

DISCUSSION CALENDAR – AGENDA ITEM NO. 14
BOARD OF DIRECTORS MEETING
September 27, 2012

TO: Board of Directors, Orange County Fire Authority

FROM: Lori Zeller, Assistant Chief
Business Services Department

SUBJECT: **Long Term Liability Study**

Summary:

This agenda item is submitted to provide information on the Orange County Fire Authority's (OCFA) total long term liabilities.

Committee Action:

At its July 11, 2012, meeting, the Budget and Finance Committee reviewed and unanimously recommended approval of this item.

Recommended Action:

Receive and file, and give staff any further direction, if desired.

Background:

In order to determine an agency's financial stability, one must look at all of its long term obligations or liabilities, not just pensions. The attached Liability Study examines all of OCFA's long-term liabilities including:

1. Defined Benefit Pension Plan
2. Defined Benefit Retiree Medical Plan
3. Lease Purchase Agreements (helicopters)
4. Workers Compensation Claims
5. Accrued Compensated Absences (accumulated sick and vacation payouts)

Although the OCFA has already taken steps to reduce some of its long-term liabilities, it must continue to find additional ways to mitigate the impacts of this extended economic downturn and ensure the long-term viability of the organization.

Impact to Cities/County:

Future impacts to our member agencies are unknown at this time, and will depend upon the outcome of actions currently underway, as listed in the attached Liability Study.

Fiscal Impact:

See Attachment.

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Attachment:

OCFA 2012 Long Term Liability Study

Exhibit A - The Evolution of OCERS Unfunded Actuarial Accrued Liability 12/31/11

Exhibit B - The Segal Company Projection of Retirement Costs 11/11/11

Exhibit C - A Review of Pension Obligation Bond Study OCFA BFC Staff Report
w/Attachments 03/09/11

Exhibit D - Cost-of-Living Adjustment OCFA Executive Committee Staff Report
w/Attachments 06/28/12

ORANGE COUNTY FIRE AUTHORITY



2012

LIABILITY STUDY

THE OCFA'S LONG TERM LIABILITES

AUGUST 2012

THE OCFA'S LONG TERM LIABILITY STUDY

I. OBJECTIVE

One of the key components of fiscal responsibility is prudent management of long-term liabilities. The objective of this study is to provide an accurate assessment of the OCFA's *total* long-term obligations.

II. BACKGROUND

OCFA's long term liabilities include:

1. Defined Benefit Pension Plan
2. Defined Benefit Retiree Medical Plan
3. Lease Purchase Agreements (helicopters)
4. Workers Compensation Claims
5. Accrued Compensated Absences (accumulated sick and vacation payouts)

OCFA's biggest long-term challenges are pensions, retiree medical for current and retired employees, and workers' compensation claims. These costs are expected to increase dramatically over the coming decades, due to population aging and increases in healthcare costs. All three of these liabilities are currently underfunded.

DEFINED BENEFIT PENSION PLAN

In a *defined benefit plan*, employees are promised *specific benefits* upon retirement. For example, a pension plan may promise employees that they will receive an annual retirement income determined in accordance with an agreed-upon formula (e.g., predetermined percentage of annual earnings x number of years of service).

The OCFA participates in the Orange County Employees' Retirement System (OCERS), a cost sharing multiple-employer, defined benefit pension plan. All OCFA regular, full-time, and part-time employees become members of OCERS upon employment, and the OCFA makes periodic contributions to OCERS as part of the funding process. The contributions submitted to OCERS are divided into employer and employee contributions. The combination of these contributions and investment income from OCERS' investments are structured to fund the employees' retirement benefits by the time the employees retire.

The OCFA contributes to two employee categories identified as Safety members and General members. In October 2002, Safety members received the enhanced benefit formula of 3% @ 50. Initially, Safety members contributed 2% in 2002 and 4% starting in 2003. After October 2004, the contribution ended. Based on recent negotiations, Firefighter Safety employees hired prior to January 1, 2011, started a phased-in contribution in October 2010 of 2.5%. The contribution is currently 5.0% and will increase to 7.0% in October 2012 and 9.0% in October 2013. Chief Officer Safety members have a slightly different phase-in: 2.75% in 2011, 5.5% in 2012, 8.25% in 2013 and 9.0% in 2014.

Employees hired after January 1, 2011, contribute 9.0% upon commencement of employment. Employees hired after July 1, 2012, will be included in a new tier plan with a benefit formula of 3% @ 55.

In July 2004, an enhanced retirement benefit of 2.7% @ 55 went into effect for General members with employees contributing 6.0% since inception. Effective January 2011, members of the Orange County Employees' Association (OCEA) agreed to phased-in increases to their reimbursement rate to 7.25% in January 2011, 8.50% by July 2011 and 9.0% by February 2012. Employees hired after July 1, 2011, contribute 9.0% upon commencement of employment, and will be included in a new tier plan with a benefit formula of 2% @ 55.

Retirement costs represent approximately \$62.8 million or 22% of the Authority's FY 2012/13 General Fund budget. Each year, the Authority receives its retirement rates from OCERS. The total retirement rate has two components: the Normal Cost Component plus the current year's cost for the Unfunded Actuarial Accrued Liability (UAAL). The Normal Cost Component is the cost to pay for the current year's value of retirement benefits as earned. The UAAL Component is the accrued liability for past services which were not funded by prior contributions and investments.

Technically speaking, the UAAL is determined by the actuary and is the difference between the present value of accrued liabilities and the value of assets as of a specific date. This amount changes over time as a result of changes in accrued benefits, pay levels, rates of return on investments, changes in actuarial assumptions, and changes in the demographics of the employee base. The UAAL is currently being amortized, or paid down, over a remaining 23 years. As of December 31, 2011, OCERS is 67.03% funded with a UAAL of \$4.4 billion. OCFA's portion of the UAAL is approximately 8.0%.

Based on the December 31, 2011 valuation by OCERS, the Authority's total UAAL was \$365.5 million with \$306.7 million or 84.0% attributed to Safety members and \$58.7 million or 16.0% attributed to General members. The OCFA reduces its UAAL over time as part of the annual required pension contribution to OCERS as shown below:

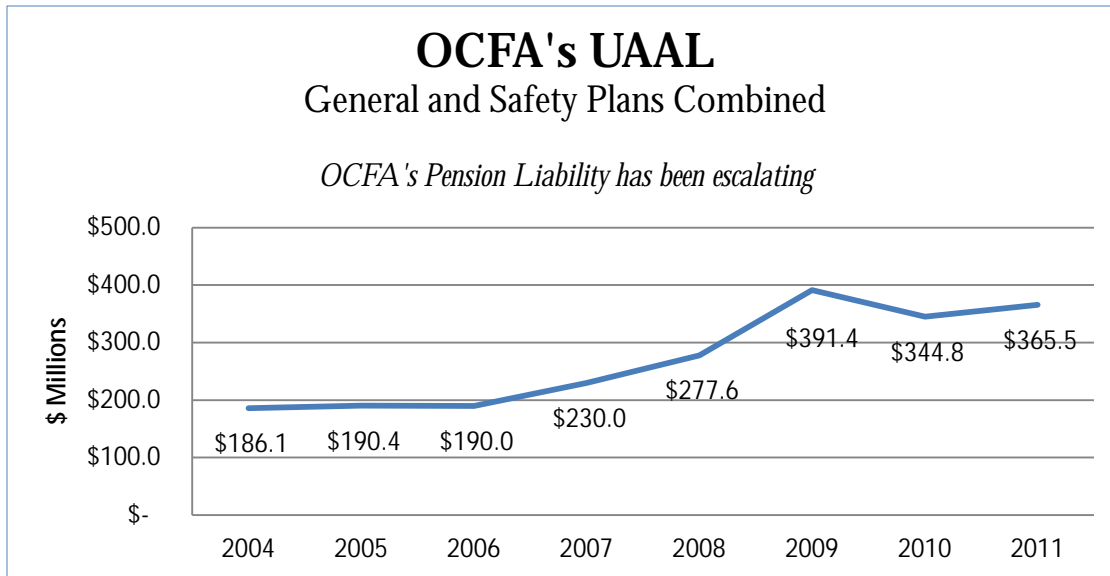
General (2.7% @ 55 and 2.0% @ 55 combined)

<u>Employer Rate</u>	<u>2011 Valuation</u>	<u>2010 Valuation</u>
Normal Cost	12.30%	11.81%
<u>UAAL</u>	<u>20.43%</u>	<u>16.14%</u>
Total *	32.73%	27.95%

Safety (3.0% at 50 and 3% @ 55 combined)

<u>Employer Rate</u>	<u>2011 Valuation</u>	<u>2010 Valuation</u>
Normal Cost	23.49%	21.54%
<u>UAAL</u>	<u>19.66%</u>	<u>23.92%</u>
Total *	43.15%	45.46%

*Note: Totals do not include the *Employee Rates*, which vary from employee to employee based on age of entry. *Employee Rates* range from 8.0%-13.5% for General members and 10.5%-18.0% for Safety members.



Two events have the greatest impact on plan funding: (1) plan changes, namely benefit formula changes and (2) differing actual experience requiring a modification in assumptions to reflect reality such as life expectancy. Other assumptions that impact the funding and UAAL include:

1. The assumed rate of return
2. The rate of increase in salaries
3. Member mortality
4. The age at which members choose to retire
5. How many members become disabled
6. How many members terminate their service earlier than anticipated

The assumed rate of return, also known as the discount rate, is a critical pending issue impacting OCFA's UAAL. The higher the discount rate, the lower the present value of pension assets needed to meet future pension obligations. A lower discount rate increases the current unfunded pension liabilities. In 2011, the OCERS actuary, The Segal Company, recommended that OCERS lower its assumed rate of return to 7.25% preferably, or 7.50% at a minimum. The OCERS Board decided to hold the assumed rate of return at 7.75% for one more year until their consultant completed an asset allocation study. The OCERS Board is scheduled to discuss the interest rate assumption in October 2012.

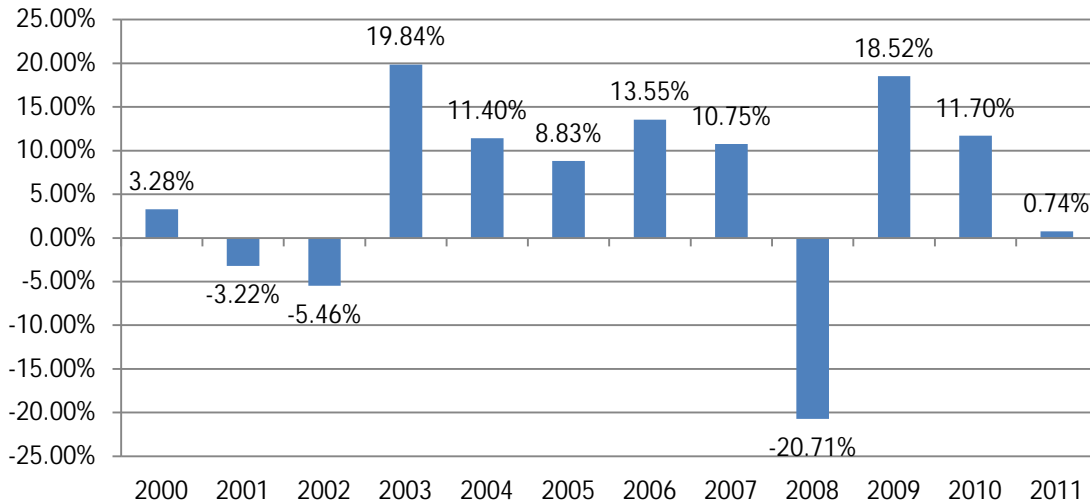
The following chart shows a history of OCERS' investment performance. The timeframe selected is slightly longer than the 10-year timeframe used in OCERS' Annual Report in order to capture a full range of various returns and also capture the most current year available. Although there have been years in which OCERS exceeded its assumed rate of return, the years in which OCERS incurred significant losses, such as the 21% loss in 2008, have a dramatic negative impact. OCERS' average return for the 12 years reflected below is only 5.77%, which is far below OCERS' assumed rate of return of 7.75%. When OCERS' actual return falls below its assumed rate of return, OCFA incurs higher retirement rates/costs.

OCERS' History of Performance

(Based on Fair Value)

December 2000-December 2011

The average rate of return over the last 12 years is 5.77%



OCERS' investment return also impacts the funding level of the entire system, as demonstrated in the following chart. After the 21% loss in 2008, OCERS UAAL increased and its funding level began to drop. Exhibit A, *The Evolution of OCERS UAAL*, provides an explanation of the factors that have impacted the UAAL for years 2001-2011.

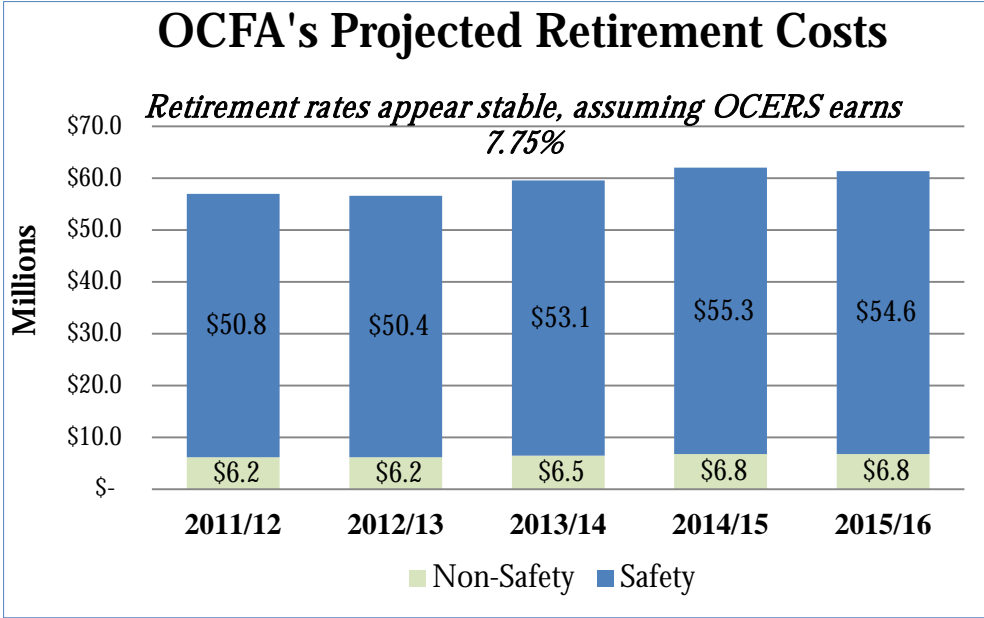
OCERS' Schedule of Funding Progress

(Dollars in Thousands)

OCERS' funding level has declined recently

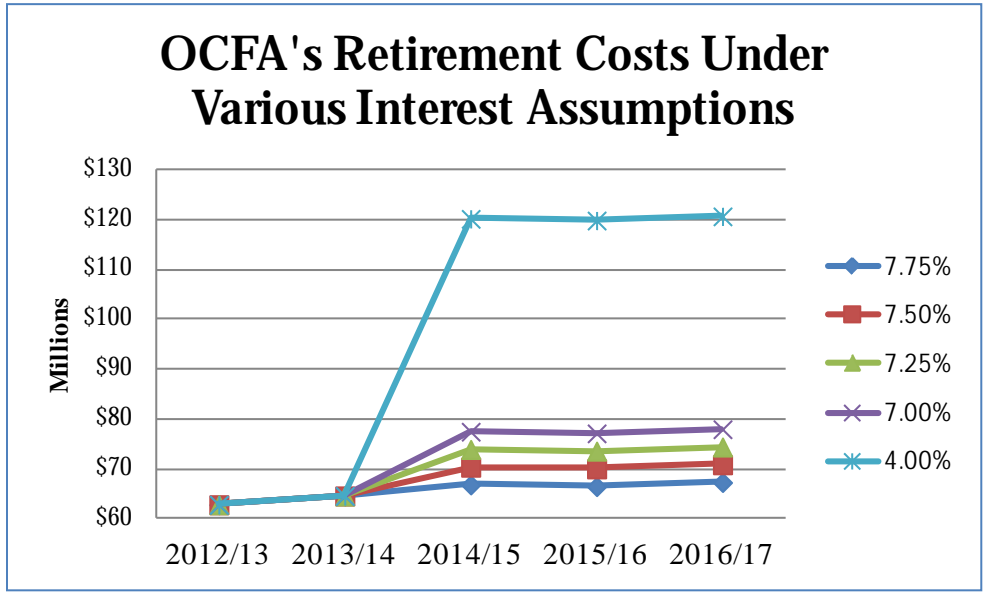
Actuarial Valuation Date December 31	Actuarial Value of Plan Assets (a)	Actuarial Accrued Liability (b)	Total Unfunded Actuarial Accrued Liability (UAAL) (b-a=c)	Funded Ratio (a/b)
2004	\$5,245,821	\$7,403,972	\$2,158,151	70.85%
2005	5,786,617	8,089,627	2,303,010	71.53%
2006	6,466,085	8,765,045	2,298,960	73.77%
2007	7,288,900	9,838,686	2,549,786	74.08%
2008	7,748,380	10,860,715	3,112,335	71.34%
2009	8,154,687	11,858,578	3,703,891	68.77%
2010	8,672,592	12,425,873	3,753,281	69.79%
2011	9,064,355	13,522,978	4,458,623	67.03%

The chart below assumes OCERS will earn its assumed rate of return of 7.75% in future years. In this current market of historically low interest rates where the 30-Year Treasury bond is trading at 2.50%, it is becoming increasingly more difficult for retirement systems that invest long-term to earn their assumed rate of return. This past year, the country's two largest retirement systems, CalPERS and CalSTRS, lowered their assumed rate of return from 7.75% to 7.50%, as have many others.



Note: Retirement costs are net of employee contributions, recently implemented new tiers, and includes savings from OCERS prepayment of 50% each year

Below are additional illustrations of OCFA's retirement costs under different interest rate assumptions prepared by The Segal Company (please see Exhibit B). A 25 basis point change in the interest rate assumption equates to a \$3.5 million increase in OCFA's retirement costs, assuming all other variables stay constant (mortality, age of retirement, etc.)



OCFA Retirement Costs (Millions)					
Int. Rate	2012/13	2013/14	2014/15	2015/16	2016/17
7.75%	\$62.8	\$64.6	\$66.8	\$66.5	\$67.3
7.50%	\$62.8	\$64.6	\$70.4	\$70.0	\$70.9
7.25%	\$62.8	\$64.6	\$73.9	\$73.6	\$74.4
7.00%	\$62.8	\$64.6	\$77.5	\$77.2	\$78.0
4.00%	\$62.8	\$64.6	\$120.2	\$119.9	\$120.7

The tables below demonstrate the impact of the 7.75%, 7.50%, and 7.25% OCERS interest assumptions on OCFA's Five-Year Financial Forecasts.

OCERS interest assumption for FY 14/15 = 7.75%	2012/13	2013/14	2014/15	2015/16	2016/17
Beginning Fund Balance	145,975,722	124,292,564	115,051,798	109,222,957	110,677,410
General Fund Revenues	285,580,091	288,687,701	295,763,069	305,503,288	317,915,329
General Fund Expenditures	282,116,587	287,217,489	294,564,878	296,998,175	300,716,199
Net General Fund Revenue	3,463,504	1,470,212	1,198,191	8,505,114	17,199,130
Less Incremental Increase in 10% GF Op. Cont.	2,717,293	535,928	734,739	243,330	371,802
General Fund Surplus / (Deficit)	746,211	934,284	463,452	8,261,784	16,827,328
Operating Transfer to GF Cashflow	746,211				
Operating Transfer to CIP Funds	-	934,284	463,452	8,261,784	16,827,328
GF Deficit = Draw from Fund Balance	-	-	-	-	-
CIP/Other Revenues	10,347,741	16,670,149	12,786,093	21,450,353	30,664,629
CIP/Other Expenses	35,494,403	26,446,844	19,349,673	20,239,230	21,559,730
CIP Surplus / (Deficit)	(25,146,662)	(9,776,695)	(6,563,580)	1,211,124	9,104,898
Ending Fund Balance	124,292,564	115,051,798	109,222,957	110,677,410	120,154,111

OCERS interest assumption for FY 14/15 = 7.50%	2012/13	2013/14	2014/15	2015/16	2016/17
Beginning Fund Balance	145,975,722	124,292,564	115,051,798	105,638,865	103,509,227
General Fund Revenues	285,580,091	288,687,701	295,769,822	305,510,041	317,914,697
General Fund Expenditures	282,116,587	287,217,489	298,155,722	300,589,018	304,307,043
Net General Fund Revenue	3,463,504	1,470,212	(2,385,900)	4,921,022	13,607,655
Less Incremental Increase in 10% GF Op. Cont.	2,717,293	535,928	1,093,823	243,330	371,802
General Fund Surplus / (Deficit)	746,211	934,284	(3,479,724)	4,677,693	13,235,852
Operating Transfer to GF Cashflow	746,211				
Operating Transfer to CIP Funds	-	934,284		4,677,693	13,235,852
GF Deficit = Draw from Fund Balance	-	-	(3,479,724)	-	-
CIP/Other Revenues	10,347,741	16,670,149	12,322,641	17,866,262	27,073,153
CIP/Other Expenses	35,494,403	26,446,844	19,349,673	20,239,230	21,559,730
CIP Surplus / (Deficit)	(25,146,662)	(9,776,695)	(7,027,032)	(2,372,968)	5,513,423
Ending Fund Balance	124,292,564	115,051,798	105,638,865	103,509,227	109,394,452

OCERS interest assumption for FY 14/15 = 7.25%	2012/13	2013/14	2014/15	2015/16	2016/17
Beginning Fund Balance	145,975,722	124,292,564	115,051,798	102,054,774	96,341,044
General Fund Revenues	285,580,091	288,687,701	295,776,574	305,516,793	317,914,229
General Fund Expenditures	282,116,587	287,217,489	301,746,566	304,179,862	307,897,886
Net General Fund Revenue	3,463,504	1,470,212	(5,969,992)	1,336,931	10,016,343
Less Incremental Increase in 10% GF Op. Cont.	2,717,293	535,928	1,452,908	243,330	371,802
General Fund Surplus / (Deficit)	746,211	934,284	(7,422,900)	1,093,601	9,644,540
Operating Transfer to GF Cashflow	746,211				
Operating Transfer to CIP Funds	-	934,284		1,093,601	9,644,540
GF Deficit = Draw from Fund Balance	-	-	(7,422,900)	-	-
CIP/Other Revenues	10,347,741	16,670,149	12,322,641	14,282,170	23,481,841
CIP/Other Expenses	35,494,403	26,446,844	19,349,673	20,239,230	21,559,730
CIP Surplus / (Deficit)	(25,146,662)	(9,776,695)	(7,027,032)	(5,957,059)	1,922,111
Ending Fund Balance	124,292,564	115,051,798	102,054,774	96,341,044	98,634,957

The analysis of long-term obligations, including pensions, is an important part of credit rating agencies' review of local government credits. A number of credits have been downgraded due in part to pension funding issues.

OCFA has taken steps to increase employee contributions and reduce benefits by establishing new tiers, with the long-term goal to ensure adequate pension funding. However, other factors (such as OCERS' investment performance) are beyond the OCFA's control, yet these factors have a significant impact on determining retirement rates, and ensuring adequate funding.

NEW ACCOUNTING RULES

Currently, many governments disclose pension information in the footnotes of their financial statements and generally only report the contributions they are required to make in a given year, as well as what they actually paid. On June 25, 2012 the Government Accounting Standards Board (GASB) approved new standards that will affect how local governments report their obligation for pension benefits. Previously, no liability was recognized for a local government's obligation for pensions earned by employees as long as the local government paid the actuarially determined annual required contribution (ARC) for funding. Under GASB Statement 68, *Accounting and Financial Reporting for Pensions*, beginning with fiscal years ending June 30, 2014, most governments will begin reporting a liability in their financial statements for the unfunded portion of their retirement plans. Recognition in the financial statements alongside other liabilities such as outstanding bonds, claims and judgments, and long-term leases, will put the pension liability on an equal footing with other long-term obligations.

GASB also changed the formula states and local governments use to convert projected pension benefit payments into present value, based on an assumed "discount rate". The rate used will be based on a single rate that reflects (a) the long-term expected rate of return on plan investments, as long as the plan's net position is projected to be sufficient to pay pensions of current employees and retirees and the pension plan assets are expected to be invested using a strategy to achieve the return; or (b) a yield

or index rate on tax-exempt 20-year, AA-or-higher rated municipal bonds to the extent that the conditions for use of the long term expected rate of return are not met. If the projected benefit payments are discounted using the lower rate, then the present value will be higher and the liability will be larger.

DEFINED *BENEFIT* RETIREE MEDICAL PLAN

In addition to the OCFA's retirement plan administered by OCERS, the OCFA provides a post-employment medical retirement plan for all full-time employees (Retiree Medical Plan) for certain employees. Employees hired prior to January 1, 2007 are in a *defined benefit plan* that provides a monthly grant toward the cost of retirees' health insurance coverage based on years of service. The Plan's assets are held in an irrevocable trust for the exclusive benefit of Plan participants and are invested by OCERS. As such, if OCERS does not earn its assumed rate of return of 7.75%, the UAAL increases. Current active employees hired prior to January 1, 2007, are required to contribute 4% of their gross pay toward the Retiree Medical Plan.

Based on an actuarial study prepared by The Segal Company as of July 1, 2010, the OCFA's Unfunded Actuarial Accrued Liability (UAAL) for the Retiree Medical defined benefit plan is \$126 million, or \$104.2 million excluding the implicit subsidy. The UAAL is impacted by future retirees, spouses of retirees, a 5% annual increase in the medical grant, the investment return of the trust and an implied subsidy.

What is the implicit subsidy?

The Government Accounting Standards Board (GASB), through Statement No. 45 requires public entities to reflect their liability for Other Post Employment Benefits (OPEB), including benefits to retirees, in their annual financial statements.

When both active employees and retirees pay the same premiums, a hidden/"implicit" subsidy exists for retirees, because health care costs are typically higher for retirees than active employees. GASB requires that "implicit" subsidy to be included in the liability calculation even if the retiree participants pay for 100% of the premium.

GASB's reasoning for requiring that the implicit rate subsidy be included in the calculation of OPEB liability is based on the following rationale:

1. The cost of health care increases with increasing age
2. In general, the cost of health care is higher for retirees than for active employees of the same age (retirees have more time to take advantage of health care)
3. If retirees pay the same premium as active employees, there is an implicit employer subsidy due to the blending of the claims experience

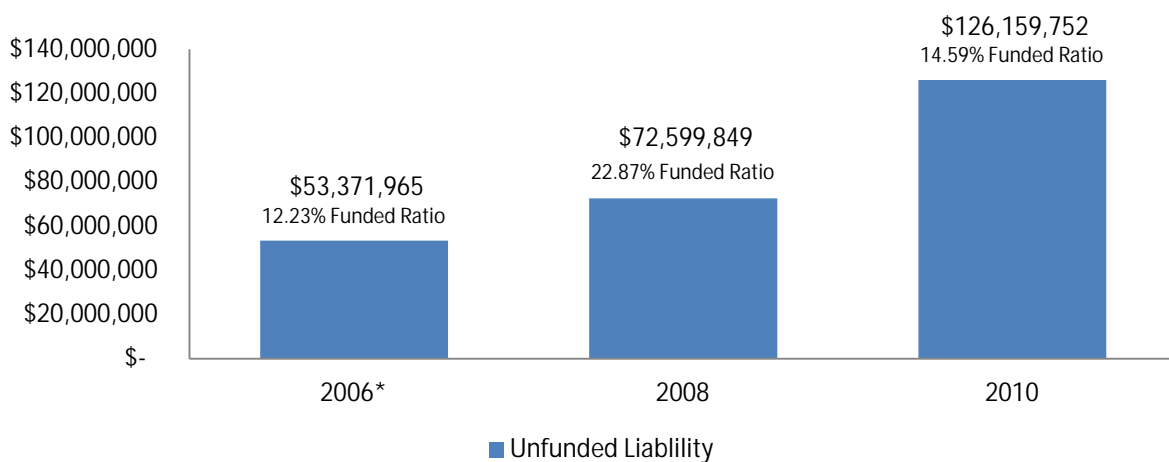
For example: assume the average cost of benefits is \$100 for the total active and retired population. Currently, the employer requires the retirees to contribute the full cost of the plan or \$100. After analyzing the claims experience, it is discovered that the retiree population's average cost is \$175. The difference between the retiree's average cost and the combined population average cost, \$75, is the employer's implicit rate subsidy.

How does this impact OCFA?

In the case of the OCFA's Retiree Medical Plan, we have both the "explicit" subsidy portion (the retiree medical grant) for all retirees and the "implicit" subsidy portion for the Safety retirees since our firefighter group has the same pool and rate structure for both active and retired Safety employee's. (Because our General Non-Safety retirees are enrolled through CalPERS, a PEMHCA (Public Employees Medical and Hospital Care Act) community, no "implicit" subsidy calculation is required for this group of retirees.) Based on the 2010 valuation, 14% or \$21.8 million of the total OPEB liability is due to the implicit subsidy for Safety members. The implicit subsidy in 2008 was \$14 million. In 2006, the implicit subsidy was not calculated.

OCFA's Retiree Medical UAAL

The Retiree Medical Liability has risen dramatically while the funding level is decreasing



*Did not include implicit subsidy.

DEFINED CONTRIBUTION RETIREE MEDICAL PLAN

For employees hired on or after January 1, 2007, the OCFA created a *defined contribution plan* that is administered by the International City Management Association Retirement Corporation (ICMA-RC). The Plan provides for the reimbursement of medical, dental and other healthcare expenses of retirees. Employees are required to contribute 4% of their gross pay. Account assets are invested as directed by the participant and all contributions, investment income, realized gains and losses are credited to the individual's account. Under this plan structure, there is no UAAL.

RECENT COURT CASE ON ORANGE COUNTY'S RETIREE MEDICAL PLAN

Unlike pensions, which have long been held to be vested and protected under state law, retiree medical benefits have previously fallen under more of a gray zone. In December 2011, California's Supreme Court ruled that certain retirees' medical benefits are vested and thus protected from reduction by employers seeking modifications to reduce costs. They indicated that subsidizing medical insurance premiums is an implied contract. The Court also ruled that ordinances and resolutions of the employer are important source documents for determining the contractual nature of such other post-employment benefits.

LEASE PURCHASE AGREEMENTS

A Lease Purchase Agreement is a form of long-term debt used by government agencies to acquire buildings, vehicles, equipment and other capital assets. Within this type of lease, a lessee can apply lease payments annually toward the purchase of the property. In December 2008, the OCFA entered into a ten-year Lease Purchase Agreement to purchase two helicopters and related equipment for a purchase price of \$21.5 million. In 2011, OCFA refinanced the helicopters and lowered its interest rate from 3.76% to 2.58% saving \$444,000 over the remaining six years of the lease. As of June 30, 2012, \$16.5 million remains due, including interest and principal. The final maturity is in 2018.

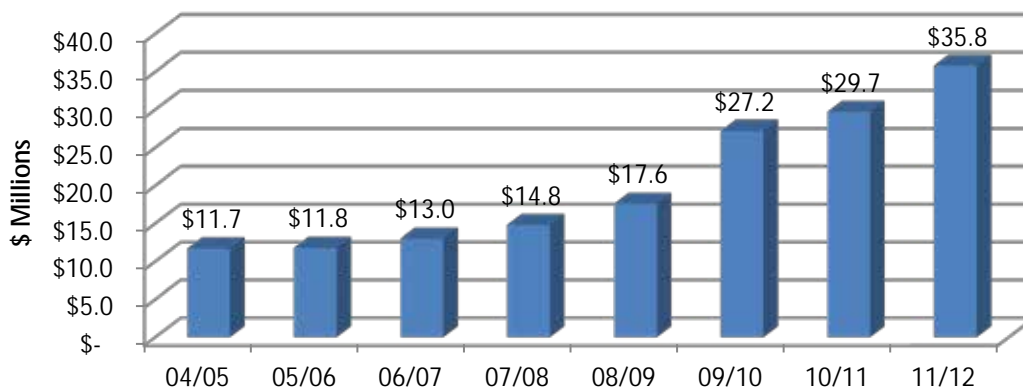
WORKERS' COMPENSATION CLAIMS

In March 2002, OCFA implemented a workers' compensation self insurance program. A separate fund called Fund 190: Self Insurance was established in May 2003 to track funding and expenditures for workers' compensation claims liability. The funding sources include revenue from the General Fund and interest earnings. The required funding levels are determined by an independent actuarial study. As of June 30, 2012, OCFA's total workers' compensation liability is \$35.8 million.

This liability reflects the present value of estimated outstanding losses at the 50% confidence level. A confidence level is the statistical certainty that an actuary believes funding will be sufficient. For example, a 50% confidence level means that the actuary believes funding will be sufficient in five out of ten years. The Workers' Compensation Funding Policy that was adopted by the Board on May 27, 2010, sets the funding level at 50% for outstanding losses and 60% for projected losses.

OCFA's Workers' Compensation Claims

OCFA's liability is growing.



The December 31, 2011 actuarial study indicated the workers compensation claim costs are increasing due to a higher number of disability claims as employees approach retirement, increased medical costs, salary increases and an increase in the level of State benefits.

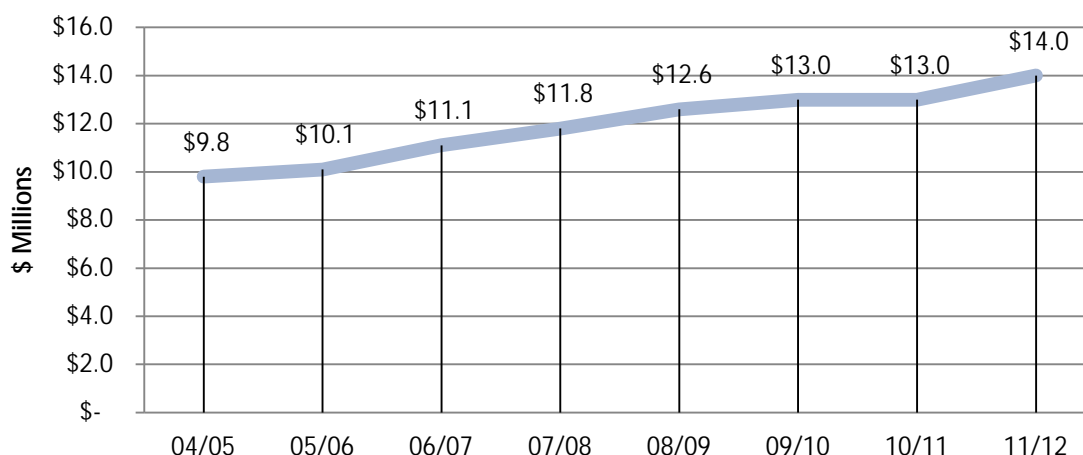
ACCRUED COMPENSATED ABSENCES

Compensated absences are commonly described as paid time off made available to employees in connection with sick and vacation time. If employees do not use all of such compensated absences, a liability is accrued for the unused portion. The OCFA's policy allows employees to accumulate earned but unused sick and vacation pay benefits.

The majority of sick and vacation payouts occur at the time an employee retires. The OCFA has budgeted \$3.3 million for sick and vacation payouts in FY 2012/13 based on historical trends. OCFA's total liability for compensated absences as of June 30, 2011 is \$14 million.

OCFA's Compensated Absences

The payout liability has been gradually rising.



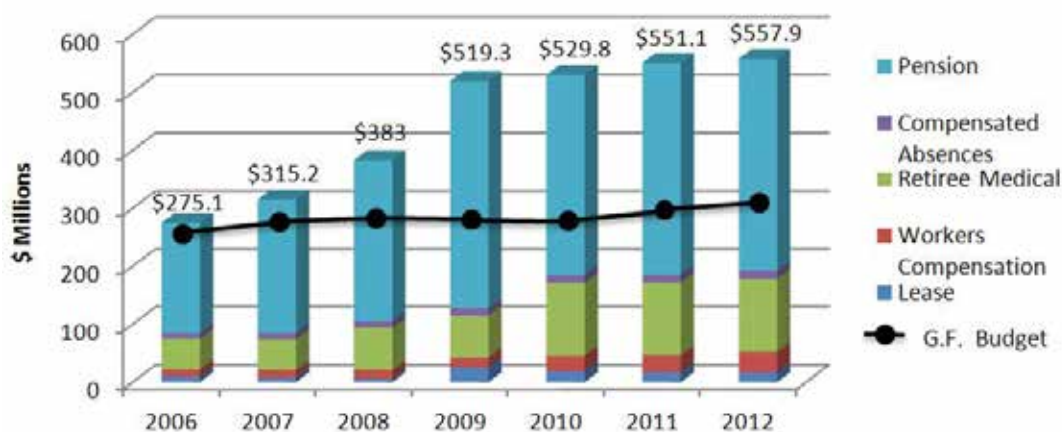
III. SUMMARY

OCFA's total long term liabilities as of June 30, 2012 are as follows:

	<i>\$ Amount in Millions</i>	<i>% of Total</i>
Defined Benefit Pension Plan	\$365.5	66.0%
Defined Benefit Retiree Medical Plan	126.1	23.0%
Lease Purchase Agreements (helicopters)	16.5	3.0%
Workers Compensation Claims	35.8	6.0%
Accrued Compensated Absences	14.0	2.0%
Total	\$557.9	100.0%

Over the last seven years, OCFA's total long term obligations have increased by \$283 million or 103%, to a current total of \$557.9 million. This liability amount has grown to a level which now represents approximately twice the amount of OCFA's adopted General Fund budget for FY 2012/13 of \$282.1 million, as demonstrated in the chart below.

OCFA Total Liabilities



RECENT ACTIONS

The economic downturn over the last few years has had a severe impact on revenues. As a result, the OCFA has already taken several steps to manage its long-term obligations:

1. Implemented a trigger formula connecting future pay raises for all OCFA employees to OCFA's financial health
2. Implemented lower retirement formulas for all labor groups
3. Implemented increased employee retirement contributions, phasing in to 9% for all labor groups
4. Refinanced the helicopter lease to lower the interest rate
5. Established a cashflow reserve, enabling annual prepayment of retirement contributions to achieve a discount
6. Provided a study to the Board of Directors regarding the feasibility of Pension Obligation Bonds (Exhibit C)
7. Provided a study to the Board of Directors regarding the feasibility of changing automatic Cost of Living Allowance (COLA) increases for pensions (Exhibit D)

ACTIONS UNDERWAY

1. A Deployment Study has been initiated to thoroughly examine OCFA's methods of delivering emergency services, seeking opportunities to become more efficient with limited resources, while also ensuring long-term liabilities can be funded appropriately.
2. Senior financial staff is actively participating to monitor and/or influence OCERS' actions in a manner which may improve the long-term stability of pension funding.
3. Executive Management is working to educate the entire workforce about future financial risks associated with OCFA's long-term liabilities.
4. Authorization has been obtained to negotiate an Alternative Dispute Resolution process for disputed workers' compensation cases, also known as a Carve-Out program.

CONCLUSION

As long-term liabilities continue to rise, OCFA must continue to strategically balance present-day needs with future commitments. The goal is for OCFA's budget, over the long-term, to be able to support all of its long-term liabilities. Some of the components of this management include:

1. Taking steps to reduce long-term costs
2. Fully funding annual pensions accruals
3. Exploring ways to save money on healthcare
4. Pursuing legislative changes for matters such as automatic pension COLA's, etc.



The Evolution of OCERS Unfunded Actuarial Accrued Liability

Steve Delaney, CEO
December 31, 2011 Valuation

The Evolution of OCERS Unfunded Actuarial Accrued Liability

The Orange County Employees Retirement System (OCERS) is a public pension plan providing a defined benefit life-time pension to many of Orange County's diverse community of public servants - from firefighters and police officers to bus drivers and court clerks.

