Des Moines Water Works
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DES MOINES WATER WORKS
Board of Water Works Trustees

Agenda Item No. _______________
Meeting Date: June 25, 2013
Chairperson's Signature ☐Yes ☒ No

AGENDA ITEM FORM

SUBJECT: Pension Plan Actuarial Valuation

SUMMARY:

DMWW uses the services of the Principal Financial Group to prepare an annual actuarial valuation of the pension plan. The actuarial valuation contains a variety of information about the pension plan such as the number of active, inactive and retired plan participants.

Included in the valuation is the calculation of an "annual required contribution (ARC)" for the pension plan. One of the main principles of pension funding is that the cost of retirement benefits for a current employee should be paid during the years of service of that employee. As a public entity, DMWW is not subject to the **Employee Retirement Income Security Act** (ERISA), and therefore, is not required by law to make a specific contribution amount to the plan each year. However, if we make a contribution that is less than the ARC, accounting standards require us to show the difference as a liability in our financial statements.

The calculated ARC is based upon various actuarial assumptions such as how much investment return the funds in the plan will earn, how many employees will leave and enter the plan, how many employees will become disabled, and how employees' future salaries might grow.

Staff from Principal will make a presentation at the Board meeting. They will review their actuarial valuation report, including the assumptions made, valuation history over the past several years, and the 2013 recommended contribution to the plan. Maria Cheatham, Consulting Actuary, will make the presentation.

FISCAL IMPACT:

The Annual Required Contribution (ARC) is included in the DMWW budget annually.

RECOMMENDED ACTION:

Receive and file Pension Plan Actuarial Valuation

BOARD REQUIRED ACTION:

Motion to receive and file Pension Plan Actuarial Valuation

____________________/______ Peggy Freese (date) Director of Finance	____________________/______ (date)	____________________/______ William G. Stowe (date) CEO and General Manager

Attachment: Actuarial Funding Valuation Provided With Packet

Des Moines Water Works

1/1/2013 Actuarial Funding Valuation

Maria Cheatham, Consulting Actuary

The Principal Financial Group®

June 25, 2013

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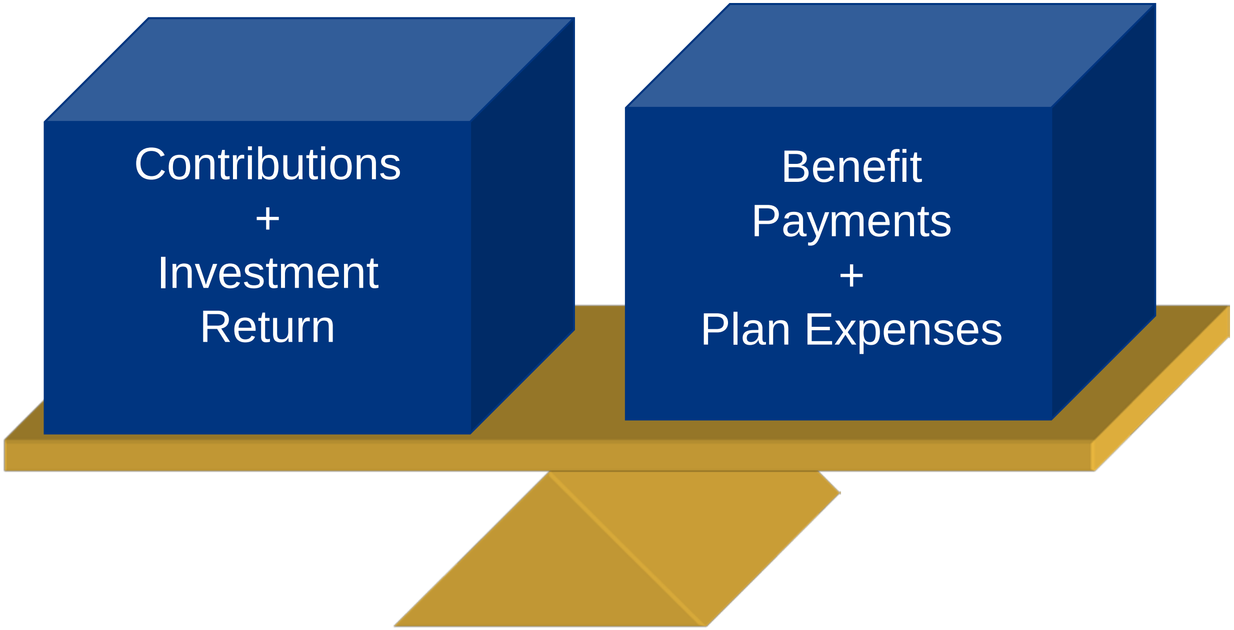
Funding Concepts
&
2013 Annual Required Contribution

