	49%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	97%	93%	91%	89%	86%	82%	79%
Active Liab/Remaining AVA	23%	17%	13%	9%	3%	0%	0%	0%	0%	0%	0%	0%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.61%	22.90%	23.05%	23.48%	24.15%	24.61%	24.79%	24.84%	25.12%	25.64%	25.98%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.61%	13.90%	14.05%	14.48%	15.15%	15.61%	15.79%	15.84%	16.12%	16.64%	16.98%
Estimated Employer Dollars	776,819	852,245	907,919	956,687	1,027,627	1,120,914	1,204,109	1,269,777	1,327,667	1,408,984	1,515,992	1,612,700
Input Recapp												
Projected Actual ROR		23.82%	18.76%	-8.15%	-19.51%	14.43%	23.84%	18.76%	-8.15%	-19.51%	14.43%	23.82%
Projected Payroll Growth		4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period		30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		8.00%										
Reset AVA to MVA in 2011?		No										

Scenario 11: Measuring Risk Areas: show how a repeat of the volatile market from 2007 to 2011 affects the projection



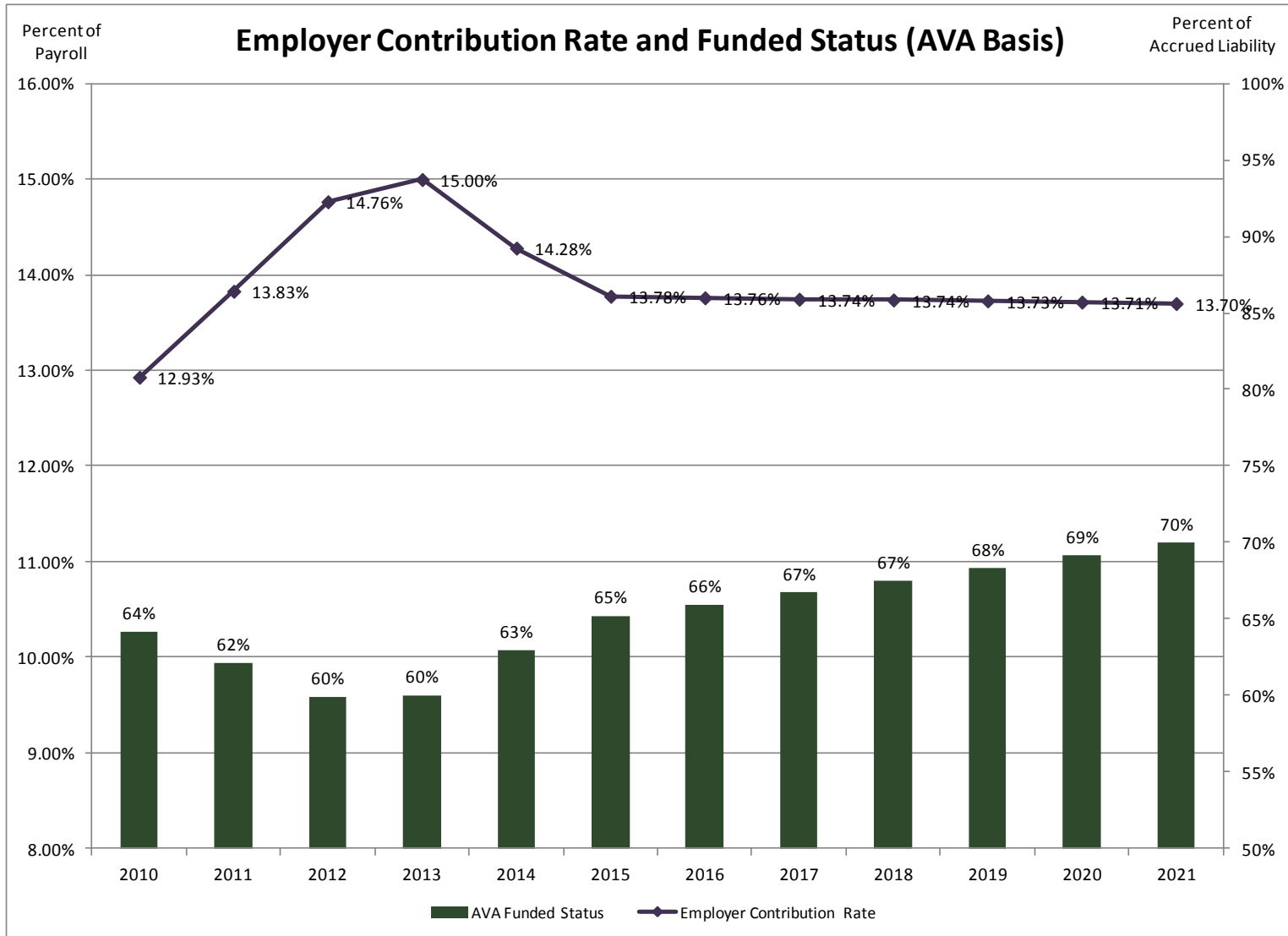
Scenario 12: Measuring Risk Areas: Baseline Projection with Closed Amortization Period

Results Section

\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,008,507	6,263,869	6,530,083	6,807,612	7,096,935	7,398,555	7,712,994	8,040,796	8,382,530	8,738,787	9,110,186
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,550,679	36,175,114	37,824,696	39,497,742	41,211,144	42,969,695	44,773,097	46,613,061	48,492,455	50,415,122
Market Value of Assets (MVA)	16,788,214	20,377,457	21,619,172	22,956,171	24,349,755	25,752,771	27,181,569	28,672,239	30,219,958	31,832,020	33,516,332	35,281,330
Actuarial Value of Assets (AVA)	20,143,426	20,480,803	20,707,720	21,713,607	23,824,269	25,752,771	27,181,569	28,672,239	30,219,958	31,832,019	33,516,332	35,281,330
UAAL (AAL-AVA)	11,256,562	12,474,180	13,842,959	14,461,507	14,000,427	13,744,972	14,029,575	14,297,456	14,553,139	14,781,042	14,976,123	15,133,792
MVA Funded Status	53%	62%	63%	63%	64%	65%	66%	67%	67%	68%	69%	70%
AVA Funded Status	64%	62%	60%	60%	63%	65%	66%	67%	67%	68%	69%	70%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	10%	7%	12%	16%	16%	17%	17%	18%	19%	20%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.83%	23.76%	24.00%	23.28%	22.78%	22.76%	22.74%	22.74%	22.73%	22.71%	22.70%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.83%	14.76%	15.00%	14.28%	13.78%	13.76%	13.74%	13.74%	13.73%	13.71%	13.70%
Estimated Employer Dollars	776,819	866,154	964,081	1,020,867	1,013,363	1,019,168	1,061,254	1,105,152	1,151,494	1,199,574	1,249,404	1,301,052
Input Recapp												
Projected Actual ROR		23.82%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Projected Payroll Growth		4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period		29	28	27	26	25	24	23	22	21	20	19
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		8.00%										
Reset AVA to MVA in 2011?		No										

Scenario 12: Measuring Risk Areas: Baseline Projection with Closed Amortization Period