OCERS conducts an annual valuation of the OCERS Trust Fund to determine its current economic status. In the most recent valuation, for the period ending December 31, 2011, the system's professional actuary (The Segal Group) calculated the Unfunded Actuarial Accrued Liability (UAAL) of the fund stands at approximately \$4.46 billion. Just over a decade ago, as of December 31, 2000, there was no UAAL at all, the system being more than 100% funded. The drivers and components that contributed to the evolution of OCERS' current UAAL are the subjects of this paper.

WHAT IS AN UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAAL)?

The Government Accounting Standards Board (GASB) officially defines UAAL as "the difference between the actuarial accrued liability and the actuarial value of assets accumulated to finance" a public pension. In simpler terms, if you compare the cost of OCERS pension promises with the actuarial value of OCERS assets, the promises currently exceed the assets. That shortfall is OCERS' Unfunded Actuarial Accrued Liability.

A fully funded pension system with no UAAL (as was the case for OCERS in 2000), generally means that all of the actuary's assumptions about the cost of the fund and growth of liabilities have been met, and the present value of the system's accumulated assets are sufficient to pay out the pension promises to plan members.

But how does a public pension plan accrue the necessary funds for paying out benefits, and how can that process lead to a gap between the amount of assets held, and the present value of those future benefits?

A pension system's approach to building its assets in order to pay future benefits is not unlike the approach taken by many families in saving for their children's college education. If you expect your child's education is going to cost \$100,000 eighteen years from now, you have three basic options:

- (1) You could deposit a single lump sum amount representing the present value of that future cost into a savings account, similar to an endowment or trust, calculated to grow with sufficient earnings to total \$100,000 when the child is ready for his or her first day of college.
- (2) You could save over time, depositing an equal amount year after year into an account and again assume that sufficient interest earnings will accrue to fully fund the cost when the big day arrives.
- (3) You could wait until the child turns 18 and pull from your available resources at that time to pay the entire \$100,000 in a single payment.

Public pension plans face similar choices in determining the best method for accruing sufficient resources to fund a member's benefit at retirement. Like most American families, the majority of public pension plan systems choose to pay a level percent of salary each year, in order to gradually grow the amount needed to fund future retirements.

Determining how much to contribute each year is a primary challenge for any public pension system. For that reason public pension plans will use the expertise of a professional actuary to assist in planning the funding of those retirement benefits over the long term, allowing investment earnings on the contributions to fund the majority of the pension costs. In Orange County those investment earnings provide the largest portion of retirement benefits being paid, greatly reducing the cost to Orange County's employees and taxpayers in providing public services to our community.

The job of a pension plan actuary includes estimating (or assuming) how much money should be contributed each year so the plan will have enough funds to pay the benefits promised by the plan throughout the lifetime of the member. The year-to-year stream of contributions should be as smooth and consistent as possible to avoid wrecking havoc on the

budget of the employer.

HOW DID OCERS' CURRENT UAAL DEVELOP?

The long-term cost of retiree benefits are based on a host of variables, the future values of which are unknown. There are many different events that can both cause a UAAL to develop or even disappear. While actuaries try to pin down these variables through the use of best or at least reasonable assumptions and professional methodologies, the unexpected should be expected to occur.

There are six assumptions in particular that have the greatest impact on the actuary's estimates of plan funding:

1. The assumed rate of return on investments
2. The rate of increase in salaries
3. Member mortality
4. The age at which members choose to retire
5. How many members become disabled
6. How many members terminate their service earlier than anticipated

Finally, there are two other events that can have great impact on plan funding, events the actuaries can't anticipate:

- (1) plan changes, that is, when a benefit formula is changed in some unanticipated manner by the plan sponsor, and
- (2) differing actual experience, that is, when actual experience indicates that previous assumptions must be modified to reflect a more relevant reality. A key example here is life expectancy, which with the continued advances in medicine challenge actuaries in being able to accurately project average life expectancies in the coming decades.

Either will generally have an "unfunded" impact on the cost of the system, though savings can occur as well, as in fact has happened in the period of 2009 through 2011 with a slowing in projected salary increases due to the challenging economic times.

First, a summary history of OCERS UAAL as well as the plan's funded status:

(In 000's)

Actuarial Valuation Date December 31	Valuation Value of Plan Assets	Total Unfunded Actuarial Accrued Liability (UAAL)	Funded Ratio
1985	\$613,863	\$462,121	57.05%
1986	\$713,506	\$507,409	58.44%
1987	\$821,884	\$522,098	61.16%
1988	\$985,030	\$468,828	67.75%
1989	\$1,136,210	\$515,778	68.78%
1990	\$1,297,575	\$543,340	70.49%
1991	\$1,576,131	\$196,763	88.84%
1992	\$1,807,319	\$332,763	84.45%
1993	\$2,024,447	\$280,572	87.83%
1994	\$2,177,673	\$372,386	85.40%
1995	\$2,434,406	\$199,478	92.43%
1996	\$2,675,632	\$176,262	93.82%
1997	\$3,128,132	\$204,835	93.85%
1998	\$3,504,708	\$177,978	95.17%
1999	\$3,931,744	\$85,535	97.87%
2000	\$4,497,362	(\$162,337)	103.74%
2001	\$4,586,844	\$257,055	94.69%
2002	\$4,695,675	\$978,079	82.76%
2003	\$4,790,099	\$1,309,334	78.53%

2004	\$5,245,821	\$2,158,151	70.85%
2005	\$5,786,617	\$2,303,010	71.53%
2006	\$6,466,085	\$2,298,960	73.77%
2007	\$7,288,900	\$2,549,786	74.08%
2008	\$7,748,380	\$3,112,335	71.34%
2009	\$8,154,687	\$3,703,891	68.77%
2010	\$8,672,592	\$3,753,281	69.79%
2011	\$9,064,355	\$4,458,623	67.03%

As shown in the table above, the annual calculation of OCERS' UAAL can swing dramatically from year to year, such as **1990-91** when the UAAL shrank from \$543 million to \$196 million, a reduction of nearly 40% in a single year due primarily to the remarkable earnings of that year (1991: 20.25%); or **2002-03** when the UAAL grew from \$978 million to \$1.3 billion, an increase of approximately 30% reflecting both assumption and benefit changes the year before, as well as the delayed recognition of some heavy investment losses incurred in the three prior years

While this document tracks the evolution of the OCERS UAAL as it has developed especially since the year 2000, keep in mind that the actuary can only show from one year to the next what the initial impact an event may have on future liability projections measured using the assumptions adopted by the OCERS Board as of that measurement date. It cannot show what the impact of that same single event may be in later years should the initial assumption prove different from actual experience. An example of this was the increase in benefits that occurred in 2004, when a number of key benefit formulas were changed by the plan sponsor, leading to a change in the projection regarding future liabilities to be paid out, and creating an increase in the UAAL of \$365 million. Will the ultimate cost of that benefit adjustment be \$365 million? Not likely, it was an estimate developed using the best assumptions available at the time to prepare that projection. But can we track that specific change in plan design to see what the ultimate cost might truly be? Not really. The OCERS plan is large and complex, with nearly 40,000 members making individual life choices that will impact the ultimate cost, either positively or negatively, over a very long period of time. Once the initial event is priced into the cost of the plan, then it is the plan as a whole that gets valued in future years, composed of the many smaller decisions made year after year, and determining the course of the UAAL.

YEAR BY YEAR REVIEW:

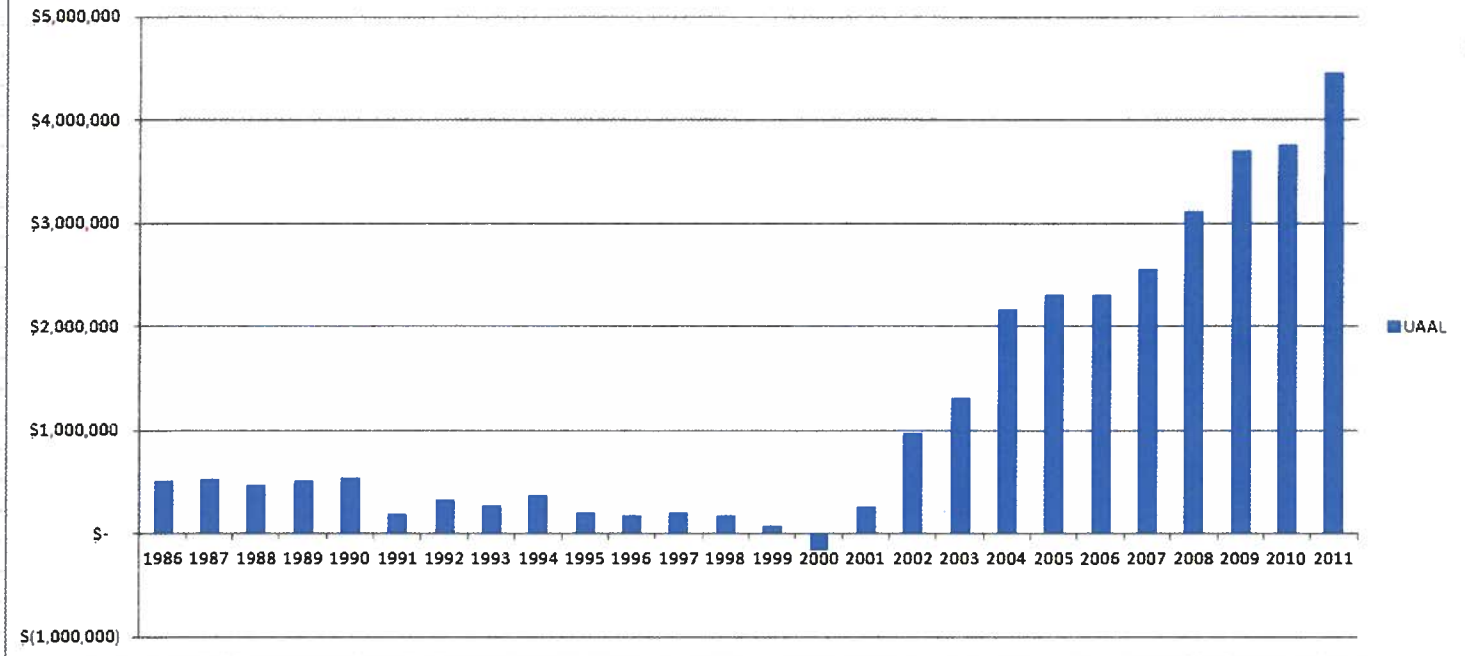
It is current history that has raised the most questions from both employers, members and the public in wanting to better understand how the current UAAL has evolved over the past decade. In the following pages the data used in calculating the UAAL from calendar year 2000 when OCERS last had a surplus, through 2011, is presented in table format, with commentary on the events of each year that had primary impact on determining if the UAAL rose or fell for that given year.

[See the annual reviews for the OCERS UAAL as it develops from the year 2000 through 2011, beginning with Page 7.]

A VISUAL REVIEW OF THE UAAL HISTORY

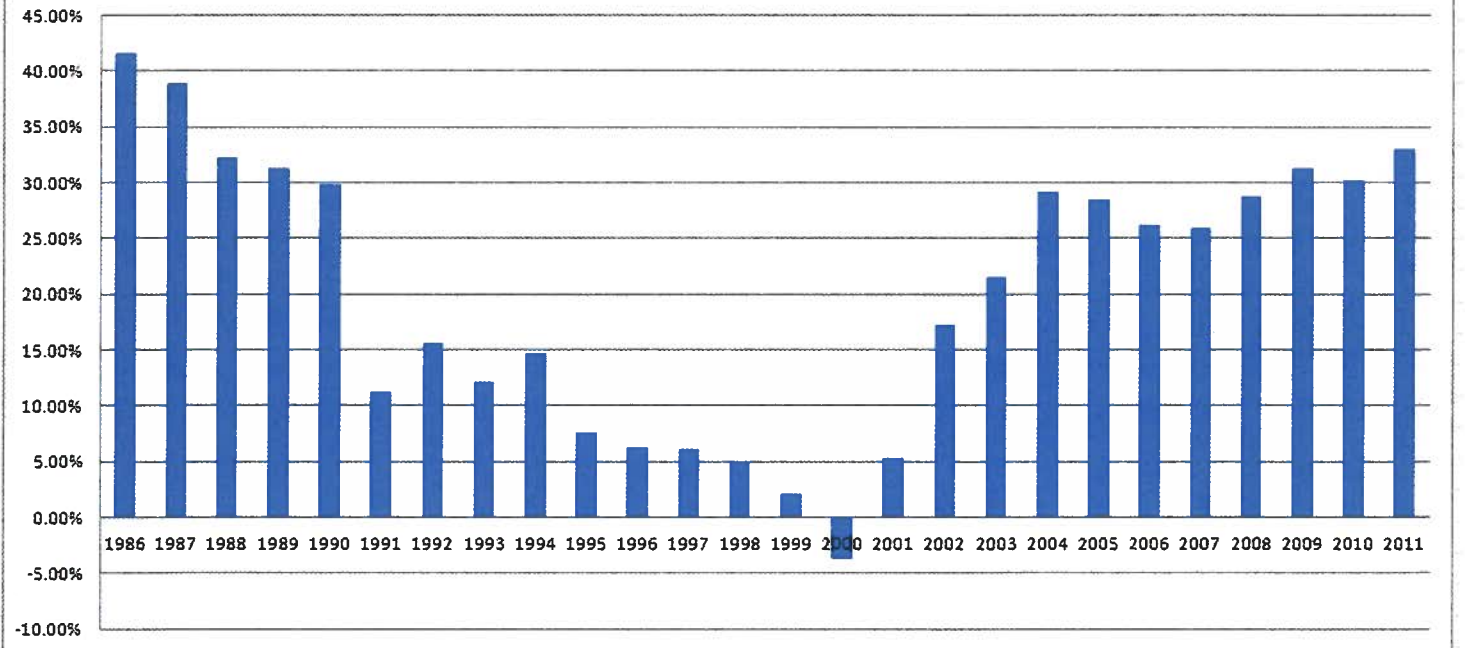
Two different approaches to viewing the UAAL in context of the OCERS Fund as a whole are displayed in the following tables. In the first table a trend line is displayed, reflecting the growth of the UAAL in total dollars. Identifying trends, and determining how best to address the cautionary tale being shared is an important task of any decision maker when it comes to pension design.

OCERS Total UAAL



In the following table, the UAAL is now reflected as a percentage of the total pension liability, both funded and unfunded, to put it into perspective. This is an important point to keep in mind as the OCERS plan continues to mature over time. Note for example that while the total UAAL increased in 2010 by approximately \$50 million dollars, the funded ratio of the plan actually improved, as the total assets available to pay the plan's liabilities increased at an even faster rate.

OCERS HISTORY UAAL as a % of Total Actuarial Accrued Liability



CONCLUSION:

As this review has shown, both past experience and assumptions (that try to predict the future using that past experience) often change, and have a major impact on the system's future costs. Actuaries use long economic cycles to make their assumptions. They do not often adjust their assumptions in response to year-to-year fluctuations in actual experience. Rather, actuarial assumptions are typically changed only following careful assessment of ongoing and durable trends in experience. Because public pension plans such as OCERS take a very long view of the time horizon, recognizing that our average member retires with 22 years of service, OCERS is designed specifically to allow time to exercise its smoothing effect on the costs associated with the variability of life and its vagaries.

No matter how one looks at the UAAL, it's important to keep these points in mind - The UAAL is only an estimate based on many different inputs and assumptions that are all subject to refinement. The UAAL is not an absolute number such as the fixed amount of your home mortgage, but is rather a fluid estimate that will both rise and fall as it is revised annually based upon actual experience. Under a well structured plan with conservative assumptions, the deviations will be both positive (as was the case most recently in 2010) and negative (such as in 2008) in the short run, but tend to smooth to the actuaries assumed rates over time. The causes of transitory shortfalls and surpluses will be captured in improved assumptions and appropriate contribution rates over time, ensuring a secure financial foundation for the promises made to Orange County's public servants.

2000

Development of UAAL/(Surplus) for Year Ended December 31, 2000

1.	UAAL at beginning of year		\$ 85,534,716
2.	Total normal cost at middle of year		
3.	Amortization Payment		(6,752,601)
4.	Interest		11,403,640
5.	Expected UAAL		\$ 90,185,755
6.	Actuarial (gain)/loss and other changes		
	a. Gain on investment	\$(286,267,436)	
	b. Loss on salary increases	24,584,670	
	c. Loss on new retirees	29,186,796	
	d. Gain on mortality	(28,835,682)	
	e. Other experience (gain)/loss	8,809,049	
	f. Benefit improvements		
	g. Change in actuarial assumptions		
	h. Total changes		(252,522,603)
7.	(Surplus) at the end of the year		\$ (162,336,848)

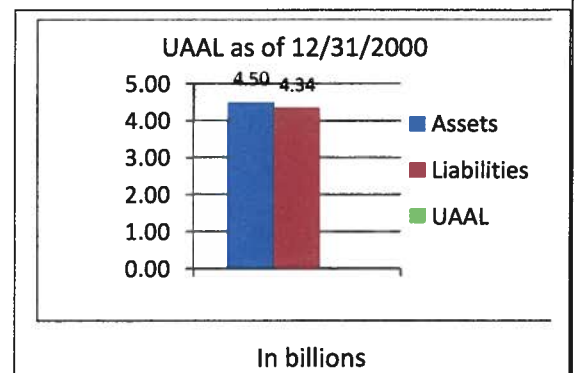
IMPACTING EVENTS

Calendar year 2000 is a key year, and emblematic of how public pension systems are designed to smooth out the highs and lows of plan costs over time, OCERS moves from a UAAL of \$85 million at the start of the year to a surplus of \$162 million as the year comes to a close.

There were no significant changes in Plan provisions in calendar year 2000.

Though total fund returns for 2000 were only 3.28% that exceeded the policy benchmark and ranked OCERS in the top quartile of the Callan Public Plan Sponsor Database. Altogether the recognition of past and current smoothed earnings lowered the UAAL by over \$286 million.

The actuarial value of assets passed the actuarial value of liabilities in 2000, and the Plan was 103.7% funded at the end of the calendar year.



Development of UAAL/(Surplus) for Year Ended December 31, 2001

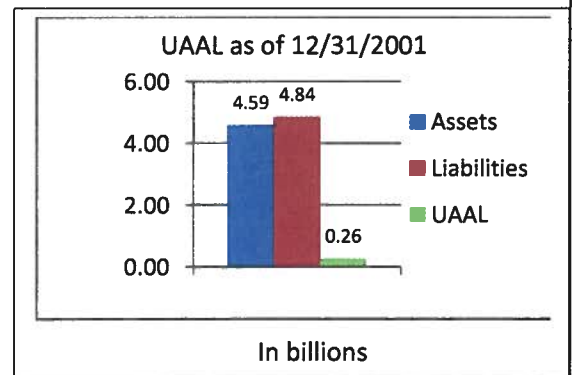
1.	(Surplus) at beginning of year		\$(162,336,848)
2.	Total normal cost at middle of year		
3.	Amortization Payment		(11,193,795)
4.	Interest		<u>7,117,033</u>
5.	Expected UAAL		\$(158,260,086)
6.	Actuarial (gain)/loss and other changes		
	a. Loss on investment	\$221,191,812	
	b. Loss on salary increases	40,447,786	
	c. Loss on new retirees	48,490,180	
	d. Other experience (gain)/loss	19,791,339	
	e. Change in actuarial assumptions	(34,094,126)	
	f. Impact of 3%@50 for Law Enforcement (Safety)	119,488,767	
	g. Total changes		<u>415,315,758</u>
7.	UAAL at the end of the year		\$ 257,055,672

IMPACTING EVENTS

While not significant, changes to the assumed withdrawal rates, the assumed termination rates, the assumed service-connected disability rates and the assumed retirement rates taken together actually lowered future liabilities by approximately \$34 million.

The change in the retirement benefit for Law Enforcement (safety) members to a 3% per year of service benefit payable at age 50 increased future liability by approximately \$119 million.

The OCERS portfolio experienced a loss of -3.24% in calendar year 2001, with an earnings assumption of 8%. That loss, though smoothed led to an increase of the UAAL by \$221 million.



Development of UAAL for Year Ended December 31, 2002

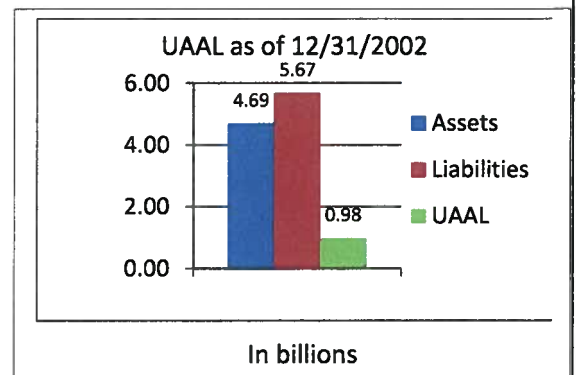
1.	UAAL at beginning of year		\$ 257,055,672
2.	Total normal cost at middle of year		
3.	Amortization Payment		12,123,329
4.	Interest		27,502,107
5.	Expected UAAL		\$ 296,681,108
6.	Actuarial (gain)/loss and other changes		
	a. Loss on investment	\$ 220,329,452	
	b. Loss on salary increases	91,886,000	
	c. Loss on new retirees	82,392,000	
	d. Other experience (gain)/loss	48,763,0690	
	e. Change in actuarial assumptions	148,339,453	
	f. Impact of 3%@50 for Firefighters; Probation become Safety under the 2%@50 formula	89,688,449	
	g. Total changes		681,398,423

IMPACTING EVENTS

OCERS experienced negative returns in 2002 as did much of the market. A loss of -5.46%, when the assumption was for earnings of 8% led to an effective hit of -13.46% on the funding position of the plan. Even with smoothing in place, more than \$220 million in losses were applied to the UAAL.

With the market having been down for a couple of years in a row, the OCERS Board revisited its earnings assumption and lowered the portfolio's assumed rate of return from 8% annual to 7.5%. That change in earnings assumption indicated there would be lower investment earnings to offset plan costs. Taken together with a lowering of the assumption for future salary increases (when salaries don't grow as fast as anticipated, fewer contributions than anticipated will be flowing to the system) from 5.5% to 4.5% annually, led to a \$148 million increase in the UAAL.

On the benefit side, the retirement benefit formula for firefighters was improved to 3% of final average salary at age 50. Additionally Probation Officers became Safety Members, providing them with improved benefits as well. Those benefit changes added \$89 million to the UAAL.



Development of UAAL for Year Ended December 31, 2003

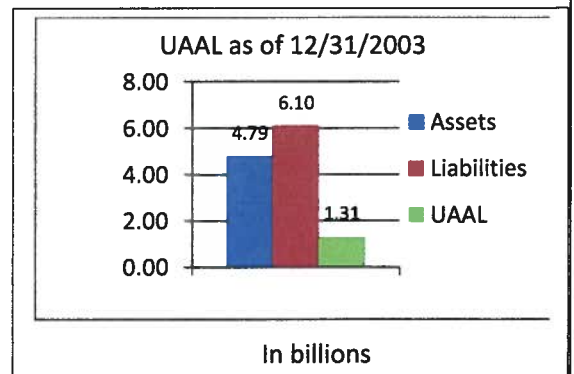
1.	UAAL at beginning of year		\$ 978,079,531
3.	Total normal cost at middle of year		
4.	Amortization Payment		(58,355,527)
5.	Interest (7.5%)		78,359,367
6.	Expected UAAL		\$ 998,083,371
7.	Actuarial (gain)/loss and other changes		
	a. Loss on investment	\$ 287,828,001	
	b. Gain on salary increases	(103,234,000)	
	c. Loss on new retirees	119,420,000	
	d. Other experience (gain)/loss	4,898,374	
	e. Change in actuarial assumptions		
	f. Impact of new formula for City of San Juan Capistrano, and City of Rancho Santa Margarita	2,337,899	
	g. Total changes		311,250,274
8.	UAAL at the end of the year		\$1,309,333,645

IMPACTING EVENTS

Despite a great year for the market, with the OCERS portfolio returning 19.84% in 2003, that wasn't enough to offset the smoothed losses of prior years continuing to be recognized in the valuation, with the UAAL growing by over \$287 million on that basis alone.

Even with the lower salary growth assumption adopted in the previous year, member salaries did not grow as fast as anticipated, so while fewer contributions came in, that was offset by lower growth in pension liabilities, leading to a reduction in the UAAL of \$103 million.

The cities of San Juan Capistrano and Rancho Santa Margarita adopted improved benefit formulas for their general service members, 2.7%@55 for San Juan Capistrano, and 2.5%@55 for Rancho Santa Margarita.



Development of UAAL for Year Ended December 31, 2004

1.	UAAL at beginning of year		\$1,309,334,000
2.	Changes in methods and procedures		106,630,000
3.	Total normal cost at middle of year		188,163,000
4.	Actual employer/member contributions		(279,940,000)
5.	Interest		102,756,000
6.	Expected UAAL		\$1,426,943,000
7.	Actuarial (gain)/loss and other changes		
	a. Gain on investment	\$(50,536,000)	
	b. Other experience (gain)/loss	19,372,000	
	c. Benefit improvements	365,409,000	
	d. Change in actuarial assumptions	579,681,000	
	e. Change to 3.5% inflation assumption and Entry Age Normal funding method	33,129,000	
	f. Change in investment return	(215,487,000)	
	g. Total changes		731,208,000
8.	UAAL at the end of the year		\$2,158,151,000

IMPACTING EVENTS

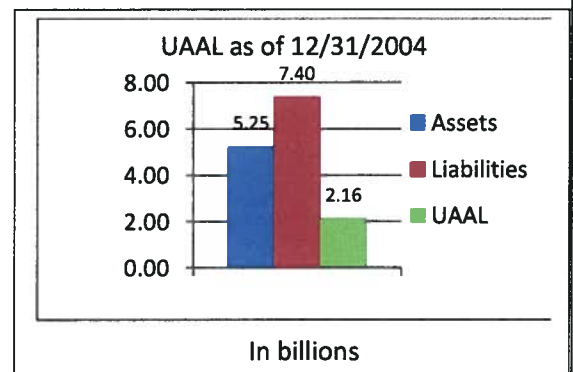
Two major events occurred in 2004, a change in actuarial services from Towers Perrin to The Segal Group led to a review and change in actuarial methods, procedures, and assumptions. There were also several retirement benefit formula improvements

Moving from one actuary to another is an uncommon event The change in valuation methods and procedures between Towers Perrin and The Segal Group led to an increase in the UAAL of \$107 million. 2004 is the only year you will find the “Changes in Methods and Procedures” line entry capturing the impact of that change in this document.

In addition to reflecting a change in methods and procedures, the 2004 valuation also includes a number of basic actuarial assumption changes regarding future salary increases, rates of withdrawal at termination, and rates of retirement. Those changes added an additional \$580 million to the UAAL.

An improvement in benefits as Probation members adopted the 3%@50 formula, Orange County Transportation Authority adopted 2.5%@55, and The County of Orange general members adopted 2.7%@55, increased the UAAL by \$365 million.

A gain for the fund was the recognition that the current portfolio composition would earn an assumed rate of return of 7.75%, an increase over the previous 7.5%. That assumption that greater earnings would assist in offsetting costs lowered the UAAL by \$215 million.



Development of UAAL for Year Ended December 31, 2005

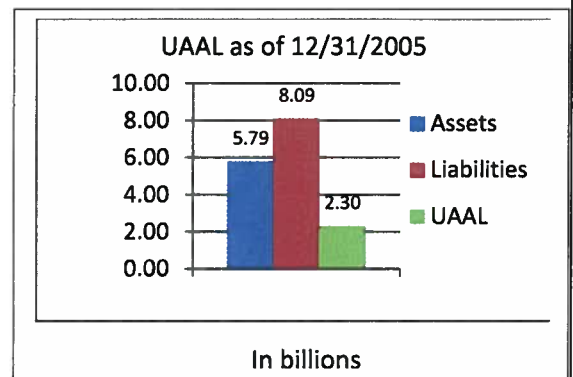
1.	UAAL at beginning of year		\$2,158,151,000
2.	Total normal cost at middle of year		297,420,000
3.	Actual employer/member contributions		(345,111,000)
4.	Interest		165,409,000
5.	Expected UAAL		\$2,275,869,000
6.	Actuarial (gain)/loss and other changes		
	a. Gain on investment	\$ (39,536,000)	
	b. Loss on salary increases	16,544,000	
	c. Change in methodology used to calculate benefits for deferred vested members	(15,335,000)	
	d. Other experience (gain)/loss	65,468,000	
	e. Benefit improvements		
	f. Change in actuarial assumptions		
	g. Total changes		27,141,000
7.	UAAL at the end of the year		\$2,303,010,000

IMPACTING EVENTS

2005 is an example of how over the long term a defined benefit plan experiencing a period of rising costs can correct itself and move to a more stable norm. Though the UAAL rose just over \$27 million in 2005, that was smaller as a percentage than the positive rise in the overall size of the portfolio, causing the funded status of the plan to improve from 70.85% at the start of the year, to 71.53% by the end of the year.

A positive return on the OCERS portfolio of 8.83%, exceeding the assumed earnings rate of 7.75%, allowed for application of a portion (after smoothing) of those investment gains to offset some larger losses where the economic and demographic experience through 2005 was negatively different from the actuarial assumptions.

A change in actuarial methodology used in calculating benefits for deferred vested members with reciprocal service led to a reduction in the UAAL of \$15 million.



Development of UAAL for Year Ended December 31, 2006

1.	UAAL at beginning of year		\$2,303,010,000
2.	Total normal cost at middle of year		300,072,000
3.	Actual employer/member contributions		(425,950,000)
4.	Interest		173,606,000
5.	Expected UAAL		\$2,350,738,000
6.	Actuarial (gain)/loss and other changes		
	a. Gain on investment	\$(112,612,000)	
	b. Loss on salary increases	21,679,000	
	c. Other experience (gain)/loss	39,155,000	
	d. Benefit improvements		
	e. Change in actuarial assumptions		
	f. Total changes		(51,778,000)
7.	UAAL at the end of the year		\$2,298,960,000

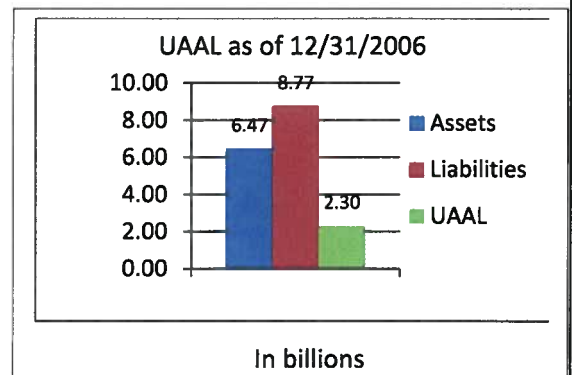
IMPACTING EVENTS

2006 is another example, like that of 2005, of how over the long term a defined benefit plan can correct itself and move to a more stable norm. In 2006 the UAAL dropped in relatively modest terms, by approximately \$5 million. Overall however the funded status of the plan again improved, moving from 71.53% at the start of the year, to 73.77% by the end of the year. At the same time the aggregate employer contribution rate (the average of the County of Orange and all special districts combined) decreased from 24.27% of payroll to 24.01%. In turn, the aggregate employee's contribution rate similarly decreased from 10.39% of payroll to 10.36%.

Much of the positive movement in 2006 can be attributed to the 13.55% positive portfolio returns, exceeding the assumed earnings rate of 7.75%, allowing for application of a portion (after smoothing) of those investment gains towards the existing UAAL.

There were no benefit plan changes or any actuarial assumption changes in 2006.

The City of Rancho Santa Margarita did withdraw from OCERS in 2006 in order to move to CalPERS. There were no retirees with service earned with the City of Rancho Santa Margarita, so no long term pension liabilities were left behind with the OCERS plan upon the City's departure.



Development of UAAL for Year Ended December 31, 2007

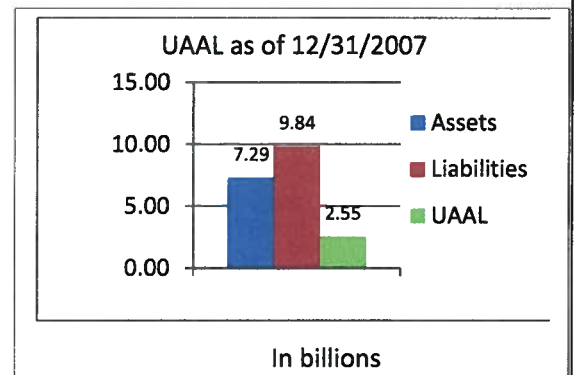
1.	UAAL at beginning of year		\$2,298,960,000
2.	Total normal cost at middle of year		324,706,000
3.	Actual employer/member contributions		(486,212,000)
4.	Interest		171,911,000
5.	Expected UAAL		\$2,309,365,000
6.	Actuarial (gain)/loss and other changes		
	a. Gain on investment	\$(176,681,000)	
	b. Loss on salary increases	136,417,000	
	c. Other experience (gain)/loss	43,538,000	
	d. Benefit improvements		
	e. Change in actuarial assumptions	237,147,000	
	f. Total changes		240,421,000
7.	UAAL at the end of the year		\$2,549,786,000

IMPACTING EVENTS

2007 saw a positive return on the OCERS portfolio of 10.75%, exceeding the assumed earnings rate of 7.75%, allowing for application of a portion (after smoothing) of those investment gains to offset some large changes in the actuarial assumptions.

Coming out of a triennial Actuarial Experience Study, analyzing the period of January 1, 2005 through December 31, 2007, a number of actuarial assumptions were changed in the areas of mortality, termination of membership, rates of retirement, salary growth, and annual payoffs, leading to an increase in the UAAL of approximately \$237 million.

A benefit change for the Cemetery District, moving to a 2% of final average salary at age 55 for future service only, was too negligible to have an impact on plan funding.



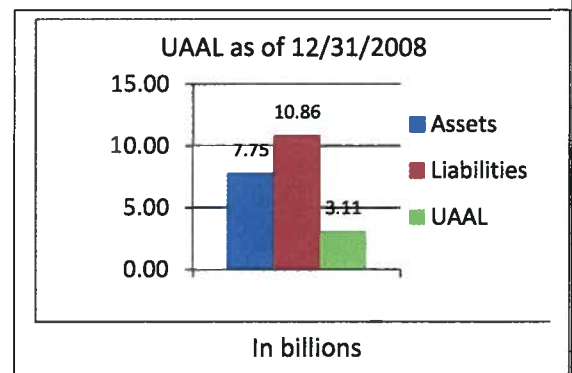
Development of UAAL for Year Ended December 31, 2008

1.	UAAL at beginning of year		\$2,549,786,000
2.	Changes in methods and procedures		
3.	Total normal cost at middle of year		361,097,000
4.	Actual employer/member contributions		(532,656,000)
5.	Interest		190,961,000
6.	Expected UAAL		\$2,569,188,000
7.	Actuarial (gain)/loss and other changes		
	a. Loss on investment	\$257,752,000	
	b. Loss on salary increases	97,561,000	
	c. Loss on new retirements	54,911,000	
	d. Other experience (gain)/loss	17,159,000	
	e. Benefit improvements		
	f. Change in actuarial assumptions	115,764,000	
	g. Total changes		543,147,000
8.	UAAL at the end of the year		\$3,112,335,000

IMPACTING EVENTS

2008 saw massive losses in the market by public pension systems across the country, with the Dow Jones Industrial Average (DJIA) down by -33.8%, the worst single year decline since the Great Depression. OCERS did remarkably well, declining by only -20.71%. Yet, even with smoothing of gains and losses in place, that decline led to a loss of \$257.7 million that had to be recognized in the calculation of the 2008 UAAL.

Changes in service retirement rates for General members under improved benefit formulas required a change in actuarial assumptions, leading to an increase in the UAAL of \$115.7 million.



Development of UAAL for Year Ended December 31, 2009

1.	UAAL at beginning of year		\$3,112,335,000
2.	Inclusion of Additional Premium Pay Items		228,051,000
3.	ADJUSTED UAAL for beginning of year		\$3,340,386,000
4.	Changes in methods and procedures		
5.	Total normal cost at middle of year		396,025,000
6.	Actual employer/member contributions		(545,215,000)
7.	Interest		253,099,000
8.	Expected UAAL		\$3,444,295,000
9.	Actuarial (gain)/loss and other changes		
	a. Loss on investment	322,523,000	
	b. Gain on lower than expected salary increases	(77,858,000)	
	c. Other experience (gain)/loss	14,931,000	
	d. Benefit improvements		
	e. Change in actuarial assumptions		
	f. Total changes		259,596,000
8.	UAAL at the end of the year		\$3,703,891,000

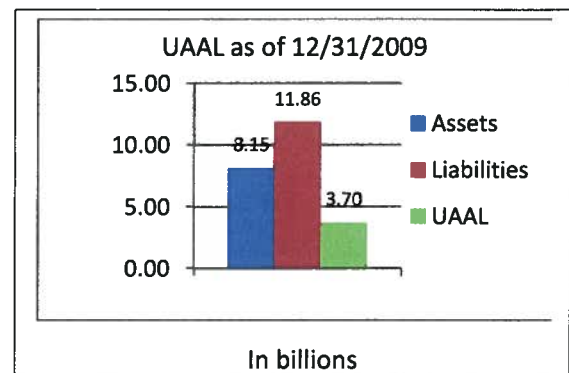
IMPACTING EVENTS

A major challenge for the 2009 valuation was the discovery, and inclusion of a pre-existing liability. The impact of “premium pay” [uniform allowance, bilingual requirements, etc] on final compensation earnable had been underreported to the actuary since 2004. With proper reporting, the recognition of a liability that had been present, but unvalued, added an additional \$228 million to the adjusted beginning UAAL figure for the year.

Despite increasing assets (on a market value) by over \$1 billion in calendar year 2009, an 18.54% return, OCERS actually takes a loss on investments in 2009, in the amount of \$322,523,000. Because OCERS smoothes both gains and losses, only \$120,722,000 of the gains in 2009 were recognized, while \$444,350,000 of deferred losses had to be recognized in turn flowing out of the prior year 2008. Because there were some remaining gains to be recognized from prior years still being smoothed in as well, the actual calculation for the Loss on Investment in 2009 looked like this:

2005	\$ 3,887,000
2006	64,826,000
2007	47,222,000
2008	(444,350,000)
2009	120,722,000
TOTAL	\$(207,693,000)

The difference between the loss of \$207.7 million from smoothing and the actual loss of \$322.5 million recognized in the valuation was due to investment income that was not generated as the value of assets used in the valuation at the start of the year was actually more than the market value by about \$1.5 billion.



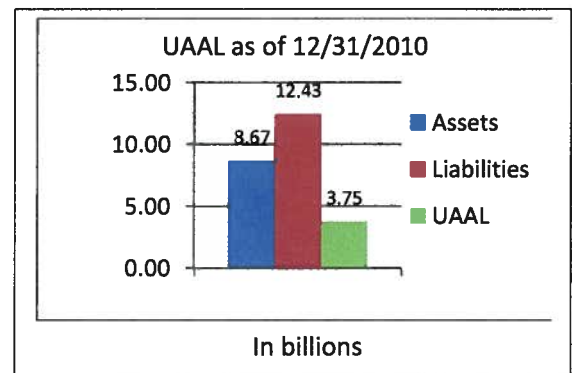
Development of UAAL for Year Ended December 31, 2010

1.	UAAL at beginning of year		\$3,703,891,000
2.	Changes in methods and procedures		
3.	Total normal cost at middle of year		389,458,000
4.	Actual employer/member contributions		(565,242,000)
5.	Interest		280,240,000
6.	Expected UAAL		\$3,808,347,000
7.	Actuarial (gain)/loss and other changes		
	a. Loss on investment	\$224,044,000	
	b. Gain on lower than expected salary increases	(215,936,000)	
	c. Loss on new retirements		
	d. Other experience (gain)/loss	(63,174,000)	
	e. Benefit improvements		
	f. Change in actuarial assumptions		
	g. Total changes		(55,066,000)
8.	UAAL at the end of the year		\$3,753,281,000

IMPACTING EVENTS

With continued economic stress, many of OCERS plan sponsors delayed filling vacancies, did not provide any cost-of-living adjustments to current salaries, and some even experienced wage reductions, combining to provide a large gain of more than \$215 million in savings as future liabilities did not rise as quickly as the actuary assumed would be the case under normal market conditions.