Basic Funding Equation



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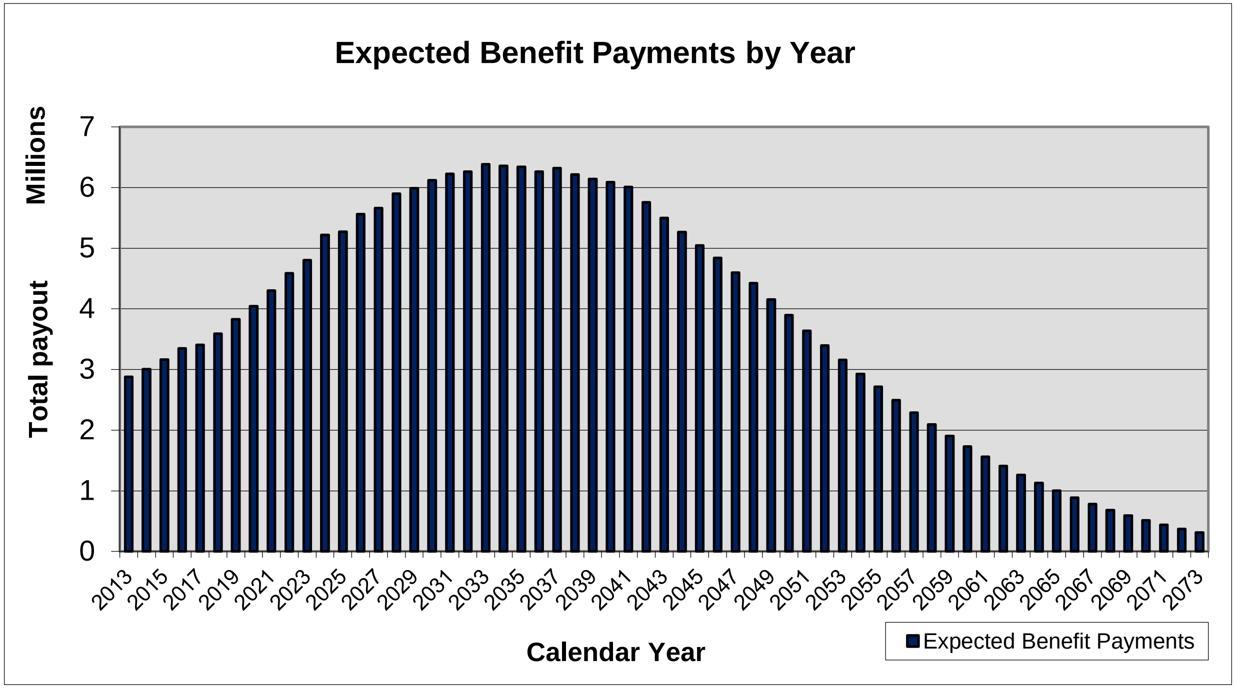
Estimating Funding Requirements
Step 1: Project All Future Payments



Sum of all projected future payments for current plan participants * = $231 Million.

This includes benefits that have not yet been earned, but are projected to be earned with future service and salary growth.

*Assumptions used to project future benefits are disclosed in 2013 actuarial valuation report.