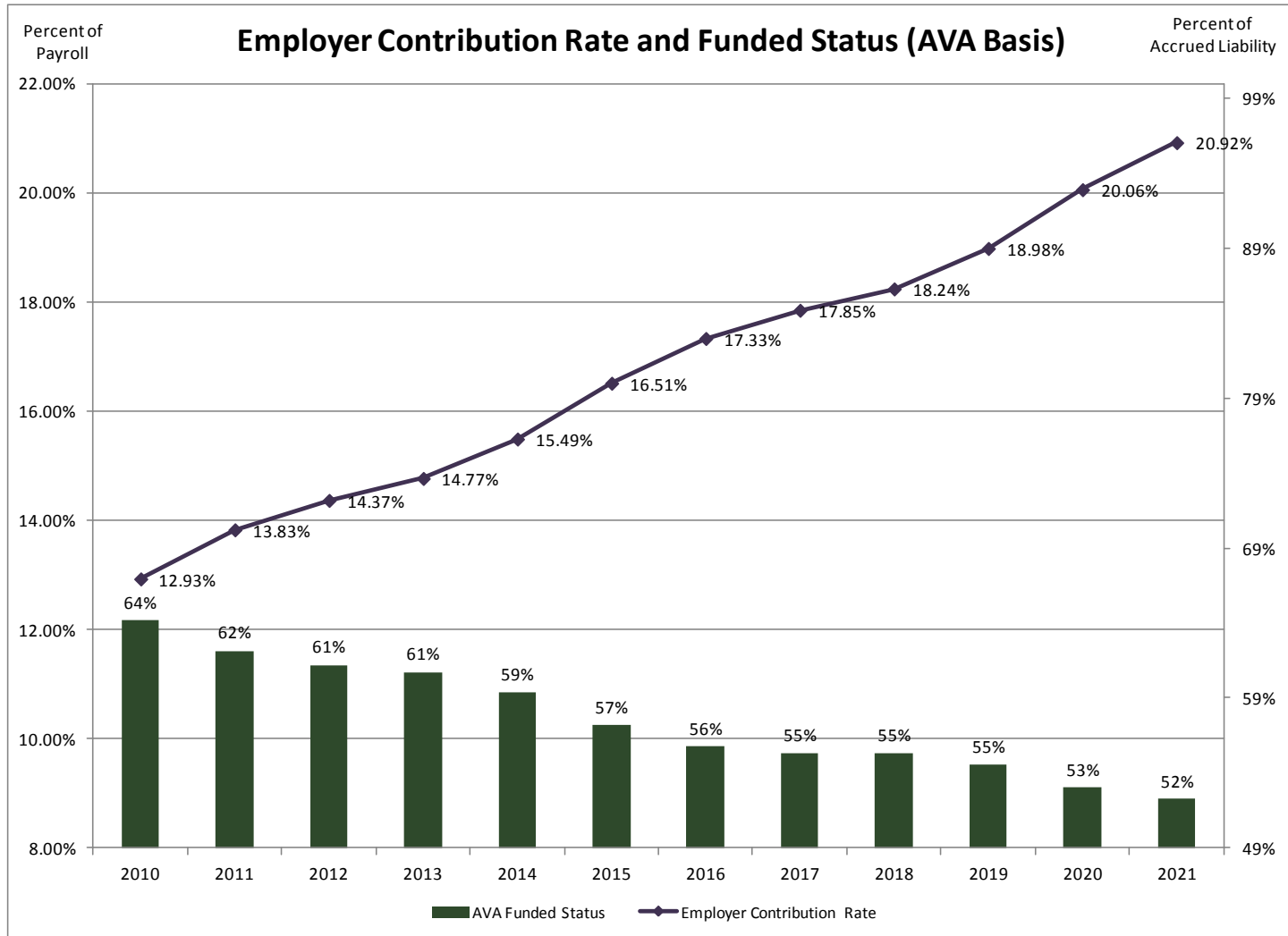
Scenario 13: Measuring Risk Areas: Closed Amortization Period and a repeat of the 2007 through 2011 Market Returns

Results Section

\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,008,507	6,263,869	6,530,083	6,807,612	7,096,935	7,398,555	7,712,994	8,040,796	8,382,530	8,738,787	9,110,186
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,550,679	36,175,114	37,824,696	39,497,742	41,211,144	42,969,695	44,773,097	46,613,061	48,492,455	50,415,122
Market Value of Assets (MVA)	16,788,214	20,377,457	23,791,690	21,465,732	16,879,463	18,845,530	22,885,445	26,760,924	24,208,335	19,126,933	21,490,277	26,269,971
Actuarial Value of Assets (AVA)	20,143,426	20,480,803	21,142,224	21,967,486	22,446,453	22,584,636	22,979,980	23,775,932	24,780,182	25,417,987	25,706,818	26,338,725
UAAL (AAL-AVA)	11,256,562	12,474,180	13,408,455	14,207,628	15,378,243	16,913,106	18,231,163	19,193,763	19,992,915	21,195,074	22,785,636	24,076,397
MVA Funded Status	53%	62%	69%	59%	45%	48%	56%	62%	54%	41%	44%	52%
AVA Funded Status	64%	62%	61%	61%	59%	57%	56%	55%	55%	55%	53%	52%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	97%	94%	92%	91%	89%	86%	84%
Active Liab/Remaining AVA	23%	17%	13%	9%	3%	0%	0%	0%	0%	0%	0%	0%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.83%	23.37%	23.77%	24.49%	25.51%	26.33%	26.85%	27.24%	27.98%	29.06%	29.92%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.83%	14.37%	14.77%	15.49%	16.51%	17.33%	17.85%	18.24%	18.98%	20.06%	20.92%
Estimated Employer Dollars	776,819	866,154	938,145	1,005,383	1,099,332	1,221,679	1,336,809	1,435,158	1,528,955	1,658,682	1,827,288	1,986,790
Input Recapp												
Projected Actual ROR		23.82%	18.76%	-8.15%	-19.51%	14.43%	23.84%	18.76%	-8.15%	-19.51%	14.43%	23.82%
Projected Payroll Growth		4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period		29	28	27	26	25	24	23	22	21	20	19
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		8.00%										
Reset AVA to MVA in 2011?		No										

Scenario 13: Measuring Risk Areas: Closed Amortization Period and a repeat of the 2007 through 2011 Market Returns