Overall the system UAAL did increase by approximately \$50 million, primarily due to lower than expected investment returns. While the system actually earned 11.74%, more than the assumed rate, due to smoothing, the ongoing recognition of losses coming out of 2008 continued to hold down any possible gain on investments. Still, this was an interesting year as even with a smoothed loss of \$224 million, the funded ratio of the plan, that is total assets compared to total liabilities actually improved, moving from 68.77% the year prior to 69.79% at the end of 2010.



Development of UAAL for Year Ended December 31, 2011

1.	UAAL at beginning of year		\$3,753,281,000
2.	Changes in methods and procedures		
3.	Total normal cost at middle of year		385,008,000
4.	Actual employer/member contributions		(598,271,000)
5.	Interest		282,615,000
6.	Expected UAAL		\$3,822,633,000
7.	Actuarial (gain)/loss and other changes		
	a. Loss on investment	\$388,935,000	
	b. Gain on lower than expected salary increases	(174,558,000)	
	c. Full-Time equivalent salary reporting adjustment for part time employees	73,448,000	
	d. Retiree continuance form code change	42,619,000	
	e. Reclassify some active members as deferred	(6,295,000)	
	f. Loss on new retirements		
	g. Other experience (gain)/loss	(52,001,000)	
	h. Benefit improvements		
	i. Change in actuarial assumptions	363,842,000	
	j. Total changes		635,990,000
8.	UAAL at the end of the year		\$4,458,000,000

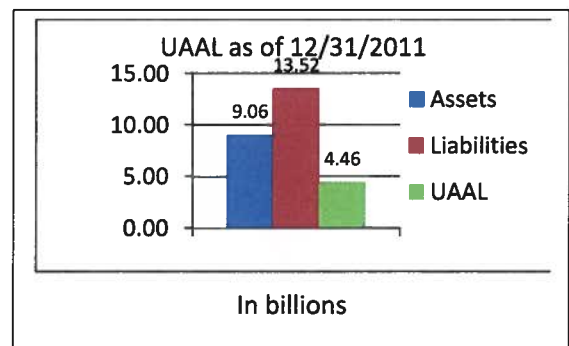
IMPACTING EVENTS

Every three years OCERS performs an experience study to determine how closely the actuary's assumptions are hewing to actual experience. The 2011 valuation was impacted by a number of assumption changes that flowed from the December 31, 2010 experience study, increasing the UAAL by \$363,842,000. Those changes included (1) higher liability from a recognition that General service retirees and all General and Safety beneficiaries were living longer than assumed, and (2) slightly higher individual salary increases, (3) offset to some degree by expectation of later service retirements, (4) fewer disability retirements, (5) more terminations and (6) slightly lower annual payoffs.

A very important change in an economic assumption also occurred, with the introduction of a 0.25% across the Board salary increase assumption. Though in the short term many OCERS plan sponsors have continued with layoffs, delayed hires, and reductions in overall salary payroll, the long term projection by the actuary is that salaries will increase. With the addition of this assumption, there is now a consideration that over long periods of time wage inflation will be higher than price inflation by 0.25% per year.

A major IT software conversion project also led OCERS to further refine the data reported to the actuary. Three of those data refinements had an impact on this year's UAAL as well:

Determining that full-time equivalent salaries (calculated by adjusting actual pensionable salaries with earnable salaries during those pay periods when the member is not working full-time)



would more accurately reflect likely final compensation used to determine retirement benefits. That clarification added \$73,448,000.

Confirming those retirees who have spouses eligible for a continued benefit following the member's death added \$42,619,000.

Confirming that some members who had been classified as active, and therefore still accruing a liability, were in fact deferred and had reduced the UAAL by \$6,295,000.



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Andy Yeung, ASA, MAAA, FCA, EA
Vice President & Associate Actuary
ayeung@segalco.com

VIA E-MAIL AND USPS

November 11, 2011

Mr. Steve Delaney
Chief Executive Officer
Orange County Employees Retirement System
2223 Wellington Avenue
Santa Ana, CA 92701-3101

Re: Projection of Retirement Costs, Unfunded Actuarial Accrued Liability and Funded Ratio Under Alternative Economic Scenarios Using the Assumptions Adopted by the Board for the December 31, 2011 Valuation

Dear Steve:

As requested, we have updated the projections in our letter dated July 14, 2011 to reflect the assumption changes adopted by the Board for the December 31, 2011 actuarial valuation.

The three market rate of return scenarios are the same as those used in our previous letter and they are as follows:

- Scenario #1: 0.00% for 2011 and 7.75% thereafter.
- Scenario #2: 7.75% for all years.
- Scenario #3: 15.50% for 2011 and 7.75% thereafter.

The projected contribution rates for the aggregate plan are provided in Attachment A. The projected contribution rates for the ten Rate Groups are provided in Attachment B. The projected UAAL and funded ratio for the aggregate plan are provided in Attachment C. The projected UAAL and funded ratio for the ten Rate Groups are provided in Attachments D through M.



Methods and Assumptions

The methods and actuarial assumptions we used to prepare the employer contribution rates, the UAAL and the funded ratio are as summarized below:

- The projections are based on the census data and financial information used in our December 31, 2010 valuation report for the Retirement Plan and the actuarial assumptions adopted by the Board for the December 31, 2011 valuation. These projections assume the changes in assumptions were effective December 31, 2010 even though the contribution rates provided in our December 31, 2010 valuation that have previously been approved by the Board are not changed by these new actuarial assumptions. Furthermore, the actual effect of the changes in assumptions will be remeasured using the demographic data as of December 31, 2011 as part of the annual valuation when that data is available. With the exception of the market rate of return specified above, it is assumed that all actuarial assumptions would be met in the future.
- The detailed amortization schedule for OCERS' UAAL as of December 31, 2010 is provided in the valuation report. For these projections those bases were reamortized to take into account the change in payroll growth assumption from 3.50% per year to 3.75% per year. An additional base was added to reflect the change in liabilities due to the change in assumptions. Any subsequent change in the UAAL due to actuarial gains or losses (e.g., from investment returns on actuarial value greater or less than the assumed 7.75% at market value) are amortized over separate 15-year periods.
- Consistent with the previous projection, we have continued to assume that new County General employees who are covered by bargaining agreements allowing them enrollment in Rate Group #2 with the 2.7% at 55 formula will continue to elect that formula over the new 1.62% at 65 formula in the same proportion as that observed at the December 31, 2010 valuation. As of December 31, 2010, Rate Group #2 active members covered by the new formula represented only 0.3% of the total Rate Group #2 payroll. The projected contribution rates in this study will be somewhat overstated to the extent that the proportion of members covered by the 1.62% at 65 formula continues to increase.
- For County Law Enforcement employees hired after April 8, 2010, we have estimated the normal cost savings¹ associated with the enrollment of those employees under the new 3% at 55 formula in projecting the rates for Rate Group #7.

¹ To estimate the savings, we have made a simplifying assumption that current active members under 3% at 50 would be replaced over 20 years (starting in 2010) by new members under 3% at 55 on a prorated basis.

- For the Sanitation District employees within the Supervisors and Professional unit hired after October 1, 2010, we have estimated the normal cost savings² associated with the enrollment of those employees under the new 1.64% at 57 formula (Section 31676.1) in projecting the rates for Rate Group #3. Since we have no data to confirm the number of members that is within the Supervisors and Professional unit, we assumed that all new employees would be enrolled under the new formula. The projected contribution rates in this study will be somewhat understated to the extent that some new employees are covered under the old formula. However, the difference should be fairly small, because the difference in normal cost rate between the current and the new formula is relatively small.
- For General OCFA employees hired after July 1, 2011, we have estimated the normal cost savings³ associated with the enrollment of those employees under the new 2.0% at 55 formula (Section 31676.16) in projecting the rates for Rate Group #10.
- For Safety OCFA employees hired after July 1, 2012 (July 1, 2011 for Executive Management unit), we have estimated the normal cost savings⁴ associated with the enrollment of those employees under the new 3.0% at 55 formula in projecting the rates for Rate Group #8.
- Other than the above adjustment to the normal cost, we have not included any other adjustments such as the anticipated change in the normal cost when existing Tier 1 active members (with pension benefits based on final one year average formula) are replaced by new Tier 2 members (with pension benefits based on final three year average formula) for members in any Rate Group.

Projections, by their nature, are not a guarantee of future results. The modeling projections are intended to serve as illustrations of future financial outcomes that are based on the information available to us at the time the modeling is undertaken and completed, and the agreed-upon assumptions and methodologies described herein. Emerging results may differ significantly if the actual experience proves to be different from these assumptions or if alternative methodologies are used. Actual experience may differ due to such variables as demographic experience, the economy, stock market performance and the regulatory environment.

² To estimate the savings, we have made a simplifying assumption that current active members under 2.5% at 55 would be replaced over the next 20 years by new members under 1.64% at 57 on a prorated basis.

³ To estimate the savings, we have made a simplifying assumption that current active members under 2.7% at 55 would be replaced over the next 20 years by new members under 2.0% at 55 on a prorated basis.

⁴ To estimate the savings, we have made a simplifying assumption that current active members under 3% at 50 would be replaced over the next 20 years by new members under 3% at 55 on a prorated basis.

Mr. Steve Delaney
November 11, 2011
Page 4

This study was prepared under the supervision of Andy Yeung, ASA, MAAA.

Please let us know if you have any questions.

Sincerely,

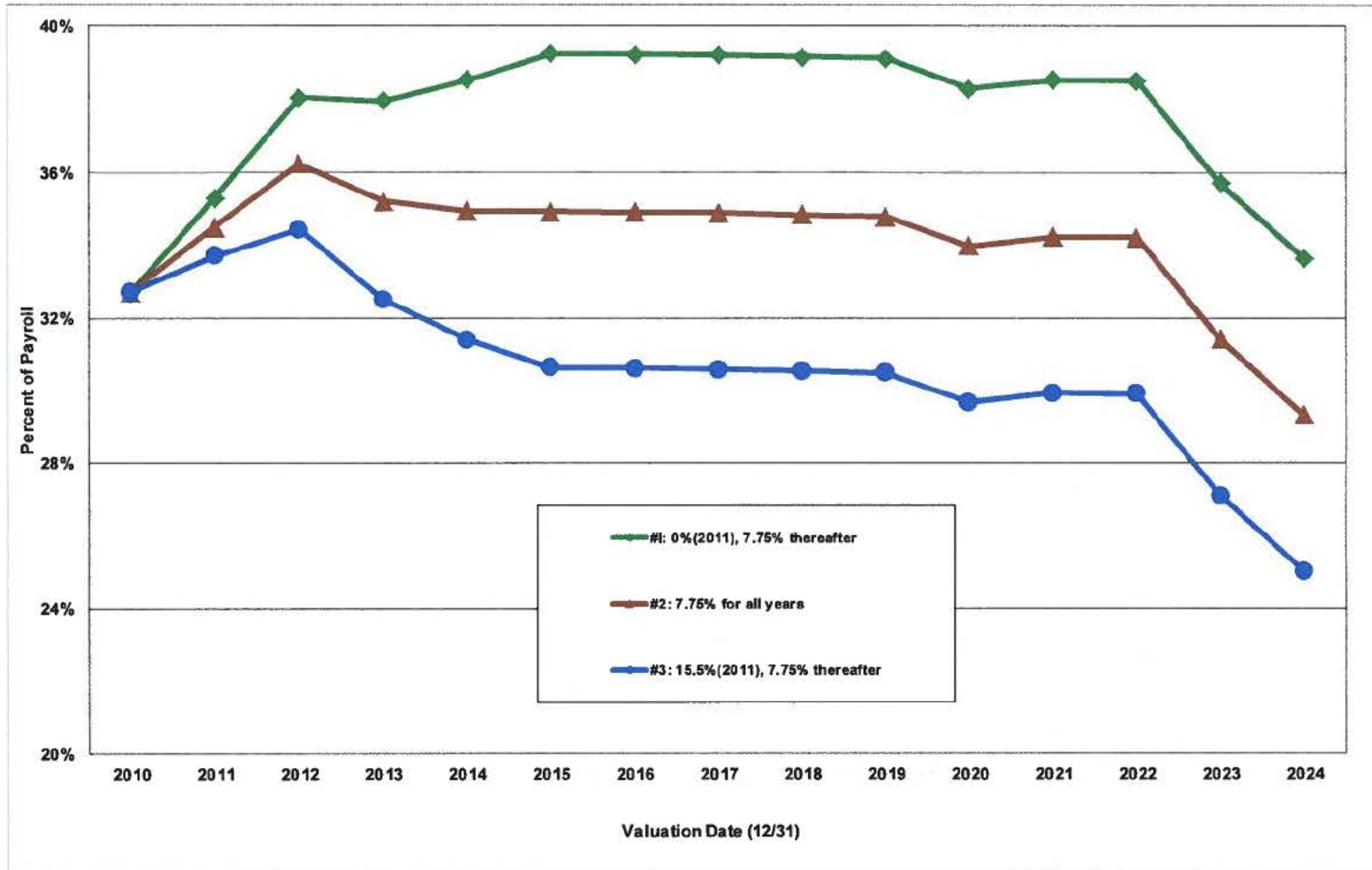
A handwritten signature in cursive script that reads "Andy Yeung".

Andy Yeung

KS/gxk
Enclosures

cc: Brenda Shott
Tim Thonis
Julie Wyne

**Attachment A: Projected Employer Rates
 Aggregate Plan**



Valuation Date (12/31)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0%(2011), 7.75% thereafter	32.7%	35.3%	38.1%	38.0%	38.5%	39.3%	39.2%	39.2%	39.2%	39.1%	38.3%	38.5%	38.5%	35.7%	33.6%
#2: 7.75% for all years	32.7%	34.5%	36.2%	35.2%	35.0%	34.9%	34.9%	34.9%	34.8%	34.8%	34.0%	34.2%	34.2%	31.4%	29.3%
#3: 15.5%(2011), 7.75% thereafter	32.7%	33.7%	34.4%	32.5%	31.4%	30.6%	30.6%	30.6%	30.5%	30.5%	29.7%	29.9%	29.9%	27.1%	25.0%

Attachment B-1
Projected Employer Rates by Rate Group
Scenario 1: 0% for 2011 and 7.75% thereafter

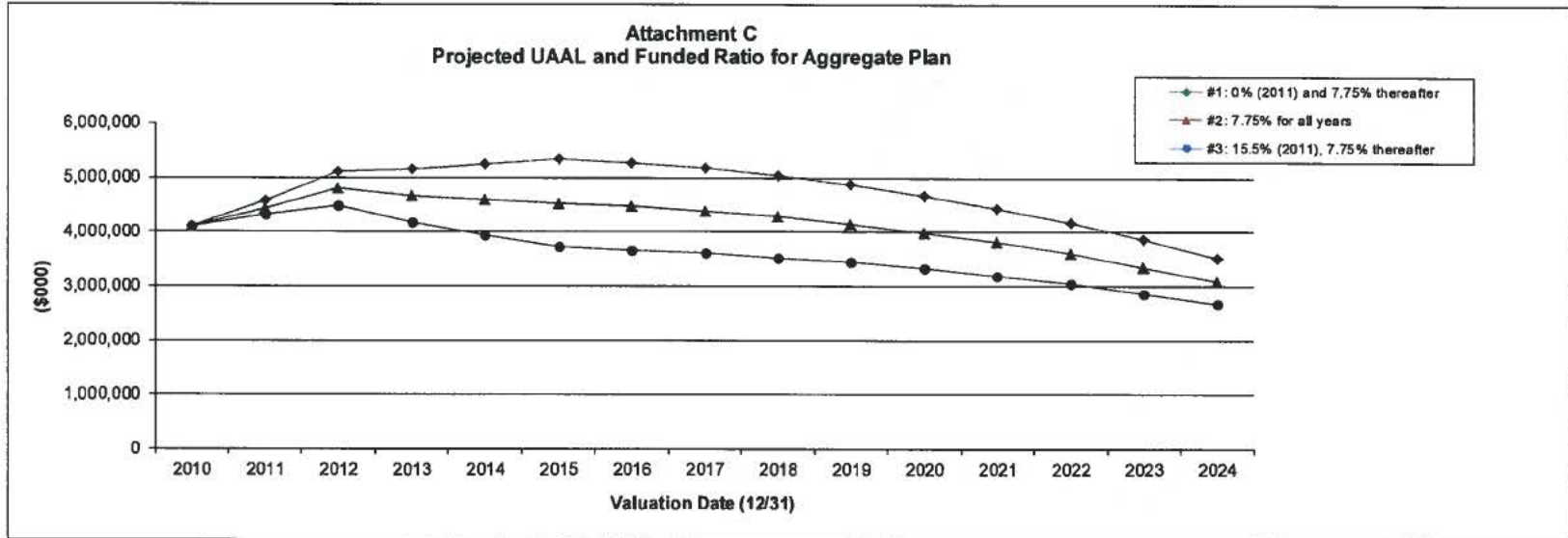
	Valuation Date (12/31)														
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
General															
RG #1 - Plans A and B (non-OCTA, non-OCSD)	19.0%	21.4%	24.0%	23.9%	24.4%	25.1%	25.1%	25.1%	25.1%	25.1%	25.9%	25.4%	26.2%	24.1%	21.5%
RG #2 - Plans I, J, O and P (2.7% @ 55 and 1.62% @ 65 combined)	30.9%	33.2%	35.7%	35.6%	36.1%	36.8%	36.8%	36.8%	36.8%	36.7%	35.7%	35.9%	35.7%	33.4%	31.4%
RG #3 - Plans B, G and H (2.5% @ 55 and 1.64% @ 57 combined)	29.4%	31.3%	33.5%	33.4%	33.9%	34.5%	34.4%	34.4%	34.3%	34.2%	32.3%	31.9%	31.9%	30.4%	28.9%
RG #5 - Plans A and B (OCTA)	21.8%	23.8%	26.0%	25.9%	26.4%	27.0%	27.0%	27.0%	27.0%	27.0%	26.8%	27.5%	28.7%	26.1%	24.0%
RG #9 - Plans M and N (TCA - 2.0% @ 55)	22.1%	23.3%	24.6%	24.5%	24.8%	25.2%	25.2%	25.2%	25.2%	25.1%	25.5%	26.0%	26.3%	25.4%	23.9%
RG #10 - Plans I, J, M and N (OCFA - 2.7% @ 55 and 2.0% @ 55 combined)	29.9%	31.7%	33.7%	33.6%	34.0%	34.6%	34.6%	34.5%	34.4%	34.4%	33.2%	31.0%	32.4%	31.6%	30.0%
RG #11 - Plans M and N, future service (Cemetery - 2.0% @ 55)	19.5%	21.2%	23.1%	23.1%	23.4%	23.9%	23.8%	23.7%	23.6%	23.5%	23.8%	23.6%	22.9%	21.0%	21.1%
Safety															
RG #6 - Plans E and F (Probation - 3.0% @ 50)	35.5%	37.5%	39.9%	39.8%	40.4%	41.0%	41.0%	41.0%	41.0%	40.9%	39.0%	38.6%	38.8%	36.7%	36.1%
RG #7 - Plans E, F, Q and R (Law Enforcement - 3.0% @ 50 and 3.0% @ 55 combined)	47.4%	51.2%	55.5%	55.3%	56.2%	57.3%	57.3%	57.2%	57.2%	57.1%	57.0%	58.1%	58.1%	52.9%	50.4%
RG #8 - Plans E, F, Q and R (Fire Authority - 3.0% @ 50 and 3.0% @ 55 combined)	43.9%	47.1%	50.7%	50.4%	51.1%	52.0%	51.8%	51.6%	51.4%	51.2%	50.7%	51.0%	50.4%	45.0%	41.8%

Attachment B-2
Projected Employer Rates by Rate Group
Scenario 2: 7.75% for all years

	Valuation Date (12/31)														
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
General															
RG #1 - Plans A and B (non-OCTA, non-OCSD)	19.0%	20.6%	22.2%	21.3%	21.1%	21.1%	21.1%	21.1%	21.1%	21.1%	21.9%	21.4%	22.2%	20.1%	17.6%
RG #2 - Plans I, J, O and P (2.7% @ 55 and 1.62% @ 65 combined)	30.9%	32.5%	34.0%	33.1%	32.9%	32.9%	32.9%	32.9%	32.9%	32.8%	31.8%	32.0%	31.8%	29.5%	27.5%
RG #3 - Plans B, G and H (2.5% @ 55 and 1.64% @ 57 combined)	29.4%	30.7%	32.1%	31.2%	30.9%	30.9%	30.8%	30.7%	30.7%	30.6%	28.7%	28.3%	28.3%	26.8%	25.3%
RG #5 - Plans A and B (OCTA)	21.8%	23.1%	24.5%	23.7%	23.5%	23.5%	23.5%	23.5%	23.5%	23.5%	23.4%	24.0%	25.2%	22.7%	20.5%
RG #9 - Plans M and N (TCA - 2.0% @ 55)	22.1%	22.9%	23.7%	23.3%	23.1%	23.1%	23.1%	23.1%	23.1%	23.1%	23.5%	24.0%	24.3%	23.4%	21.9%
RG #10 - Plans I, J, M and N (OCFA - 2.7% @ 55 and 2.0% @ 55 combined)	29.9%	31.1%	32.4%	31.5%	31.3%	31.3%	31.2%	31.1%	31.1%	31.0%	29.9%	27.6%	29.0%	28.3%	26.7%
RG #11 - Plans M and N, future service (Cemetery - 2.0% @ 55)	19.5%	20.6%	21.9%	21.3%	21.1%	21.1%	21.1%	21.1%	21.1%	21.0%	21.4%	21.2%	20.6%	18.6%	18.7%
Safety															
RG #6 - Plans E and F (Probation - 3.0% @ 50)	35.5%	36.9%	38.4%	37.5%	37.2%	37.2%	37.2%	37.2%	37.2%	37.1%	35.3%	34.8%	35.0%	32.9%	32.3%
RG #7 - Plans E, F, Q and R (Law Enforcement - 3.0% @ 50 and 3.0% @ 55 combined)	47.4%	49.9%	52.6%	51.0%	50.6%	50.5%	50.5%	50.4%	50.4%	50.3%	50.2%	51.3%	51.4%	46.1%	43.6%
RG #8 - Plans E, F, Q and R (Fire Authority - 3.0% @ 50 and 3.0% @ 55 combined)	43.9%	46.0%	48.2%	46.6%	46.0%	45.8%	45.6%	45.5%	45.3%	45.1%	44.5%	44.9%	44.3%	38.9%	35.6%

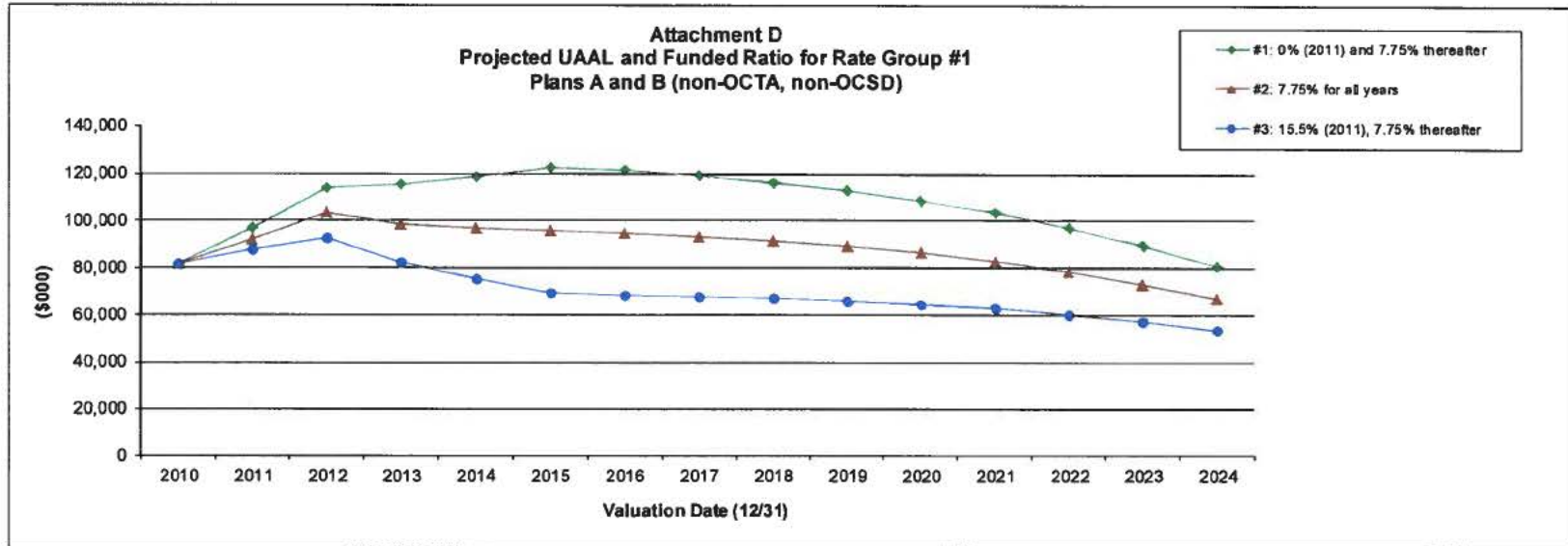
Attachment B-3
Projected Employer Rates by Rate Group
Scenario 3: 15.5% for 2011 and 7.75% thereafter

	Valuation Date (12/31)														
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
General															
RG #1 - Plans A and B (non-OCTA, non-OCSD)	19.0%	19.8%	20.5%	18.7%	17.7%	17.1%	17.1%	17.1%	17.0%	17.1%	17.8%	17.4%	18.2%	16.1%	13.5%
RG #2 - Plans I, J, O and P (2.7% @ 55 and 1.62% @ 65 combined)	30.9%	31.7%	32.4%	30.7%	29.7%	29.0%	29.0%	29.0%	29.0%	28.9%	27.9%	28.1%	27.9%	25.6%	23.6%
RG #3 - Plans B, G and H (2.5% @ 55 and 1.64% @ 57 combined)	29.4%	30.0%	30.6%	28.9%	28.0%	27.3%	27.2%	27.1%	27.1%	27.0%	25.1%	24.7%	24.7%	23.2%	21.7%
RG #5 - Plans A and B (OCTA)	21.8%	22.5%	23.1%	21.5%	20.7%	20.1%	20.1%	20.1%	20.1%	20.1%	19.9%	20.6%	21.8%	19.3%	17.1%
RG #9 - Plans M and N (TCA - 2.0% @ 55)	22.1%	22.6%	22.9%	22.0%	21.4%	21.0%	21.0%	21.0%	21.0%	20.9%	21.3%	21.9%	22.1%	21.2%	19.7%
RG #10 - Plans I, J, M and N (OCFA - 2.7% @ 55 and 2.0% @ 55 combined)	29.9%	30.5%	31.0%	29.5%	28.6%	27.9%	27.9%	27.8%	27.7%	27.7%	26.5%	24.3%	25.7%	24.9%	23.3%
RG #11 - Plans M and N, future service (Cemetery - 2.0% @ 55)	19.5%	20.1%	20.5%	19.1%	18.2%	17.6%	17.5%	17.4%	17.3%	17.3%	17.7%	17.5%	16.9%	15.0%	15.2%
Safety															
RG #6 - Plans E and F (Probation - 3.0% @ 50)	35.5%	36.2%	36.8%	35.1%	34.2%	33.4%	33.4%	33.4%	33.4%	33.3%	31.5%	31.0%	31.2%	29.1%	28.5%
RG #7 - Plans E, F, Q and R (Law Enforcement - 3.0% @ 50 and 3.0% @ 55 combined)	47.4%	48.7%	49.8%	46.7%	44.9%	43.7%	43.7%	43.6%	43.6%	43.5%	43.4%	44.5%	44.6%	39.3%	36.8%
RG #8 - Plans E, F, Q and R (Fire Authority - 3.0% @ 50 and 3.0% @ 55 combined)	43.9%	44.9%	45.7%	42.7%	41.0%	39.7%	39.5%	39.3%	39.1%	38.9%	38.4%	38.8%	38.1%	32.7%	29.5%



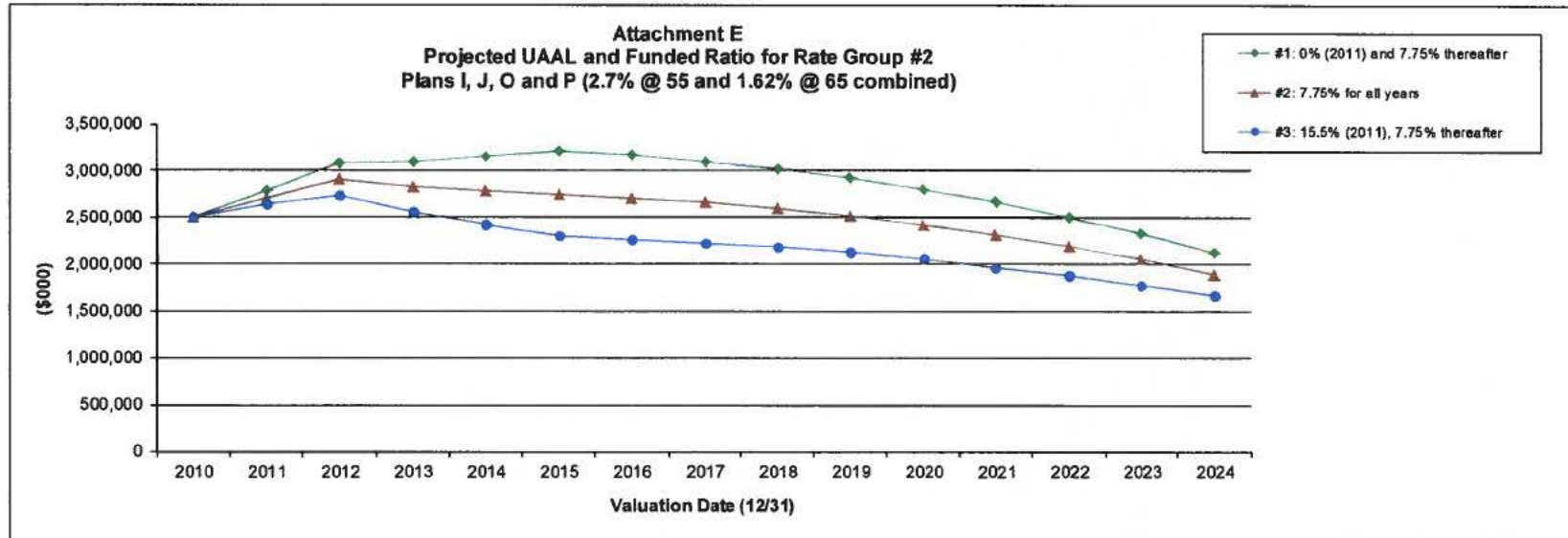
Funded Ratio	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	67.9%	66.6%	65.1%	67.1%	68.7%	70.2%	72.4%	74.6%	76.9%	79.0%	81.1%	83.2%	85.2%	87.1%	89.0%
#2: 7.75% for all years	67.9%	67.5%	67.2%	70.2%	72.6%	74.7%	76.6%	78.5%	80.3%	82.1%	83.8%	85.5%	87.2%	88.7%	90.3%
#3: 15.5% (2011), 7.75% thereafter	67.9%	68.5%	69.3%	73.3%	76.5%	79.2%	80.8%	82.3%	83.8%	85.2%	86.6%	87.9%	89.2%	90.4%	91.6%

UAAL	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	4,091,813	4,568,742	5,108,258	5,150,800	5,241,944	5,332,802	5,267,869	5,166,510	5,030,293	4,863,490	4,663,330	4,426,715	4,159,562	3,855,845	3,501,908
#2: 7.75% for all years	4,091,813	4,438,100	4,796,350	4,660,790	4,587,148	4,530,072	4,465,455	4,382,898	4,277,963	4,148,317	3,991,888	3,806,231	3,597,723	3,360,945	3,083,143
#3: 15.5% (2011), 7.75% thereafter	4,091,813	4,307,458	4,484,442	4,170,779	3,932,167	3,726,762	3,662,219	3,598,399	3,524,784	3,432,451	3,319,700	3,184,706	3,034,641	2,864,832	2,663,338



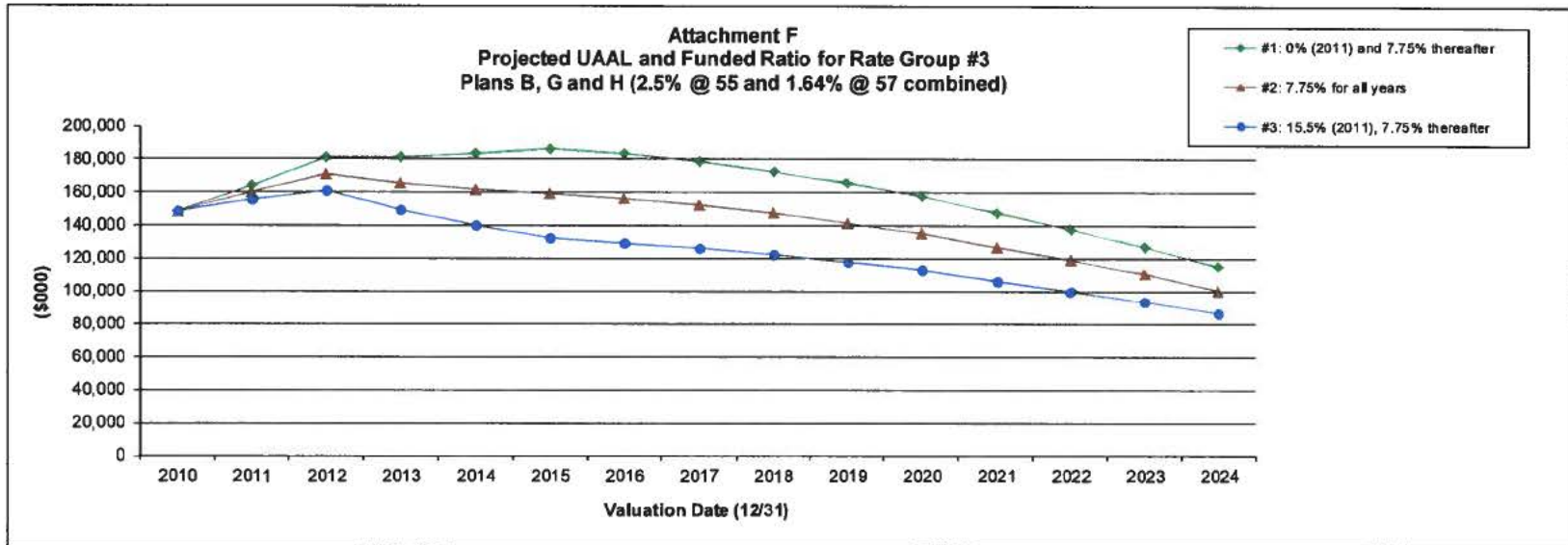
Funded Ratio	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	79.0%	76.4%	73.6%	74.6%	75.2%	75.7%	77.1%	78.6%	80.1%	81.6%	83.1%	84.6%	86.2%	87.9%	89.5%
#2: 7.75% for all years	79.0%	77.5%	76.1%	78.3%	79.8%	81.0%	82.1%	83.2%	84.3%	85.4%	86.5%	87.7%	88.8%	90.1%	91.3%
#3: 15.5% (2011), 7.75% thereafter	79.0%	78.6%	78.6%	81.9%	84.3%	86.2%	87.1%	87.9%	88.6%	89.3%	90.0%	90.7%	91.5%	92.2%	93.1%

UAAL	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	81,475	96,748	113,943	115,276	118,743	122,228	121,103	119,066	116,197	112,652	108,370	103,265	96,914	89,407	80,584
#2: 7.75% for all years	81,475	92,195	103,250	98,707	96,915	95,840	94,761	93,363	91,533	89,225	86,390	82,961	78,545	73,252	66,952
#3: 15.5% (2011), 7.75% thereafter	81,475	87,643	92,551	82,120	75,040	69,368	68,333	67,575	66,788	65,723	64,345	62,608	60,148	57,096	53,333



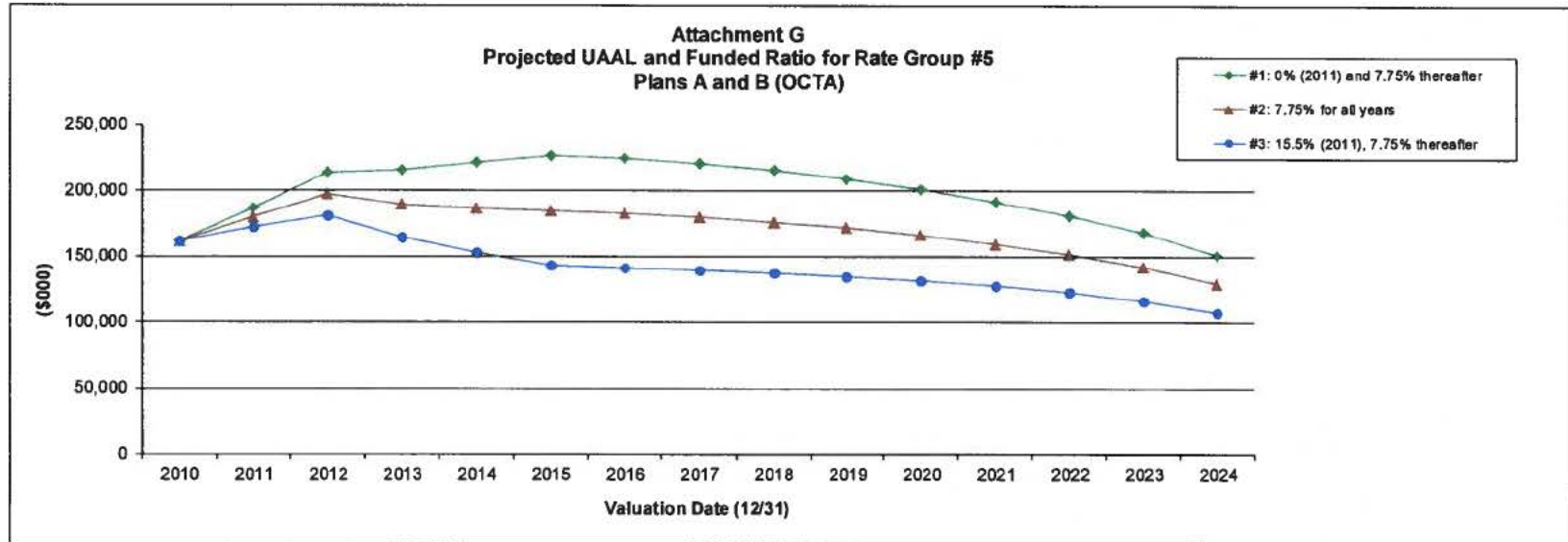
Funded Ratio	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	66.2%	64.7%	63.4%	65.5%	67.1%	68.6%	70.9%	73.2%	75.5%	77.7%	79.9%	82.0%	84.0%	86.0%	88.0%
#2: 7.75% for all years	66.2%	65.7%	65.4%	68.5%	70.9%	73.1%	75.1%	77.0%	78.9%	80.7%	82.6%	84.3%	86.1%	87.7%	89.3%
#3: 15.5% (2011), 7.75% thereafter	66.2%	66.6%	67.5%	71.6%	74.8%	77.5%	79.2%	80.8%	82.3%	83.8%	85.3%	86.7%	88.1%	89.4%	90.6%