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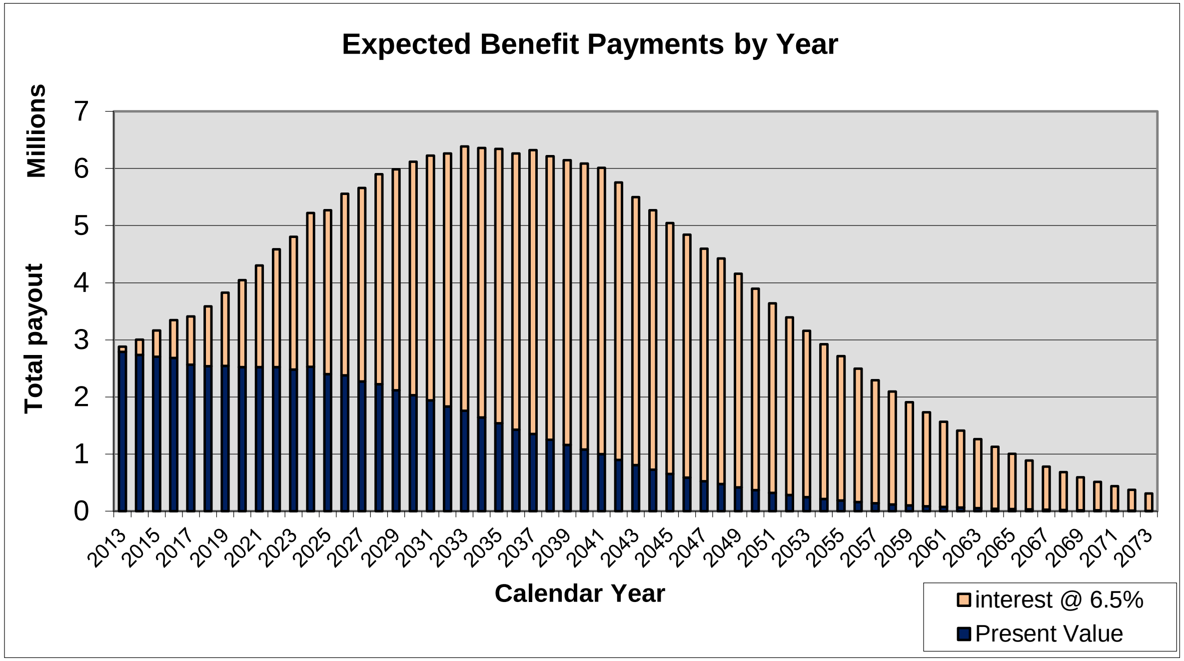
Estimating Funding Requirements

Step 2: Determine Present Value of Future Benefits



Present Value of Future Benefits is the **sum of discounted** projected future payments.

At 6.5% interest (current assumption) = **$68.5 M**

* PVFB (blue) is the amount that, if invested as of 1/1/2013, and earned 6.5% investment return each year thereafter (gold), would be sufficient to meet all of the expected future payments from the plan for current participants. However, not all $68.5 M is required to be funded today. *

Estimating Funding Requirements
Step 3: Separate Unfunded Past, Future

- **BOX**: All future benefits (not discounted for expected investment return) = $231 M
- **CIRCLE**: Present value of future benefits (discounted by investment return) = $68.501 M
- **SOLID BLUE**: Actuarial Value of Assets = $42.327 M

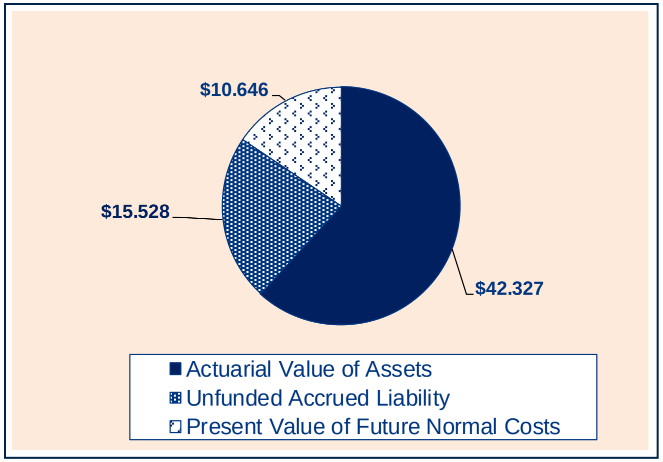
- "Normal Cost" – for each person, the level % of pay required over entire working lifetime to fund ultimate benefit. (Generally varies by age at hire; approx. **8-11%** of pay on average)

- **PATTERN WHITE**: FUTURE Normal Costs = $10.646 M
- **PATTERN BLUE**: PAST Unfunded Accrued Liability = $15.528 M

Annual Required Contribution:

- Designed to fill in each patterned area over specified period
- = This year's "Normal Cost"
  \+ scheduled payment toward the "Unfunded Liability"

$231 M sum of all benefits



Annual Required Contribution

2013 at 6.5%

Allocating Funded Portion, Past and Future Unfunded	
Present Value of Future Benefits	**$68.501**
Value of Future "Normal Costs"	$10.646
Accrued Liability	57.855
Assets (Actuarial value)	42.327
Unfunded (Past) Accrued Liability	$15.528