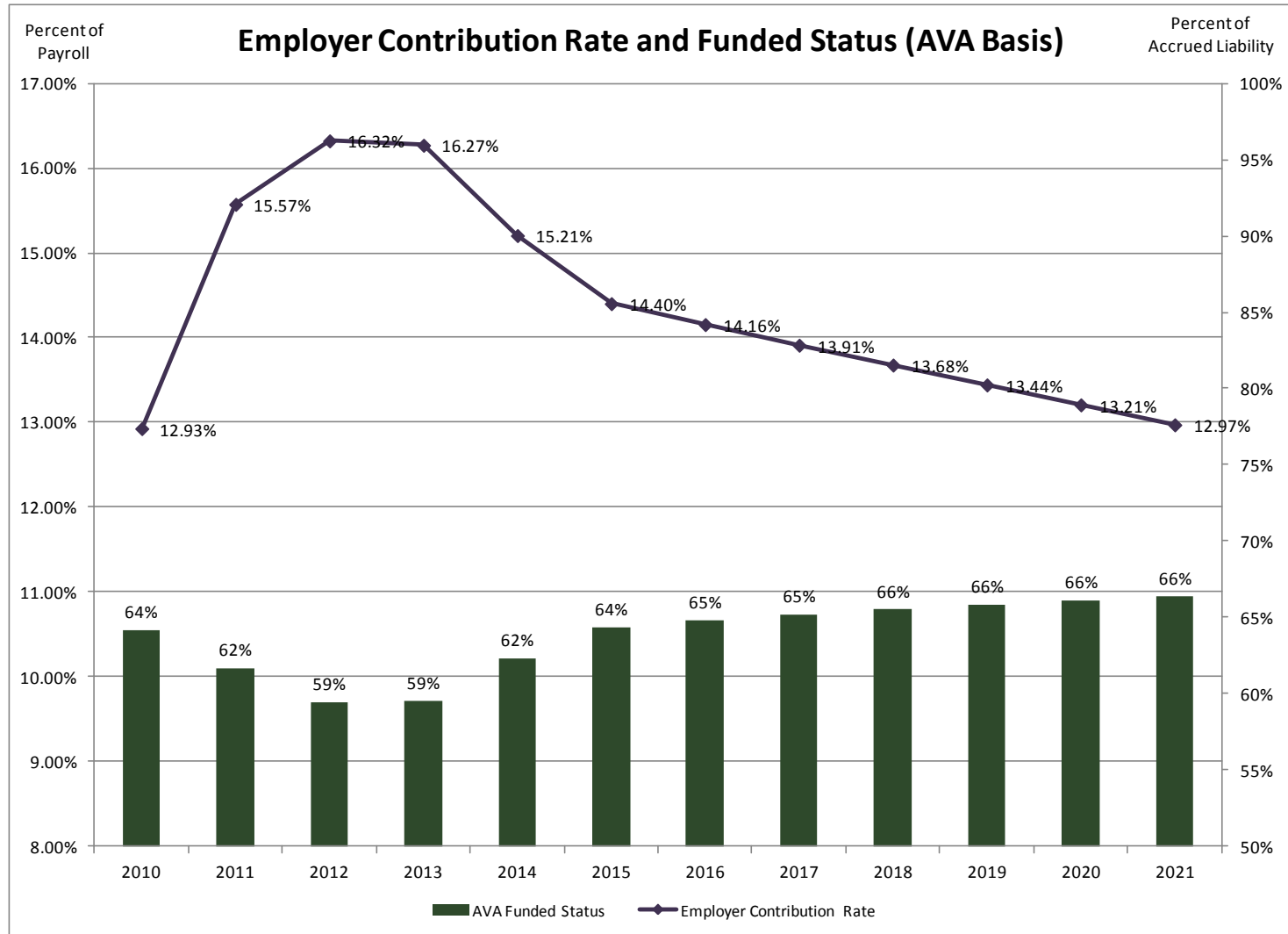
Scenario 14: Measuring Risk Areas: What happens if payroll reduces 10% in the next year

Results Section

\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	5,187,201	5,407,657	5,637,482	5,877,075	6,126,851	6,387,242	6,658,700	6,941,694	7,236,716	7,544,277	7,864,909
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,455,184	35,973,049	37,503,981	39,045,207	40,612,437	42,209,185	43,833,767	45,476,391	47,138,298	48,821,571
Market Value of Assets (MVA)	16,788,214	20,377,457	21,514,094	22,713,476	23,933,329	25,127,197	26,308,039	27,506,697	28,713,281	29,929,422	31,156,939	32,397,620
Actuarial Value of Assets (AVA)	20,143,426	20,330,959	20,490,259	21,395,989	23,370,381	25,127,195	26,308,038	27,506,695	28,713,279	29,929,421	31,156,938	32,397,618
UAAL (AAL-AVA)	11,256,562	12,624,024	13,964,925	14,577,060	14,133,601	13,918,012	14,304,399	14,702,490	15,120,488	15,546,970	15,981,361	16,423,953
MVA Funded Status	53%	62%	62%	63%	64%	64%	65%	65%	66%	66%	66%	66%
AVA Funded Status	64%	62%	59%	59%	62%	64%	65%	65%	66%	66%	66%	66%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	16%	8%	6%	9%	12%	12%	11%	9%	8%	7%	5%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	24.57%	25.32%	25.27%	24.21%	23.40%	23.16%	22.91%	22.68%	22.44%	22.21%	21.97%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	15.57%	16.32%	16.27%	15.21%	14.40%	14.16%	13.91%	13.68%	13.44%	13.21%	12.97%
Estimated Employer Dollars	776,819	842,177	920,174	956,236	931,599	919,889	942,554	965,714	989,822	1,014,208	1,038,820	1,063,655
Input Recapp												
Projected Actual ROR		25.04%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Projected Payroll Growth		-10.00%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period		30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		8.00%										
Reset AVA to MVA in 2011?		No										

Scenario 14: Measuring Risk Areas: What happens if payroll reduces 10% in the next year



Scenario 15: Measuring Risk Areas: What happens if payroll reduces 5% in each of the next 3 years

Results Section

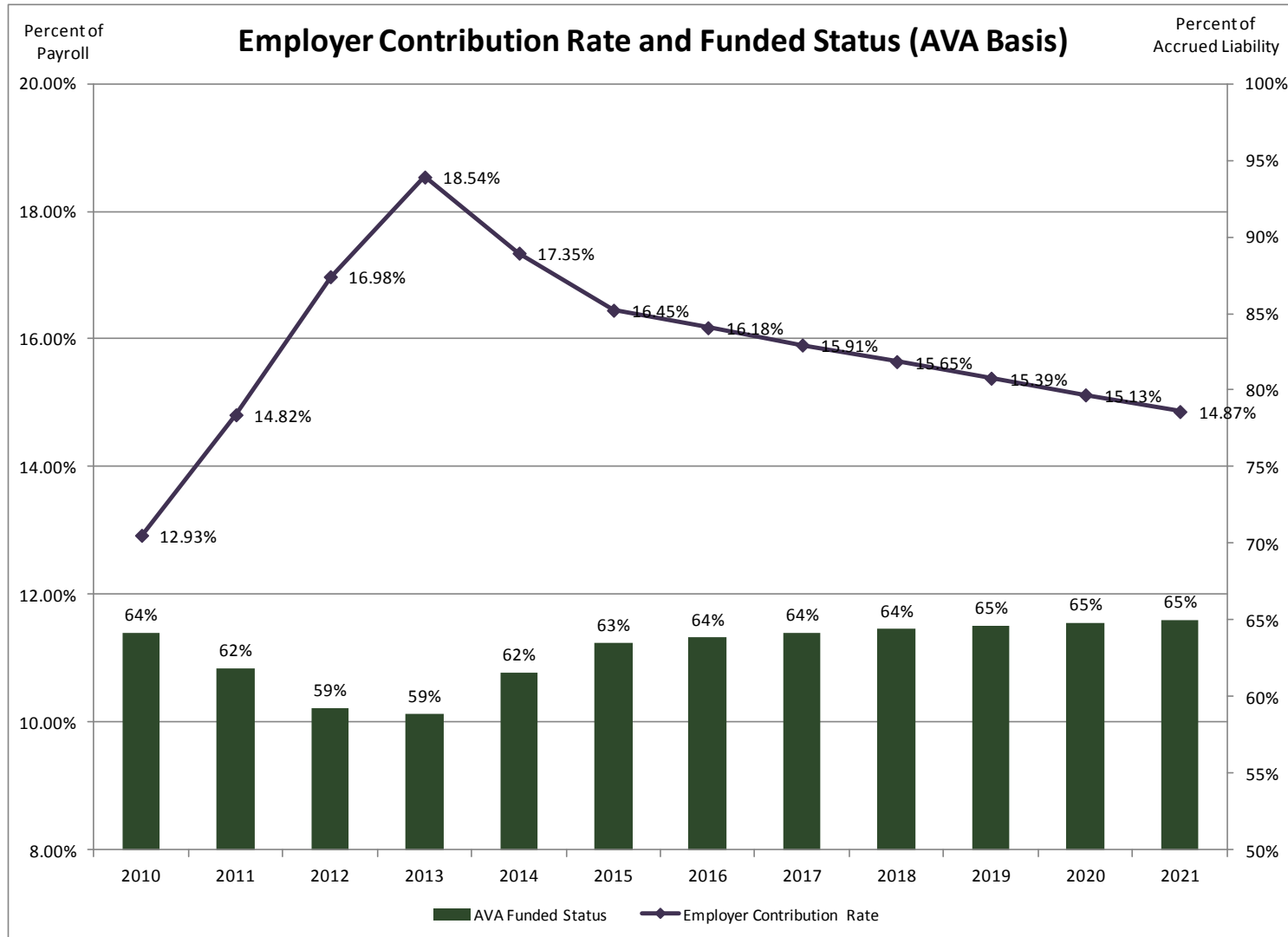
\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	5,475,378	5,201,609	4,941,529	5,151,544	5,370,485	5,598,730	5,836,676	6,084,735	6,343,336	6,612,928	6,893,977
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,488,691	35,985,430	37,437,445	38,890,574	40,359,691	41,847,408	43,351,060	44,859,794	46,373,702	47,893,620
Market Value of Assets (MVA)	16,788,214	20,377,457	21,420,441	22,462,753	23,593,376	24,689,285	25,762,612	26,842,513	27,918,109	28,989,958	30,058,718	31,124,918
Actuarial Value of Assets (AVA)	20,143,426	20,383,536	20,436,040	21,171,555	23,043,573	24,689,285	25,762,612	26,842,513	27,918,109	28,989,958	30,058,718	31,124,918
UAAL (AAL-AVA)	11,256,562	12,571,447	14,052,652	14,813,874	14,393,872	14,201,289	14,597,079	15,004,895	15,432,951	15,869,836	16,314,983	16,768,701
MVA Funded Status	53%	62%	62%	62%	63%	63%	64%	64%	64%	65%	65%	65%
AVA Funded Status	64%	62%	59%	59%	62%	63%	64%	64%	64%	65%	65%	65%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%
Active Liab/Remaining AVA	23%	16%	8%	4%	7%	10%	8%	7%	5%	2%	0%	0%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	23.82%	25.98%	27.54%	26.35%	25.45%	25.18%	24.91%	24.65%	24.39%	24.13%	23.87%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	14.82%	16.98%	18.54%	17.35%	16.45%	16.18%	15.91%	15.65%	15.39%	15.13%	14.87%
Estimated Employer Dollars	776,819	845,710	920,674	955,022	931,632	921,160	944,303	967,981	992,652	1,017,644	1,042,911	1,068,454