UAAL	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	2,502,624	2,785,609	3,088,136	3,103,155	3,153,252	3,202,382	3,163,468	3,103,133	3,022,374	2,923,446	2,804,428	2,663,669	2,506,532	2,329,933	2,125,907
#2: 7.75% for all years	2,502,624	2,712,074	2,912,850	2,827,980	2,785,704	2,751,961	2,713,176	2,663,397	2,600,140	2,522,006	2,427,471	2,315,178	2,190,875	2,051,900	1,890,740
#3: 15.5% (2011), 7.75% thereafter	2,502,624	2,638,539	2,737,556	2,552,730	2,418,001	2,301,290	2,262,613	2,223,496	2,177,928	2,120,726	2,050,688	1,966,874	1,875,420	1,774,084	1,655,645



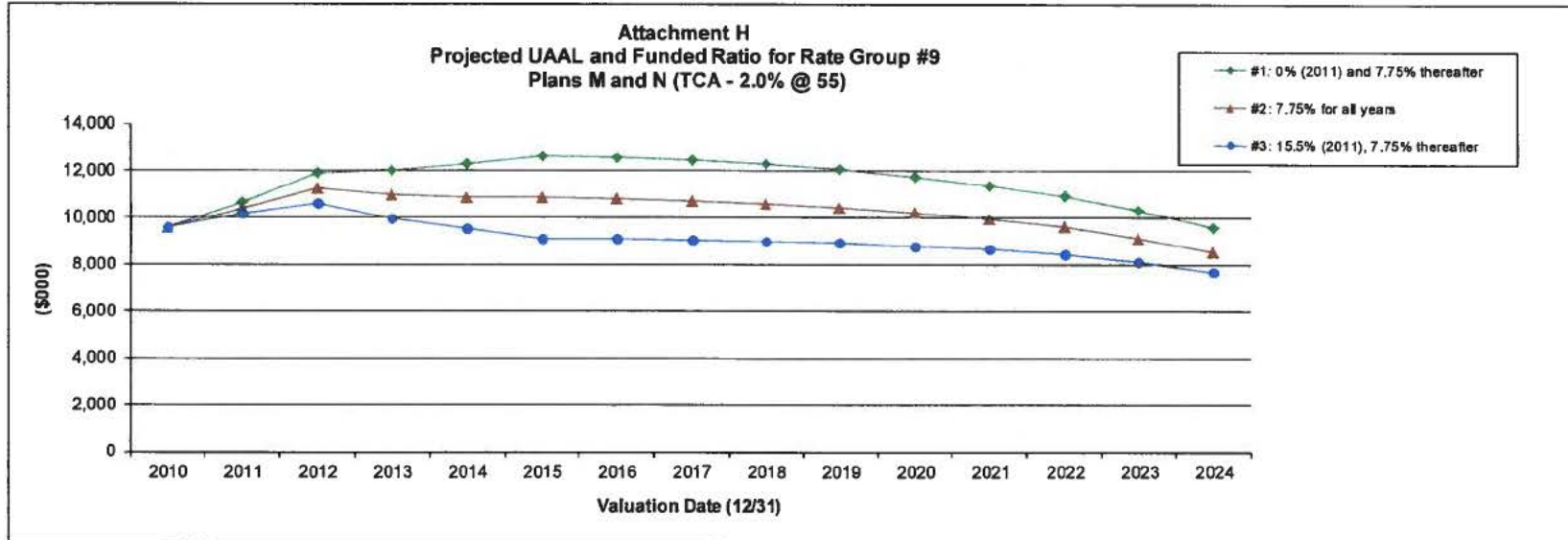
Funded Ratio	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	64.8%	64.2%	63.5%	66.3%	68.5%	70.5%	73.2%	75.8%	78.3%	80.7%	83.0%	85.2%	87.2%	89.1%	90.8%
#2: 7.75% for all years	64.8%	65.1%	65.6%	69.3%	72.2%	74.8%	77.1%	79.3%	81.5%	83.5%	85.4%	87.3%	89.0%	90.5%	91.9%
#3: 15.5% (2011), 7.75% thereafter	64.8%	66.0%	67.6%	72.3%	75.9%	79.0%	81.1%	82.9%	84.6%	86.3%	87.9%	89.4%	90.7%	91.9%	93.1%

UAAL	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	148,255	163,914	181,038	181,254	183,654	186,102	183,002	178,532	172,745	165,787	157,541	147,914	137,663	126,934	114,769
#2: 7.75% for all years	148,255	159,749	170,952	165,216	161,960	159,197	156,072	152,211	147,466	141,752	134,963	127,029	118,727	110,231	100,611
#3: 15.5% (2011), 7.75% thereafter	148,255	155,584	160,869	149,190	140,304	132,381	129,202	125,955	122,250	117,767	112,428	106,172	99,801	93,524	86,433



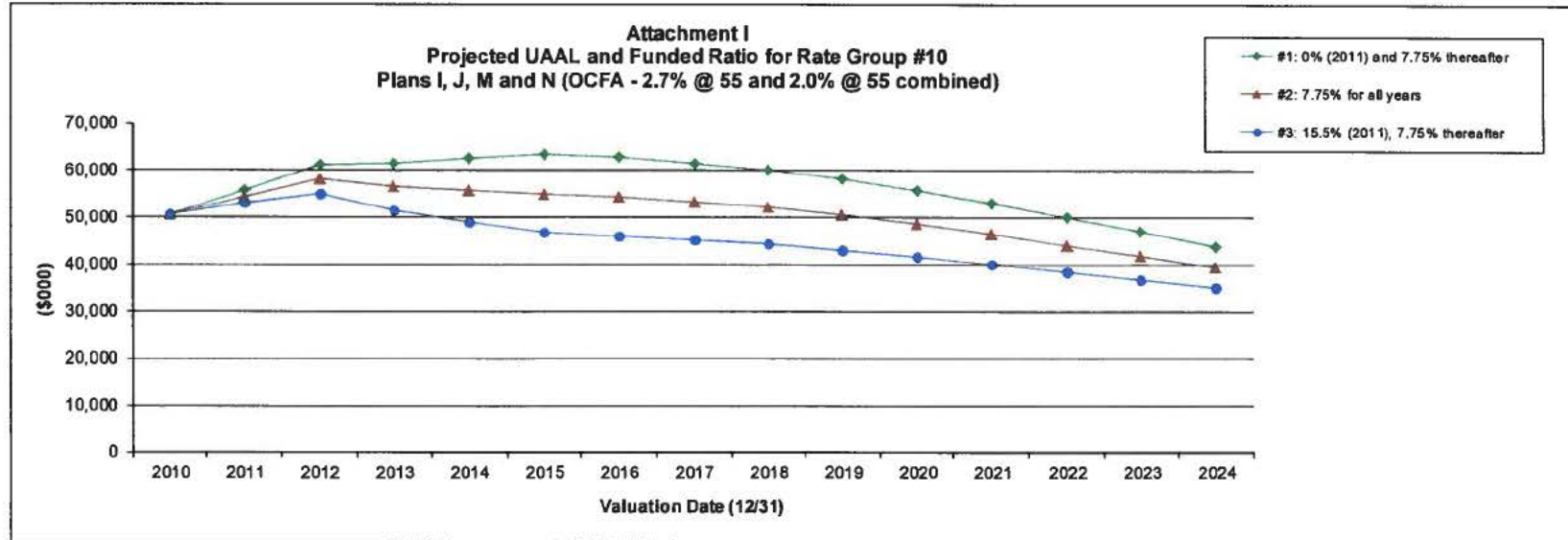
Funded Ratio	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	74.0%	72.0%	70.0%	71.7%	72.9%	74.0%	75.9%	77.8%	79.7%	81.6%	83.4%	85.1%	86.8%	88.5%	90.3%
#2: 7.75% for all years	74.0%	73.0%	72.3%	75.1%	77.1%	78.8%	80.4%	81.9%	83.4%	84.9%	86.3%	87.6%	89.0%	90.3%	91.7%
#3: 15.5% (2011), 7.75% thereafter	74.0%	74.1%	74.6%	78.5%	81.3%	83.6%	84.9%	86.0%	87.1%	88.2%	89.2%	90.2%	91.1%	92.1%	93.1%

UAAL	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	161,196	186,220	213,657	215,598	221,057	226,685	224,517	220,748	215,495	208,996	201,124	191,747	180,828	167,652	150,816
#2: 7.75% for all years	161,196	179,327	197,250	189,888	186,787	184,771	182,622	179,830	176,201	171,639	166,047	159,330	151,462	141,773	128,929
#3: 15.5% (2011), 7.75% thereafter	161,196	172,433	180,841	164,168	152,497	142,838	140,720	138,926	136,935	134,319	131,011	126,940	122,142	115,970	107,114

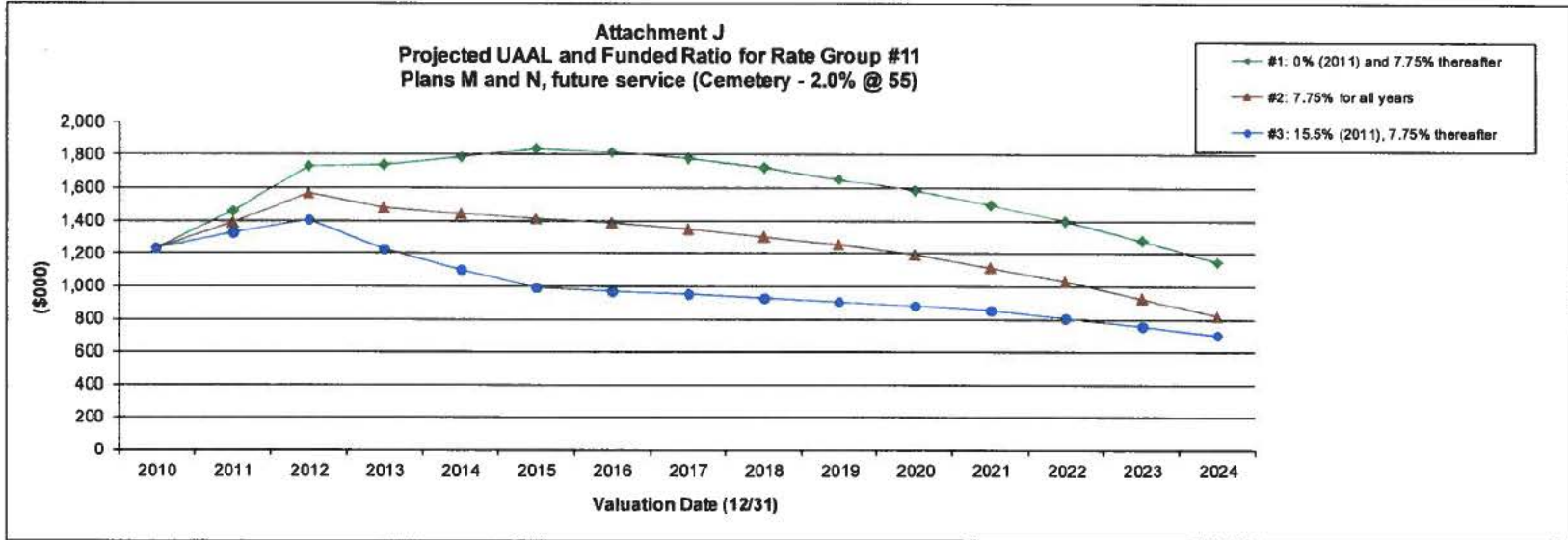


Funded Ratio	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	63.6%	63.4%	63.1%	66.3%	68.7%	70.8%	73.5%	76.0%	78.4%	80.7%	82.7%	84.7%	86.5%	88.3%	90.0%
#2: 7.75% for all years	63.6%	64.3%	65.1%	69.2%	72.2%	74.9%	77.2%	79.4%	81.4%	83.2%	85.0%	86.6%	88.1%	89.6%	91.1%
#3: 15.5% (2011), 7.75% thereafter	63.6%	65.1%	67.1%	72.0%	75.8%	78.9%	80.9%	82.7%	84.2%	85.7%	87.1%	88.4%	89.6%	90.8%	92.0%

UAAL	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	9,561	10,669	11,884	12,012	12,303	12,621	12,581	12,468	12,288	12,051	11,753	11,387	10,924	10,323	9,576
#2: 7.75% for all years	9,561	10,411	11,248	10,988	10,901	10,861	10,813	10,734	10,616	10,453	10,240	9,973	9,624	9,152	8,552
#3: 15.5% (2011), 7.75% thereafter	9,561	10,153	10,613	9,966	9,504	9,113	9,063	9,025	8,978	8,900	8,787	8,637	8,422	8,104	7,679

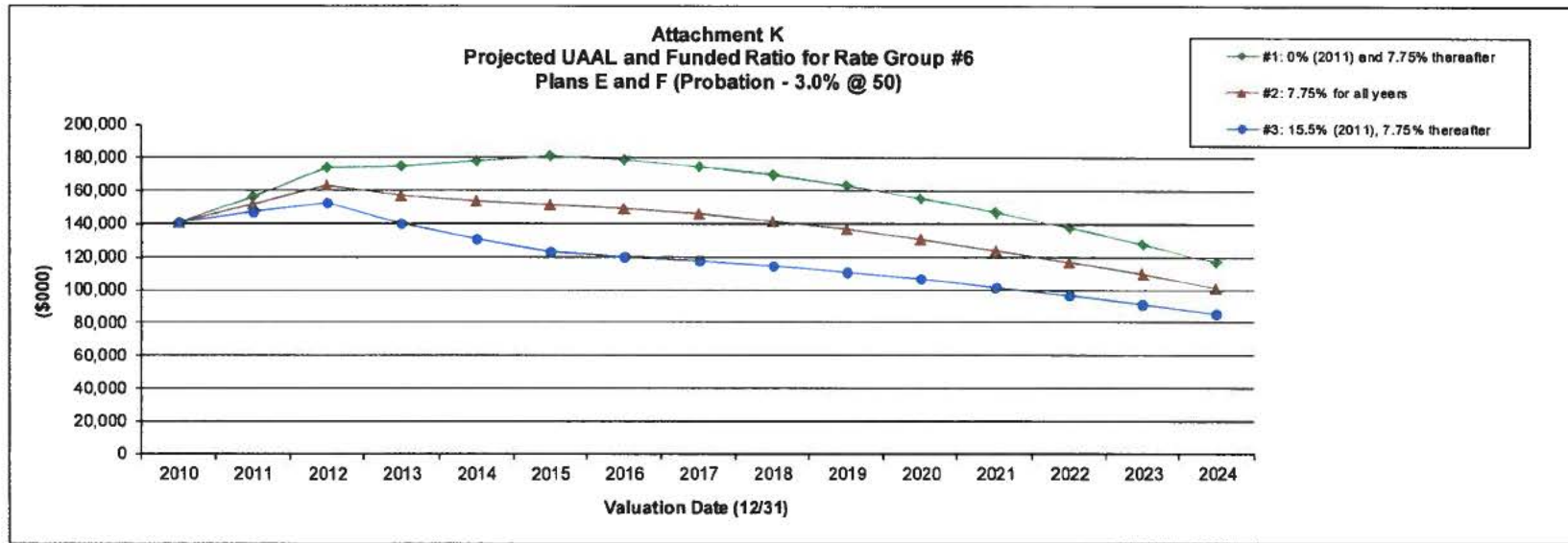


Funded Ratio	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	62.4%	62.0%	61.6%	64.5%	66.7%	68.8%	71.6%	74.2%	76.8%	79.2%	81.5%	83.7%	85.7%	87.5%	89.2%
#2: 7.75% for all years	62.4%	62.9%	63.5%	67.3%	70.3%	72.9%	75.4%	77.6%	79.8%	81.9%	83.8%	85.7%	87.4%	88.9%	90.3%
#3: 15.5% (2011), 7.75% thereafter	62.4%	63.7%	65.5%	70.2%	73.9%	77.1%	79.2%	81.1%	82.9%	84.5%	86.2%	87.7%	89.1%	90.3%	91.4%
UAAL															
#1: 0% (2011) and 7.75% thereafter	50,630	55,698	61,202	61,468	62,429	63,422	62,684	61,531	59,975	58,064	55,767	53,048	50,045	47,118	43,846
#2: 7.75% for all years	50,630	54,414	58,081	56,492	55,684	55,040	54,292	53,328	52,098	50,580	48,742	46,557	44,169	41,944	39,470
#3: 15.5% (2011), 7.75% thereafter	50,630	53,129	54,961	51,521	48,951	46,678	45,915	45,136	44,228	43,093	41,705	40,042	38,256	36,724	35,037



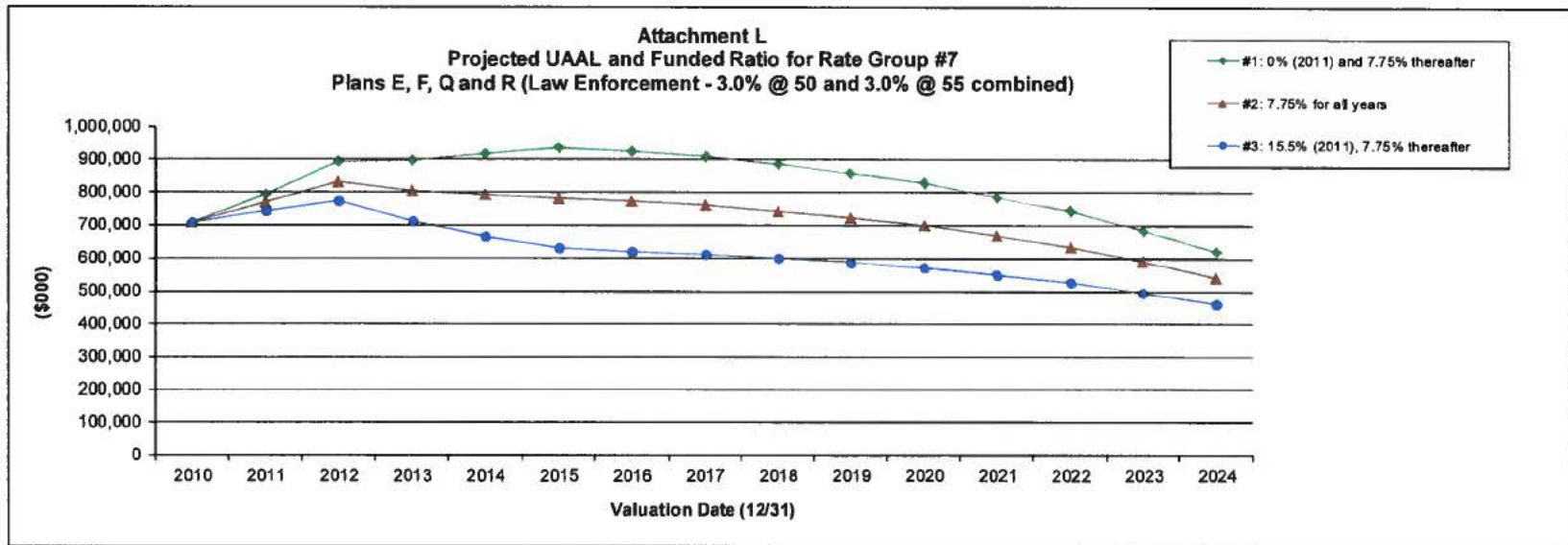
Funded Ratio	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	78.7%	76.6%	74.4%	76.2%	77.3%	78.4%	80.2%	82.1%	83.9%	85.6%	87.2%	88.8%	90.2%	91.7%	93.0%
#2: 7.75% for all years	78.7%	77.7%	76.9%	79.7%	81.7%	83.4%	84.9%	86.4%	87.8%	89.1%	90.4%	91.6%	92.8%	94.0%	95.0%
#3: 15.5% (2011), 7.75% thereafter	78.7%	78.8%	79.3%	83.3%	86.1%	88.3%	89.5%	90.4%	91.3%	92.1%	92.9%	93.6%	94.4%	95.1%	95.7%

UAAL	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	1,232	1,462	1,731	1,742	1,791	1,844	1,818	1,777	1,723	1,659	1,584	1,498	1,396	1,277	1,148
#2: 7.75% for all years	1,232	1,393	1,566	1,483	1,444	1,416	1,386	1,351	1,307	1,254	1,191	1,119	1,032	930	821
#3: 15.5% (2011), 7.75% thereafter	1,232	1,325	1,402	1,225	1,099	994	969	949	930	907	880	848	807	757	706



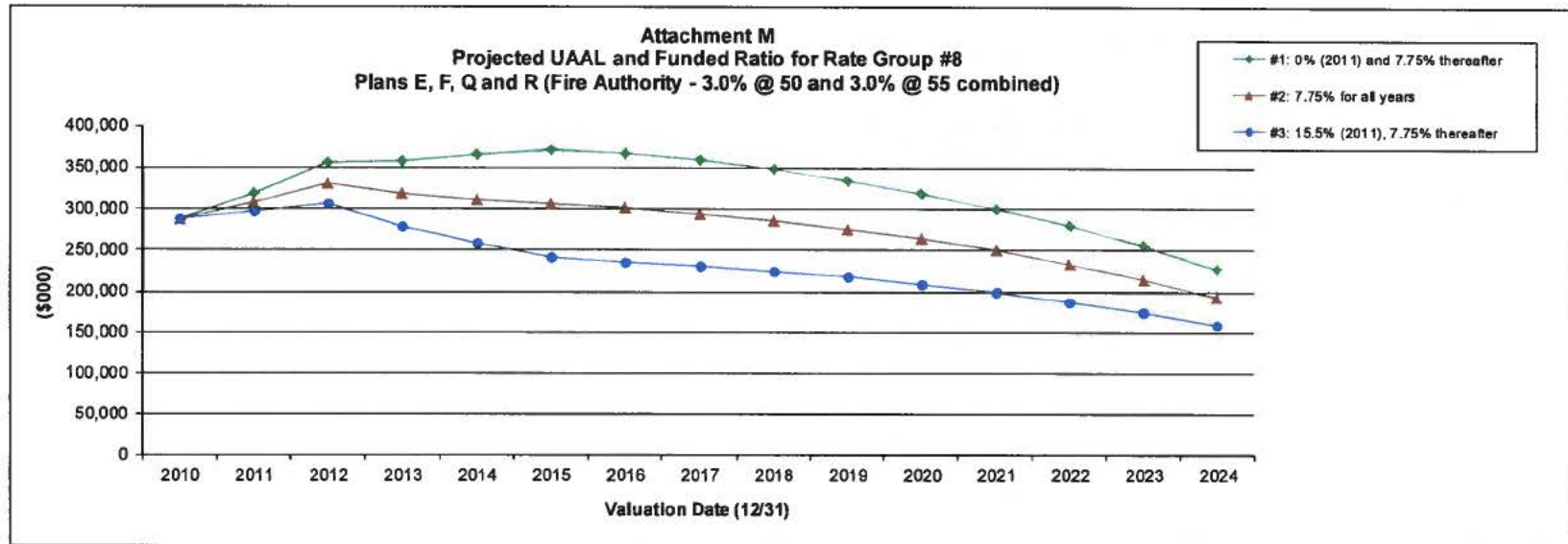
Funded Ratio	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	67.4%	67.0%	66.3%	69.0%	71.1%	73.0%	75.5%	78.0%	80.3%	82.5%	84.6%	86.6%	88.4%	90.0%	91.6%
#2: 7.75% for all years	67.4%	67.9%	68.4%	72.1%	74.9%	77.3%	79.5%	81.6%	83.5%	85.3%	87.1%	88.7%	90.2%	91.5%	92.7%
#3: 15.5% (2011), 7.75% thereafter	67.4%	68.9%	70.5%	75.2%	78.7%	81.7%	83.5%	85.2%	86.7%	88.1%	89.5%	90.8%	91.9%	92.9%	93.8%

UAAL	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	140,411	155,997	173,982	174,602	177,743	181,089	178,489	174,542	169,320	162,998	155,471	146,650	137,366	127,810	116,871
#2: 7.75% for all years	140,411	151,534	163,115	157,259	154,223	151,852	149,213	145,932	141,844	136,866	130,914	123,923	116,741	109,596	101,415
#3: 15.5% (2011), 7.75% thereafter	140,411	147,071	152,254	139,934	130,739	122,681	120,001	117,374	114,411	110,777	106,401	101,244	96,179	91,459	86,037



Funded Ratio	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	70.1%	68.7%	67.1%	69.0%	70.4%	71.7%	73.7%	75.8%	77.9%	79.9%	81.8%	83.7%	85.6%	87.5%	89.4%
#2: 7.75% for all years	70.1%	69.7%	69.3%	72.3%	74.4%	76.3%	78.1%	79.8%	81.4%	83.1%	84.6%	86.2%	87.7%	89.2%	90.8%
#3: 15.5% (2011), 7.75% thereafter	70.1%	70.7%	71.5%	75.5%	78.5%	80.9%	82.4%	83.8%	85.0%	86.3%	87.5%	88.6%	89.8%	90.9%	92.1%

UAAL	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	708,844	793,667	891,555	897,875	916,736	935,861	925,939	909,592	887,202	859,632	826,355	786,794	740,372	684,725	618,642
#2: 7.75% for all years	708,844	768,621	831,806	804,118	791,631	782,727	772,861	760,096	743,680	723,220	698,288	668,442	633,210	590,367	538,857
#3: 15.5% (2011), 7.75% thereafter	708,844	743,574	772,055	710,342	666,490	629,529	619,727	610,588	600,159	586,810	570,222	550,063	526,003	495,931	458,955



Funded Ratio	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#1: 0% (2011) and 7.75% thereafter	70.3%	69.6%	68.6%	70.8%	72.4%	73.9%	76.1%	78.3%	80.5%	82.5%	84.5%	86.4%	88.2%	90.0%	91.7%
#2: 7.75% for all years	70.3%	70.6%	70.8%	74.0%	76.4%	78.5%	80.4%	82.2%	83.9%	85.6%	87.2%	88.7%	90.2%	91.6%	93.0%
#3: 15.5% (2011), 7.75% thereafter	70.3%	71.6%	73.0%	77.3%	80.5%	83.1%	84.7%	86.1%	87.4%	88.7%	89.9%	91.0%	92.1%	93.2%	94.2%
UAAL															
#1: 0% (2011) and 7.75% thereafter	287,585	318,288	356,028	357,501	364,584	372,008	366,622	358,426	347,595	334,512	318,957	300,708	279,728	255,333	227,270
#2: 7.75% for all years	287,585	307,912	330,990	317,875	311,299	306,321	300,909	294,224	285,943	275,895	263,905	249,786	233,564	214,622	192,775
#3: 15.5% (2011), 7.75% thereafter	287,585	297,537	305,959	278,270	258,057	240,700	235,261	230,093	224,354	217,335	208,906	198,928	187,476	173,994	158,368

DISCUSSION CALENDAR – AGENDA ITEM NO. 4
BUDGET AND FINANCE COMMITTEE MEETING
March 9, 2011

TO: Budget and Finance Committee, Orange County Fire Authority

FROM: Lori Zeller, Assistant Chief
Business Services Department

SUBJECT: **A Review of Pension Obligation Bonds**

Summary:

This agenda item is submitted to provide a written report on the use of Pension Obligation Bonds and to seek Committee approval of staff's recommendation not to pursue issuance of Bonds at this point in time.

Recommended Action:

Receive and file report and confirm staff's recommendation not to pursue issuance of Pension Obligation Bonds at this point in time.

Background:

Retirement costs represent approximately \$56 million or 24% of the Authority's FY 2010/11 General Fund budget. Each year, the Authority receives its retirement rates from the Orange County Retirement System (OCERS). The total retirement rate has two components: the normal rate plus the current year's cost for the Unfunded Actuarial Accrued Liability (UAAL). The UAAL is determined by the actuary and is the shortfall between the future benefit stream owed to employees and retirees and the funds or assets expected to be available to the retirement system to pay such benefits when due discounted at the system's actuarially assumed interest rate. This amount changes every year as a result of changes in accrued benefits, pay levels, rates of return on investments, changes in actuarial assumptions, changes in the demographics of the employee and retiree base, and employer contributions. The UAAL is currently being amortized or paid down over 25 years at a rate of 7.75%. As of December 31, 2009, OCFA's UAAL is \$391 million.

OCFA's obligation to pay vested benefits is constitutionally mandated and it incurs an interest expense equal to the actuarially assumed interest rate on the unpaid balance. In essence, the UAAL constitutes debt of the OCFA.

Another option that may be available to the OCFA to refinance this debt at a lower cost is to issue Pension Obligation Bonds (POBs) to reduce the UAAL as part of an overall strategy for managing pension costs. Pension Obligation Bonds are bonds issued by a state or local government at a taxable bond market rate that is lower than the actuary's assumed rate of 7.75%. The proceeds are used to prepay all or a part of its UAAL to the pension system. The annual UAAL payment to the pension system to amortize such liabilities is, therefore, eliminated or reduced and replaced by annual debt service on the POBs. Currently, the UAAL is referred to as

“soft debt” because it is not required to be disclosed as debt on the OCFA’s financial statements. By issuing POBs, OCFA would be converting a “soft” balance sheet liability into a “hard” balance sheet liability in that OCFA would issue debt and lock itself into annual debt service payments whereas before, the UAAL could fluctuate up or down in any given year depending on OCERS’ rate of return and other actuarial assumptions.

In order to achieve the expected budgetary relief, the issuer hopes to invest the bond proceeds at a rate higher than the total cost of borrowing. The bond proceeds would be invested with OCERS. The desired result is that the transaction reduces the annual pension contribution required to fund the plan by more than the total cost of borrowing.

The long-term actual investment performance of the retirement plan (OCERS) is what determines the final savings or cost of issuing the POBs. Issuing a POB will usually produce a near-term reduction in contributions to the retirement plan, but it is not possible to know in advance whether the POB will produce any long-term savings at all. An issuer has to wait until the final maturity of the bonds, which is usually 20-30 years, to make that determination.

The attached report, *A Review of Pension Obligation Bonds*, prepared for the OCFA by Tamalpais Advisors, Inc. takes a comprehensive look at some of the issues the OCFA should consider in exploring the use of POBs including: the advantages and disadvantages of various options for financing the UAAL, the legal aspects, the impact on the five year financial forecast, etc. The purpose of the report is to provide a foundation of information to assist the Committee in its discussion.

In addition, it’s important to note that the OCFA’s Amended Joint Powers Agreement allows for issuance of long-term bonded indebtedness, only upon approval of two-thirds vote of all members. This provision would apply to a POB issuance.

Staff is recommending that OCFA not pursue the issuance of Pension Obligation Bonds at this point in time. Efforts are currently underway with OCERS to ensure that the stated UAAL for OCFA is accurate, and that detailed accounting records are maintained on a plan sponsor basis. Staff would not be comfortable converting any current amount of stated liability into a hard-debt until these accounting issues are resolved, and remain resolved for an extended period of time. In addition, OCERS and other major public retirement systems are currently reviewing the interest rate assumption used for discounting UAALs. It would be impossible to quantify projected savings associated with a POB so long as a potential change is being considered to the interest rate assumption.

Staff will continue to monitor all of these factors, as well as the market conditions for POBs, and will return to the Committee in the future if conditions improve to the point of supporting a staff recommendation to explore the POBs further.

Impact to Cities/County:

Not Applicable.

Fiscal Impact:

Not Applicable.

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Attachment:

A Review of Pension Obligation Bonds



A Review of Pension Obligation Bonds For the Orange County Fire Authority

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Executive Summary

1. Assessment of pension obligation bonds (POBs) involves a combination of financial analysis and more subjective beliefs about risk and public policy.
2. This report discusses four types of risk involved in the issuance of POBs and what can and cannot be done to ameliorate them: leverage risk (taking on debt you cannot afford); actuarial risk (earning less on the POBs proceeds than the interest cost of the POBs); political risk (pressure to increase benefits if POBs lead to full funding of the pension system); and market timing risk (suffering market declines soon after issuing POBs).
3. In addition to presenting advantages and disadvantages of issuing POBs to address the Authority's unfunded actuarial accrued liability (UAAL), this report includes discussion of other ways to reduce the UAAL such as increasing employee contributions, reducing benefits or using Authority reserves.
4. The Authority's UAAL history and projected annual contributions are illustrated, along with the history of the Orange County Employees' Retirement System's UAAL and investment earnings performance. The cost of the Authority's UAAL liability is compared to the cost of POBs debt service, and a review of the POBs market is made. Potentially significant savings may be achieved through issuance of POBs but a number of risk factors and policy considerations affect how "real" the savings may be.
5. This report includes a discussion of the legal underpinnings of POBs and suggests that the Authority would be able to issue POBs without undertaking a court validation. Certain unique security features for POBs are presented, including the concept of a pension stabilization fund and the intercept of the Authority's property taxes.
6. A discussion of the impact of POBs on the Authority's Strategic 5-Year Financial Forecast and TRANS is provided.
7. The report briefly summarizes empirical research on POBs performance that shows mixed results.
8. Controversial subjects raised by the Government Accounting Standards Board, actuaries and economists are discussed, such as the appropriate discount rate and amortization periods for UAALs that would affect POBs analysis.
9. Finally, a discussion of "lessons learned" from POBs is included that reiterates the importance of evaluating all of the risks of POBs before issuing them.
10. Ultimately, the long-term solvency of the Authority's pension system depends upon systematic contributions and not on POB borrowing. POBs may or may not lead to budgetary savings over time, as the Authority cannot control the future course of financial markets. It is critical that the Authority have an open discussion of all of the issues raised in this report as it further evaluates a potential POBs issuance.



1. Purpose of This Report

The nation recently went through one of the worst recessions since the Great Depression. The economic downturn has cast a wide net, including high unemployment, major declines in property values and reduced levels of production and services. For the Authority, revenues have been severely impacted and fiscal pressure has forced changes to the strategic and capital improvement plans. In tandem with these developments, the Authority's pension liabilities have risen significantly. The most recent actuarial report from the Orange County Employees Retirement System (OCERS) indicates that the Authority's contribution rate for general employees rose from 24.62% of payroll as of December 31, 2008 to 26.53% of payroll as of December 31, 2009; in dollar terms, this is an increase of \$436,000 for the one year period. For safety employees, rates rose from 43.10% of payroll as of December 31, 2008 to 48.53% of payroll as of December 31, 2009; in dollar terms, this is an increase of \$5.0 million. A portion of these increases is attributable to a sharp 41% increase in the Authority's unfunded actuarial accrued liability (UAAL) from \$277.6 million as of December 31, 2008 to \$391.4 million as of December 31, 2009.

This report presents background on the Authority's UAAL and reviews potential ways to reduce its cost, including the issuance of pension obligation bonds (POBs). Assessment of POBs involves a combination of financial analysis and more subjective beliefs about risk and public policy. The review encompasses a number of related subject areas including actuarial models, the municipal bond market, logistics of issuing POBs, empirical studies of POBs and controversies among actuaries, economists and the Government Accounting Standards Board (GASB) over technical issues involved in measuring the performance of public retirement systems, including any UAAL. The goal of the report is to leave the Authority with enough relevant information and perspective on issues so that an informed decision can be made regarding the potential role of POBs in managing the UAAL. It is important to note that the UAAL is solely the Authority's liability. Employee contributions cannot be assessed to cover any portion of the UAAL.

We note that we are neither actuaries nor accountants. We have served as financial advisor on a number of POBs issued for California local governments and have used that experience as well as research on the subject of POBs to prepare this report. Further, while we cite numerous sources of information in various sections of the report, we are not suggesting the report is as comprehensive or rigorous as an academic research study.

2. Background on Public Retirement Systems and UAALs

2.1 Brief History of Public Retirement Systems. The origin of public retirement systems dates back to the Civil War, following which states and local governments began to establish early forms of pension benefits for their workers. The movement grew significantly in the twentieth century, heavily influenced by the federal government's establishment of the Civil Service Retirement System in 1920 to provide retirement, disability and survivor benefits for civilian federal employees. Twenty five years later, the Orange County Employees Retirement System (OCERS) was established under the provisions of the County Employees Retirement Act of 1937 (the "1937 Act"). Today, there are twenty California counties that have established



retirement systems pursuant to the 1937 Act, covering a total of about 250,000 active employees and 150,000 retirees and beneficiaries. In the case of OCERS, there were a total of 38,970 active, vested and retired members and beneficiaries as of December 31, 2009; of this total, the Orange County Fire Authority (the “Authority”) had 1,114 covered employees in the system.

Public retirement systems can offer defined benefit plans or defined contribution plans, but the vast majority, including OCERS, offer defined benefits plans.

Public retirement systems offering defined benefit plans are typically governed by a Board and are administered by a professional staff that, among things, manages the retirement process of employees and the disbursement of benefit checks to recipients. To fund the benefits, the employers in the system and their active employees make contributions to the retirement system which, in turn, invests and holds such funds in trust on behalf of all beneficiaries. The contribution amounts are calculated (usually annually) by qualified actuaries who determine the amounts needed for the retirement system to meet the defined benefits promised to beneficiaries over time. Retirement systems also retain investment managers to assist in the development and implementation of investment strategies for the contributions and other retirement system assets to both protect and enhance investment performance and to assure solvency over a very long period of time. The overall financial status of the retirement system is then analyzed and reported periodically by the actuary as the system moves through time. A given actuarial report will prescribe the recommended contributions to be provided by the employers and members in the system in the next period and, following the next period’s investment results and any plan changes, the actuarial analysis and evaluation process repeats itself.¹

2.2 Funded Ratio. One of the critical measures that the Government Accounting Standards Board (GASB) requires a public retirement system to report is its “funded ratio”. This ratio is defined to be the actuarial value of assets divided by the actuarial accrued liabilities of the system. A “fully funded” retirement system is one that has sufficient assets to meet all of its actuarial accrued liabilities, as reflected in a “funded ratio” of 100%. At any point in time, however, a system can be overfunded (with a funded ratio above 100%), fully funded (with a funded ratio equal to 100%) or underfunded (with a funded ratio below 100%). It all depends upon the interplay of a number of factors that the actuary incorporates into the assumption structure of the funding models of the system, including investment return, mortality factors, employee and employer contributions and the size and timing of new or modified benefits. The funded status can also be affected when “experience studies” are conducted in order to test and revise the assumed mortality factors, for example.

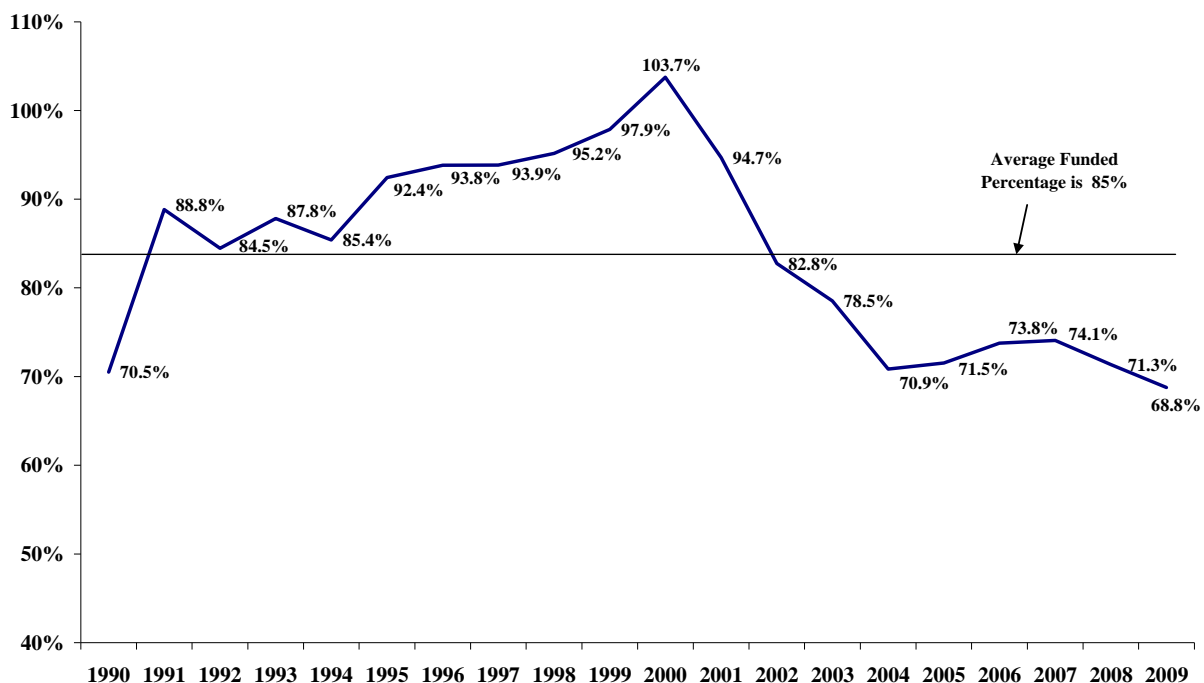
Presented in Chart 1 below is the funded ratio for OCERS from calendar year 1990 to 2009, the latest available information. The chart shows that the funded ratio of 68.8% in 2009 was at its lowest point in the last 20 years. The average funded ratio over the 20-year period was 85%, with the funded percentage below the average in each of the most recent 8 years. It is important to note that OCERS retained a new actuary beginning with the 2004 valuation that resulted in

¹ The purpose of this report is to address pension obligation bonds and not to delve into all of the intricacies of actuarial analysis such as actuarial valuation of assets, market valuation of assets, the technical derivation of unfunded actuarial accrued liabilities and smoothing of gains and losses. While we will refer to certain actuarial terms in the context of the pension obligation bond discussion, we do not profess to be experts in actuarial matters.



significant changes to the methodology used by the actuary as well as changes in salary scale and retirement assumptions from a triennial experience study, the combination of which resulted in the decline in the funded ratio for OCERS to 70.4% in 2004. Part of the reason the funded ratio has been under pressure is that OCERS experienced the second highest average annual increase in pension liabilities among independent public retirement systems in California over the period from 1996 through 2008 while investment returns were not able to keep up over the same period. The average annual increase in OCERS' liabilities was about 11.8%, second only to Sonoma County's average of 12%, whereas average investment returns for OCERS over the same period was 7.47%.²

Chart 1
Funded Status of OCERS Since 1990



Sources: OCERS Comprehensive Annual Financial Reports and the OCERS Actuarial Valuation and Review as of December 31, 2009.