2013 Annual Required Contribution:	
Normal Cost (working lifetime)	1.162
Amortization of Initial Unfunded (15 years starting 2013)	1.551
Admin Expenses	0.025
Total Cost at 1/1	$2.738
Total Cost @12/31 (interest 6.5%)	**$2.916**

Numbers above are in millions

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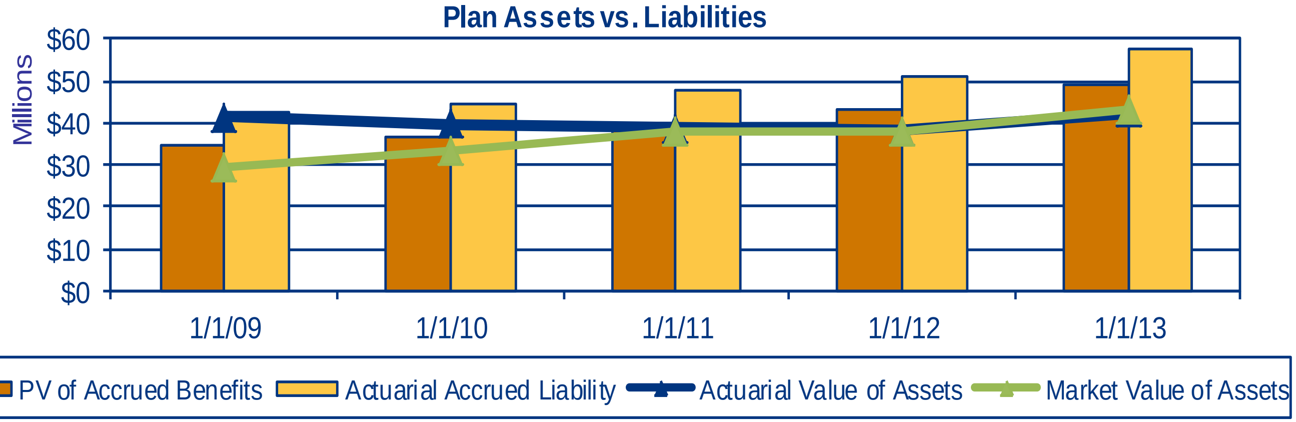
Funded Status

Plan Year Beginning:	1/1/2009	1/1/2010	1/1/2011	1/1/2012	1/1/2013
Market Value of Assets	$29,201,656	$33,688,688	$37,698,280	$37,739,872	$43,020,117
Actuarial Value of Assets	$41,513,612	$39,789,839	$38,740,806	$37,986,291	$42,327,088
Present Value of Accrued Benefits					
Valuation Interest Rate	7.50%	7.50%	7.50%	7.25%	6.50%
Value of Accrued Benefits	$34,828,061	$36,751,399	$39,957,654	$43,336,637	$49,256,600
Funded Percent (Market basis)	84%	92%	94%	87%	87%
Funded Percent (Actuarial basis)	119%	108%	97%	88%	86%
Actuarial Accrued Liability					
Accrued Liability	$42,450,678	$44,385,344	$47,774,843	$51,235,945	$57,855,043
Funded Percent (Actuarial Basis)	98%	90%	81%	74%	74%