Input Recapp

Projected Actual ROR	24.61%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Projected Payroll Growth	-5.00%	-5.00%	-5.00%	-5.00%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period	30	30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	50%
Investment Return Assumption on and after 2011	8.00%											
Reset AVA to MVA in 2011?	No											

Scenario 15: Measuring Risk Areas: What happens if payroll reduces 5% in each of the next 3 years



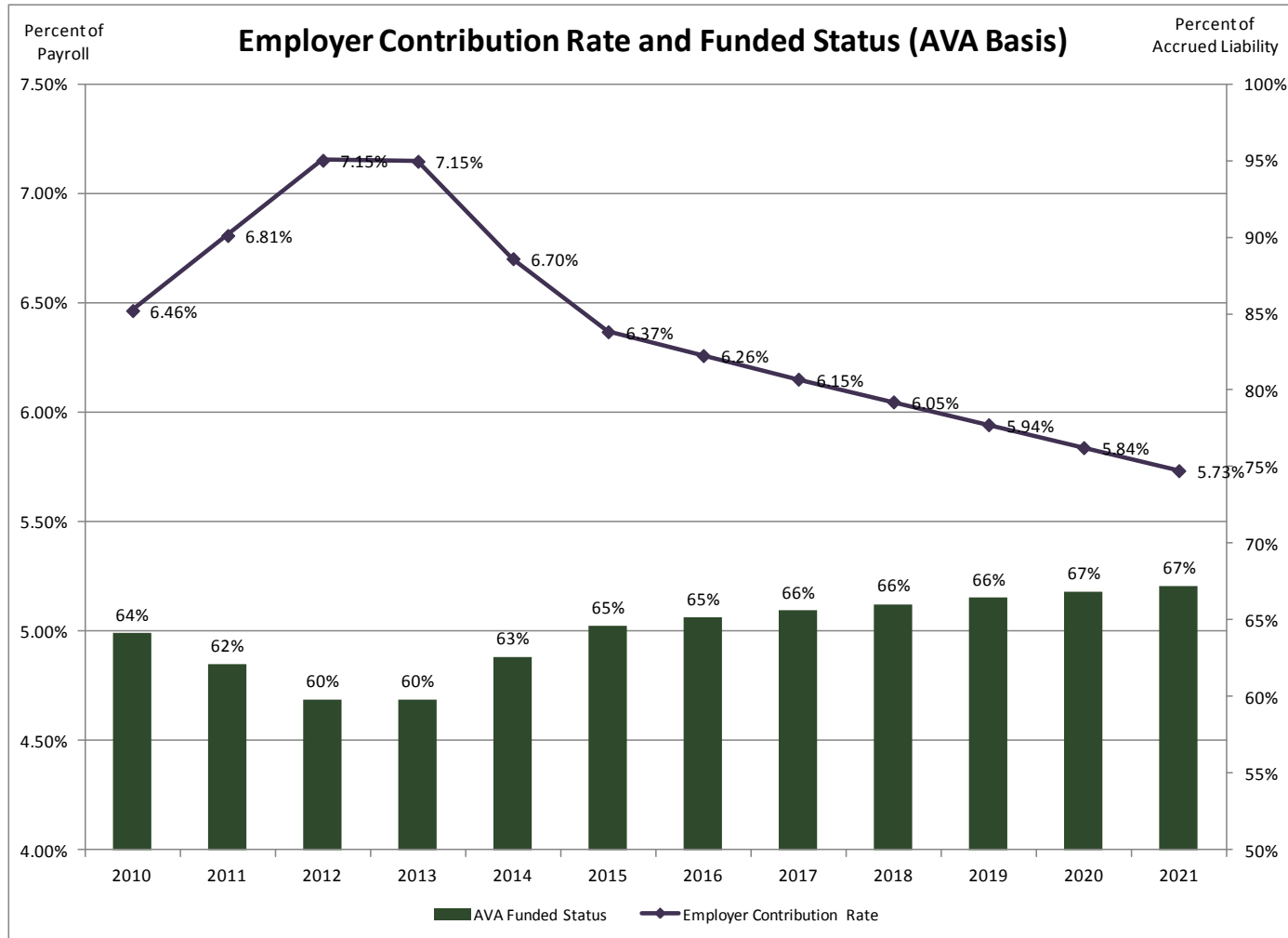
Scenario 16: Measuring Risk Areas: What if plan benefits (and assets) were ½ of current benefits for all members