2.3 Unfunded Actuarial Accrued Liability (UAAL). When a retirement system is underfunded, the measure of the dollar amount of underfunding is called the “unfunded actuarial accrued liability” or UAAL. The UAAL reflects the difference between the present value of all benefits due to current and former employees and their beneficiaries and the actuarial value of assets set aside to pay them. The UAAL may be attributable to investment performance being below the assumed actuarial rate (assumed to be 7.75% presently), benefit changes, experience study results, or a combination of one or all of these factors.

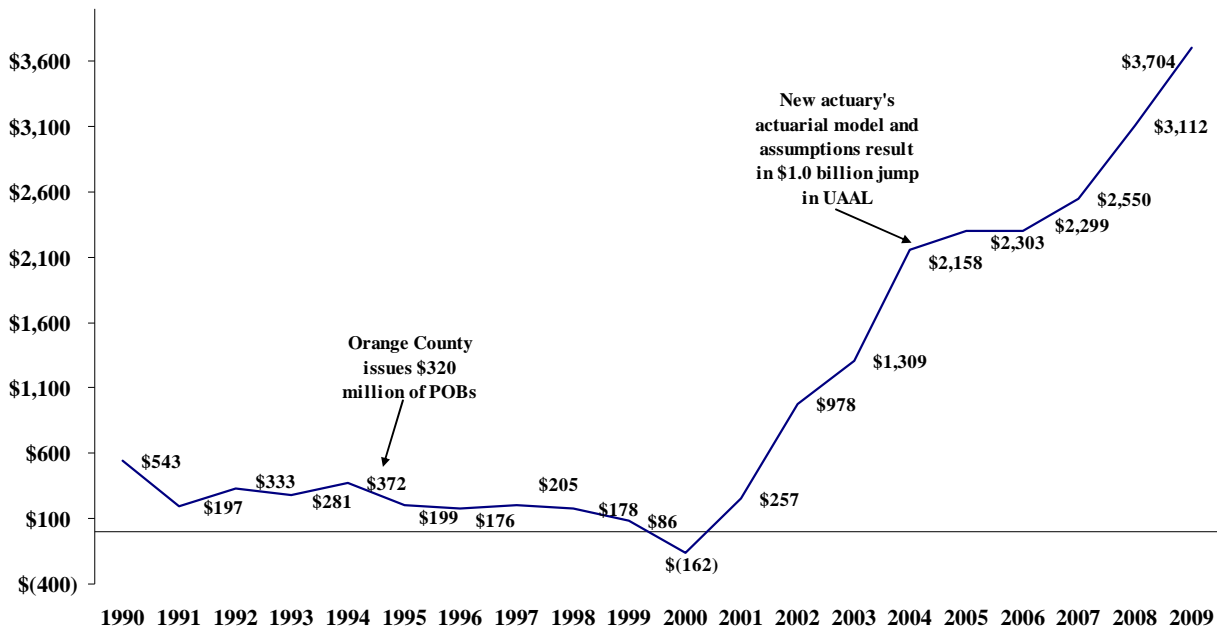
² See Joe Nation, *The Funding Status of Independent Public Employee Pension Systems in California*, Stanford Institute for Economic Policy Research, November 2010. The average investment return for OCERS was calculated based upon returns reported in OCERS Comprehensive Annual Financial Reports and the OCERS Actuarial Valuation and Review as of December 31, 2009.



Presented in Chart 2 below is the UAAL for OCERS from calendar year 1990 to 2009, the latest available information. It must be pointed out that the County of Orange issued pension obligation bonds in 1994 to externally finance about \$320 million of its own UAAL, which resulted in a lower overall UAAL for OCERS by a like amount for that year.³ In addition, the changes that occurred when OCERS retained a new actuary in 2004 added about \$1.0 billion to the UAAL that year.

Chart 2 shows that the UAAL in 2009 was at its largest amount in the last 20 years. The most recent actuarial report for OCERS indicated that the UAAL had increased from \$3.112 billion as of December 31, 2008 to \$3.704 billion as of December 1, 2009. Reasons for the increase included investment losses of \$322.5 million, inclusion of additional premium pay items such as pensionable salary totaling \$228 million, and a combination of other factors such as an experience study loss, lower than assumed salary increases and interest crediting that totaled a combined \$41.5 million.

Chart 2
OCERS UAAL Since 1990
All Employers
(\$ Millions)



Sources: OCERS Comprehensive Annual Financial Reports and the OCERS Actuarial Valuation and Review as of December 31, 2009.

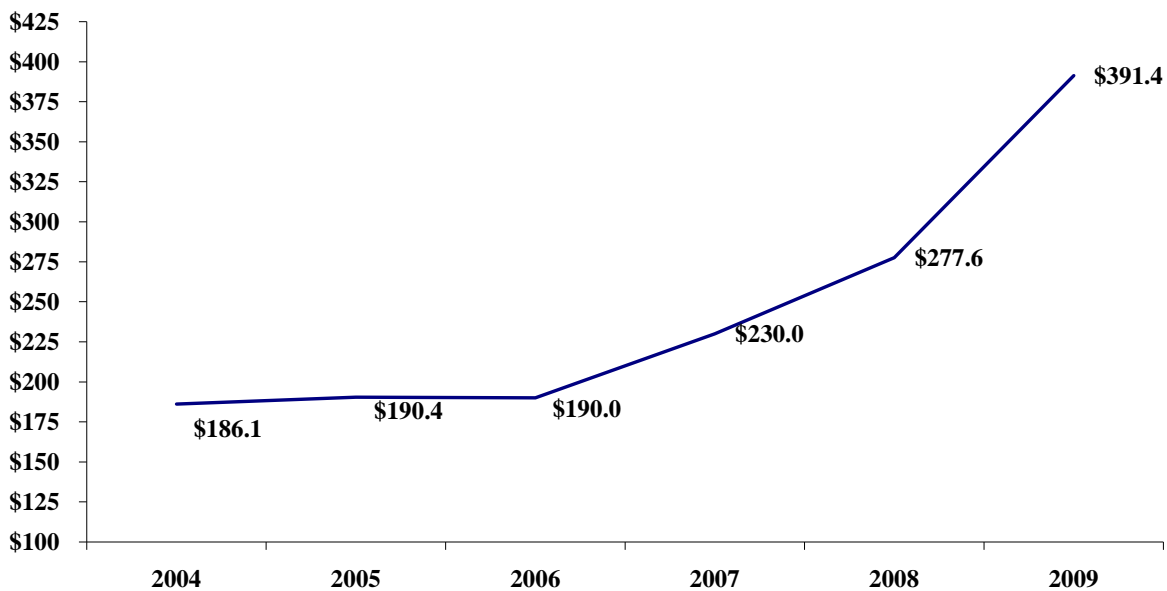
2.4 The Authority’s UAAL. When retirement systems such as OCERS have a UAAL, the actuary calculates the portion attributable to each employer in the system and the amount needed from said employer to amortize its own UAAL over the periods set forth in the actuarial

³ When pension obligation bonds are issued, the proceeds of the bonds are deposited into the retirement system and invested, while the issuer’s UAAL is extinguished. As we will see later in this report, the issuance of pension obligation bonds results in the issuing agency replacing a “soft” UAAL liability with a “hard” liability in the form of bonds that must be repaid.



assumptions. It is typically not a pro-rata allocation across members, as the individual employers may have very different retirement benefits and plans. The initial base for the Authority's UAAL for both miscellaneous and safety plans was a combined \$173.2 million when the amortization period was reset to 25 years at the end of 2004; this was done at the time the new actuary was retained by OCERS, as discussed earlier. Between the end of 2004 and the end of 2009, actuarial gains and losses were layered into the amortization over separate 15 year periods, beginning in the particular year they were recognized. Assumption changes introduced incremental increases in the Authority's UAAL at the end of 2007, which were amortized over 30 years. Inclusion of premium pay in the actuarial valuation introduced incremental increases in the Authority's UAAL at the end of 2009, which were amortized over 25 years. The bottom line is that, as of December 31, 2009, the Authority's portion of the OCERS UAAL had grown to \$391.4 million, as shown in Chart 3 below.

Chart 3
UAAL for OCFA
Miscellaneous and Safety Plans Combined
(\$ Millions)

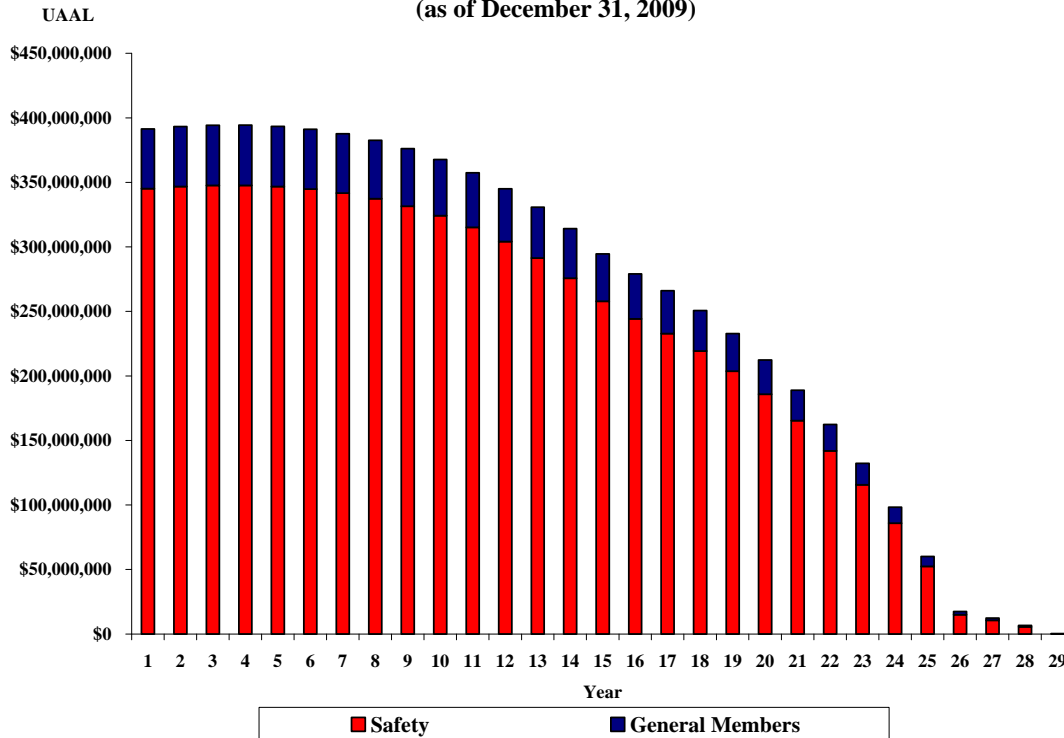


Source: OCERS Actuarial Valuation and Review as of December 31, 2009.

Chart 4 below provides an illustration of the amortization patterns of the UAALs for the Authority's general and safety members.



Chart 4
OCFA UAAL Amortization
(as of December 31, 2009)



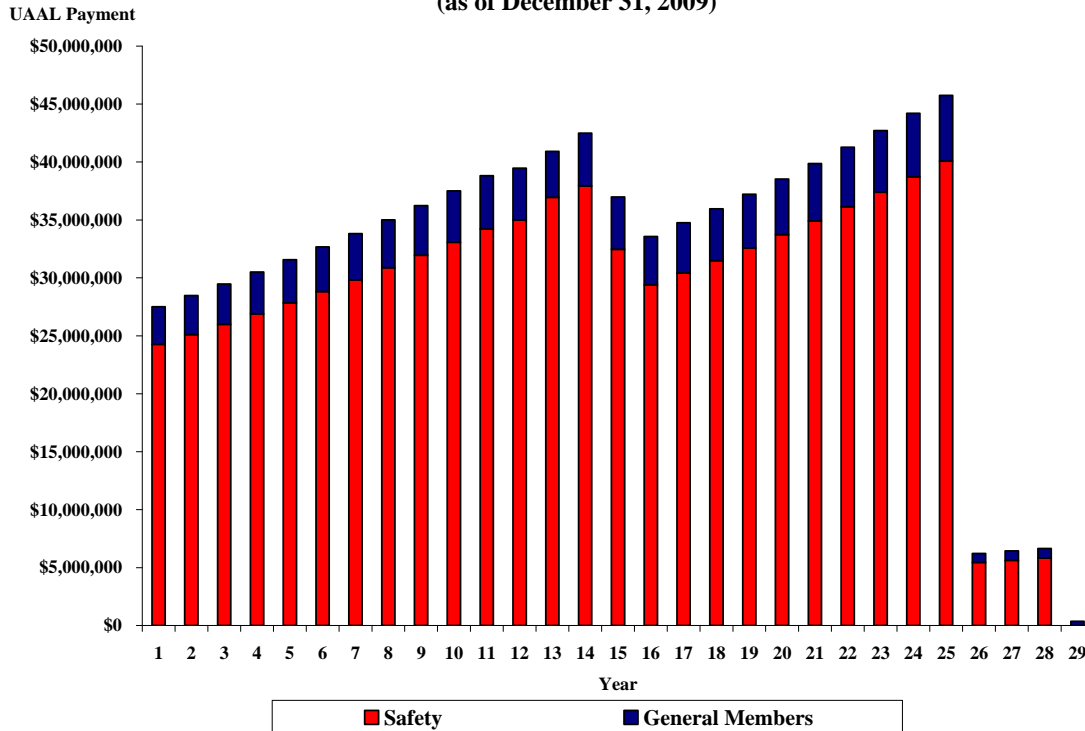
Source: Orange County Fire Authority Unfunded Actuarial Accrued Liability Amortization Schedules as of December 31, 2009 as set forth in a letter from The Segal Company to OCERS on November 15, 2010.

Based upon its \$391.4 million UAAL as of December 31, 2009, the initial annual payment to pay down the UAAL is \$27.5 million. Generally, the yearly amortization amount rises over time, reflecting the 3.5% salary inflation assumed in the actuarial model. However, the amortization also reflects the layering in of market gains and losses on a smoothed basis as well as periodic benefit changes such as occurred when “premium pay” was incorporated into the actuarial analysis in December 2009. These elements occur in different years and may have different individual amortizations, thereby resulting in an overall amortization that doesn’t show a uniformly increasing pattern, as illustrated in the UAAL amortization in Chart 5 below.⁴

⁴ In the actuarial model for the Authority, actuarial gains and losses are amortized over 15 years, benefit changes are amortized over 25 years, and assumption changes are amortized over 30 years.



Chart 5
Annual UAAL Payments
(as of December 31, 2009)



Source: Orange County Fire Authority Unfunded Actuarial Accrued Liability Amortization Schedules as of December 31, 2009 as set forth in a letter from The Segal Company to OCERS on November 15, 2010.

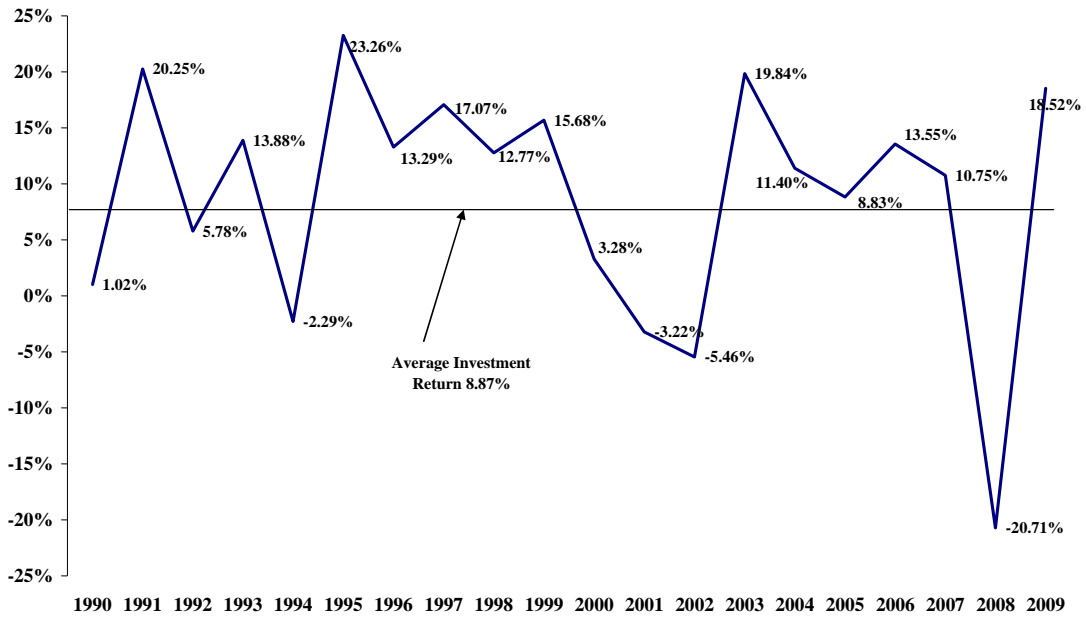
3. UAALs Have Grown Despite OCERS Achieving Its Target Investment Performance Over Time.

3.1 OCERS Investment Performance. The overall OCERS UAAL and the Authority’s UAAL have each grown significantly. However, it appears that the increased UAALs have been the result of increased liabilities in the form of additional benefits rather than being due to underperformance of OCERS investments, as noted earlier in Section 2.2.

Chart 6 below shows that OCERS average investment return was 8.87% since 1990. This is above the currently-assumed actuarial interest rate of 7.75%. The pattern of returns is quite volatile (ranging from a high of 23.26% in 1995 to a low of -20.6% in 2008), although the volatility is reduced when the data is represented in the form of 5-year moving averages (ranging from a high of 16.41%, a low of 4.61% and an average of 9.38%), as shown in Chart 7. Investment performance was at an all-time low in 2008, but the UAALs had been growing before that point, in part due to the methodological changes made by the actuary in 2004 and prior plan changes.

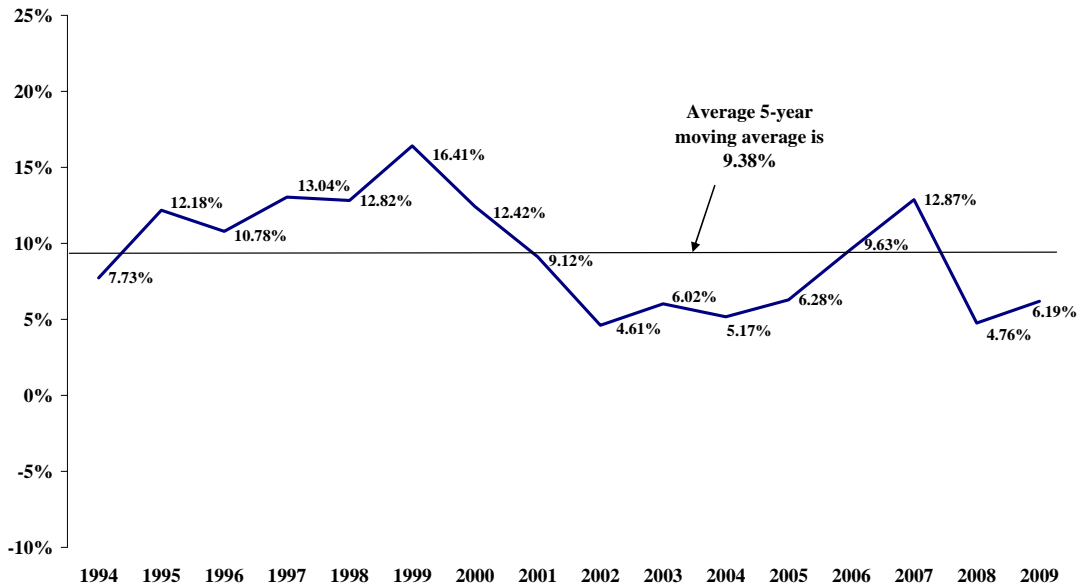


**Chart 6
OCERS Investment Returns Since 1990**



Sources: OCERS Comprehensive Annual Financial Reports and the OCERS Actuarial Valuation and Review as of December 31, 2009.

**Chart 7
OCERS Investment Returns
5-Year Moving Average Since 1994**



Sources: OCERS Comprehensive Annual Financial Reports and the OCERS Actuarial Valuation and Review as of December 31, 2009.



4. Financing the Authority's UAAL; Advantages and Disadvantages of Different Approaches.

4.1 *Options for Financing the Authority's UAAL.* Generally, there are four approaches to financing the Authority's UAAL:

1. Pay it off over time by following the UAAL amortization provided by the actuary, or
2. Pay it off by increasing normal cost contributions from employees and/or reducing benefits, both of which would free up general fund resources to pay down the UAAL, or
3. Pay it off from reserves, by essentially prepaying all or a portion of the UAAL and/or accelerating its amortization, or
4. Fund all or a portion of the UAAL externally through the issuance of pension obligation bonds (POBs), whereby the proceeds of the POBs are used to extinguish all or a portion of the UAAL and the Authority then pays back the POBs at presumably lower interest cost than that charged on the UAAL.

4.11 *First Approach.* The first approach is used by the vast majority of agencies that have a UAAL: wait for the calculation of the annual contributions needed to pay both the normal cost (i.e., the cost of benefits earned in the current period) and the annual amortization of the UAAL and then pay those amounts. The interest rate charged on the UAAL would be the actuarial interest rate, which is the assumed long-run earnings rate on the OCERS investment portfolio and which is presently 7.75%.⁵ The advantage of the first approach is that it doesn't introduce the risks associated with POBs and doesn't require collective bargaining. A disadvantage is that the Authority may be overlooking other approaches that are more cost-effective while hoping that OCERS' investment performance exceeds the assumed actuarial interest rate enough to reduce the UAAL.⁶

4.12 *Second Approach.* Increasing normal cost contributions from employees and/or reducing benefits are ways to free up resources in the general fund that could be used to reduce the UAAL, although they would require collective bargaining that may be challenging to implement.⁷ In the case of increasing employee contributions, the advantages are that (a) a

⁵ For simplicity purposes, we are assuming that the underlying retirement plans and population are held constant and the only factor that changes is investment performance. In reality, the relationship between the UAAL and the OCERS system parameters is not nearly so simple. Many factors can affect the UAAL, including plan changes, the level of employer and employee contributions and investment performance.

⁶ It must be noted that OCERS designs its investment portfolio to return the assumed actuarial interest rate; while OCERS may achieve a higher return in any given year, their portfolio is nonetheless targeting the assumed actuarial interest rate. Thus, "hoping" that excess returns will pay down the UAAL is probably a misguided approach. An area of some controversy is the selection of an appropriate actuarial interest rate, however. In corporate pension systems, for example, the assumed actuarial interest rate is typically tied to Treasury – or risk-free – interest rates, whereas public retirement systems typically have higher assumed actuarial interest rates (and lower UAALs, as a consequence) because they include riskier equity components. A discussion of the appropriate actuarial interest rate is provided in Section 10.2.

⁷ Some researchers have noted a significant asymmetry between the portion of pension costs contributed by the



relatively larger portion of benefits paid out would be coming from such contributions rather than from the Authority or uncertain OCERS earnings and (b) current employees would be funding relatively more of their benefits as opposed to expecting future OCERS earnings to fund them. In the case of reducing benefits, the obvious advantage is an immediate reduction in the UAAL. The disadvantage of both of these approaches is that they require collective bargaining, which may pose challenges. However, it may be possible to negotiate a combination of contribution increases and benefit reductions, at least for future hires. Many agencies have adopted new tiers for new hires, as it is much easier to take benefits away from employees not yet on the payroll than to do so with current employees. New tiers can be effective for control of future liabilities, but they do nothing to reduce an existing UAAL.

4.13 Third Approach. Another method of UAAL reduction would be using reserves to whittle down the UAAL, especially when available reserve funds are earning interest well below the actuarial interest rate of 7.75%. For example, suppose the Authority can earn 1% currently on its reserves. By prepaying OCERS, the Authority would be achieving a net return on its reserves of 6.75% rather than 1%. The Authority has already recognized the potential benefit of this approach by adopting the following provisions in Sections 3.1 and 3.2 of its Financial Stability Budget Policy regarding prepaying the annual contribution and/or using a more rapid amortization of the UAAL that the 25-year OCERS period:

3.1.1 The Authority will analyze the feasibility of paying its annual retirement contributions to the Orange County Employees Retirement System (OCERS) early each year, to take advantage of the discount offered by OCERS.

3.1.1.1. OCERS has taken the approach to use the assumed rate of return for the system (7.75%) as the discount. The employer is given a 7.75% discount if payment is made in January, a full year in advance, and a 3.875% discount if payment is made six months in advance in July.

3.1.1.2. Effective during the FY 2008/09 budget process, and each year thereafter when financially feasible, the Authority will utilize a 20-year amortization schedule to pay down OCFA's Unfunded Actuarial Accrued Liability (UAAL) with OCERS.

3.12.1 Authority staff will review an affordability analysis each year with the City Managers' Budget and Finance Committee, prior to review with the OCFA Budget and Finance Committee, to further evaluate impacts to the cash contract city service charges resulting from the 20-year amortization.

In Fiscal Year 2010-11, the total amount of the Authority's normal cost and UAAL obligations to OCERS was \$42.85 million, with the UAAL comprising about two-thirds of that amount. Based on a determination made pursuant to the Financial Stability Budget Policy, the Authority prepaid \$21.0 million in July 2010 in order to achieve a 50% discount on the interest rate

employee versus the portion absorbed by the employer and question whether more contributions should be made by employees. As of December 31, 2009, the Authority contributed 26.53% of payroll for general employees as the "employer's share" and also contributed the "employees' share" of 10.87% on average; for safety employees, the Authority contributed 48.53% of payroll as the "employer's share" and also contributed the "employees' share" of 11.65% on average. See Joe Nation, *The Funding Status of Independent Public Employee Pension Systems in California*, Stanford Institute for Economic Policy Research, November 2010 and the OCERS Actuarial Valuation and review as of December 31, 2009.



1. An *advantage* is that the Authority may be able to significantly reduce the cost of financing its UAAL if it can fund its POBs at a taxable rate below OCERS assumed actuarial interest rate and if the invested bond proceeds earn more than the cost of the POBs over time. Depending upon market conditions, the Authority could achieve preset value savings of about \$32.6 million or 8.3% of the costs of the current UAAL amortization if the POBs interest rate were 6.50% and estimated actuarial arbitrage is earned every year.¹⁰ Despite the potential advantage, the Authority would not know whether it achieved overall savings until the POBs are paid off, as the path of actuarial earnings is not known with certainty.
2. An *advantage* is that the Authority may be able to shape its budgetary “savings” through the issuance of POBs. The structure of the POBs does not necessarily have to match the amortization structure of the UAAL, so it is possible for the issuer to reduce near-term debt service costs by back loading the POBs principal components.¹¹ Further, the issuer may be able to negotiate a discount from the retirement system if it prepays its UAAL or even the normal cost component on annual pension costs; the Authority already has benefitted from a reduced interest rate on prepaying a portion of its annual pension payments to OCERS. If a pension stabilization fund is established at the same time the POBs are issued (as discussed in Section 6.42), the Authority would also have a means to hedge the risk of another UAAL developing.
3. A *disadvantage* of POBs is that the transaction is fundamentally one of leverage, where proceeds of bonds are used to purchase assets in the hope that the assets will return at least the assumed actuarial interest rate. This introduces two interrelated risks: “leverage risk”, where the issuer may be taking on debt it cannot afford to repay; and “arbitrage risk”, where the issuer is gambling that the return on the investment assets will be greater than the interest cost on the POBs. In order to address arbitrage risk, some argue that POBs proceeds should not be used to purchase fixed income assets that are not expected to return the assumed actuarial interest rate. Instead, POBs proceeds should be used to purchase equity investments that have earned about 10% since 1927 (bonds earned about 5% over that period). Unless the investment strategy for POBs is well designed, OCFA could lose its ability to earn maximum actuarial arbitrage.
4. A corollary *disadvantage* is the market timing risk associated with investment of the POBs all at one time. As Chart 8 in Section 4.2 illustrates, it is important to time the issuance during recessions when the equity markets are at low levels in order to create an opportunity for the bond proceeds to generate significant earnings as the market recovers. The problem is: how can one tell if markets are headed higher or lower at any given time? Nevertheless, the chart clearly shows the importance of the business

¹⁰ See the numerical estimates presented in Section 5.

¹¹ While this type of structure is not recommended by the Government Finance Officers Association, it is included here strictly on the basis of it being a potential approach to structuring the savings pattern. Also, it should be noted that California counties risk losing all or a portion of the federal reimbursement funds used as an offset to POBs debt service if the POBs are not structured with the same amortization as the UAAL. Other POBs issuers do not face such a constraint.



cycle in impacting performance of invested POBs proceeds. Ill-timed POBs issuances, such as those at the peak of equity markets, risk immediate loss of earnings power and find it difficult to replace the lost earnings and build the asset base to “catch up” later.¹²

5. Another *disadvantage* is that the Authority would be replacing a “soft” liability like a UAAL for a “hard” liability in the form of bonded debt. For example, the Authority could elect not to fund its annual UAAL amortization payment to OCERS by taking a “pension holiday”, which – despite it being a possibly poor public policy choice - would not result in a hard default on the Authority’s obligations. With POBs, on the other hand, the Authority would have a hard default if it elected to skip a bond payment and would incur all of the very negative consequences of such a decision.
6. Another *disadvantage* is that the Authority would immediately achieve a funded status of 100% if the entire UAAL were refunded, which increases the risk that employee groups would demand additional benefits that could be costly to fund in the future. This risk factor is typically referred to as “political risk”. A possible way to ameliorate this disadvantage of POBs would be to issue POBs to fund only a portion of the UAAL rather than the entire amount. Another point is that, while the funded status at OCERS could increase to 100% when POBs proceeds are deposited, the Authority is simultaneously taking on bonded debt in exchange. From the Authority’s perspective, there is arguably no more room for benefit increases after the issuance of POBs than there was before the UAAL was funded.
7. Like the approach where the Authority would contribute reserves to OCERS to pay down all or a portion of the UAAL, the deposit of POBs proceeds with OCERS is “one-way”. Once deposited, the Authority has no ability to withdraw the funds.¹³
8. Another *disadvantage* is that the taxable nature of POBs will likely mean that the POBs would be noncallable or would have an expensive call option. POBs generally have been difficult to refinance for savings and, in cases where issuers structured their POBs as auction rate securities (variable rate bonds), a number of significant risks were taken that led to very expensive restructurings when the auction rate market evaporated. This is discussed further in Section 8.12.

Table 1 below provides a summary of the advantages and disadvantages of methods the Authority could use to manage and reduce its UAAL.

¹² For example, a 20% decline in investment performance in year 1 of a 20-year period can eliminate 150 basis points of spread on the remaining 19 years.

¹³ The Authority may want to discuss how OCERS would apply “excess earnings”, if any, attributable to Authority POBs over time. In most cases, issuers are not allowed to withdraw excess earnings and use them to pay POBs debt service, for example. In addition, many retirement systems retain all excess earnings solely for the benefit of the members and not the employers.



Table 1

Advantages and Disadvantages of Methods for Reducing the UAAL

Approach	Advantages	Disadvantages
Follow OCFA UAAL Amortization	<ul style="list-style-type: none"> ➤ No change to current OCFA practice ➤ No assumption of risks of POBs 	<ul style="list-style-type: none"> ➤ OCFA may be overlooking ways to reduce pension costs
Reduce UAAL by Increasing Employee Contributions and/or Reducing Benefits	<ul style="list-style-type: none"> ➤ Better matches the cost of benefits with those who receive them ➤ No assumption of risks of POBs ➤ Frees up resources for other priorities 	<ul style="list-style-type: none"> ➤ Requires collective bargaining
Reduce UAAL by Contributing OCFA Reserves	<ul style="list-style-type: none"> ➤ A higher cost liability is paid down from lower cost funds ➤ OCFA has discretion in executing the approach ➤ No assumption of risks of POBs 	<ul style="list-style-type: none"> ➤ The Authority's prepayments are not reversible
POBs	<ul style="list-style-type: none"> ➤ Authority may be able to reduce the cost of financing its UAAL ➤ Authority may be able to achieve budgetary "savings" through the issuance of POBs ➤ Authority may be able to hedge against future UAALs by banking the savings 	<ul style="list-style-type: none"> ➤ Leverage risk ➤ Actuarial risk ➤ Political risk ➤ Market timing risk ➤ Whether "savings" are achieved will not be known until POBs are paid off ➤ Authority cannot reverse the deposit of proceeds with OCERS ➤ Cannot refinance POBs for savings

4.2 Issuance of POBs in California. There have been approximately \$50 billion of POBs issued to date, of which approximately \$15 billion have been issued by public agencies in California, as shown in Appendix A hereof.¹⁴ The first two POBs were issued by the City of Oakland and Los Angeles County, both of whom were able to issue the POBs as tax-exempt bonds before the Tax Reform Act of 1986 prohibited issuance of tax-exempt bonds for this purpose.¹⁵ Thus, POBs would have to be issued on a taxable basis going forward, thereby making it more difficult to find market environments with an attractive spread between the

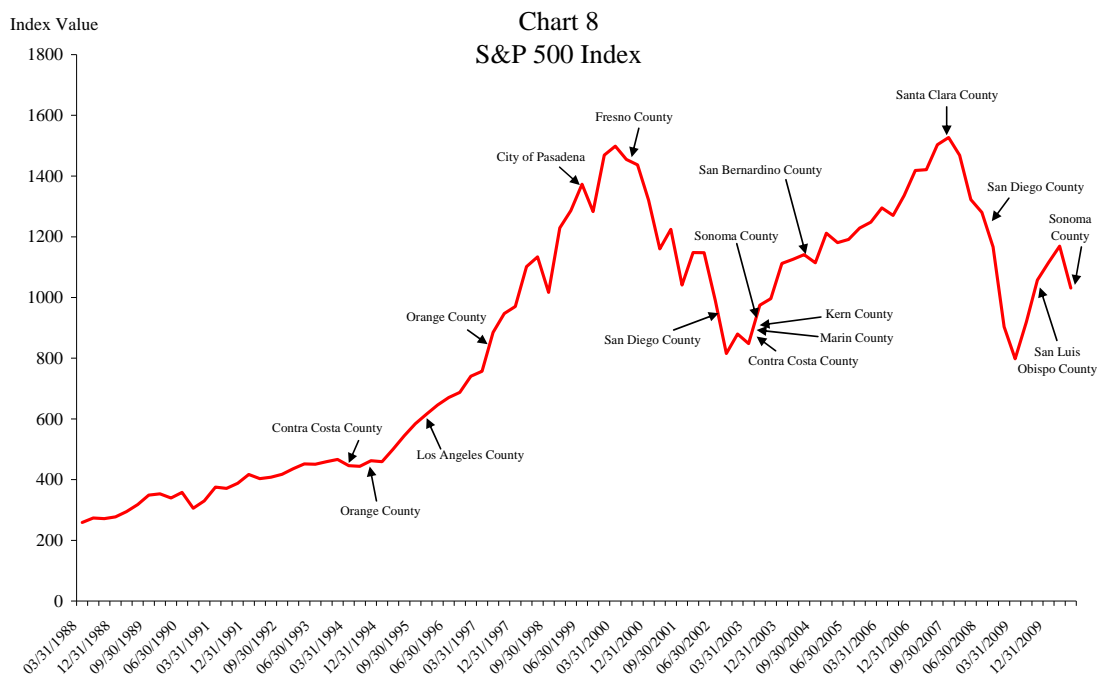
¹⁴ The State of Illinois has been the largest issuer of POBs (about \$15 billion), with agencies in California ranking second. The States of Oregon and New Jersey have issued a combined \$7.5 billion, with the remainder of issuance spread among a wide number of states and localities.

¹⁵ Both Oakland and Los Angeles County were able to sell POBs at tax-exempt rates and invest the proceeds in taxable instruments and equities, thereby achieving a cost of funds well below both the assumed actuarial rate and the risk-free Treasury rate. The Tax Reform Act of 1986 declared such a structure to be abusive and prohibited it from being used again.



assumed actuarial interest rate and the POBs interest rate. Following the Tax Reform Act of 1986 prohibition, there would be no issuances of POBs until 1993 when Sonoma County entered the market with a \$97.4 million transaction. Public pension systems had shifted their asset allocations toward equity holdings during this period following the Tax Reform Act of 1986, leading actuaries to increase their assumed actuarial interest rate. Moreover, taxable interest rates had fallen to a point where the spread between the assumed actuarial interest rate and the taxable POB rate was in the 150 to 200 basis point area and the ability to earn actuarial arbitrage was once again being pitched as a strategy to reduce the cost of financing a UAAL. A total of 21 counties, including Orange County, issued POBs from 1993 through the present, along with numerous cities and two fire protection districts.¹⁶

Chart 8 below shows the issuance of certain county POBs versus the S&P 500 Index at the time of issuance. The chart illustrates the risk of issuing at a peak of the market, as subsequent market declines result in the loss of at least a portion of the assets funded by the POBs.



Sources: Thomson Reuters and Tamalpais Advisors, Inc.

¹⁶ A significant issue for counties was whether the federal government would reimburse a portion of POBs costs, as reimbursement of a portion of a county UAAL had traditionally been provided to the extent counties managed federal programs such as welfare, Medicare, etc. At the time of Sonoma County’s first issuance of POBs, the federal government agreed to continue reimbursement of the portion of the UAAL attributable to federal programs, but required that the POBs have a term to maturity not greater than that of the UAAL. They also required the total debt service on the POBs to be less than that of the UAAL, meaning a county could not significantly backload the POB principal maturities. The “federal reimbursement” consideration is a unique aspect of county POBs that is not a consideration in POBs issued by cities and other agencies.