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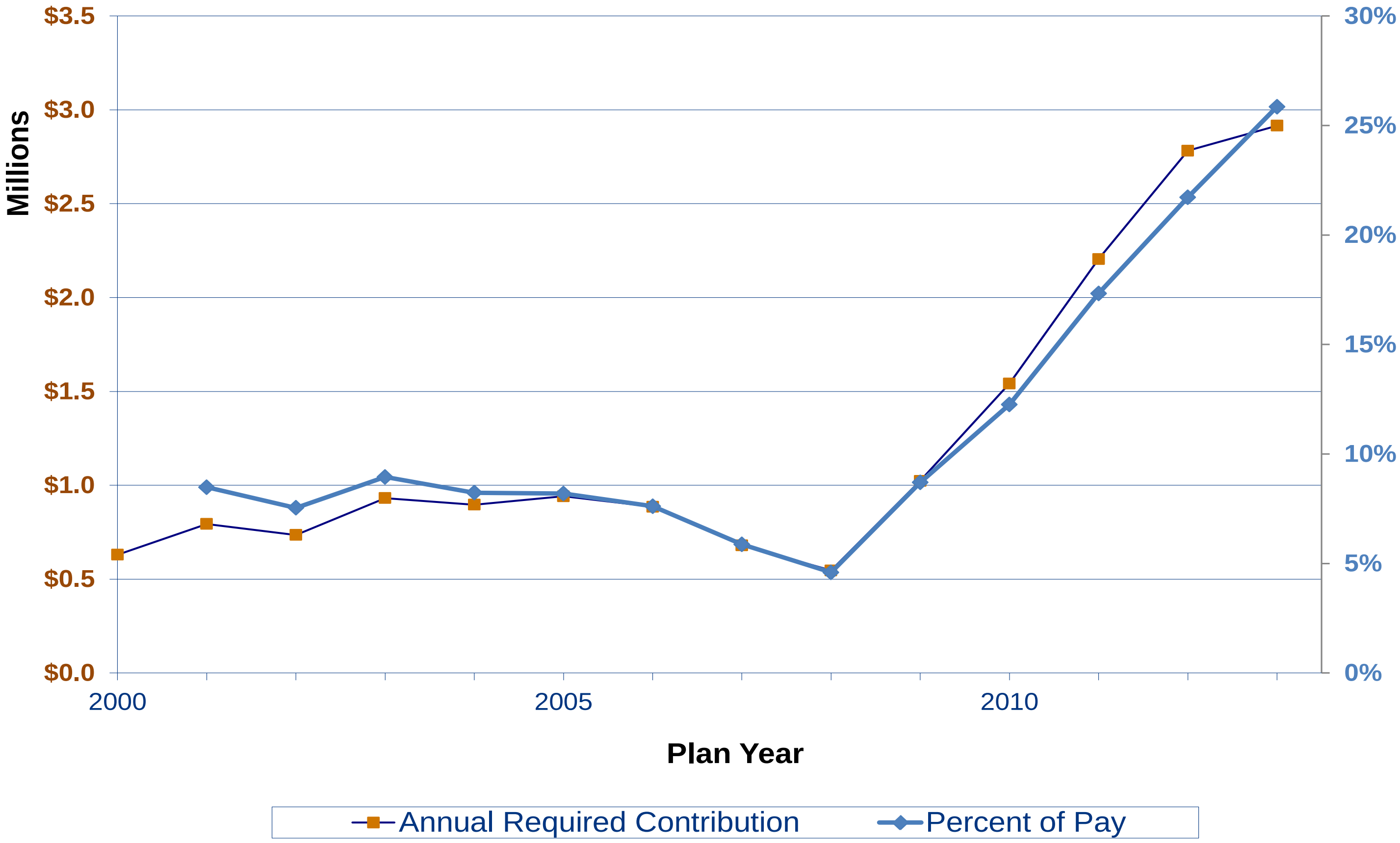
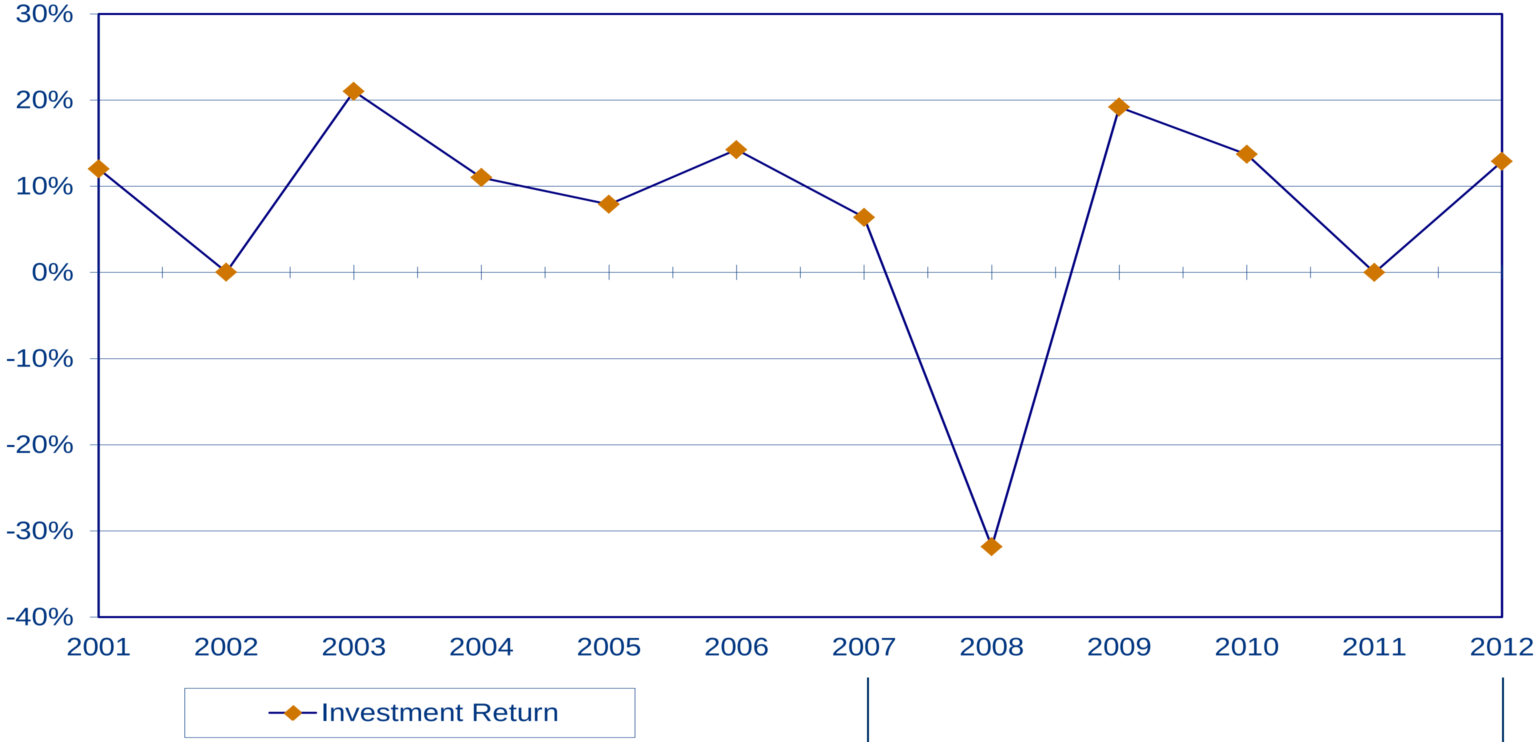
Historical Perspective