Results Section

\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,008,507	6,263,869	6,530,083	6,807,612	7,096,935	7,398,555	7,712,994	8,040,796	8,382,530	8,738,787	9,110,186
Actuarial Accrued Liability (AAL)	15,699,994	16,477,492	17,275,340	18,087,557	18,912,348	19,748,871	20,605,572	21,484,847	22,386,549	23,306,530	24,246,227	25,207,561
Market Value of Assets (MVA)	8,394,107	10,188,729	10,796,540	11,442,212	12,105,131	12,762,637	13,421,823	14,097,728	14,786,104	15,488,519	16,206,701	16,942,426
Actuarial Value of Assets (AVA)	10,071,713	10,235,518	10,337,152	10,818,488	11,841,167	12,762,637	13,421,823	14,097,728	14,786,104	15,488,519	16,206,701	16,942,426
UAAL (AAL-AVA)	5,628,281	6,241,973	6,938,188	7,269,069	7,071,181	6,986,234	7,183,749	7,387,120	7,600,445	7,818,011	8,039,526	8,265,135
MVA Funded Status	53%	62%	62%	63%	64%	65%	65%	66%	66%	66%	67%	67%
AVA Funded Status	64%	62%	60%	60%	63%	65%	65%	66%	66%	66%	67%	67%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	10%	7%	11%	14%	14%	14%	14%	13%	13%	13%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	10.96%	11.31%	11.65%	11.65%	11.20%	10.87%	10.76%	10.65%	10.55%	10.44%	10.34%	10.23%
Employee Contribution Rate	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%	4.50%
Employer Contribution Rate	6.46%	6.81%	7.15%	7.15%	6.70%	6.37%	6.26%	6.15%	6.05%	5.94%	5.84%	5.73%
Estimated Employer Dollars	388,409	426,403	466,964	486,493	475,606	471,114	482,734	494,587	506,900	519,334	531,863	544,484
Input Recapp												
Projected Actual ROR		23.90%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Projected Payroll Growth		4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period		30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		8.00%										
Reset AVA to MVA in 2011?		No										

Scenario 16: Measuring Risk Areas: What if plan benefits (and assets) were ½ of current benefits for all members



**Scenario 17: Measuring Risk Areas: What if plan Assumed Wage Inflation is 4.25% and Actual Wage Inflation is 4.0%
 (Assumed Investment Return of 8.0%)**

Results Section

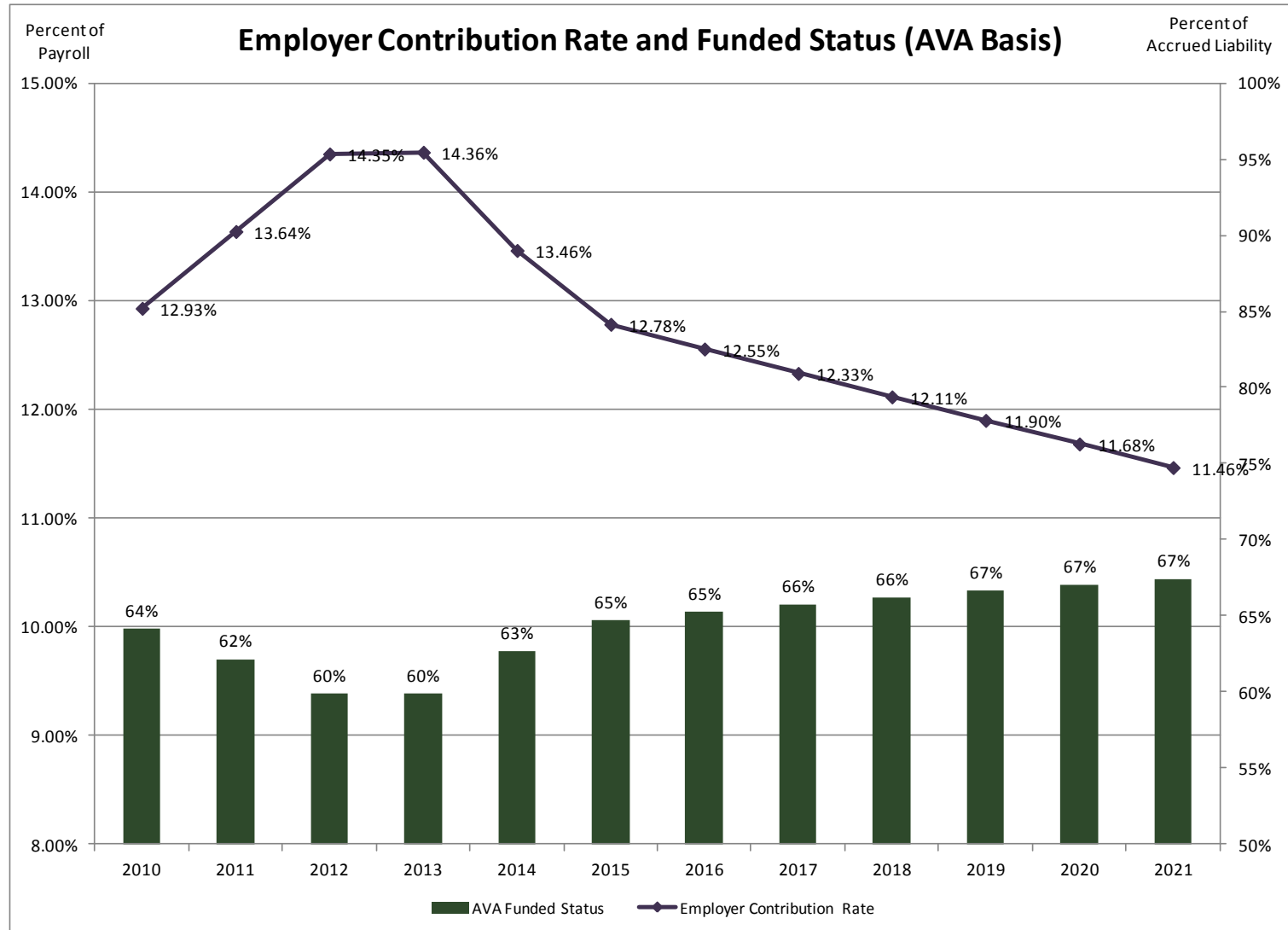
\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	5,994,098	6,233,862	6,483,217	6,758,754	7,046,001	7,345,456	7,657,638	7,983,087	8,322,368	8,676,069	9,044,802
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,549,004	36,169,838	37,813,616	39,480,202	41,186,426	42,937,019	44,731,613	46,561,842	48,430,494	50,341,323
Market Value of Assets (MVA)	16,788,214	20,377,457	21,599,589	22,895,456	24,227,589	25,548,583	26,872,572	28,229,468	29,610,712	31,019,371	32,458,820	33,932,531
Actuarial Value of Assets (AVA)	20,143,426	20,478,175	20,686,166	21,651,576	23,701,444	25,548,581	26,872,570	28,229,466	29,610,710	31,019,369	32,458,818	33,932,530
UAAL (AAL-AVA)	11,256,562	12,476,808	13,862,838	14,518,262	14,112,172	13,931,621	14,313,856	14,707,553	15,120,903	15,542,473	15,971,676	16,408,793
MVA Funded Status	53%	62%	63%	63%	64%	65%	65%	66%	66%	67%	67%	67%
AVA Funded Status	64%	62%	60%	60%	63%	65%	65%	66%	66%	67%	67%	67%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	10%	7%	11%	14%	15%	15%	14%	13%	13%	13%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.64%	23.35%	23.36%	22.46%	21.78%	21.55%	21.33%	21.11%	20.90%	20.68%	20.46%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.64%	14.35%	14.36%	13.46%	12.78%	12.55%	12.33%	12.11%	11.90%	11.68%	11.46%
Estimated Employer Dollars	776,819	852,068	932,490	970,848	948,477	938,876	961,377	984,333	1,008,194	1,032,285	1,056,552	1,080,989