5. Numerical Analysis of Authority POBs.

Using specialized bond sizing software and to provide the Authority with numerical analysis, we built a model to estimate the potential savings of a POBs issuance that funds the Authority's entire \$391.4 UAAL under three different POBs interest rates: 6.00%, 6.50% and 7.00%.¹⁷ The model structured the POBs to have an amortization pattern similar to the Authority's UAAL amortization pattern illustrated earlier in Chart 5 and shown in numerical form in the second column of Table 2 below. This approach essentially solves for level savings and would be the preferred approach of the rating agencies and the Government Finance Officers Association (GFOA).¹⁸ While other approaches – such as structuring larger upfront savings or including a year or two of normal cost liabilities along with the UAAL – have been used by some issuers, we decided for purposes of this report to present a conservative, vanilla-style structure.¹⁹

Table 2 shows that nominal savings range from \$29.2 million (7.00% POBs rate) to \$115.9 million (6.00% POBs rate). On a present value basis, the savings range from \$11.6 million (7.00% POBs rate) to \$55.2 million (6.00% POBs rate). This equates to present value savings rates that range from 3.0% of the principal amount of the UAAL when the POBs interest rate is 7.00% to 14.1% of the principal amount of the UAAL when the POBs interest rate is 6.00%. While each of the three examples show positive PV savings, it is clear that the savings are not robust when the POBs interest rate is 7.00%, as there is only an 85 basis point difference between it and the OCERS assumed actuarial interest rate of 7.75%. The Authority might consider establishing a policy setting the minimum acceptable basis point spread between the POBs interest rate and the assumed actuarial interest rate for the UAAL. Such a policy would recognize that the cushion for achieving actuarial arbitrage is narrower when a POBs interest rate is 7.00% than when the POBs interest rate is 6.00%, for example.

In Section 8.15, we will see that the County of Sonoma recently sold POBs with a coupon of 6.00% at the 20 year final maturity date. This suggests that the Authority's POBs rate would be higher than 6.00%, as the Authority's POBs would have a final maturity of 29 years. Based upon feedback from Wedbush Securities, a firm whose senior investment banker has completed a significant number of POBs transactions, it is estimated that the interest rate at the long end (29 years) for an OCFA POBs would be about 6.75% in the current market. Under the assumption that the POBs would be structured with serial as well as term bonds across the yield curve, the estimated all-in interest cost for the POBs would currently be in the 6.50% area.

The Authority can also use the results in Table 2 to estimate savings if it issued a smaller POB. For example, if the POB funded 80% of the UAAL, all of the nominal and present value savings would equal 80% of their values in Table 2. The savings rates would remain essentially the same, however.

¹⁷ We assumed that costs of issuance and underwriting comprised a total of 2% of the par amount of the bonds, which is conservative. In addition, the actual POBs structure would likely feature serial and term bonds, meaning that interest rates would be “scaled”, i.e. lower for earlier maturities and higher for later maturities, as opposed to the uniform interest rate assumption used in the models summarized in Table 2.

¹⁸ See Section 11 for a discussion of GFOA's recommended structuring for POBs.

¹⁹ We can, of course, run other scenarios for the Authority if it desires.



Table 2- POBs Savings at Selected POBs Interest Rates

Fiscal Year Ending	OCFA UAAL Payments*	Pension Obligation Bonds Interest Rate					
		6.00%		6.50%		7.00%	
		Debt Service	Savings	Debt Service	Savings	Debt Service	Savings
06/30/2011							
06/30/2012	\$ 27,514,784	\$ 23,962,800	\$ 3,551,984	25,959,700	\$ 1,555,084	27,956,600	\$ (441,816)
06/30/2013	28,477,802	24,316,850	4,160,952	25,959,700	2,518,102	27,956,600	521,202
06/30/2014	29,474,525	25,313,450	4,161,075	26,830,450	2,644,075	28,357,075	1,117,450
06/30/2015	30,506,133	26,344,050	4,162,083	27,860,388	2,645,746	29,389,525	1,116,608
06/30/2016	31,573,848	27,412,350	4,161,498	28,928,463	2,645,386	30,455,950	1,117,898
06/30/2017	32,678,933	28,521,450	4,157,483	30,032,038	2,646,896	31,557,950	1,120,983
06/30/2018	33,822,695	29,664,150	4,158,545	31,177,825	2,644,870	32,701,250	1,121,445
06/30/2019	35,006,489	30,847,800	4,158,689	32,361,888	2,644,602	33,885,700	1,120,789
06/30/2020	36,231,717	32,074,000	4,157,717	33,584,800	2,646,917	35,115,275	1,116,442
06/30/2021	37,499,826	33,338,900	4,160,926	34,856,163	2,643,664	36,378,425	1,121,401
06/30/2022	38,812,321	34,652,900	4,159,421	36,169,763	2,642,559	37,692,550	1,119,771
06/30/2023	39,465,492	35,307,400	4,158,092	36,822,463	2,643,030	38,344,375	1,121,117
06/30/2024	40,911,921	36,751,600	4,160,321	38,266,750	2,645,171	39,794,375	1,117,546
06/30/2025	42,490,009	38,329,500	4,160,509	39,842,650	2,647,359	41,368,450	1,121,559
06/30/2026	36,983,688	32,821,450	4,162,238	34,336,975	2,646,713	35,864,950	1,118,738
06/30/2027	33,569,694	29,409,800	4,159,894	30,925,513	2,644,182	32,448,325	1,121,369
06/30/2028	34,744,633	30,585,600	4,159,033	32,098,638	2,645,996	33,623,175	1,121,458
06/30/2029	35,960,695	31,801,500	4,159,195	33,316,488	2,644,208	34,841,850	1,118,845
06/30/2030	37,219,320	33,057,000	4,162,320	34,576,388	2,642,933	36,099,650	1,119,670
06/30/2031	38,521,996	34,360,700	4,161,296	35,875,013	2,646,984	37,400,825	1,121,171
06/30/2032	39,870,266	35,710,300	4,159,966	37,222,900	2,647,366	38,753,050	1,117,216
06/30/2033	41,265,725	37,107,750	4,157,975	38,619,288	2,646,438	40,147,775	1,117,950
06/30/2034	42,710,025	38,549,250	4,160,775	40,067,275	2,642,750	41,590,225	1,119,800
06/30/2035	44,204,876	40,044,950	4,159,926	41,558,988	2,645,889	43,083,875	1,121,001
06/30/2036	45,752,047	41,593,800	4,158,247	43,105,250	2,646,797	44,635,275	1,116,772
06/30/2037	6,213,024	2,051,300	4,161,724	3,567,163	2,645,862	5,091,625	1,121,399
06/30/2038	6,430,479	2,272,450	4,158,029	3,783,675	2,646,804	5,311,450	1,119,029
06/30/2039	6,655,546	2,497,750	4,157,796	4,011,263	2,644,284	5,537,250	1,118,296
Totals	\$ 934,568,509	\$ 818,700,800	\$ 115,867,709	\$ 861,717,850	\$ 72,850,659	\$ 905,383,400	\$ 29,185,109
Present Value Savings (Using POBs Rate as Discount Rate)			\$ 55,195,451		\$ 32,581,301		\$ 11,604,098
Present Value Savings as a Percent of UAAL			14.1%		8.3%		3.0%

* As of December 31, 2009; per letter from The Segal Company dated November 15, 2010; UAAL assumes an actuarial interest rate of 7.75%.



6. Unique Elements Faced by the Authority in Issuing POBs

As the Authority evaluates whether to issue POBs, it is important to note some of the unique elements involved in the POBs issuance process. This section addresses four of those elements: the California debt limitation and the agencies that are exempt from it; the legal underpinnings of POBs, including validation actions; whether the Authority needs to file a validation action; and what unique security features may be included if the Authority were to issue POBs.

6.1 The California Constitutional Debt Limitation; Exempt Agencies. The California Constitution generally requires issuance of “debt” to be approved by voters if such debt is backed by the full faith and credit and taxing power of the public agency, a requirement known as the “Debt Limitation”. The Debt Limitation applies to the State, cities, counties and school and community college districts but it does not apply to authorities, special districts, and other agencies. Thus, it would appear that the Authority is not subject to Debt Limitation.

6.2 What are the Legal Underpinnings of POBs? There are three major elements in the legal underpinnings of POBs: first, the establishment of an exception to the Debt Limitation, if needed; second, the identification of the appropriate statutory provisions permitting the actual issuance of bonds; and third, the completion of a validation action, if needed. Each of these elements is discussed below.

6.21 Establishment of an Exception to the Debt Limitation, if Needed. Since POBs are generally payable from the general fund, they have to either satisfy or be exempt from the Debt Limitation.²⁰ There are three general approaches that accomplish this.²¹

1. One is that the POBs be backed by the full faith and credit and taxing power of the issuer (or limited taxing power of the issuer). For example, the POBs issued by the State of Illinois fit into this category, as the State had the ability to pledge its full faith and credit as well as its taxing power. In California, issuers such as cities and counties have no comparable ability to pledge their taxing power, as the ability to tax is restricted.
2. The second is that a valid exception to the debt limitation be made for “obligations imposed by law”. The idea is that an agency has obligations under statute or labor contracts that are not voluntary. Pension costs generally fall into this category, so the issuance of POBs to fund the UAAL portion of pension costs amounts to the POBs taking on the character of the pension costs themselves. All of the POBs issued by agencies subject to the Debt Limitation (specifically, counties and cities) fall into this category for validity purposes.

²⁰ See Orrick, Herrington & Sutcliffe LLP, *An Introduction to Pension Obligation Bonds and Other Post Employment Benefits, Third Edition, Chapter 5*, 2006.

²¹ There is a fourth alternative involving an asset strip lease revenue bonds mentioned in Orrick, Herrington & Sutcliffe LLP, *An Introduction to Pension Obligation Bonds and Other Post Employment Benefits, Third Edition, Chapter 5*, 2006. However, this approach has rarely been used because other approaches do not require real estate to be involved.



3. The third approach is an annual appropriations structure whereby the annual debt payments are not mandatory; instead, they are subject to annual appropriation by the governing body. This approach has been successfully used by major states, such as New Jersey, but no California issuers have used it, primarily because it is a more difficult structure to sell to investors.

As mentioned earlier, the Authority does not appear to be subject to the Debt Limitation, so it would be able to issue POBs without needing the satisfy any exemption to the Debt Limitation. The Authority would need the approval of 2/3 of it members to move ahead with a POBs, however.

6.22 Identification of the Appropriate Statutory Provisions Permitting Issuance of POBs. Under California law, there are presently no specific statutory provisions enabling the issuance of POBs *per se*. Instead, issuers of POBs have successfully used provisions under local agency refunding statutes (Government Code Sections 53580 through 53589.5) to establish issuance authority. The local agency refunding statutes permit local agencies to refund any form of outstanding debt, including notes, bonds, warrants and “other forms” of indebtedness. The standard practice with POBs is for the agency to create an “other form” of indebtedness known as a “debenture” that evidences its obligation to pay the retirement system for its UAAL.²² The POBs are then issued to refund the debenture. The Authority would use the local agency refunding statutes and the debenture structure if it were to issue POBs.

6.23 Completion of a Validation Action, if Needed. All California POBs issuers subject to the Debt Limitation and using the “obligations imposed by law” exception have filed validation actions under the Code of Civil Procedure §§860 *et seq.* in their local superior courts as the means of establishing legal validity. This approach evolved because of the lack of material case law pertaining to use of the “obligations imposed by law” exception and because bond counsels required a validation action to be completed before they would be willing to issue a validity opinion for the POBs. Bond counsel typically prepares the validation action on behalf of the issuer and submits the required documentation to the superior court. The issuer must first adopt its issuance resolution (which provides that the POBs will be issued under the local agency refunding law) and approve the debenture and the forms of legal documents, as these are included in the documentation package. Also included is the written declaration that the UAAL is an obligation imposed by law. Validations are usually drafted so they apply to future POBs issuances as well as the intended POBs issuance.

After the validation package is filed with the superior court, a summons is published in a local newspaper that discloses the nature of the validation action and calls for any response to be filed by a date certain, which is usually 10 days beyond the 21 day period over which the summons runs. If there are no timely complaints filed against the summons, the clerk of the court can schedule a hearing in front of the judge for a default judgment. The entire validation process

²² The debenture is drafted by bond counsel and is typically two to three pages long, with the amortization of the UAAL set forth in its entirety. The treasurer of the agency is usually the official that executes the debenture.



could be concluded in as few as 31 days if every step is completed as quickly as theoretically possible; the reality, however, is that most validation actions take about 60 days to complete. Once a validation default judgment is entered, a 30 day appeal period runs, but appeals can only be heard on jurisdictional grounds and therefore are extremely unlikely to result in reversal of the default judgment.

No local agency validation actions in California have been challenged, but issuers need to be aware of the risk of a challenge as it could delay the process, result in an unfavorable outcome and increase legal costs. Of note is that the Superior Court of Sacramento County declined two separate validation actions undertaken by the State of California to issue POBs. The Howard Jarvis Taxpayers Association filed the first complaint and the Fullerton Association of Concerned Taxpayers filed the second complaint.²³

6.3 Does the Authority Need to File a Validation Action? It appears that the Authority is exempt from the Debt Limitation and could proceed to issue POBs without needing a validation action. In fact, this was the approach followed by both Sacramento Fire Protection District and Contra Costa County Fire Protection District when they issued their POBs. Neither of those agencies is a Joint Powers Authority as is the Authority. However, general counsel to the Authority has provided an opinion that the Authority would “...likely need to bring a validation action in the Superior Court prior to issuing any pension obligation bonds.”²⁴ We note that general counsel’s opinion did not address whether the Authority was exempt from the Debt Limitation in the first place, in which case it does not need to use the “obligation imposed by law” exception and would not need a validation action.²⁵ Orrick, Herrington & Sutcliffe LLP, who has served as bond counsel to the Authority on several transactions, has given a preliminary indication that, so long as the Authority’s pension costs are a liability of the Authority (and not the members), the Authority is exempt from the Debt Limitation and no validation is needed in order to issue POBs.

6.4 Unique Security Features for Potential Authority POBs. There are two unique security features that would warrant evaluation by the Authority in a potential POBs issuance: an “intercept” feature whereby property taxes are intercepted in December and sequestered for debt service on the POBs; and a pension stabilization fund that essentially “banks” the POBs savings and applies them to future UAALs or other pension costs.

6.41 “Intercept” Approach. It is not possible to fund a reserve fund with POBs proceeds, as only “pension costs” such as a UAAL and the transaction costs of issuing POBs are legally permitted uses. Bond counsels have opined that using POB proceeds to pay off all or a portion of a UAAL is consistent with spending the proceeds on “pension costs” but funding a reserve fund is not. POBs issuers, as a result, have used other mechanisms to provide security

²³ Both complaints included arguments, among others, that the “obligation imposed by law” does not apply to State, as the State self-imposed its pension obligations. See Orrick, Herrington & Sutcliffe LLP, *An Introduction to Pension Obligation Bonds and Other Post Employment Benefits, Third Edition, Chapter 5, 2006.*

²⁴ Woodruff, Stradling and Smart, A Professional Corporation, provided a confidential opinion to the Authority on October 20, 2009.

²⁵ See Orrick, Herrington & Sutcliffe LLP, *An Introduction to Pension Obligation Bonds and Other Post Employment Benefits, Third Edition, Chapter 5, 2006.*



for their POBs in lieu of a reserve fund in the hopes of selling their POBs at more cost effective interest rates to investors. California county POBs issuers rely on statutory language in The 1937 Act requiring the transfer of funds to pay pension obligations as a source of security for the POBs, with the transfer typically occurring within the first 30 days of the fiscal year; this lien on the first revenues of the county is a very powerful source of security. Cities and other agencies, including the Authority, have no such statutory provisions requiring such transfers. Many of these agencies rely instead on a covenant they will annually budget and appropriate the debt service payments and transfer them to a debt service fund held by a third-party trustee. This approach has been used successfully, but there is another approach that provides stronger security known as the “intercept” approach.²⁶

Under the “intercept” approach, the issuer provides for the first property tax revenues received in December in a given fiscal year be intercepted by the county auditor-controller and set aside in the amount needed to pay principal and interest on any POBs due in the following calendar year. The property taxes may be sequestered with either the county treasurer or the POBs trustee and used to pay debt service when due. For infrequent issuers such as the Authority, this approach can improve the marketability and, potentially, the ratings on the POBs. Both Sacramento Fire Protection District and Contra Costa County Fire Protection District incorporated the “intercept” feature into their bond structures. The “intercept” approach may have beneficial marketing and rating benefits for an Authority POB and, as we will see later, could be a positive factor in the Authority’s issuance of tax and revenue anticipation notes (TRANs)., but it also constrains the Authority’s flexibility in using its property tax revenues.²⁷

6.42 *Pension Stabilization Fund.* One policy issue the Authority would need to address with respect to POBs is the use of the annual savings generated from the difference between debt service costs on the UAAL and those on the POBs. While it is arguable that the true savings will not be known until after the POBs have been paid off, some issuers have taken the approach that the savings should not be spent on general expenditures and should be “banked” for specific purposes. For example, if the estimated savings in year 1 of the POBs issue is \$1.6 million (assuming the POBs interest rate is 6.50%, as illustrated in Table 2), the Authority would elect to budget its UAAL debt service costs as before and place the \$1.6 million into a “pension stabilization fund (PSF)” instead of using the funds for other purposes. In the numerical estimates in Section 5 for a POBs interest rate of 6.50%, we see that \$72.9 million could be deposited into a PSF over time and used for Authority-specified purposes.

It would be up to the Authority to design how any PSF would be structured. Some of those who have PSFs have included requirements that funds can be drawn from the PSF only upon a majority vote of the governing body and must be used toward future UAALs, POBs debt service or payment of pension costs. The concept is that the Authority bears the debt service burden for the POBs and, since there is a nexus between the POBs and pension costs, any savings should be applied only toward pension-related costs. That said, some issuers have also included “one-time capital projects” as an eligible use of PSF funds.

²⁶ There have been only a few “intercept” structures brought to market, so it is difficult to ascertain whether they achieved statistically better results than structures without an intercept feature.

²⁷ See Section 7.2, *How Issuance of POBs Would Affect Future TRANs Issuance.*



The PSF could be held by the POBs trustee, although that is not necessary. Certain issuers who have included PSFs in the POBs transactions (Contra Costa County Fire Protection District and the City of Richmond) preferred to have their POBs trustee and the county treasurer, respectively, hold the PSF, thereby making the operation of the PSF a more formal process and less vulnerable to political influences if held directly.

In addition, any PSF will affect the sizing of the Authority's tax and revenue anticipation notes (TRANS). See Section 7.12 below.

7. Specific Logistical Issues Associated with an Authority POBs Issue.

7.1 How POBs Debt Service Costs Would be Layered Into the Authority's 5-Year Financial Forecast. Section 3.1 of the Authority's Financial Stability Budget Policy requires that a 5-Year Financial Forecast be updated on a rolling annual basis with a strategic goal on maintaining operating balance in each of the five periods. Sections 3.1.1 and 3.1.2 specifically call for the Authority to evaluate the 5-Year Financial Forecast before undertaking "any significant financial commitment." Issuance of POBs would most certainly fall into that category.

Chart 5 in Section 2 of this report provides the projected annual UAAL payments that can be included in the 5-Year Financial Forecast. Since the projected payments will change each time the OCERS actuary completes an updated annual actuarial valuation, the Authority cannot expect a single projection to be entirely accurate over the projection period. Thus, the Authority may find it helpful for planning purposes to request an updated amortization each year but also to build some cushion into the rolling 5-year projections.

If POBs are issued and assuming they are fixed rate, the Authority would build the debt service costs into the 5-Year Financial Forecast and reduce the UAAL costs presently be paid by the general fund.²⁸ Adjustments would need to be made if the Authority funds only a portion of the UAAL with POBs, in which case the 5-Year Financial Forecast would incorporate the POBs debt service costs as well the projected costs for the remaining UAAL.

A potentially significant factor in the Authority's strategic planning with respect to the UAAL and POBs would be any changes in GASB rules regarding the appropriate actuarial interest rate and amortization period. These items are currently undergoing a comment period with the timing of final determinations being uncertain. See Section 11 for a discussion of this situation.

7.2 How Issuance of POBs Would Affect Future TRANS Issuance. The Authority has issued tax and revenue anticipation notes (TRANS) twelve times in its history to fund periodic cash deficits in the general fund. The cash flow deficits occur due to timing mismatches of revenues and expenditures, as opposed to being caused by any structural imbalance in the general fund overall. For example, a major source of revenue for the Authority is property taxes that are received primarily in December and April, as set forth in the Revenue and Taxation Code of California. However, the Authority has relatively level monthly expenditures, as salaries and benefits are paid on a regular schedule and not just in December and April. As a result, periodic cash flow deficits arise and TRANS issuance can be a very cost-effective way to finance them.

²⁸ We assume the POBs would be fixed rate, as variable rate structures are not viable at the present time.



When issuing a TRANs, the Authority temporarily borrows funds to smooth out the cash flows and then repays the TRANs when sufficient revenues have been received.

The impact of POBs issuance on a future TRANs can be determined by examining the cash flow changes that occur due to the POB issuance. Prior to issuance of POBs, the Authority would make payments of a given fiscal year's normal cost and UAAL to OCERS out of the general fund. In Fiscal Year 2010-11, for example, the total amount due to OCERS was \$42.85 million. The Authority prepaid \$21.0 million in July 2010 in order to achieve a 50% discount on the interest rate charged; in other words, OCERS discounted the amount due by 3.875% (one half of the OCERS' assumed actuarial interest rate of 7.75%). The prepayment resulted in net savings to the Authority of \$851,828. The remaining half of the pension obligations are being paid to OCERS on a monthly basis in roughly equal monthly amounts. A portion of each of the July prepayment and monthly payments is attributable to the normal cost of benefits, with the remainder attributable to the UAAL amortization payment due in that fiscal year. The UAAL portion of the Fiscal Year 2010-11 OCERS payment is about \$28.5 million.

If the Authority issues POBs and deposits the proceeds with OCERS to pay off the UAAL, the general fund will no longer need to pay OCERS for the UAAL portion of the annual pension costs, unless a future UAAL arises. If the POBs are issued ahead of FY 2011-12, for example, the freed up amount of general fund cash would be about \$28.5 million in that fiscal year, with \$19.4 million of it available through the end of November, 2011.²⁹ Since the deepest cash flow deficit for the Authority typically occurs at the end of November, the maximum cash flow deficit – and hence the sizing of a Fiscal Year 2011-12 TRANs – would be reduced by \$19.4 million.

However, issuance of POBs also results in new semi-annual debt service payments by the Authority. The semi-annual payments will be interest only until POBs principal starts amortizing in Fiscal Year 2013-14. If one of the semi-annual POBs debt service payments is due between July 1 and the end of November maximum cash flow deficit, the freed-up general fund cash due to POBs issuance will be reduced by about \$13.0 million. Likewise, the net reduction in TRANs sizing would be \$6.4 million.³⁰

7.11 Impact of Using Intercept Feature. The analysis doesn't end there, however, because a potential structural feature of POBs may come into play. As discussed in Section 6.41, POBs proceeds can be used only toward "pension costs" or costs of issuing the POBs. Bond counsels have opined that using POB proceeds to pay off all or a portion of a UAAL is consistent with spending the proceeds on "pension costs" but funding a reserve fund is not. This creates a credit issue, as rating agencies and bondholders typically rely on a reserve fund as a source of security for the bonds. In order to address this issue, the POBs bond structures for California fire protection districts and cities have frequently included "intercept" features whereby the issuer covenants to "intercept" the first property tax revenues in a fiscal year in an amount equal to the

²⁹ The \$19.4 million figure is based on the Authority's current cash flow pattern for paying the UAAL, namely, where half of it is prepaid in July and the rest is paid monthly over the remaining 11 months.

³⁰ The estimates assume the debt service schedule presented in Section 5 with a POBs interest rate of 6.50%. As we move through time, the interest and principal POBs payments rise, with the peak 6-month payment being about \$30.5 million of 2024. However, the POBs savings pattern is level, so the amount offsetting the freed-up general fund cash should be about \$13.0 million each year, as discussed in the text of the report above.



total principal and interest due on the POBs for the upcoming bond year. The intercepted funds are then deposited in trust on behalf of the bondholders.³¹

If the Authority issues POBs with an intercept feature, an entire year's principal and interest payments on the POBs would be intercepted in late November and December each year. Assuming the POB scenario where the POBs interest rate is 6.50%, the estimated amount intercepted in Fiscal Year 2011-12, for example, would be \$26.0 million, which would result in a deeper maximum cash flow deficit than without the intercept. Any POBs debt service due between July 1 and the maximum deficit date would no longer be relevant to the TRANs sizing, however, as that debt service payment would be made from the previous year's intercepted property taxes. Based upon the Authority's fiscal year 2008-09 TRANs cash flows, we estimate that the maximum deficit would be \$6.3 million higher due to the intercept feature.³²

Another important impact of an intercept feature is that, while it provides strong security for the POBs investors, it would mean that the pledge of property taxes to TRANs investors would be subordinate to the pledge to POBs investors. In a practical sense, this should not significantly penalize the Authority in terms of TRANs interest cost, as the intercepted property taxes would comprise about 14.8% of current property taxes and only 10.7% of total Authority revenues as of Fiscal Year 2010-11.³³ Since the POBs debt service would be structured to grow over time, these percentages could be negatively affected if revenue growth doesn't grow at least at the same rate that POBs debt service grows.

7.12 Impact of a Pension Stabilization Fund. In Section 6.42, we saw that some POBs issuers have established pension stabilization funds (PSF) as a means of "banking" their POB savings for use on specific purposes such as future UAALs or pension costs. Orrick, Herrington & Sutcliffe, who has served as tax counsel on the Authority's TRANs issues, has given preliminary advice that amounts in a PSF would be viewed as "available" for TRANs purposes. Because the PSF is not pledged as security to the POBs holders, the Authority would have the ability to reverse the establishment of the PSF by simply adopting a new resolution; in other words, the Authority would be able to "unrestrict" the funds it had previously "restricted" by resolution. Therefore, PSF funds on hand would always be viewed as available to offset periodic cash flow deficits in the general fund and, as a result, would mean any TRANs sizing would consequently be reduced. Whether the PSF is held by a third party makes no difference in the tax analysis. While the Authority may have good reasons to establish a PSF, a related consequence

³¹ In California, the 1937 Act counties do not need an "intercept" feature to secure their POBs. Under Section 31584 of the 1937 Act, county supervisors are obligated to make appropriations for any UAAL obligation and the county auditor-controller is obligated to transfer money in any available fund for such obligation if the board of supervisors fails to make the appropriations. It is common in county POB trust agreements that said transfers for a fiscal year's debt service on any POBs must occur within 30 days of the beginning of said fiscal year, thereby providing a strong security feature for the POBs.

³² Based upon the Authority's Fiscal Year 2008-09 TRANs cash flows, an estimated \$19.7 million of property taxes were expected to be received just following the TRANs low point. If \$26 million of property taxes were to be intercepted for a POBs issue, the TRANs deficit would thus increase by \$6.3 million.

³³ The Authority was in this exact situation, although on a much smaller scale, when revenues pledged to its TRANs had a senior pledge to the Authority's lease revenue bonds that have since been paid off. During the time that the lease revenue bonds were outstanding, the Authority did not incur interest rate penalties on its TRANs due to the subordinate pledge, as there was very strong TRANs debt service coverage regardless. This would also be the case if the Authority issued POBs and used an intercept structure.



is that a future TRANs would be smaller by the amount on hand in the PSF at the time. To the extent TRANs are a more cost-effective method of funding periodic cash flow deficits than using internal sources such as a PSF or reserves and looking at this strictly from a cash management point of view, the Authority would have a less efficient cash management program as a whole.

7.13 Impact of OCERS Prepayment. A related issue is the matter of how the prepayment to OCERS each July affects a TRANs. The prepayment may or may not include a UAAL component, depending upon whether a POB is issued and, if it is issued, whether it funds the entire UAAL amount. In discussing this issue with tax counsel³⁴, we were advised that the IRS is comfortable treating the prepayment as a reasonable business expense at the beginning of a fiscal year so long as the issuer has a history or pattern of such prepayments over at least a two year period. Assuming the Authority has such a history or pattern, the full amount of a July OCERS prepayment can be treated as occurring in July when projected the TRANs cash flow deficit; previously, the IRS appeared to be more comfortable treating the prepayment as if it occurred across the fiscal year for TRANs deficit purposes.

On balance, the impact of OCERS prepayments would be an increase in the projected TRANs cash flow deficit and, consequently, an increase in the TRANs amount.

8. Market Environment for POBs Issuance.

8.1 Market Environment for POBs Issuance. The municipal market is a fairly small sector in the U.S. bond market. As of December 31, 2009, outstanding municipal bonds totaled about \$2.8 trillion, comprising about 8.2% of the \$34.3 trillion U.S. bond market.³⁵ While data on the exact amount of POBs outstanding is not available, we know that total taxable POBs issuance has been about \$50 billion to date nationwide. On the basis of issuance, we can see that POBs represent only about 1.79% of municipal bonds and only about 0.15% of all outstanding U.S. bonds.

Since 2000, taxable municipal issuance represented on average 6.9% of total municipal issuance but, as a result of special taxable bond structures temporarily permitted under the American Reinvestment and Recovery Act (ARRA) over the past two years, taxable issuance has grown to about 33% of total issuance in 2010. Unless the ARRA structures are extended by Congress, however, the taxable municipal market will likely fall back to its historical levels.³⁶ Because municipal issuers are not well known in the taxable bond market and because the volume of issuance is small relative to corporate and U.S. Treasury issuance, the taxable municipal market has never had the depth and liquidity of these larger markets. In this section, we discuss the evolution of the POBs market including the participation of municipal bond insurers, the demise

³⁴ The Authority's current tax and bond counsel is Orrick, Herrington & Sutcliffe LLP.

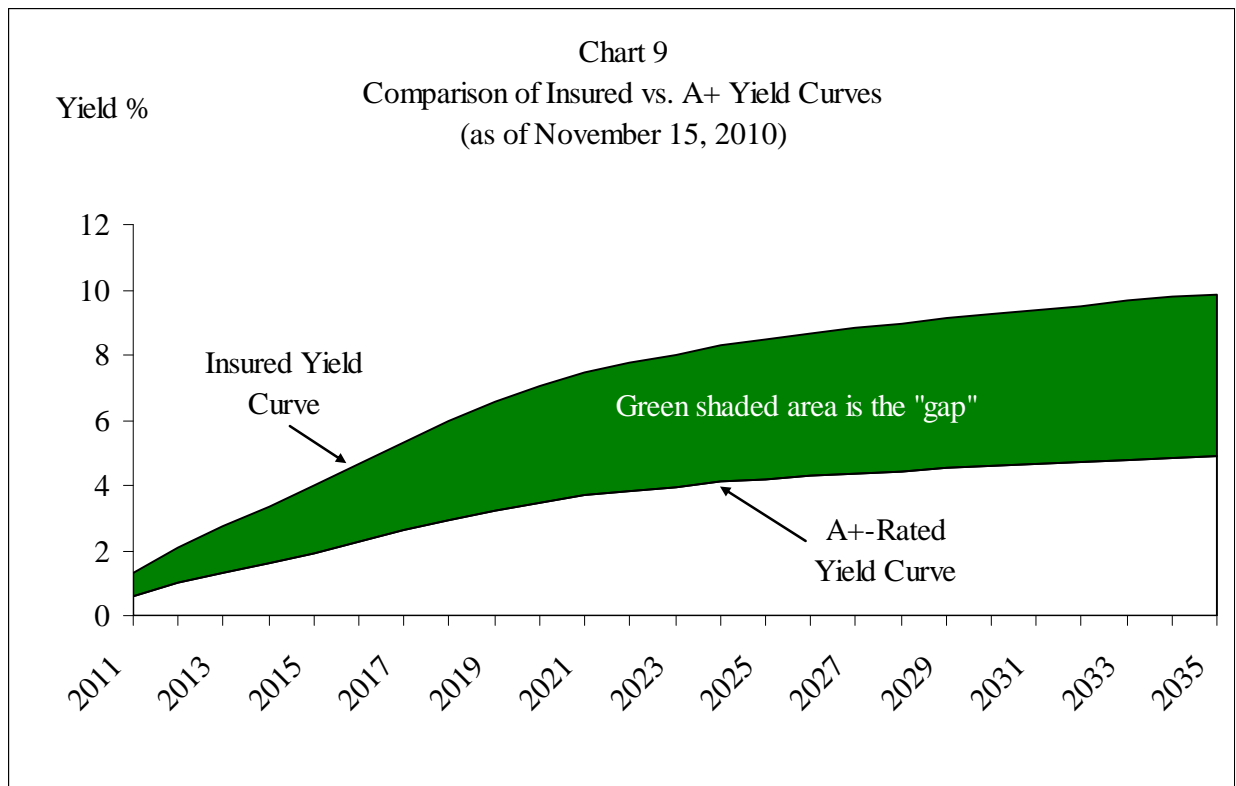
³⁵ Data is provided by Securities Industry and Financial Markets Association (SIFMA), *U.S. Bond Market Outstanding*, Updated October 15, 2010.

³⁶ The ARRA legislation permitted issuance of Build America Bonds (BABs) and other structures that provide a federal subsidy of the taxable interest cost. These structures have been enormously popular with issuers, as the net cost has been lower than tax-exempt debt at certain points along the yield curve. Despite the popularity of these structures, Congress has not acted at the present time to extend their availability beyond December 31, 2010. In any event, the Authority would not be able to issue POBs as BABs, as BABs can only be issued to fund capital expenditures.



of variable rate bond structures, the dominant POBs investors and the pricing of POBs, with particular attention to conditions in today’s POBs market.

8.11 *POBs and Municipal Bond Insurance.* The initial issuances of POBs were sold without bond insurance, as it took bond insurers a period of time before getting comfortable with the credit. Once bond insurers started approving POB credits, nearly all fixed-rate POBs in California were insured and issuers were able to reduce the interest cost on their POBs by purchasing insurance policies rated in the triple-A category.³⁷ As an example, an issuer with a POB rating of A+ would buy a bond insurance policy from a triple-A provider and then have its POBs priced along the triple-A yield curve, which has lower yields at each maturity compared to the A+ yield curve, as illustrated in Chart 9 below. The “gap” between the two yield curves represents the monetary value of bond insurance. The bond insurer would keep a portion of the value by charging a bond insurance premium while the issuer would the remaining value in the form of reduced interest cost.



There are no longer any bond insurers rated triple-A, with all of them having been downgraded as a result of losses in collateralized debt obligations and other derivatives that blew up during the global financial crisis in 2008. In fact, the largest bond insurers – MBIA, Ambac Assurance and FGIC – have all been downgraded to junk status or “regulated” status, with the result that none of them underwrite municipal bond insurance policies anymore. Only one bond insurer – Assured Guaranty - is in business today, although its ratings are below triple-A with Moody’s Investors Service rating it Aa3 (negative) and Standard & Poor’s Ratings Service rating it AA+

³⁷ The major rating agencies are Moody’s Investors Service, Standard & Poor’s Ratings Service and Fitch Ratings.



(stable). Because many investors holding insured bonds realized or were exposed to capital losses due to the demise of the bond insurers, there is currently a healthy amount of skepticism of the value of bond insurance in the municipal market. In their credit report issued in connection with Standard & Poor's recent downgrade of Assured Guaranty on October 25, 2010, Standard & Poor's Ratings Service indicated a concern that the lack of competition in the bond insurance industry "is symptomatic of investors' and issuers' diminished demand for bond insurance."³⁸

The market prices bonds insured by Assured Guaranty to the lower of the two ratings, so only issuers whose POB ratings are below the equivalent of a Moody's Investors Service rating of Aa3 would even be candidates for bond insurance in the present market. The Authority's most recent underlying rating from Standard & Poor's Corporation was AA, meaning an Authority POB rating would be one notch lower, or AA-.³⁹ This is essentially equivalent to Assured Guaranty's Moody's rating of Aa3. It would all depend upon what rating the Authority received at the time of a POBs issue and a cost/benefit analysis, of course, but at present it appears that bond insurance would not be cost-effective for the Authority and the Authority's POBs would be issued as uninsured bonds.

8.12 Rise and Fall of Variable Rate Bond Structures. The early issuances of taxable POBs were structured as fixed rate current interest bonds and/or capital appreciation bonds. By the turn of the century in 2000, the variable rate sector of the municipal market began to expand significantly with the introduction of auction rate securities (ARS) as an alternative to traditional variable rate demand obligations (VRDOs). Standard (VRDOs are secured by a bank letter of credit (LOC) that provides a guarantee of timely payment of principal and interest as well as liquidity in the event that investors elect to "put" back the securities at will; a variant of VRDOs is a structure where a commercial bank provides the liquidity feature and a bond insurer provides the guarantee of timely payment of principal and interest. Because VRDOs have a "put" feature, they are eligible investments for money market funds (MMF), which hold large positions in VRDOs so long as the ratings on the liquidity provider and bond insurer, as the case may be, are in the highest rating categories.⁴⁰

ARS provide a variable rate structure with bond insurance to guarantee timely payment of principal and interest, but there is no liquidity feature. The attraction to issuers was that they would not need a letter of credit and take on the risk of it not being renewed or being renewed at much greater cost. While MMF investors could not purchase ARS, they became a popular variable rate structure with other investors who took comfort in the fact that the auction market was functioning well and one could readily trade their ARS holdings. All of that changed when the worldwide financial crisis began in 2007 and ultimately led to the demise of all but one of the major municipal bond insurers. As the downgrades occurred, the ARS market froze up as ARS

³⁸ Patrick McGhee, *Market Loses its Last Triple A Insurer as S&P Drops Assured Guaranty*, The Bond Buyer, October 25, 2010.

³⁹ The rating agencies generally rate POBs one notch below the issuer's implied general obligation bond rating, as POBs paid from the issuer's general fund would not have the stronger credit quality of a general obligation bond.

⁴⁰ Money market funds (MMF) are regulated entities and are subject to numerous requirements regarding the types and amount of securities they can purchase as well as ratings thresholds. In addition, MMF regulations were tightened as a result of the worldwide financial crisis that began in 2007 and during which the oldest MMF (the Primary Fund) "broke the buck" when its net asset value dropped below \$1 due to the loss in market value of certain of its holdings.



dealers were unable to find buyers for paper that current ARS holders wanted to sell. As a result of failed auctions, ARS interest rates were reset at very high levels and issuers were stuck with both high interest costs and a market that was essentially closed to refinancings due to the credit crisis. Lawsuits were filed (and some have settled) against ARS dealers and the SEC and other regulators realized that there were flaws in the manner in which the ARS market had been operating. For these reasons, the ARS product essentially ground to a halt and there has been no ARS issuance since.⁴¹

In today's market, the VRDO structure is still available, but only a limited number of commercial banks are offering LOCs. The scarcity of LOC providers has resulted in higher LOC fees and much lower issuance of VRDOs. Furthermore, recent BASEL II⁴² actions are expected to result in commercial banks having to maintain capital reserves for VRDOs backed by LOCs, with many in the market concerned that this will lead to further reduction in the availability of LOCs as well as higher costs. The demise of the ARS market and the shrinking VRDO and LOC markets mean that POBs issuance will likely to be confined to fixed rate bond structures, at least in the near future.

8.13 POBs Investors. The investor base for fixed rate taxable municipal bonds is dominated by domestic and international institutional investors. The largest domestic investor categories are property and casualty insurance companies and money managers who view POBs as an excellent investment to include in asset and liability matching. Since the early POBs were noncallable, they were generally very attractive investment options for the traditional investors, as they were less expensive to purchase than corporate bonds of similar credit quality.

As the market evolved in the mid-1990s, international financial institutions became the dominant buyers of POBs, primarily banks in Ireland, Germany and France.⁴³ European banking regulations set forth certain "risk weightings" for investments held by banks; the lower the risk weighting, the greater the ability of the bank to leverage the asset and enhance profitability. The risk weighting for U.S. municipal securities was 20%, whereas the risk weighting for U.S. corporate securities was 100%. Thus, POBs became a very attractive investment candidate for two reasons: they provided a vehicle that could be leveraged and they were cheaper to purchase than corporate bonds.