History of ARC



History of Investment Returns



Through 2007	
3-yr avg	9.46%
5-yr avg	11.99%
10-yr avg	8.90%
15-yr avg	8.18%

Through 2012	
3-yr avg	8.67%
5-yr avg	0.84%
10-yr avg	6.27%
15-yr avg	6.14%

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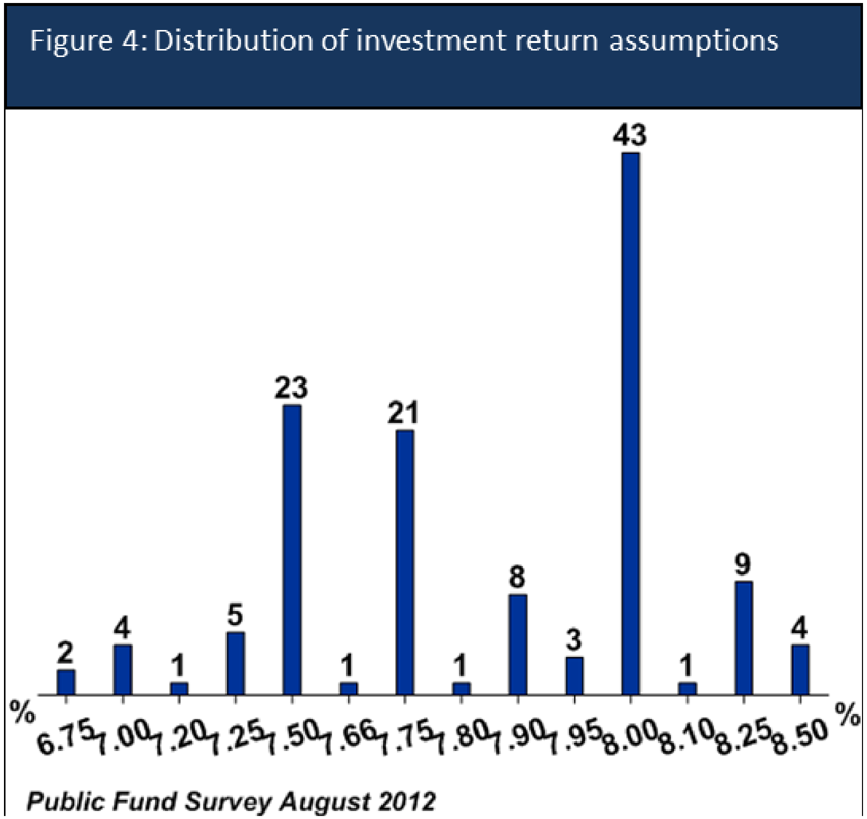
Setting Investment Assumption

Survey of Investment Assumption



Public Fund Survey included 126 public pension plans, including:

Iowa PERS - 7.5%

45 of these 126 plans had lowered their rate since 2008.