Input Recapp

Projected Actual ROR	23.84%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Projected Payroll Growth	4.00%	4.00%	4.00%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period	30	30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	50%
Investment Return Assumption on and after 2011	8.00%											
Reset AVA to MVA in 2011?	No											
Wage Growth Assumption	4.25%											

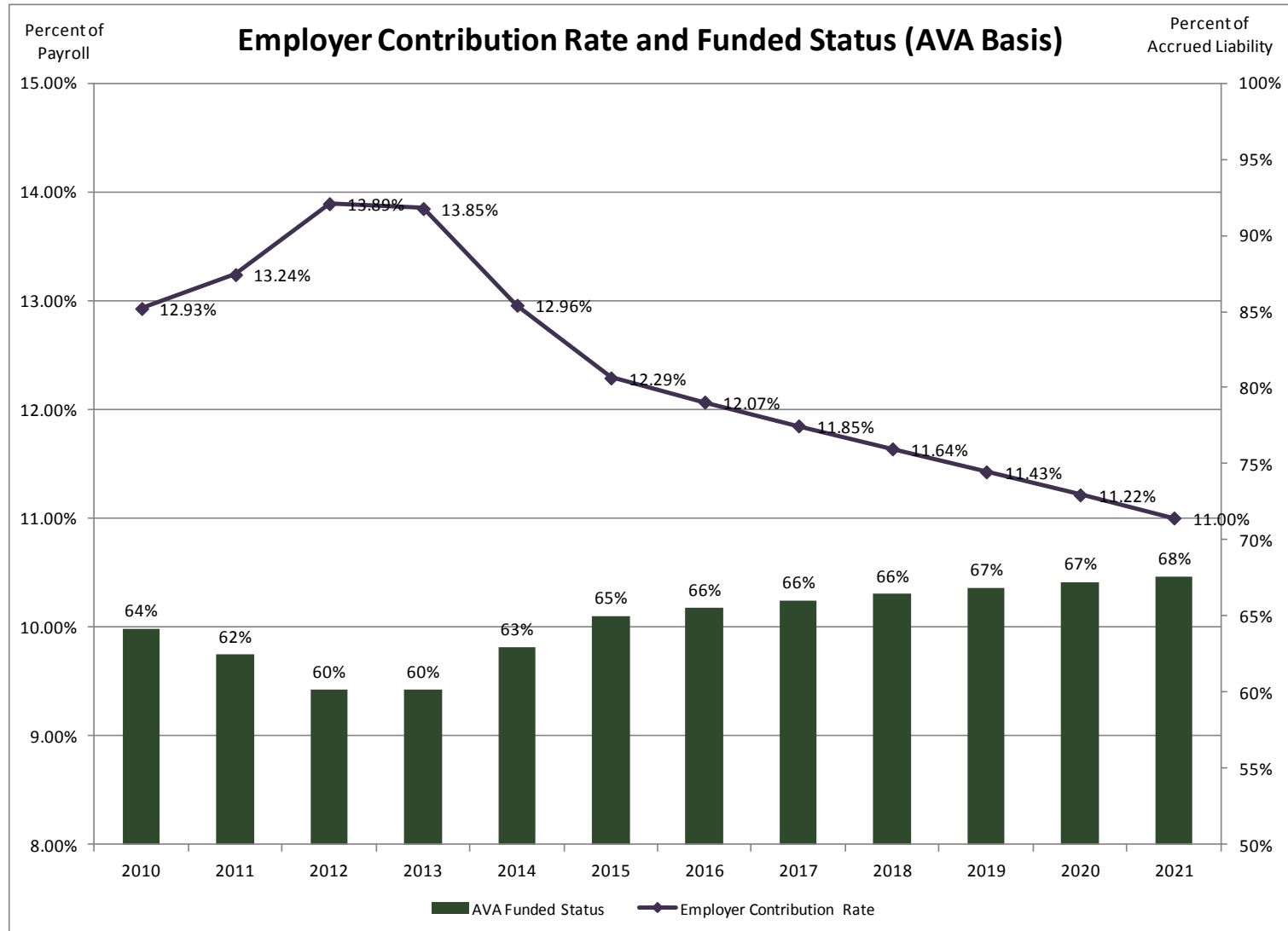
**Scenario 17: Measuring Risk Areas: What if plan Assumed Wage Inflation is 4.25% and Actual Wage Inflation is 4.0%
 (Assumed Investment Return of 8.0%)**



**Scenario 18: Measuring Risk Areas: What if plan Assumed Wage Inflation is 4.00% and Actual Wage Inflation is 4.50%
 (Assumed Investment Return of 8.0%)**

Results Section												
\$s in Thousands												
Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	6,022,916	6,293,947	6,577,175	6,856,705	7,148,115	7,451,910	7,768,616	8,098,782	8,442,980	8,801,807	9,175,884
Actuarial Accrued Liability (AAL)	31,399,988	32,790,208	34,361,092	35,960,018	37,583,451	39,227,935	40,910,158	42,634,693	44,401,002	46,200,537	48,035,888	49,910,596
Market Value of Assets (MVA)	16,788,214	20,377,457	21,587,841	22,874,347	24,191,718	25,496,322	26,802,182	28,139,061	29,498,234	30,882,591	32,295,314	33,739,667
Actuarial Value of Assets (AVA)	20,143,426	20,483,432	20,678,361	21,633,097	23,666,890	25,496,323	26,802,183	28,139,062	29,498,235	30,882,592	32,295,315	33,739,668
UAAL (AAL-AVA)	11,256,562	12,306,776	13,682,731	14,326,921	13,916,561	13,731,613	14,107,975	14,495,631	14,902,767	15,317,945	15,740,573	16,170,928
MVA Funded Status	53%	62%	63%	64%	64%	65%	66%	66%	66%	66%	67%	68%
AVA Funded Status	64%	62%	60%	60%	63%	65%	66%	66%	66%	66%	67%	68%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	10%	7%	11%	14%	14%	14%	14%	13%	13%	12%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.24%	22.89%	22.85%	21.96%	21.29%	21.07%	20.85%	20.64%	20.43%	20.22%	20.00%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.24%	13.89%	13.85%	12.96%	12.29%	12.07%	11.85%	11.64%	11.43%	11.22%	11.00%
Estimated Employer Dollars	776,819	831,328	911,515	949,462	926,286	915,884	937,556	959,652	982,624	1,005,792	1,029,103	1,052,547
Input Recapp												
Projected Actual ROR		23.80%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Projected Payroll Growth		4.50%	4.50%	4.50%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period		30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		8.00%										
Reset AVA to MVA in 2011?		No										
Wage Growth Assumption		4.00%										