In addition to the risk-weighting and leverage advantages of POBs, the European investors also used the product to undertake asset swaps where they would create and sell secondary market synthetic floating instruments to other European investors who preferred variable rate assets. These buyers would purchase fixed rate bonds, deposit them into a trust structure and issue synthetic floaters. Inherent in the strategy was the ability to hedge their risk in the LIBOR swap market. They would buy other fixed rate bonds and enter into a fixed-to-floating rate LIBOR based swap where they paid a fixed rate (meant to be the same as the POBs fixed rate) and received a variable rate. The variable rate leg was used to hedge the variable rate exposure on

⁴¹ Compounding the problems for some ARS issuers was the presence of swaps on their ARS transactions. Not only did the bond insurer downgrades result in higher interest cost on the ARS, they also triggered automatic termination events for some swaps.

⁴² BASEL II is the second of the Basel Accords, which are recommendations on banking laws and regulations issued by the Basel Committee on Banking Supervision.

⁴³ The largest purchasers of POBs were Dexia Credit, Depfa Bank and West Landesbank.



the POBs synthetic floaters. These banks were seeking to hedge virtually all of the risks while taking a spread from the repackaging of the POBs; thus, their participation in POBs was driven by the relevant spreads between Treasuries (off of which POBs are priced) and the LIBOR swap curve (off of which the synthetic floaters were priced). This type of transaction is certainly not familiar to the lay reader, but suffice it to say that it became the preferred structure undertaken by the European banks when evaluating what they would pay for POBs.⁴⁴

For the perceived benefits described above, European banks often purchased POBs at yields that were lower than those acceptable to domestic buyers by 15 to 20 basis points, which in turn provided POBs issuers with the lowest cost of funds for fixed rate POBs. European banks became the dominant player in POBs in the mid-1990s and continued in that role until the worldwide financial crisis led to staggering losses for banks that had extensively leveraged their asset bases. In today's market, almost no European banks participate in POBs issues, with the traditional domestic insurance companies and pension funds returning to the status of dominant buyers.

8.14 POBs vs. BABs Investors. As discussed in Section 8.1, the taxable municipal market has grown significantly over the past two years due to the presence of ARRA bond structures such as BABs. If permission to issue BABs is extended by Congress, it is likely that the taxable municipal market will deepen and become more liquid over time. This could affect POBs issuers in a positive way because it means that a large and potentially growing investor base would become familiar and comfortable with municipal credits. No one knows how long it might take for such a situation to result in reduced spreads for BABs and POBs, but the possibility is an intriguing one.

8.15 POBs Pricing. Corporate bonds are priced at a spread to U.S. Treasury securities (Treasuries), reflecting the practice of pricing non-treasury instruments that carry risk against the risk-free Treasury instrument. Bond elements such as the purpose of the issue, security features, credit ratings, call features, size, liquidity, amortization and headline risk all affect the spreads at which non-Treasury bonds are priced to Treasuries. The general level of interest rates is also a determinant of pricing spreads. Because the POB market is small in terms of issuance and relatively thin in terms of its investor base, taxable municipal bonds generally trade at wider spreads to Treasuries than do comparably rated corporate bonds.

As for headline risk, there has been a great deal of press coverage on the fiscal problems faced by state and local governments, including the bankruptcy of the City of Vallejo.⁴⁵ This type of

⁴⁴ It should be mentioned that the POBs underwriter frequently provided hedging and swap services for the banks purchasing POBs, thereby increasing their compensation beyond the POBs underwriting fee. There is no data available on these transactions done "away" from the POBs, but it is possible the compensation was quite large due to the large par amounts of many POBs issues.

⁴⁵ Even though state and local governments go through periods of fiscal pressure, the default rates on municipal issues are very low. According to Moody's Investors Service, the historical 10-year cumulative default rate for all investment grade municipals is 0.06% and there has never been a default among state general obligation issuers rated by the service. According to Standard & Poor's Ratings Service and Fitch Rating Service, the historical default rate for all investment grade municipals is 0.29% and 0.32%, respectively, and there also has never been a default among the state general obligation issuers that they rate. Generally, municipal defaults have occurred with small issuers, special districts (such as the current bankruptcy in Jefferson County, Alabama) or land-based financings. Financings backed by an issuer's general fund and general obligation bond financings have extremely



situation makes it more difficult for municipal issuers to sell POBs at attractive spreads to Treasuries, as headline risk allows investors to charge yield penalties for it. This typically affects issuers who are in the daily papers more than others, such as the State of California, but every issuer should be aware that negative press can and probably will affect their bond pricings.

There have been very few California POBs priced recently but their pricing results are shown in Table 3 below. Due to its size and ratings, the County of Sonoma's POBs would be more comparable to the Authority than the other two transactions. The County of Sonoma POBs had a coupon and yield of 6.00% percent at the long end of the 20-year maturity schedule, which was priced at 233 basis points to the benchmark 30-year Treasury Bond. This spread is significantly wider than comparable POBs that sold in the years prior to the financial crisis. For example, the County of Santa Clara sold \$389.5 million of POBs in June, 2007 at a spread of 82 basis points to the benchmark 30-year Treasury Bond. However, the level of interest rates was higher at that time, with the coupon in 20 years being set at 6.101%. Thus, even though the County of Sonoma had a spread of 233 basis points, its coupon was only 10 basis points higher than the County of Santa Clara's coupon. Nevertheless, the County of Sonoma results highlight the difficulty that municipal POBs issuers have in capitalizing on the low level of Treasury rates at present. By comparison, corporate bonds rated similarly to the County of Sonoma price at about 136 basis points to the benchmark 30-year Treasury Bond.⁴⁶

Table 3 - Recent California Pension Obligation Bond Pricings

City of Pacifica					City of San Rafael					County of Sonoma				
\$20,510,000					\$4,490,000					\$289,335,000				
05/03/2010					06/22/2010					08/24/2010				
AAA (AGM)					A+					AA-/AA				
Callable 10 years at Par					Noncallable					Noncallable				
30-Year Treasury at the time of price 4.60%					30-Year Treasury at the time of price 4.13%					30-Year Treasury at the time of pricing: 3.67%				
Maturity	Principal	Coupon	Yield	vs. Tsy	Maturity	Principal	Coupon	Yield	vs. Tsy	Maturity	Principal	Coupon	Yield	vs. Tsy
06/01/2011	1,135,000	1.43%	1.43%		06/01/2011					12/01/2010	2,945,000	5.50%	5.50%	
06/01/2012	1,095,000	2.12%	2.12%		06/01/2012					12/01/2011				
06/01/2013	1,195,000	2.89%	2.89%		06/01/2013					12/01/2012				
06/01/2014	1,305,000	4.05%	4.05%		06/01/2014					12/01/2013	2,660,000	2.12%	2.12%	
06/01/2015					06/01/2015					12/01/2014	3,735,000	2.55%	2.55%	
06/01/2016					06/01/2016					12/01/2015	4,895,000	2.90%	2.90%	
06/01/2017	4,780,000	5.18%	5.18%		06/01/2017					12/01/2016	5,960,000	3.50%	3.50%	
06/01/2018	965,000	5.75%	5.75%		06/01/2018					12/01/2017	7,335,000	3.80%	3.80%	
06/01/2019	1,080,000	5.95%	5.95%		06/01/2019					12/01/2018	8,640,000	4.28%	4.28%	
06/01/2020					06/01/2020	1,645,000	6.00%	6.06%		12/01/2019				
06/01/2021					06/01/2021					12/01/2020				
06/01/2022					06/01/2022					12/01/2021				
06/01/2023					06/01/2023					12/01/2022				
06/01/2024	2,780,000	6.35%	6.35%		06/01/2024					12/01/2023				
06/01/2025					06/01/2025	2,845,000	6.25%	6.46%	2.33%	12/01/2024				
06/01/2026					06/01/2026					12/01/2025				
06/01/2027					06/01/2027					12/01/2026				
06/01/2028					06/01/2028					12/01/2027				
06/01/2029					06/01/2029					12/01/2028				
06/01/2030	6,175,000	6.90%	6.90%	2.30%	06/01/2030					12/01/2029	253,165,000	6.00%	6.00%	2.33%
Total	20,510,000				Total	4,490,000				Total	289,335,000			

The Authority's POBs would likely sell at a yield higher than the 6% yield on the Sonoma County transaction because the Authority's UAAL has an amortization period much longer than

low default rates.

⁴⁶ Sources: TM3 and Reuters.



the 20 year term to maturity of the POBs. Based upon feedback from Wedbush Securities, a firm whose senior investment banker has completed a significant number of POBs transactions, it is estimated that the interest rate at the long end (29 years) for an OCFA POBs would be about 6.75% in the current market. Under the assumption that the POBs would be structured with serial as well as term bonds across the yield curve, the estimated all-in interest cost for the POBs would currently be in the 6.50% area.

9. Empirical Research on POBs.

9.1 Two Studies on POBs. There have been many articles and press reports on POBs over the years, to say nothing of the numerous glossy-covered presentation booklets on POBs prepared by investment bankers for potential POBs issuers. Yet, there are relatively few empirical studies of the structuring issues and performance of POBs. In this section, we provide a brief discussion of two studies that used statistical and econometric techniques to study certain aspects of POBs.

9.11 Study on Structure and Performance of POBs. Allan Beckmann, a graduate student at the University of North Carolina, published a paper in early 2010 on POBs in connection with satisfying requirements for a Master's Degree in Public Administration.⁴⁷ The main focus of the paper was to determine whether or not "...POBs are problematic in practice". If POBs were found to be problematic, the author would recommend some sort of government intervention to curtail the practice.

Beckmann looked at two types of risk associated with POBs, namely, leverage risk and arbitrage risk.⁴⁸ These types of risks were discussed earlier in Section 2.

To study leverage risk, Beckmann set forth certain debt structure characteristics that would be viewed as "unbalanced" or "backloaded", presumably because such structures would be used by issuers who were deferring debt repayment far into the future because they could not afford to pay the debt back earlier. Beckmann used two measures of unbalanced/backloaded debt structures: one, if the largest debt service payment is more than 4 times the smallest debt service payment; and two, if less than 50% of bond principal was repaid within 10 years.⁴⁹ Of 280 series of bonds issued nationwide since 2002 for which he had data, Beckmann found that roughly 50% of them were unbalanced or backloaded and concluded that no federal intervention was

⁴⁷ See Allan Beckmann, *Pension Obligation Bonds: Are States and Localities Behaving Themselves or Do the Feds Need to Get Involved?*, Paper Submitted in partial fulfillment of requirements for a Master's degree in Public Administration., Spring 2010.

⁴⁸ Beckmann noted that his study did not attempt to address two other risks associated with POBs, namely, political risk and market timing risk.

⁴⁹ Beckmann did not provide a specific rationale for why he defined his measures the way he did. We note, however, that how rapid debt is repaid is a rating criteria used by Standard & Poor's Ratings Service and they publish a "10 year payout" statistic for bonds they rate, so Beckmann may have selected a 10 year payout period for that reason. Regarding "backloaded" debt service, it is also important to note that UAALs themselves are typically backloaded, as the actuarial assumptions include growth rates for salaries and inflation over time. When issuers structure POBs, they frequently use a bond structure that is proportional to the UAAL and, hence, they tend to be backloaded. That said, some issues structure POBs with final maturities later than that of the UAAL and/or use principal amortization that bears no relation to the principal amortization of the UAAL.



necessary even though it was troubling that only about half of POBs are “responsibly structured”.

To study arbitrage risk, Beckmann looked at whether the investment returns of retirement systems that received POBs proceeds had rates of return lower than the interest rate on the respective POBs. The study sample included 170 issues, with the results showing that about 53% of the retirement systems had achieved rates of return higher than the POBs interest rate.⁵⁰ Beckmann concluded that federal intervention was not warranted although he noted it was troubling that nearly half of POBs were underwater over the time period in the study.

The bottom line from the Beckmann study is that slightly more than half of the POBs had performed well, or at least satisfactorily, through June 30, 2008. Chart 6 shown earlier illustrates that the market rebounded somewhat in 2009 and 2010, although the POBs issuances just before the market drops in 2007 and 2008 are likely well under water and need strong market gains to turn their performance around.

9.12 Study on Internal Rate of Return on POBs and Context of Issuance. The Center for State and Local Government Excellence (CSLGE) published a research report on POBs in January 2010.⁵¹ The report was an outgrowth of unpublished data compiled by the Center for Retirement Research at Boston College of the impact of the financial crisis on public pension systems. There were two subject areas addressed in the report, as discussed below.

9.121 Internal Rate of Return of POBs. The first subject area was the measurement of the internal rate of return on POBs that had been issued since 1992. In the first year of issuance for each POB, the annual return on the invested POB proceeds was estimated using an asset allocation of 65% to equities (with the S&P 500 being the indicative benchmark) and 35% to fixed income (with Barclays 10-year bond total return index being the indicative benchmark).⁵² Next, then-year POBs interest cost was subtracted from the returns to establish the starting point for the next year. The process was repeated until either the POB was paid off or the end date of the study was reached. The ending balance was then compared to the initial POBs proceeds to calculate an internal rate of return (IRR). The study presented the results for two different timeframes. The first timeframe looked at the IRR of POBs issued in a particular year through a study period ending in 2007 when the stock market had peaked; the second timeframe extended the time period through 2009 to capture the sharp market decline in 2008. As seen in Table 4 below, all of the POBs had positive IRRs except those issued from 1997 through 2001 when the study period stops in 2007. When the study period is extended through 2009, none of the POBs issued from 1997 through 2008 had positive IRRs.

⁵⁰ It is important to note that the data included the period through June 30, 2008, so the massive market losses in 2008 were not incorporated into the investment returns. The S&P 500 lost 38.49% of its value in 2008. See the discussion in Section 9.2.

⁵¹ Center for State and Local Government Excellence, *Issue Brief: Pension Obligation Bonds: Financial Crisis Exposes Risks*, January 2010.

⁵² A weakness of the study is that it did not model the asset allocation targets for the individual retirement systems, which targets, for better or for worse, may have included real estate and other sectors in addition to equities and bonds. Attempting to undertake an individual analysis of each system would be a daunting task and was outside the scope of the study; however, but the study’s “one size fits all” approach is simplistic and may have introduced unintended bias in the results.



Table 4 Indication of Whether a Positive IRR Was Attained		
Year of POBs Issuance	Study Period	
	1992 through 2007	1992 through 2009
1992	Yes	Yes
1993	Yes	Yes
1994	Yes	Yes
1995	Yes	Yes
1996	Yes	Yes
1997	No	No
1998	No	No
1999	No	No
2000	No	No
2001	Yes	No
2002	Yes	No
2003	Yes	No
2004	Yes	No
2005	Yes	No
2006	Yes	No
2007	Yes	No
2008	Not applicable	No
2009	Not applicable	Yes

As Table 4 illustrates, the “old” POBs issued in the early 1990s still have positive internal rates of return. These POBs were issued ahead of one of the strongest and longest bull markets in recent times but whether those accumulated gains will be enough to withstand a future financial crisis or economic cycles cyclical remains to be seen. Issuers of POBs from 1997 through 2007 were performing well until the financial crisis reversed their fortune in 2008. These issuers now appear to be worse off than they were before the issuance unless favorable market conditions pull them into positive territory over the years ahead. Also, POBs issued in 2009 after the market had recovered from the losses in 2008 are showing a positive IRR. Most market participants did not anticipate the depth of the financial crisis and its impact on the equity and real estate markets, but the CSLGE study shows the importance of factoring in the “worst case scenario” when evaluating a POBs issuance.

9.122 Context of Issuance. The second subject area in the CSLGE study was the “context” for issuing POBs. The hypothesis was that agencies with well funded pension systems and strong financial health would be able to handle the risks posed by POBs and, therefore, would be good candidates for POBs issuance if a low rate market environment were available for such issuance. Using separate regression analyses on factors such as pension plan cash flow,



debt burden, pension costs as a percent of budget, cash position and intergovernmental revenues, the CSLGE study found the opposite of their hypothesis to be true: agencies under fiscal stress with large outstanding debt burdens and relatively large pension costs were likely to issue POBs whereas agencies in strong financial condition were not. At the conclusion to their study, CSLGE writes:

“...it appears that POBs have the potential to be useful tools in the hands of the right governments at the right time. Issuing a POB may allow well-heeled governments to gamble on the spreads between interest rate costs and asset returns or to avoid raising taxes in a recession. Unfortunately, most often POB issuers are fiscally stressed and in a poor position to shoulder the investment risk. As such, most POBs appear to be issued by the wrong governments at the wrong time.”

10. Issues Raised by Actuaries and POBs Critics.

A number of issues related to POBs have been raised by actuaries and critics of POBs, as discussed in this section.

10.1 What is the Correct Formula for Estimating POBs Savings? Numerous papers and articles written have been written by certain actuaries regarding the theory underlying POBs, including whether a flawed methodology is being promulgated for POBs.⁵³ There are concerns about the theoretical premise of POBs in the first place, and a myriad of issues arise in evaluating whether or not POBs produce “savings”. Some critics of POBs point out that the following concerns may not be adequately addressed when an agency considers issuing POBs.⁵⁴

1. Most public agencies undertake only short-term budgeting, which may result in decisions that address only immediate concerns such as union demands or current services and which allows such concerns to take precedence over longer-term goals such as fully funding their pension plan or maintaining structural balance in the budget. Some agencies, for example, have taken “pension holidays” where they skip all or a part of their annual contributions without fully recognizing the significant financial impact such a decision has on the ultimate cost of pension liabilities. Other agencies have promised enhanced benefits when retirement assets are robust without due consideration of the long-term costs when economic cycles change and investment losses occur.
2. Private companies are required to use full accrual measurement of resources where information on future obligations is incorporated into organizational performance in a given budget period; this is meant to match “economic activity” and “financial performance.” On the other hand, public agencies use cash or modified accrual bases

⁵³ One of the frequent authors on this subject is Thad Calabrese, Assistant Professor, Baruch College, CUNY, School of Public Affairs.

⁵⁴ Reference is made to actuary Thad Calabrese’s *Public Pensions, Public Budgets, and the Risks of Pension Obligation Bonds*, Public Pension Finance Symposium, May 2009.



that focus solely on current financial resources. This means that public agencies often look at only funding current pension expenditures rather than being concerned about the long-run costs.

3. A public agency with only a short-term horizon and using cash or modified accrual methods for budgeting may be enticed into issuing POBs to provide budget “relief”. A key player in this scheme is the actuarial model, which allows the issuer to treat the *expected* returns of the retirement system as if they are *actual* returns. Once the issuer “spends the savings from POBs” on current expenditures, current employees and retirees obtain the benefit whereas future taxpayers bear the risk that *actual* returns may not turn out as expected.

The above concerns amount to an argument that the wrong formula is being used when evaluating whether a POB produces savings. The conventional approach is to subtract the POB rate from the assumed actuarial interest rate and, if the difference is positive, there are savings. For example, the OCERS actuarial rate is presently 7.75%. If POBs could be issued at 6.50%, the Authority would reduce the interest cost on its liability by 125 basis points (1.25%).

The argument against POBs is that the formula should NOT compare the POBs interest rate to the assumed actuarial interest rate. Because the plan is a defined benefit plan where benefits are risk free to the beneficiaries, it is not appropriate to compare the POB interest rate to a rate that requires the retirement system to take on risk. Instead, the POBs interest rate should be compared to a risk-free rate such as a U.S. Treasury rate. Under such a formulation, POBs will never produce savings because the taxable POBs rate will be above the risk-free rate. By using a flawed formula, issuers are able to monetize the risk that is transferred to future taxpayers: for example, the Authority would take and spend budgetary savings today while exposing future budgets to the risk that sufficient OCERS returns don’t materialize.

This argument is similar to one discussed in connection with the appropriate discount rate or assumed actuarial rate to use in an actuarial model of public retirement systems in Section 10.2 below.

An approach to addressing at least a portion of these concerns would be to lock up the “savings from POBs” rather than spend them. Some POBs issuers have done that by establishing a “pension stabilization fund (PSF)” whereby they budget annual UAAL costs at the same level as prescribed in the actuary’s amortization and deposit the difference between that amortization and the POB annual debt service into the PSF. The PSF can then be used to address any new UAAL or be used to pay down the POBs if the retirement system becomes overfunded. The PSF is essentially a hedge to guard against transferring the risk of achieving the retirement system’s actuarial rate to future taxpayers. See the discussion on this in Section 6.42.

10.2 What is the Appropriate Discount Rate to Use? Currently, GASB No. 27 (6.15.97) provides that “...the discount rate for evaluation of the pension liability is based on the long-term expected rate of return on the assets in the pension trust.” The higher the assumed actuarial interest rate, the lower will be the annually required contributions to the pension system for both normal cost and the UAAL, and *vice versa*. Employers in a retirement system are thus able to reduce annual contributions by raising the assumed actuarial interest rate. Critics say this creates



a perverse outcome: employers reduce their contributions by taking on more risk.⁵⁵ Instead, it is argued that the converse is more appropriate public policy: more investment risk should require higher contributions.⁵⁶

This is the subject of vigorous debate at present and not only among actuaries and economists. GASB has been involved since 2006 in reviewing its rules regarding pension system reporting with a view toward promoting more transparency and accountability. In addition, there is a desire to make public retirement systems use uniform actuarial methods and assumptions similar to those being used under the Financial Accounting Standards Board (FASB) that governs private sector accounting rules. In June 2010, GASB issued preliminary views regarding accounting changes that, among other things, would significantly impact the discount rate used by a public retirement system as early of 2013. It appears that GASB’s preferred approach is a “corridor” mechanism whereby a retirement system would use its current assumed actuarial rate as the discount rate but only as long as the reported liabilities are within 15% above or below the fair value of assets. If a system’s liabilities exceed 15% of the fair value of assets, the excess would be immediately recognized as an expense and not smoothed in over several years, as is the current practice. If the revised annually required contribution is not met by a certain time, the system must reduce the assumed actuarial rate on the liabilities outside the 15% corridor which may be a risk-free rate of return, a government borrowing rate or the average return on high-quality municipal bonds. Comment periods on the GASB proposals are underway and final rules may be announced in the near future.

To illustrate the impact of the proposed GASB rules regarding the discount rate on OCERS, the calculations below show that the portion of the accrued actuarial liability above the 15% corridor is \$3.3 billion as of December 31, 2009.

Accrued Actuarial Liability (AAL)	\$ 11,858,578,000
Fair (Market) Value of Assets	\$ 7,464,761,000
AAL as % of Fair Value	158.86%
Corridor Limit: 15% Above Fair Value	\$ 8,584,475,150
Portion of AAL Above 15% Corridor	\$ 3,274,102,850

To put this in perspective, this amount is slightly less than the reported UAAL for OCERS in that same time period. Needless to say, having to actually expense \$3.3 billion through immediate increases in the annually required contributions from OCERS employers would result in backbreaking increases in employer contribution rates; however, the actual annual contribution

⁵⁵ See Thad Calabrese’s *Public Pensions, Public Budgets, and the Risks of Pension Obligation Bonds*, Public Pension Finance Symposium, May 2009.

⁵⁶ Howard Bornstein, et al., *Going for Broke: Reforming California’s Public Employee Pension Systems*, Stanford Institute for Economic Policy Research, April 2010 and Robert Novy-Marx and Joshua Rauh, *The Liabilities and Risks of State-Sponsored Pension Plans*, *Journal of Economic Perspectives* 23(4), 2009, 191-210.



The Stanford Institute for Economic Policy Research brief released in November 2010 estimated that the percentage of annual payroll needed from OCERS members to pay off the pension UAAL and the OPEB UAAL would be about 25% if the UAALs were amortized over 33 years and about 48% if they are amortized over 18 years.⁶¹ In addition to paying its unfunded liabilities, each employer must also pay the normal cost of benefits (estimated to be on average about 10-15% of payroll). On a combined basis, the normal and unfunded costs could absorb up to two thirds of covered payroll, leaving very little room for other budgeted items. While no one can be sure if amortization periods will be shortened and actuarial rates reduced, the combination of the two could significantly affect the budgets and resources of agencies such as the Authority if such parameters are used by the actuary in its actuarial analysis as well.

Standard & Poor's (S&P), a national rating agency, issued an article on December 15, 2010 on the proposed GASB changes citing, among other things, that the elimination of multi-year smoothing would lead to greater volatility in the reporting of pension assets. In addition, S&P noted that it would be more difficult to track funding performance if GASB no longer requires agencies to report their annually required contribution (ARC). This could result in S&P requesting more details from agencies on its annual funding on an actuarial basis. S&P indicated that it does not see any "immediate credit implications" of the proposed GASB changes.⁶²

10.4 What is the Appropriate Cost Method to Use in Actuarial Analysis? Unlike private pension plans that must use a uniform cost method in their actuarial analysis, municipal agencies are allowed to select from six acceptable cost methods. Requiring a uniform cost method would make it easier to compare one retirement system to another and would prohibit certain cost methods that have known flaws. GASB appears to be moving toward requiring all plans to use the entry age normal cost method applied on a level percentage of payroll. This is the method currently used by OCERS so, *ceteris paribus*, there would be no impact on OCERS if GASB were to require all plans to use this method.

11. Lessons Learned From POBs Issuance.

One of the most important lessons learned from POBs issuance is that all of the risks associated with POBs must be duly considered as subjective considerations regarding risk complicate the financial analysis of POBs. As we saw in Table 3, the only issues that seem to be earning actuarial arbitrage are those sold from 1992 through 1996 and in 2009 after the equity markets recovered from the financial crisis. The issues sold from 1992 through 1996 benefitted from one of largest and longest bull markets in history. Likewise, very few market participants expected the equity markets to decline so precipitously in the aftermath of the financial crisis. If only it

June 8, 2010. We note that the Stanford Study estimated larger impacts on the UAAL.

⁶¹ The study cited "Comprehensive Annual Financial Reports" as the source of the data, but it is not clear if the study used only Orange County data as opposed to the entire membership of OCERS. It is also unclear as to what OPEB data was included, i.e. if it was Orange County's OPEB or the OPEBs of all of the employers. In the Authority's case, some OPEB obligations are being pre-funded from employee contributions.

⁶² See "S&P's Views of GASB's Proposed Changes in Government Pension Accounting", Standard & Poor's, December 15, 2010.



were possible to know when good and bad periods might occur again, so that the actuarial risk and timing risk of POBs could be better ameliorated.

In evaluating a POB issuance, it is critical to keep both the bull and bear market history in the forefront of discussion, as estimating the “savings” from POBs is not as simple as subtracting the estimated POBs interest rate from the assumed actuarial rate. We now have nearly 20 years of performance history on POBs, and it should be front and center in the discussion about whether to issue POBs in the future. If the Authority proceeds to move ahead with a POBs issue, it may want to consider having a probability analysis conducted that the assumed level of returns can be achieved.⁶³ Also, it would be advisable for the Authority to establish an annual review of and track its POBs’ actuarial arbitrage performance.

Political risk has also surfaced over the history of POBs, as their issuance led to full funding of retirement systems in many cases. When the retirement system is fully funded or overfunded, there is a tendency to enhance pension benefits as if they will never cost anything. The history of recent pension fund performance and the sharp increase in UAALs is a reality check that there is no free lunch. Moreover, in the case of POBs issuance, it is important to dispel the notion that the retirement system is fully funded as a result of the deposit of POBs proceeds. The employer has taken on hard debt to fund it even though the UAAL has been extinguished in “form”; from the employer’s vantage point, the UAAL costs have not been extinguished in “substance”.

Some observers recommend that issuers fund up to 85% of their UAAL rather than the entire amount in order to keep the retirement system from being overfunded.⁶⁴ The idea – or hope - is that economic cycles will affect performance and there will be periods when the system approaches full funding. The approach can also be refined by issuing a number of POBs during successive bear markets rather than all at once, in an effort to address market timing risk. Beyond “right-sizing” a POB, Girard Miller of the PFM Group is an advocate of banking the savings from POBs for the benefit of both the bondholders and taxpayers. He goes beyond the concept of a pension stabilization fund that we discussed in Section 6.42 to that of a “POB Trust” into which any excess earnings attributable to the POBs are placed.⁶⁵ In his view, giving employees and retirees more benefits dilutes the credit position of the bondholders and transfers even more risk of repaying the bonds to taxpayers; instead, he believes depositing excess earnings into a POB Trust to pay down the POBs is better public policy.

Three of the 1937 Act counties (Alameda, Kern and Tulare) have adopted Article 5.5 of the 1937 Act that provides for creation of a Supplemental Retiree Benefit Reserve (SPBR).⁶⁶ After the retirement system funds all of its required reserves, 50% of any excess earnings go to the SPBR for retirees and their beneficiaries. The remaining 50% of excess earnings are deposited to an account for the employers and employees. Thus, there is a mechanism for using a portion of excess earnings to pay down POBs or to apply to other costs such as OPEB. In Alameda County’s case, the SPBR held \$684.3 million in actuarial assets as of December 31, 2008 which,

⁶³ OCERS’ investment advisor may be a good candidate for this type of specialized analysis. Some models use Monte Carlo techniques to project future returns which, while being mathematically complex models, typically provide no assurance that such projections are accurate.

⁶⁴ Girard Miller, *Bonding for Benefits: POBs and ‘OPEB –OBs’*, *Governing*, January 15, 2009.

⁶⁵ *Ibid.*

⁶⁶ See OCERS website www.ocers.org/about_ocers/37act.htm.



when combined with ongoing employee contributions toward retiree health care costs, is sufficient to fund all OPEB-related benefits through 2028 even if no additional excess earnings are available. The current funded ratio for OPEB benefits is 86.5%. The SBRF is also used to fund non-vested supplemental cost of living adjustments, which the actuary estimates to be about 37.5% funded.

Even though OCERS cannot presently provide a sharing of excess earnings with the Authority along the line of Gerard Miller's "POB Trust", it points out an important lesson of POBs over the years: perhaps more should be done to balance the risks and rewards of POBs between the employers and the members of the retirement system.

Another important lesson learned is that the proceeds of POBs should be invested in equities and not in fixed income instruments. While the retirement system may have a diversified asset allocation, the most likely source of positive actuarial arbitrage is the equity portion of the portfolio.

Issuers of variable rate POBs learned some lessons, namely, that the "no liquidity" risk of ARS was not insignificant as purported and that the renewal and LOC pricing risks for VRDOs were significant. Some who had included swaps to hedge their variable rate POBs may have compounded their risk rather than having effectively hedged it. It is likely that future POBs will be vanilla, fixed rate bonds that take the risky aspects of variable rate bonds off the table.

A final comment is that the Government Finance Officers Association (GFOA) has urged "caution" in issuance of POBs.⁶⁷ GFOA notes that POBs should not be a "substitute for prudent funding of pension plans" and potential issuers should review a number of considerations when evaluating them, such as:

1. POBs may fund a current UAAL but that does not guarantee a future UAAL will not arise. Budget relief may not materialize if the pension system incurs investment losses or if new benefits are granted, and an issuer could end up in a position where they cannot afford both the POBs debt service and the increased pension contributions.
2. POBs should not have a maturity beyond that of the UAAL amortization period.
3. The ability of the retirement system to handle a large, one-time contribution should be examined.
4. The issuer should ensure that the retirement system review and modify its cash flow practices, as the annual UAAL payments will be reduced in lieu of debt service payments made on the POBs; GFOA recommends the analysis to extend through the UAAL amortization period.
5. POBs convert a "soft" liability to a "hard" one on the issuer's balance sheet.
6. Issuance of POBs may diminish debt capacity for other projects and/or affect the credit ratings of the issuer.

Ultimately, the long-term solvency of the Authority's pension system depends upon systematic contributions and not on POB borrowing. Both employer and employee contributions along

⁶⁷ Government Finance Officers Association, *Evaluating the Use of Pension Obligation Bonds*, 1997 and 2005.



Appendix A

Taxable Pension Obligation Bond Issuances in California



Appendix A

Taxable Pension Obligation Bond Issuances in California

Sale Date	Issuer	Issue Description	Par (\$ MM)
12/04/1986	Los Angeles County	Pension Obligation Bonds	461.493
10/20/1993	Sonoma County	Pension Obligation Bonds	97.400
02/03/1994	San Diego County	Pension Obligation Revneue Bonds	430.430
02/15/1994	Contra Costa County	Pension Obligation Bonds	337.365
03/17/1994	City of Fresno	Pension Obligation Bonds	245.555
04/21/1994	City of Chula Vista	Pension Obligation Bonds	16.787
09/23/1994	Orange County	Taxable Pension Obligation Bonds	209.840
10/13/1994	Los Angeles County	Pension Obligation Bonds	1,116.835
10/13/1994	Los Angeles County	Pension Obligation Bonds	248.395
04/12/1995	Alameda County	Pension Obligation Bonds	310.150
06/22/1995	Sacramento County	Pension Obligation Bonds	134.000
06/22/1995	Sacramento County	Pension Obligation Bonds	404.060
07/28/1995	City of Santa Rosa	Pension Obligation Bonds	8.665
09/13/1995	Stanislaus County	Taxable Pension Obligation Refunding Bonds	108.970
10/25/1995	City of Long Beach	Pension Obligation Bonds	108.635
11/10/1995	Kern County	Pension Obligation Bonds	227.818
11/22/1995	San Bernardino County	Pension Obligation Revneue Bonds	420.527
11/30/1995	Ventura County	Taxable Pension Obligation Bonds	154.510
04/24/1996	Los Angeles County	Pension Obligation Refunding Bonds	327.400
06/06/1996	Orange County	Pension Obligation Bonds	121.680
12/09/1996	Mendocino County	Pension Obligation Bonds	30.720
12/12/1996	Alameda County	Pension Obligation Bonds	306.863
01/07/1997	Orange County	Refunding Pension Obligation Bonds	136.923
02/14/1997	City of Oakland	Pension Obligation Bonds	436.289
05/15/1997	Tulare County	Pension Obligation Bonds	41.460
11/19/1997	Imperial County	Pension Obligation Bonds	35.175
03/12/1998	Fresno County	Pension Obligation Bonds	184.910
04/22/1998	City of Bell	Pension Obligation Bonds	1.870
05/19/1998	City of Berkeley	Pension Obligation Bonds	12.415
06/24/1998	County of Trinity	Pension Obligation Bonds	9.140
02/03/1999	Merced County	Taxable Pension Obligation Bonds	63.070
07/29/1999	City of Pasadena	Current Interest Bonds, Tender Bonds	101.940
11/03/1999	City of Richmond	Taxable Limited Obligation Pension Bonds	36.280
07/11/2000	Fresno County	Taxable Pension Obligation Bonds	211.350
03/08/2001	County of Contra Costa	Pension Obligation Bonds (Refunding)	107.005
06/05/2001	Imperial Irrigation District	Pension Obligation Bonds (Refunding)	75.000
06/13/2001	City of South Gate	Pension Obligation Bonds	8.500
10/03/2001	City of Oakland	Pension Obligation Bonds (CABs)	195.639
01/23/2002	City of Fresno	Pension Obligation Bonds	205.335
03/13/2002	Fresno County	Pension Obligation Refunding Bonds	117.055
08/09/2002	City of Long Beach	Taxable Pension Obligation Bonds	44.000
09/06/2002	Imperial County	Taxable Pension Obligation Bonds	33.265
09/17/2002	San Diego County	Taxable Pension Obligation Bonds (inc. ARS)	737.340
12/12/2002	Mendocino County	Taxable Pension Obligation Bonds	91.945
04/23/2003	Contra Costa County	Taxable Pension Obligation Bonds	322.710
05/07/2003	Marin County	Taxable Pension Obligation Bonds	112.805
05/14/2003	Sonoma County	Taxable Pension Obligation Bonds	231.200
05/15/2003	Kern County	Taxable Pension Obligation Refunding Bonds	50.000
05/15/2003	Kern County	Taxable Pension Obligation Refunding Bonds	238.177
06/26/2003	San Luis Obispo County	Taxable Pension Obligation Bonds	137.194
07/15/2003	Sacramento County	Pension Refunding Capital Appreciation Bonds	152.321
07/15/2003	City of Santa Rosa	Pension Obligation Bonds	50.670



03/10/2004	Fresno County	Pension Obligation Bonds	327.898	
03/23/2004	Fresno County	Auction Rate Pension Obligation Bonds	75.000	
06/07/2004	Solano County	Pension Obligation Bonds	36.665	
06/10/2004	San Bernardino County	Pension Obligation Bonds, 2004 Series A, B and C	463.895	
06/16/2004	California Statewide CDA	Pension Obligation Bonds (Pooled)	197.084	
06/17/2004	Union City	Pension Obligation Bonds (Pooled)	22.998	
06/18/2004	South Coast Air Quality Management Dist.	Pension Obligation Bonds (Pooled)	47.030	
06/22/2004	San Diego County	Taxable Pension Obligation Bonds	306.290	
06/24/2004	Sacramento County	Taxable Pension Obligation Bonds	426.131	
06/28/2004	County of San Diego	Taxable Pension Obligation Bonds	147.830	
06/29/2004	City of Pomona	Auction Rate Pension Obligation Refunding Bonds	38.000	
10/13/2004	Sacramento Metro Fire District	Pension Funding Bonds	37.930	
10/21/2004	San Diego Metropolitan Transit Dev. Board	Pension Obligation Bonds	38.690	
01/21/2005	City of Fairfield	Pension Obligation Refunding Bonds	20.995	
02/10/2005	Riverside County	Pension Obligation Bonds	400.000	
03/01/2005	City of South Gate	Pension Obligation Refunding Bonds	24.400	
04/05/2005	City of Fairfield	Variable Rate Demand Pension Obligation Refunding Bonds	11.830	
06/13/2005	City of Huntington Park	Auction Rate Pension Obligation Bonds	23.050	
06/30/2005	City of Riverside	Auction Rate Pension Bonds (fixed rate)	30.000	
07/21/2005	Contra Costa Fire Protection Dist	Pension Obligation Bonds	129.900	
07/21/2005	CCC Fire Protection District	Taxable Pension Obligation Bonds	129.900	
08/17/2005	City of Oceanside	Taxable Pension Obligation Bonds	42.780	
08/18/2005	City of Inglewood	Pension Obligation Bonds	64.986	
09/30/2005	Moraga-Orinda Fire District	Pension Obligation Bonds	28.435	
09/30/2005	City of San Bernardino	Pension Obligation Bonds	50.401	
11/09/2005	City of Richmond	Taxable Pension Funding Bonds (private placement)	114.995	
11/16/2005	Solano County	Pension Funding Bonds	42.385	
12/06/2005	Bell Public Financing Authority	Pension Revenue Bonds	9.225	
12/21/2005	City of Pomona	Pension Obligation Refunding Bonds	42.281	
12/30/2005	City of Long Beach	Taxable Pension Obligation Bonds	76.550	
04/20/2006	City of La Verne	Pension Obligation Refunding Bonds	8.380	
06/15/2006	California Statewide CDA	Pension Obligation Bonds (Pooled)	62.814	
06/15/2006	California Statewide CDA	Pension Obligation Bonds (Pooled)	20.635	
06/15/2006	City of Pittsburg	Pension Funding Bonds	39.566	
06/15/2006	San Diego County	Pension Obligation Bonds	147.825	
06/16/2006	City of San Diego	Taxable Tobacco Bonds (Pension Funding)	105.400	
09/19/2006	City of Burlingame	Pension Obligation Bonds	32.975	
03/26/2007	City of Stockton	Pension Obligation Bonds	125.310	
06/25/2007	Santa Clara County	Pension Funding Bonds	389.485	
07/25/2007	City of Colton	Pension Funding Bonds	31.149	
07/25/2007	City of Redlands	Pension Funding Bonds	25.862	
03/14/2008	City of Manhattan Beach	Pension Obligation Bonds	6.800	
03/28/2008	County of Sacramento	Pension Funding bonds, Refunding Series 2008	359.165	
04/02/2008	County of San Bernardino	Unwind POBs Swap/POBs Conversion	160.900	
04/04/2008	California Statewide CDA	Pension Obligation Bonds (Pooled)	87.480	
07/30/2008	San Diego County	Pension Obligation Bonds (Fixed Rate)	343.515	
08/04/2008	San Diego County	Variable Rate Demand POBs, 2008B-1 and 2008B-2	100.000	
12/18/2008	City of Azusa	Pension Funding Bonds	7.215	
02/05/2009	Peralta Community College District	OPEB Refunding Bonds	48.725	
08/18/2009	San Luis Obispo County	Pension Obligation Refunding Bonds	42.565	
01/07/2010	California Statewide CDA	Pension Obligation Bonds	17.650	
05/19/2010	City of Pacifica	Taxable Pension Obligation Bonds	20.510	
06/22/2010	City of San Rafael	Pension Obligation Bonds	4.490	
07/08/2010	City of Monrovia	Pension Obligation Bonds	12.750	
07/12/2010	Solano County	Refunding Pension Bonds	10.000	
09/01/2010	County of Sonoma	Pension Obligation Bonds	289.335	
			Total	\$15,917.136
			Number of Issues	90



CONSENT CALENDAR – AGENDA ITEM NO. 3
EXECUTIVE COMMITTEE MEETING
June 28, 2012

TO: Executive Committee, Orange County Fire Authority

FROM: Lori Zeller, Assistant Chief
Business Services Department

SUBJECT: **Cost of Living Adjustment**

Summary:

This agenda item is submitted to provide information on the Cost of Living Adjustment (COLA) paid by the Orange County Employees' Retirement System (OCERS).