National Association of State Retirement Administrators
NASRA Issue Brief: Public Pension Plan Investment Return Assumptions
Updated January 2013

Considerations in Setting Investment Assumption

- Actuary must be able to sign-off to it as a reasonable assumption
- Actuarial Standard of Practice 27 – Selection of Economic Assumptions
  - Purpose of Measurement (for this discussion, public plan funding policy)
  - "Best Estimate" **range** of plan's expected future investment returns
  - Plan's target asset allocation
  - <u>Long-term forecasts</u> of total return by asset class
  - Long-term historical performance data
    - However, should not give undue weight to recent experience
  - **Evaluate regularly, but it is <u>not appropriate to change frequently</u> (only when long-term expectations change)
- California Actuarial Advisory Panel (CAAP) - 2011 Discussion Draft
  - Actuarial Funding Policy can include "direct-rate smoothing" – e.g., phase-in of extraordinary assumption change over 3-year period

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Updated Investment Model Results

- Pre-2011 – 7.5% was at conservative end of "best estimate" range under prior model
- 2011 – advised that a new model was being developed
  - would likely produce lower rates; anticipate at least 0.5% drop;
  - agreed it would be reasonable to drop rate in 0.25% increments (see CAAP note on prior page)
- 2012 – Dropped assumption to 7.25%; further change anticipated, based on model "best estimate" range
- 2013 – Drop assumption to 6.5% to be consistent with model's expectations on plan's current allocation

Asset Class	Expected Arithmetic Return	Expected Geometric Return	Target Allocation %
US Equity - Large Cap	8.95%	7.60%	29.92%
US Equity - Mid Cap	9.30%	7.60%	2.94%
US Equity - Small Cap	9.76%	7.60%	2.95%
Non US Equity - Developed	9.35%	7.60%	10.00%
REITS	8.27%	6.69%	0.94%
Real Estate (Direct Property)	6.78%	6.45%	5.07%
TIPS	4.20%	4.00%	1.41%
Core Bond	4.55%	4.40%	41.85%
High Yield	6.82%	6.39%	4.92%
			100.00%
Exp LTROA (arithmetic mean)			6.89%
Portfolio Standard Deviation			9.40%
40th percentile			**5.86%**
45th percentile			**6.18%**
Expected Compound Return			**6.50%**
55th percentile			**6.82%**
60th percentile			**7.15%**
Equity/Fixed Income/Other			**46% / 48% / 6%**

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Funding Method & Funding Policy

Reason for Change in Funding Method

- Upcoming GASB Changes 2014
  - GASB financial statement liability will use Entry Age Normal method (using EAN for funding will better align these liability measures)

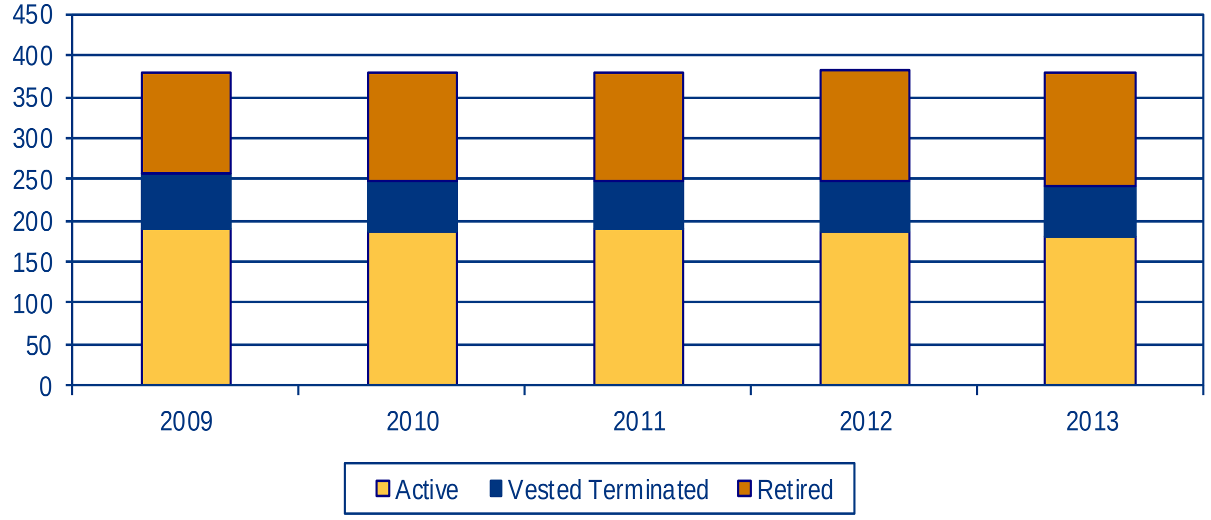
- Transparency: ongoing plan cost vs costs arising from past events
  - "Normal Cost" represents "true" annual cost of plan (not muddied with past)
  - Costs from past events (e.g., investment losses, or COLAs) identified separately
  - A fixed payment schedule is set up for each past cost; balances are paid down