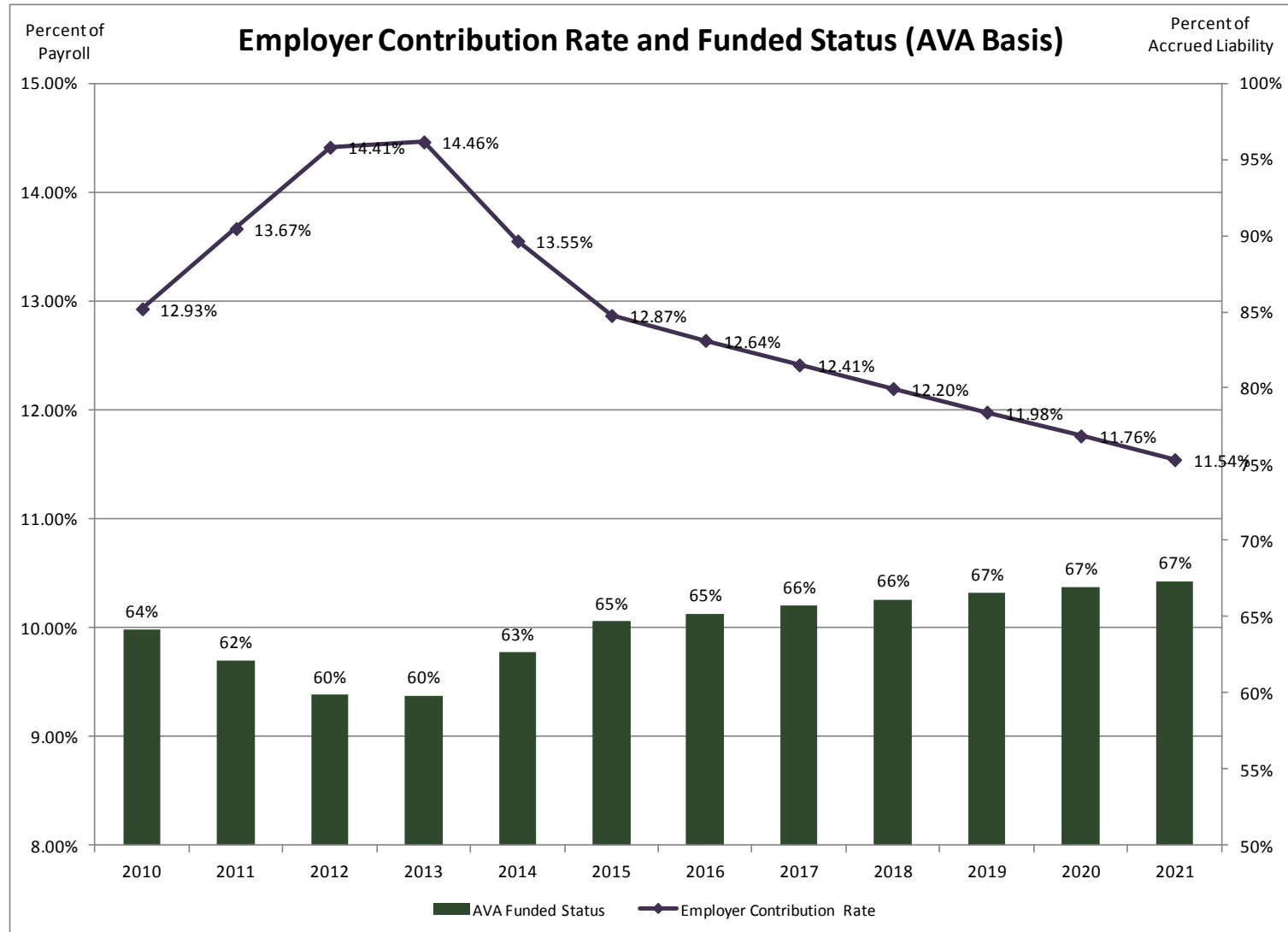
**Scenario 18: Measuring Risk Areas: What if plan Assumed Wage Inflation is 4.00% and Actual Wage Inflation is 4.50%
 (Assumed Investment Return of 8.0%)**



**Scenario 19: Measuring Risk Areas: What if plan Assumed Wage Inflation is 4.25% and Actual Wage Inflation is 3.75%
 (Assumed Investment Return of 8.0%)**

Results Section												
\$s in Thousands												
Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	5,979,690	6,203,928	6,436,575	6,710,130	6,995,310	7,292,611	7,602,547	7,925,655	8,262,495	8,613,651	8,979,732
Actuarial Accrued Liability (AAL)	31,399,988	32,954,983	34,547,328	36,164,570	37,802,572	39,462,726	41,161,806	42,904,478	44,690,303	46,510,843	48,368,801	50,267,847
Market Value of Assets (MVA)	16,788,214	20,377,457	21,594,479	22,882,885	24,208,944	25,523,156	26,839,594	28,188,146	29,560,181	30,958,691	32,386,969	33,848,399
Actuarial Value of Assets (AVA)	20,143,426	20,475,546	20,679,085	21,637,693	23,682,145	25,523,157	26,839,596	28,188,148	29,560,183	30,958,693	32,386,972	33,848,401
UAAL (AAL-AVA)	11,256,562	12,479,437	13,868,243	14,526,877	14,120,427	13,939,569	14,322,211	14,716,330	15,130,120	15,552,149	15,981,830	16,419,445
MVA Funded Status	53%	62%	63%	63%	64%	65%	65%	66%	66%	67%	67%	67%
AVA Funded Status	64%	62%	60%	60%	63%	65%	65%	66%	66%	67%	67%	67%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	10%	7%	11%	14%	14%	14%	14%	13%	13%	13%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.67%	23.41%	23.46%	22.55%	21.87%	21.64%	21.41%	21.20%	20.98%	20.76%	20.54%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.67%	14.41%	14.46%	13.55%	12.87%	12.64%	12.41%	12.20%	11.98%	11.76%	11.54%
Estimated Employer Dollars	776,819	851,892	932,142	970,351	947,952	938,328	960,848	983,825	1,007,711	1,031,829	1,056,126	1,080,596
Input Recapp												
Projected Actual ROR		23.87%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Projected Payroll Growth		3.75%	3.75%	3.75%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period		30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4		0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
Investment Return Assumption on and after 2011		8.00%										
Reset AVA to MVA in 2011?		No										
Wage Growth Assumption		4.25%										

**Scenario 19: Measuring Risk Areas: What if plan Assumed Wage Inflation is 4.25% and Actual Wage Inflation is 3.75%
 (Assumed Investment Return of 8.0%)**



**Scenario 20: Measuring Risk Areas: What if plan Assumed Wage Inflation is 4.00% and Actual Wage Inflation is 3.75%
 (Assumed Investment Return of 8.0%)**