Committee Action:

At its April 11, 2012, meeting, the Budget and Finance Committee reviewed and unanimously recommended approval of this item.

Recommended Actions:

1. Direct staff to monitor the County's and any proposed State COLA related legislation and its potential applicability to OCFA.
2. Direct staff to report back to the Executive Committee at the end of 2012 in OCFA's annual legislative summary on results and potential impacts, if passed, of the Governor's proposed pension reforms.
3. Give staff direction on making any recommendations to the OCERS Board of Directors regarding COLAs.

Background:

Retirement costs comprise 22% of the OCFA's General Fund budget. Over the past few years, the OCFA has taken a number of steps to lower its future retirement costs such as adopting a lower tier of benefits for General and Safety members, as well as requiring employees to increase their contributions towards retirement. One of the other areas the OCFA looked to reduce costs was by exploring ways to lower the annual Cost of Living Adjustment (COLA) that is applied to retirement benefits.

The attached report provides background information on the COLA, explains how the COLA adjustment is determined each year, and provides options that the OCFA may want to consider exploring to reduce future COLA adjustments.

Impact to Cities/County:

None

Fiscal Impact:

None

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Attachments:

1. OCFA COLA Briefing Paper
2. NASRA Issue Brief: Cost-of-Living Adjustments



ORANGE COUNTY FIRE AUTHORITY

Cost-of-Living Adjustment (COLA) Briefing Paper

April 2012

COST-OF-LIVING ADJUSTMENT (COLA)

Overview

All county retirement systems that fall under the County Employees' Retirement Law of 1937 ('37 Act), including the Orange County Employees Retirement System (OCERS), provide an annual cost-of-living adjustment (COLA) for retired members and survivors which is calculated based on actual increase to the Consumer Price index (CPI), rounded to either one-tenth of one percent or one-half of one percent, but not to exceed a certain percentage.

The retiree COLA for OCERS is governed by Govt. Code Section 31870.1 of the '37 Act. Under this section, OCERS must determine the appropriate COLA for OCERS retirement benefits and implement that COLA on April 1st of each year. According to the law, the COLA is based on the annual change in the U.S. Department of Labor, Bureau of Labor Statistics CPI for the Los Angeles-Riverside-Orange County geographic area. The law requires that this change be rounded to the nearest one-half percent, with a maximum 3% available to increase or decrease benefits.

While annual COLAs can increase or decrease, a retiree's basic retirement benefit is guaranteed by OCERS Retirement Board. The retiree's pension will never go below the retirement allowance he/she was entitled to when they retired. It is possible for a benefit, once increased by COLA, to be thereafter reduced by a negative COLA, provided, however, that the original benefit granted is not reduced. For example, if a retiree received a 3% COLA in the year after he or she retired, followed by a negative 3%COLA in the following year, OCERS would reduce the retiree's benefit by that 3% COLA granted the prior year.

Who Sets the COLA Maximum for OCERS?

The County Board of Supervisors has sole authority to set the maximum COLA increase for the entire system. The current maximum COLA for the OCERS system is 3%. The Board of Supervisors is authorized to enact COLA caps between 2% and 6%, provided that an actuarial survey of the retirement system has been made by the adopting county prior to the passage of the ordinance establishing the cap (Govt. Code Section 31874). The COLA caps are **not** bargained for by the agencies that contract with OCERS.

The Board of Retirement is charged with implementing the COLA provisions by determining the actual cost-of-living increase or decrease using Bureau of Labor Standards Statistics, and calculating the member's actual adjustment based on what is available in a member's COLA Bank.

The determination of the retirement benefit COLA is separate from the determination of any cost-of-living adjustments to the salaries of active employees. The retirement benefit COLA is determined by the OCERS Board (must fall within the cap set by the Board of Supervisors) while a salary adjustment for active employees is determined by the employer's governing body. Also, the salary adjustment for active employees is not controlled by the '37 Act and, therefore, can be based on different cost-of-living benchmarks, which can result in a larger (or smaller) salary adjustment than the retirement benefit COLA.

What is a COLA Bank?

The '37 Act, along with actions taken by the Board of Supervisors, enact caps on the maximum percentage OCERS can increase the COLA in any one year. If the inflation rate (measured by CPI) is higher than the statutory enacted limit, the unused portion is "banked" for future years and applied if the CPI is lower than the annual maximum. This helps to stabilize the COLA from year to year.

OCERS describes the process as follows:

"OCERS' actuary first determines the annual increase or decrease in the CPI, using the Bureau of Labor Statistics figures for our geographic area. The COLA is limited to a maximum annual increase or decrease of 3 percent. If the cost-of-living figures exceed 3 percent (either by increase or decrease), any amount above or below 3 percent is added to or subtracted from an OCERS member's "COLA Bank." If an OCERS' member has a zero COLA Bank, OCERS policy is to maintain the Bank at zero, and not apply a decrease to create a negative COLA Bank balance. Typically, the more years an OCERS' member has been retired, the more they have in their COLA Bank. In 2011, the COLA was 1 percent. This was based upon a change in the CPI of 1.20 percent which was rounded to 1 percent as is required by statute. For those retirees who did not have anything in their COLA Bank, their COLA was 1 percent. For those retirees with .5 percent in their COLA bank, their COLA was 1.5 percent and .5 percent was deducted from their COLA Bank. For those retirees with 1 percent in their COLA Bank, their COLA was 2 percent and 1 percent was deducted from their COLA Bank. For all other retirees with 2 percent or more in their COLA Bank, their COLA was 3 percent and 2 percent was deducted from their COLA Bank."

For 2012, the COLA is 2.5% based upon a CPI change of 2.67%. For those members who retired on or before April 1, 1988, they will receive a 3% COLA, as OCERS will take .5% from their COLA banks. Everyone who retired between April 2, 1988 and April 1, 2012, will receive a 2.5% COLA.

The Govt. Code Section which requires this procedure is:

Govt. Code Section 31870.1. "The board [of retirement] shall before April 1 of each year determine whether there has been an increase or decrease in the cost of living as provided in this section. Notwithstanding Section 31481 or any other provision of this chapter (commencing with Section 31450), every retirement allowance, optional death allowance, or annual death allowance payable to or on account of any member, of this system or superseded system who retires or dies or who has retired or died shall, as of April 1st of each year, be increased or decreased by a percentage of the total allowance then being received found by the board to approximate to the nearest one-half of 1 percent, the percentage of annual increase or decrease in the cost of living as of January 1st of each year as shown by the then current Bureau of Labor Statistics Consumer Price Index for All Urban Consumers for the area in which the county seat is situated, but such change shall not exceed 3 percent per year; however, the amount of any cost-of-living increase or decrease in any year which is not met by the maximum annual change of 3 percent in allowances shall be accumulated to be met by increases or decreases in allowances in future years; except that no

decrease shall reduce the allowance below the amount being received by the member or his beneficiary on the effective date of the allowance or the application of this article, whichever is later.”

What Other Agencies Have Done to Reduce the Retirement COLA

Legislation that confers certain pension benefits to public employees is difficult, if not impossible, to roll back because of protective language in state laws and the Constitution. However, that is changing. This past November, Rhode Island passed landmark pension legislation that included a suspension of cost-of-living adjustment increases for retirees. Public sector unions may sue over the new law, saying that the state cannot break contracts. Courts in Colorado and Minnesota ruled to allow cuts in COLAs for current retirees. South Dakota and New Jersey have taken the same action and South Dakota is still waiting for a decision on a lawsuit challenging its actions. In the past two years, 17 states have reduced their automatic COLAs; the others include Maine, Oklahoma and Washington.

Previously, appellate courts in California and West Virginia have already found that COLAs could not be reduced. This has not stopped other states from following Colorado and Minnesota, so perhaps more legal battles lie ahead.

Although OCERS is somewhat unique, other ‘37 Act counties, namely, Sacramento and San Diego counties have set different retirement COLAs for each tier of employees based on their hire dates. San Diego’s Tier A retirees and survivors are eligible for a COLA up to 3% annually whereas Tier B is eligible for a COLA up to 2%.

Orange County Sponsored Legislation

The County is sponsoring two items regarding COLAs in the 2011-12 Legislative Session:

1. **AB 1542 (Norby) Cost of Living Adjustment (COLA) After 12 months** – currently OCERS retirees can retire March 31st and receive their first post-retirement 3% COLA the next day on April 1st. The legislation seeks to amend the ‘37 Act to require a 12-month delay regarding COLA benefits for future retirees. This applies to Orange County employees only hired on or after January 1, 2012. This is estimated to save the County \$15 million per year. The California Public Retirement System (CALPERS) requires a 12 month delay before a retiree is eligible for a COLA.
2. **SB 1231 (Walters) Supplemental Targeted Adjustment for Retirees (STAR COLA)** – The STAR COLA supplements a retiree’s pension if they have lost 20% or more of the retiree’s original purchasing power. This is an optional benefit granted annually by the OCERS’ Board. The legislation would amend the ‘37 Act to give the Board of Supervisors the discretion to freeze the STAR COLA to those members currently receiving it and would not allow new members or increases in the benefit if the retirement system is not fully funded. This applies to County employees only.

Recommendations

As OCFA continues its efforts to explore ways to lower future pension costs, reducing the COLA paid on retirement benefits may provide immediate cost savings. This was recently demonstrated when OCFA requested a Special Study from the actuarial firm, The Segal Company, on several new tier options.

The Study included an analysis of a lower tier for Safety and General Members with a 3% retirement COLA and also a 2% retirement COLA. The table below shows the impact on retirement rates per individual employee:

Benefit Formula	Max COLA	Employer Rate % of Payroll	Estimated Avg. Annual Amount	Employee Rate % of Payroll	Estimated Annual Avg. Rate
S - 3.0%@55	3.0%	18.30%	\$12,600	12.70%	\$8,800
S - 3.0%@55	2.0%	16.45%	\$11,300	10.91%	\$7,500
G - 2.0%@55	3.0%	11.11%	\$6,800	8.29%	\$5,000
G - 2.0%@55	2.0%	10.14%	\$6,200	7.35%	\$4,500

As discussed above, the County Board of Supervisors currently sets the COLA limits for the entire OCERS system and conversely, the STAR COLA is determined by the Board of Retirement. However, there are options that may be worth exploring to change what is dictated by statutes or negotiated employee agreements, such as:

1. Pursue a change in the '37 Act legislation to allow for different COLA caps for different retirement plans/tiers. This would likely apply only to new employees.
2. Pursue ways to benchmark the COLA paid to existing retirees against the funding status of OCERS and/or OCFA's Unfunded Actuarial Accrued Liability, and only after meeting that first benchmark, could the COLA be based on inflation. In essence, the COLA would be based on OCERS' investment performance, since that element has a large impact on the funding status of a system. The funding issue is not currently addressed in the '37 Act and would require a new statute.
3. Pursue ways to reduce the COLA on survivor's benefits. This would require a change in legislation.
4. If the County is successful in its legislative efforts discussed above, OCFA could seek to have the legislation amended to include OCFA employees as well.

Conclusion

In California, pension promises made to current and retired members are considered a "vested right" and protected under the contract clauses of State and Federal laws. If any of the above options were to be considered by OCFA, it would most likely apply to future employees only since they have no vested rights. OCFA would need to start with a thorough legal analysis to determine which options are worth pursuing from a legal perspective and also a cost/benefit perspective.

NASRA ISSUE BRIEF:

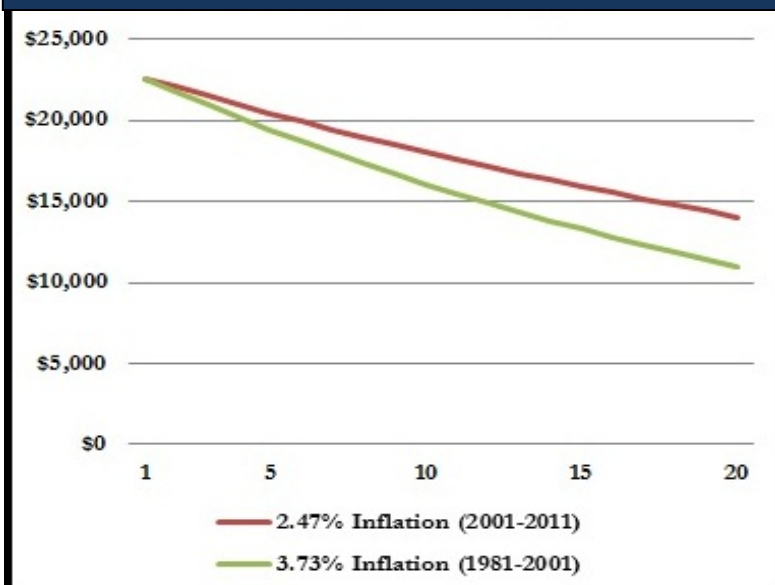
Cost-of-Living Adjustments



June 2012

Cost-of-living adjustments (COLAs) in some form are provided on most state and local government pensions. The purpose of a COLA is to offset, or reduce, the effects of inflation on retirement income. Considerable variation exists in the way COLAs are designed, and in many cases they are determined or affected by other factors. COLAs add both value and cost to a pension benefit. COLAs are receiving increased attention as many states look to make adjustments to the cost of benefits amid challenging fiscal conditions and the current low-inflationary environment. This brief presents a discussion about the purpose of COLAs, the different types of COLAs offered by government retirement systems, and an overview of recent state legislative COLA actions.

Figure 1: Impact of 20 Years of Inflation on Purchasing Power of \$22,600



COLA Purpose

Most state and local governments provide a COLA for the purpose of offsetting or reducing the effects of inflation, which erodes the value of retirement income, as illustrated in Figure 1. Using the actual average inflation rate for two time periods (2001-2011 and 1981-2001), after 20 years, the real (inflation-adjusted) average U.S. public pension benefit in 2010 of \$22,600 falls to \$14,052 (62 percent of its value) or \$10,976 (49 percent of its value), depending upon the actual rate of inflation.

This depreciation can affect the sufficiency of retirement benefits, particularly for those who have no means to supplement their income due to disability or advanced age. Social Security beneficiaries are provided an annual COLA to maintain recipients' purchasing power. Similarly, most state and local governments provide an inflation adjustment to their retiree pension benefits. This is particularly important

for those public employees – including nearly half of public school teachers and most public safety workers – who do not participate in Social Security. Unlike Social Security, however, state and local retirement systems typically pre-fund the cost of a COLA over the working life of an employee to be distributed annually over the course of his or her retired lifetime.

Common COLA Types and Features

The way in which public pension COLAs are calculated and approved varies considerably. Appendix A presents a listing of COLA provisions for many state retirement plans, illustrating the variety that exists in COLA plan designs. In general, COLA types and features are differentiated in the following ways:

Automatic vs. Ad hoc

An overarching distinction among COLAs is whether they are provided automatically or on an ad hoc basis. An ad hoc COLA requires the governing body to decide upon a postretirement benefit increase. By contrast, an automatic COLA occurs without action, and is typically predetermined by a set rate or formula. In some cases, ad hoc COLAs are accompanied by other factors, such as a maximum unfunded liability amortization period.

Simple vs. Compound

Another distinction between COLA types is whether the increase is applied in a simple or compound manner. Under a simple COLA arrangement, each year's benefit increase is calculated based upon the employee's original benefit at the time of his or her retirement. Under a compound COLA arrangement the annual benefit increase is calculated based upon the original

benefit as well as any prior benefit increases. Some COLAs are both, in that they may be “simple” until the retiree reaches a certain age or year retired, at which point COLA benefits are calculated using a compound method.

Inflation-based

Many state and local governments provide a post-retirement COLA based on a consumer price index (CPI), which is a measure of inflation. Most provisions like this restrict the size of the adjustment, such as by “one-half of the CPI” and/or “not to exceed three percent.” The most recognized CPI measures are calculated and published by the U.S. Bureau of Labor Statistics (BLS), and the CPI measures used by most public pension plans are either the CPI-U (based on all urban consumers) and the CPI-W (urban wage earners and clerical workers). Some states use state-specific inflation measures to determine the amount of their COLA.

Performance-based

Some public pension plans tie their COLA to the plan’s funding level or investment performance. In one statewide system, for example, the COLA is a range tied to CPI based on the funding level of the plan. Annuitants with another state system receive a permanent benefit increase tied to their length of service when the fund’s actuarial investment return exceeds the assumed rate of eight percent.

Delayed-onset or Minimum Age

Another characteristic contained in some automatic COLAs is to delay its onset, either by a given number of years, or until attainment of a designated age. A COLA may also take on any of the characteristics stated above and will become available to a retiree once he or she meets the designated waiting period or age requirements.

Limited Benefit Basis

Some retirement systems award a COLA calculated on a portion of a retiree’s annual benefit, rather than the entire amount. For example, one system provides a COLA of three percent applied to only the first \$18,000 of benefit. The multiplying factor can also be tied to an external indicator, such as CPI, and factors such as delayed onset may also be present.

Self-funded Annuity Option

Some state retirement plans offer post-retirement benefit increases through an elective process known as a self-funded annuity account. Under this design a member effectively self-funds his or her COLA by choosing to receive a lower monthly annuity in exchange for a fixed rate COLA to be paid annually upon retirement.

Reserve Account

Other public retirement systems pay COLAs from a pre-funded reserve account. This is a variation on the COLA tied to investment performance since the reserve account is funded with excess investment earnings. Under this scenario a COLA is provided from the funds set aside in the reserve account. Sometimes there is a stipulation attached that the fund itself must reach a certain size for any COLA to be granted in a given year.

COLA Costs

The cost of a COLA, expressed as a percentage of active member payroll, predictably depends on the level of the COLA benefit. Such factors as its size; the portion of the benefit to which the COLA applies; whether or not the COLA is paid annually or sporadically; whether the adjustment is simple or compounded, and other features, all affect its cost.

Figure 2: State Retirement Systems Undergoing COLA Legislative Changes, 2009-2011



It has been estimated that an automatic COLA of one-half of an assumed CPI of three percent, compounded, will add 11 percent to the cost of the retirement benefit. An automatic COLA of three percent, compounded, will add 26 percent to the cost of the benefit.¹

The Governmental Accounting Standards Board (GASB) requires public pension plans to disclose assumptions regarding COLAs, including whether the COLA is automatic or ad hoc, and to include the cost of COLAs in projections of pension benefit payments.

Unlike automatic COLAs, the cost of ad hoc COLAs typically is not funded in advance, but rather increases the plan's unfunded liability or amortization period, or both, (or reduces an actuarial surplus) and increases future costs. GASB considers an ad hoc COLA to be "substantively automatic" when a historical pattern exists of granting ad hoc COLAs or when there is consistency in the amount of changes to a benefit relative to an inflation index.

Recent Changes to COLAs

As part of efforts to contain costs and to ensure the sustainability of public pension plans, and in response to the current period of historically low inflation, many states recently have made changes to COLA provisions by adjusting one or more of the elements mentioned above² (see Figure 2). As described in Appendix A, since 2009, eleven states have changed COLAs affecting current retirees, five states have addressed current employees' benefits, and five states have changed the COLA structure only for future employees. The legality of these modifications in several states has been, or is, being challenged in court as noted.

Conclusion

The effects of a COLA can be consequential both in protecting purchasing power and in adding costs to a plan. As states consider measures to ensure the sustainability of their pension plans for both those currently retired or employed and future generations of workers, policymakers are reexamining all aspects of benefit design and financing, including the way COLAs are determined and funded. Just as high periods of inflation in the past placed pressure on states to add or adjust COLAs upward, the recent low rates of inflation, combined with sluggish state and local revenues and poor investment returns, have spurred action to reduce COLA levels. Some states have included provisions that would enable COLAs to increase should inflation grow or funding status or fiscal conditions improve.

See also

Gary Findlay, "Addressing Inflation in the Design of Defined Benefit Pension Plans"

[http://wikipension.com/images/7/73/Addressing Inflation in the Design of Defined Benefit Pension Plans.pdf](http://wikipension.com/images/7/73/Addressing_Inflation_in_the_Design_of_Defined_Benefit_Pension_Plans.pdf)

Gabriel, Roeder, Smith & Company, "Postemployment Cost-of-Living Adjustments: Concepts and Recent Trends," April 2011, http://www.gabrielroeder.com/news/pdf_insight/Insight2011_04.pdf

National Association of State Retirement Administrators, "Overview of variations to typical cost-of-living adjustments among public retirement systems," <http://wikipension.com/images/c/cf/Variations.pdf>

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¹ Gabriel, Roeder, Smith & Company, "Postemployment Cost-of-Living Adjustments: Concepts and Recent Trends," April 2011, http://www.gabrielroeder.com/news/pdf_insight/Insight2011_04.pdf

² [National Conference of State Legislatures](#)

Appendix A: COLA Provisions by State-Level Plan and Recent Changes

Plan	COLA Provision	Recent Changes
Alaska PERS	Automatic, lesser of 75% of CPI or 9%, simple, for those age 65 and above; lesser of 50% of CPI or 6% for those age 60 or with 8 or more years of service (annuitant must reside in-state to receive the COLA)	
Alaska Teachers	Automatic, lesser of 75% of CPI or 9%, simple, for those age 65 and above; lesser of 50% of CPI or 6% for those age 60 or with 8 or more years of service (annuitant must reside in-state to receive the COLA)	
Alabama ERS	Ad hoc as approved by the legislature	
Alabama Teachers	Ad hoc as approved by the legislature	
Arkansas PERS	Automatic 3% compounded	
Arkansas Teachers	Automatic 3% compounded	
Arizona Public Safety Personnel	Sliding scale of 2.0% to 4.0%, contingent on investment earnings above 10.5%	Increased investment return threshold needed to fund a COLA from 8.0% to 10.5%
Arizona SRS	Up to 4% annually, contingent on excess earnings above 8%	
California PERS	Automatic based on CPI up to 2%, compounded	
California Teachers	Automatic 2% simple, plus adjustments designed to maintain retirees' purchasing power made through a "supplemental benefits maintenance account" financed with an employer contribution of about 2.5% of worker pay	
Colorado Affiliated Local	Based on election of individual participating employers	
Colorado Fire & Police Statewide	Ad hoc as approved by board	
Colorado Municipal	Varies by date of hire, automatic 2% unless negative investment return in previous year, then lesser of average monthly CPI-W or 2%, compounded	Changed from automatic 3.5%; legal challenge to this change was upheld by state district court and is under appeal to state supreme court
Colorado School	Varies by date of hire, automatic 2% unless negative investment return in previous year, then lesser of average monthly CPI-W or 2%, compounded	Changed from automatic 3.5%; legal challenge to this change was upheld by state district court and is under appeal to state supreme court
Colorado State	Varies by date of hire, automatic 2% unless negative investment return in previous year, then lesser of average monthly CPI-W or 2%, compounded	Changed from automatic 3.5%; legal challenge to this change was upheld by state district court and is under appeal to state supreme court
Connecticut SERS	Minimum of 2% up to a maximum 7.5% calculated based on the following formula: 60% of the annual increase in the CPI-W up to 6% and 75% of the annual increase in the CPI-W over 6%	

Plan	COLA Provision	Recent Changes
Connecticut Teachers	For members who retired before 9/92, automatic, based on CPI, with 3% minimum and 5% max, compounded; for those after 9/92, no COLA is provided	
DC Police & Fire	Automatic based on CPI, up to 3%, compounded	
DC Teachers	Automatic based on CPI, up to 3%, compounded	
Delaware State Employees	Ad hoc as approved by the general assembly	
Florida RS	Automatic 3%, compounded	Legislation terminating the automatic 3% compounded COLA credits after 7/1/11 was passed but ruled illegal by a state district judge and is under appeal
Georgia ERS	Ad hoc as approved by the ERS board	
Georgia Teachers	Automatic 1.5% every 6 months as long as CPI increases, compounded	
Hawaii ERS	Automatic 2.5% simple; 1.5%, simple, for new hires after 6/30/12	The automatic COLA was reduced from 2.5% to 1.5%, simple, for those who become members of the system after 6/30/2012
Iowa PERS	Non-guaranteed post-retirement payment from a reserve account established from excess investment earnings	
Idaho PERS	Automatic 1% compounded (as long as CPI rises at least 1%), plus investment-based increase	
Illinois Municipal	Automatic 3%, simple, for those hired before 1/1/11; for those hired after 12/31/10, lesser of 3% or half of CPI, simple	Legislation in 2010 reduced the COLA for new hires after 12/31/10 from automatic 3%, simple
Illinois SERS	Automatic 3%, compounded, for those hired before 1/1/11; for those hired after 12/31/10, lesser of 3% or half of CPI, simple	Legislation in 2010 reduced the COLA for new hires after 12/31/10 from automatic 3%, compounded
Illinois Teachers	Automatic 3%, compounded, for those hired before 1/1/11; for those hired after 12/31/10, lesser of 3% or half of CPI, simple	Legislation in 2010 reduced the COLA for new hires after 12/31/10 from automatic 3%, compounded
Illinois Universities	Automatic 3%, compounded, for those hired before 1/1/11; for those hired after 12/31/10, lesser of 3% or half of CPI, simple	Legislation in 2010 reduced the COLA for new hires after 12/31/10 from automatic 3%, compounded
Indiana PERF	Ad hoc as approved by the legislature	
Indiana Teachers	Ad hoc as approved by the legislature	
Kansas PERS	Ad hoc as approved by the legislature; the new cash balance for employees hired after 12/31/14 provides for an optional self-funded COLA as an annuity payment option at retirement	In 2012, the auto 2% COLA is removed for those hired after 6/30/09; also established optional self-funded COLA in new cash balance plan for those

Plan	COLA Provision	Recent Changes
Kentucky County	Automatic, tied to CPI, not to exceed 1.5% after 12 months of retirement, compounded	hired after 12/31/14 ¹
Kentucky ERS	Automatic, tied to CPI, not to exceed 1.5% after 12 months of retirement, compounded	
Kentucky Teachers	Automatic 1.5% compounded	
Louisiana SERS	Contingent upon funded status of system and/or actuarial return; must be approved by the Legislature; lesser of 2% or CPI-U, plus up to 1% additional depending on actuarial return	
Louisiana Teachers	Subject to approval by the legislature and contingent upon funding available in COLA account consisting of excess investment returns; COLA lesser of 3% or CPI-U if investment returns meet or exceed actuarial assumption; if investment returns are less than actuarial assumption, COLA lesser of 2% or CPI-U, if system at least 80% funded; COLA applies only to first \$70,000 of benefit, indexed to CPI; participants may elect retirement option providing an actuarially reduced benefit with auto annual 2.5% COLA beginning at age 55	
Massachusetts SERS	Ad hoc, typically based on CPI up to 3% applied to first \$13,000 of benefit, subject to legislative approval and enactment	Effective 2011, increased benefit to which COLA applies from first \$12,000 of benefit to \$13,000
Massachusetts Teachers	Ad hoc, typically based on CPI up to 3% applied to first \$13,000 of benefit, subject to legislative approval and enactment	Effective 2011, increased benefit to which COLA applies from first \$12,000 of benefit to \$13,000
Maryland PERS	Automatic based on CPI, capped at 2.5% based on attainment of 7.75% rate of actuarial investment return. If that threshold is not met, COLA is 1%	For service credit earned after 6/30/2011, COLA was lowered from CPI up to 3%, compounded, to CPI capped at 2.5%, or 1%, depending on investment return
Maryland Teachers	Automatic based on CPI, capped at 2.5% based on attainment of 7.75% rate of actuarial investment return; if that threshold is not met, COLA is 1%	For service credit earned after 6/30/2011, COLA was lowered from CPI up to 3%, compounded, to CPI capped at 2.5%, or 1%, depending on investment return
Maine Local	Based on individual employer election. If provided, based on CPI up to 4%	
Maine State and Teacher	COLA is suspended through 7/1/14, after which it will be based on the CPI up to 3% applicable to the first \$20,000 of benefit, indexed for inflation	Effective 7/1/2011, the COLA of CPI up to 4%, compounded, was suspended for three years, after which the cap and portion of the benefit to which the COLA applies will be reduced

¹ Legislation creating Kansas PERS Tier 3 passed in 2012 eliminated the Tier 2 COLA. The only employees eligible to receive the Tier 2 COLA are those who were retired and returned to work on or after 6/30/09 and who will retire before 7/1/12.

Plan	COLA Provision	Recent Changes
Michigan Municipal	Employers may elect to provide a COLA, on a one-time basis or as an automatic adjustment	
Michigan Public Schools	Automatic 3% simple	Employees hired after 6/30/10 participate in a hybrid plan that does not provide a COLA
Michigan SERS	Automatic 3% simple up to \$300 annually	
Minnesota PERF	1.0%, compounded, until the plan funding level reaches 90%; 2.5% thereafter	Reduced auto-COLA from 2.5% in 2010; change was affirmed by a state judge in 2011
Minnesota State Employees	Automatic 2.0% compounded, until the plan's funding level reaches 90%, after which it will increase to 2.5%	Reduced auto-COLA from 2.5% in 2010; change was affirmed by a state judge in 2011
Minnesota Teachers	Suspended through 2012, after which COLA will be automatic 2.0% compounded, until the plan's funding level reaches 90%, when it returns to 2.5%	Reduced auto-COLA from 2.5% in 2010; change was affirmed by a state judge in 2011
Missouri DOT and Highway Patrol	80% of increase in CPI, up to 5%, compounded	
Missouri Local	Contingent upon investment return, with a max of the lower of 4% or cumulative CPI since retirement	
Missouri PEERS	Automatic, compounded at 2% if CPI-U is between 0% and 5%; 5% if CPI-U is 5% or higher, and no COLA is given if CPI-U is less than 0%; subject to a lifetime cap of 80%	In 2011, the Board changed the automatic, compounded COLA from based on CPI, not to exceed 5%, to either 0%, 2%, or 5%, depending on whether the CPI is negative, positive and below 5%, or over 5%, respectively; subject to a lifetime cap
Missouri State Employees	80% of CPI up to 5% compounded; members hired before 8/28/97 receive a minimum of 4% and a maximum of 5% compounded, up to 65% of original benefit, and then 80% of CPI up to 5% thereafter	
Missouri Teachers	Automatic, compounded at 2% if CPI-U is between 0% and 5%, 5% if CPI-U is 5% or higher, and no COLA is given if CPI-U is less than 0%; subject to a lifetime cap of 80%	In 2011, the Board changed the automatic, compounded COLA from based on CPI, not to exceed 5%, to either 0%, 2%, or 5%, depending on whether the CPI is negative, positive and below 5%, or over 5%, respectively
Mississippi PERS	Automatic 3%, simple, until age 55, then compounded thereafter	
Montana PERS	Automatic 3% compounded	
Montana Teachers	Automatic 1.5% compounded beginning 3 years after onset of annuity	
North Carolina Local Government	Ad hoc as approved by the legislature	

Plan	COLA Provision	Recent Changes
North Carolina Teachers and State Employees	Ad hoc as approved by the legislature	
North Dakota PERS	Ad hoc as approved by the legislature	
North Dakota Teachers	Ad hoc as approved by the legislature	
Nebraska Schools	Based on CPI, up to 2.5%, compounded	
New Hampshire Retirement System	Ad hoc as approved by the legislature's fiscal committee	
New Jersey PERS	COLA suspended until the plan funding level reaches 80%, after which a panel will assess the prudence of paying a COLA	Legislation approved in 2011 suspended the automatic COLA that was based on 60% of CPI; change is under legal challenge
New Jersey Police & Fire	COLAs suspended until the plan funding level reaches 80%, after which a panel will assess the prudence of paying a COLA	Legislation approved in 2011 suspended the automatic COLA that was based on 60% of CPI; change is under legal challenge
New Jersey Teachers	COLAs suspended until the plan funding level reaches 80%, after which a panel will assess the prudence of paying a COLA	Legislation approved in 2011 suspended the automatic COLA that was based on 60% of CPI; change is under legal challenge
New Mexico PERA	Automatic 3% compounded	
New Mexico Teachers	Automatic based on CPI, compounded. When the change in CPI is more than 2%, the COLA is one-half the CPI, but not less than 2%, nor more than 4%. Member must be at least 65 years of age to receive a COLA	
Nevada Police Officer and Firefighter	After 3 years of receiving benefits, auto 2% annually, rising gradually to 5% annually, compounded, after 14 years of receiving benefits; the compounded COLA is capped by the lifetime CPI for the period of retirement, i.e., it may not exceed inflation	2009 legislation reduced the COLA ceiling to the 12-year amount of 4% annually for those who become members on or after 1/1/10
Nevada Regular Employees	After 3 years of receiving benefits, auto 2% annually, rising gradually to 5% annually, compounded, after 14 years of receiving benefits; the compounded COLA is capped by the lifetime CPI for the period of retirement, i.e., it may not exceed inflation	2009 legislation reduced the COLA ceiling to the 12-year amount of 4% annually for those who become members on or after 1/1/10
New York State Teachers	Automatic, based on one-half of the increase in the annual CPI, applied to first \$18,000 of annual pension, compounded; must be 62 and retired for 5 years, or 55 and retired for 10 years, to receive COLA; COLA is a minimum of 1% and a maximum of 3%	
NY State & Local ERS	Automatic, based on one-half of the increase in the annual CPI, applied to first \$18,000 of annual pension, compounded: must be 62 and retired for 5 years, or 55 and retired for 10 years, to receive COLA; COLA is a minimum of 1% and a maximum of 3%	

Plan	COLA Provision	Recent Changes
NY State & Local Police & Fire	Automatic, based on one-half of the increase in the annual CPI, applied to first \$18,000 of annual pension, compounded: must be 62 and retired for 5 years, or 55 and retired for 10 years, to receive COLA; COLA is a minimum of 1% and a maximum of 3%	
Ohio PERS	Automatic 3%, simple	
Ohio Police & Fire	Automatic 3%, simple	
Ohio School Employees	Automatic 3% simple	
Ohio Teachers	Automatic 3% simple	
Oklahoma PERS	Ad hoc as approved by the legislature; subject to required funding	The Legislature approved a provision in 2011 requiring future COLAs to be funded, which effectively rules out COLAs for the foreseeable future. Prior to this legislative action, a 2% COLA had regularly been approved
Oklahoma Teachers	Ad hoc as approved by the legislature; subject to required funding	The Legislature approved a provision in 2011 requiring future COLAs to be funded, which effectively rules out COLAs for the foreseeable future. Prior to this legislative action, a 2% COLA had regularly been approved
Oregon PERS	Automatic, based on CPI, up to 2%, compounded	
Pennsylvania School Employees	Ad hoc as approved by the general assembly	
Pennsylvania State ERS	Ad hoc as approved by the general assembly	
Rhode Island ERS	Effective 7/1/12, the COLA will be compounded based on a 5-year smoothed investment return less 5.5% with a 0% floor and 4% cap, applied to first \$25,000 of benefit, indexed; application of the COLA is delayed until later of Social Security eligibility, normal retirement age under the plan, or 3 years after retirement	In late 2011, legislature revised COLA provisions from automatic 3% compounded, effective 7/1/12. The change is under legal challenge
Rhode Island Municipal	Effective 7/1/12, the COLA will be compounded based on a 5-year smoothed investment return less 5.5% with a 0% floor and 4% cap, applied to first \$25,000 of benefit, indexed; application of the COLA is delayed until later of Social Security eligibility, normal retirement age under the plan, or 3 years after retirement	In late 2011, legislature revised COLA provisions from automatic 3% compounded, effective 7/1/12. The change is under legal challenge
South Carolina Police	Automatic, based on CPI up to 2% annually	
South Carolina RS	Automatic, based on CPI up to 2% annually	
South Dakota PERS	Indexed to CPI and funded status, with a minimum of 2.1%, when plan funding level is below 80%, and a maximum of 3.1%, when plan is funded above 100%	In 2010, legislature revised COLA provision from automatic 3.1%

Plan	COLA Provision	Recent Changes
TN Political Subdivisions	Participating employers may choose from 1 of 3 options: a) no COLA; b) automatic based on CPI, up to 3%, compounded, or c) same as b), except simple	
TN State and Teachers	Automatic based on CPI, up to 3% compounded	
Texas County & District	Ad hoc, approved by individual employers	
Texas ERS	Ad hoc as approved by the legislature; per state constitution, plan's amortization period must be less than 31 years for legislature to approve a COLA	
Texas LECOS	Ad hoc as approved by the legislature; per state constitution, plan's amortization period must be less than 31 years for legislature to approve a COLA	
Texas Municipal	Based on individual employer election; employers may choose no COLA or based on 30%, 50%, or 70% of CPI, compounded	
Texas Teachers	Ad hoc, as approved by the legislature; per state constitution, plan's amortization period must be less than 31 years for legislature to approve a COLA	
Utah Noncontributory	For those hired before 7/1/11, automatic based on CPI up to 4%, simple; for those hired after 6/30/11, based on CPI up to 2.5%, simple	Legislature reduced maximum COLA for those hired after 6/30/11 from 4% to 2.5%
Virginia Retirement System	Automatic based on CPI for the first 3%, and one-half of the next 4% of CPI, with an annual cap of 5%, compounded; effective 1/1/13, non-vested active members will have future COLAs based on the first 2% of CPI and one-half of the next 1%, with an annual cap of 3%, compounded	Effective 1/1/2013, non-vested members will have future COLAs capped at 3% rather than 5%; for early retirees, COLA onset is delayed until July 1 one year following retirement
Vermont State Employees	Automatic based on CPI, up to 5%, compounded	
Vermont Teachers	Automatic based on one-half of CPI, up to 5%, compounded	
Washington LEOFF Plan 1	Automatic, full CPI, compounded	
Washington LEOFF Plan 2	Automatic based on CPI, up to 3% compounded	
Washington PERS 1	None	Legislature eliminated automatic COLA of 3% in 2011; change is currently under legal challenge
Washington PERS 2/3	Automatic, based on CPI, up to 3%, compounded	
Washington School Employees Plan 2/3	Automatic, based on CPI, up to 3%, compounded	

Washington Teachers Plan 1	None	Legislature eliminated automatic COLA of 3% in 2011; change is currently under legal challenge
Washington Teachers Plan 2/3	Automatic based on CPI up to 3%, compounded	
Wisconsin Retirement System	Based on investment returns, and can increase and decrease, but not below base benefit	
West Virginia PERS	Ad hoc as approved by the legislature	
West Virginia Teachers	Ad hoc as approved by the legislature	
Wyoming Public Employees	Effective 7/1/12, the COLA is removed until the actuarial funded ratio reaches 100 percent "plus the additional percentage the retirement board determines is reasonably necessary to withstand market fluctuations"	Prior to 7/1/12, COLA was automatic tied to CPI up to 3%. Effective 7/1/12, the COLA is removed until the actuarial funded ratio reaches 100 percent "plus the additional percentage the retirement board determines is reasonably necessary to withstand market fluctuations"

Please note: COLA provisions listed above are subject to change as new information becomes available.