- Ultimate plan cost will NOT change;
  - mostly awareness/understanding of the sources of cost;
  - some cost timing changes/improvements

Demographic Information

Plan Participants

Lives Covered	1/1/2009	1/1/2010	1/1/2011	1/1/2012	1/1/2013
Active	190	187	190	188	182
Vested Terminated	68	62	57	59	59
Retired	122	131	132	136	139
Total	380	380	379	383	380



Reconciliation of Lives

	Actives	Vested Terminated	Retired	Total
Participants, 1/1/2012	188	59	136	383
Terminated, nonvested	(4)	0	0	(4)
Terminated, vested	(2)	2	0	0
Deaths	0	0	(6)	(6)
Survivors/QDRO	0	0	1	1
Retired	(6)	(2)	8	0
New Entrants & Reactives	6	0	0	6
Participants, 1/1/2013	182	59	139	380

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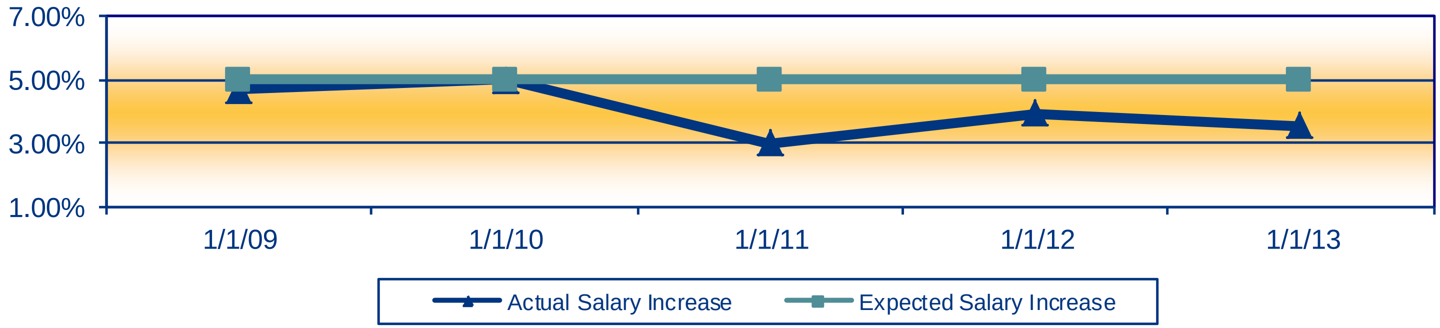
Demographic Experience

During year preceding valuation date:	1/1/2009	1/1/2010	1/1/2011	1/1/2012	1/1/2013
Actual Salary Increase	4.69%	5.00%	3.00%	3.95%	3.55%
Expected Salary Increase	5.00%	5.00%	5.00%	5.00%	5.00%
Average Age of Active Participants	47.2	47.7	48.4	48.0	48.5
Actual Average Retirement Age	58	60	60	60	60
Expected Average Retirement Age	60	60	60	60	60



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Asset allocation/diversification does not guarantee a profit or protect against a loss. Use of DAA and/or any glide path does not guarantee improvement in plan funding status nor the timing of any improvement.

Investment options are subject to investment risk. Shares or unit values will fluctuate and investments, when redeemed, may be worth more or less than their original cost.

Fixed-income investment options are subject to interest rate risk, and their value will decline as interest rates rise.

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April 2013