Results Section

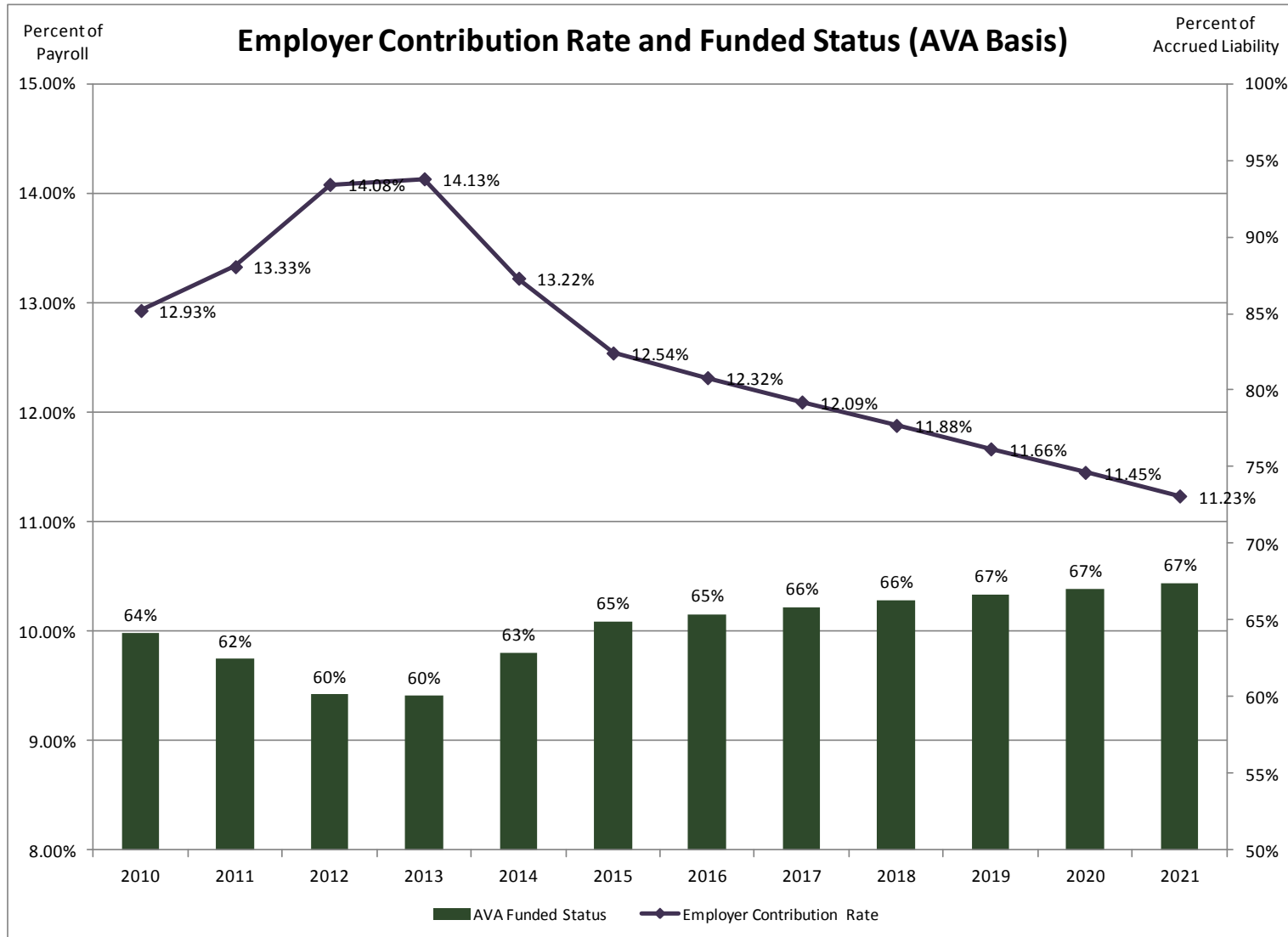
\$s in Thousands

Year Ending June 30,	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Payroll	5,763,556	5,979,690	6,203,928	6,436,575	6,710,130	6,995,310	7,292,611	7,602,547	7,925,655	8,262,495	8,613,651	8,979,732
Actuarial Accrued Liability (AAL)	31,399,988	32,790,208	34,356,161	35,944,490	37,550,844	39,176,315	40,837,415	42,538,529	44,278,914	46,049,801	47,853,537	49,693,405
Market Value of Assets (MVA)	16,788,214	20,377,457	21,572,747	22,837,178	24,136,596	25,421,152	26,704,693	28,016,903	29,348,853	30,703,207	32,082,906	33,490,951
Actuarial Value of Assets (AVA)	20,143,426	20,475,546	20,657,353	21,591,986	23,609,797	25,421,155	26,704,695	28,016,906	29,348,856	30,703,210	32,082,910	33,490,955
UAAL (AAL-AVA)	11,256,562	12,314,662	13,698,809	14,352,504	13,941,046	13,755,160	14,132,720	14,521,623	14,930,058	15,346,590	15,770,627	16,202,450
MVA Funded Status	53%	62%	63%	64%	64%	65%	65%	66%	66%	67%	67%	67%
AVA Funded Status	64%	62%	60%	60%	63%	65%	65%	66%	66%	67%	67%	67%
Retiree Liab/AVA (Max 100%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Liab/Remaining AVA	23%	17%	10%	7%	11%	14%	14%	14%	13%	12%	11%	11%
Year Beginning July 1,	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Contribution Rate	21.93%	22.33%	23.08%	23.13%	22.22%	21.54%	21.32%	21.09%	20.88%	20.66%	20.45%	20.23%
Employee Contribution Rate	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
Employer Contribution Rate	12.93%	13.33%	14.08%	14.13%	13.22%	12.54%	12.32%	12.09%	11.88%	11.66%	11.45%	11.23%
Estimated Employer Dollars	776,819	830,895	910,658	948,251	925,003	914,541	936,282	958,454	981,510	1,004,771	1,028,184	1,051,741

Input Recapp

Projected Actual ROR	23.87%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%	8.00%
Projected Payroll Growth	3.75%	3.75%	3.75%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%
Amortization Period	30	30	30	30	30	30	30	30	30	30	30	30
% of Payroll in Tier 4	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	50%
Investment Return Assumption on and after 2011	8.00%											
Reset AVA to MVA in 2011?	No											
Wage Growth Assumption	4.00%											

**Scenario 20: Measuring Risk Areas: What if plan Assumed Wage Inflation is 4.00% and Actual Wage Inflation is 3.75%
 (Assumed Investment Return of 8.0%)**



Scenario 21: Measuring Risk Areas: Mortality – How does mortality affect valuation results

Present Provisions:

- The current standard post-retirement mortality tables are the 1994 Group Annuity mortality tables for Males and Females.

Proposed Provisions:

- The proposed standard post-retirement mortality tables are the RP 2000 mortality tables for Males and Females projected 22 years with scale AA.

Estimated Cost Increase	
Employer Normal Cost	0.22%
Unfunded Accrued Liability %	0.09%
Total Change in Employer Contributions	0.31%
Unfunded Accrued Liability \$	\$ 90,174,629
Estimated Increase in First Year Employer Dollar Contributions	\$ 17,591,747

Scenario 22: Measuring Risk Areas: Rates of retirement – What if retirement is 10% greater than assumed

Present Provisions:

- The present provisions are the retirement rates found in the 2010 actuarial valuation.

Proposed Provisions:

- The retirement rates found in the 2010 actuarial valuation increased by 10%

Estimated Cost Increase	
Employer Normal Cost	0.21%
Unfunded Accrued Liability %	(0.04%)
Total Change in Employer Contributions	0.17%
Unfunded Accrued Liability \$	\$ (45,902,348)
Estimated Increase in First Year Employer Dollar Contributions	\$ 9,527,152

APPENDIX

Comments

All valuations results are based on June 30, 2010 valuations. Unless otherwise stated, valuations are based on the same methods and assumptions used in the June 30, 2010 valuation and detailed in the June 30, 2010 valuation report produced by Cavanaugh Macdonald Consulting LLC and dated October 19, 2010. Valuations are also based on member and financial data as of June 30 2010.

Member data was provided by PERS actuary for the purposes of an actuarial audit that was performed in the spring of 2011. PERS provided explicit permission for GRS to also use this data for this engagement.

The June 30, 2011 market value of assets was also provided by PERS and is used in the projections.

The determination of active funded status and retiree funded status is based on allocating all assets to retiree liabilities first and then to active liabilities.

Re recommend that any follow up studies include a replacement ratio study of the proposed benefits to determine the adequacy of the proposed benefits and if the design meets the benefit adequacy goals of the designers.

Survey information was developed from publically available information, including information from:

- The Public Funds Survey
- The Boston College Database
- The Retirement Systems' websites
- The Retirement System Comprehensive Annual Financial Reports
- www.Nasra.org