

Understanding the Actuarial Report



Presented by:

Christian R. Veenstra, MAAA
Enrolled Actuary
Watkins Ross & Co.

Sponsored by  **Rehmann**

Agenda

- Introduction and background
- Overview of the actuarial process
- How to read actuarial reports
- Q&A

Overview of Actuarial Process

- Key terms and concepts
 - *Present Value of Future (projected) Benefits (PVB)*: Value today of future benefit payments
 - *Past service liability (Actuarial Accrued Liability)*: Portion of the PVB attributable to service completed by active and retired participants
 - *Service Cost (Normal Cost)*: Portion of PVB earned by active employees for one year of service

Overview of Actuarial Process

- Actuarial method (two examples): approach to spreading the PVB over service in order to determine the Actuarial Accrued Liability
 - Projected Unit credit
 - The service cost is essentially the PVB divided by years of service – service cost per individual will grow by discount rate
 - Actuarial Liability is accumulation of past service costs
 - Single employer Pension funding requires this method
 - Required for private employer accounting for pensions (SFAS 87) and other post-employment (SFAS 106)

Overview of Actuarial Process

- Actuarial method (continued)
 - Entry Age Normal
 - Spreads PVB over service either as a level dollar or level percent of pay
 - Level dollar: service cost is designed to remain level throughout an individual's working lifetime
 - Level percent of pay: service cost is designed to increase by assumed pay increases
 - Available for government accounting for pensions (GASB 25/27) and retiree medical plans (GASB 43/45)

Overview of Actuarial Process

- Actuarial method (continued)
 - Asset valuation method: way of spreading investment returns in order to mitigate large fluctuations in year-to-year returns
 - Different approaches are permitted depending on the actuarial report (funding or accounting, single or multiemployer)

Overview of Actuarial Process

- Actuarial assumptions
 - Retirement: when will someone retire from employment
 - Turnover: likelihood of leaving employment prior to retirement (voluntary or involuntary)
 - Mortality: how long will someone be expected to live
 - Disability: likelihood of becoming disabled prior to retirement

Overview of Actuarial Process

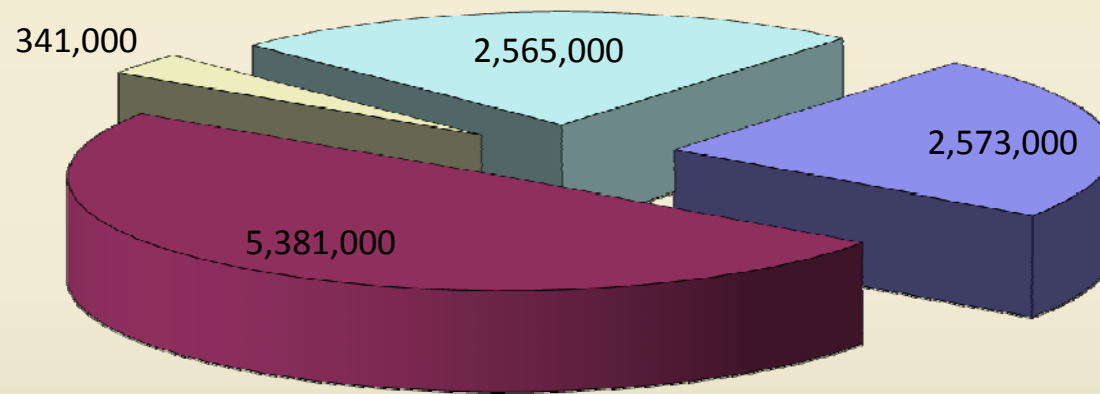
- Actuarial assumptions (continued)
 - Asset rate of return: expected long term rate of return
 - Discount rate: rate used to discount future benefit payments to establish a present value
 - Different ways to determine an appropriate rate depending when benefits are expected to be paid and assets available for benefit payments
 - Rate should be chosen to such that liabilities will be compared appropriately to assets

Reading an Actuarial Report

- Contents of the report
 - Actuarial results: Actuarial liability, service cost, amortization of unfunded liability
 - Funding or accounting requirements
 - Summary of actuarial assumptions and methods
 - Summary of plan provisions
 - Actuarial certification

Example

PRESENT VALUE FUTURE BENEFITS



■ Retirees ■ Act past service ■ Svc cost ■ Future service

Present value of future (projected) benefits

- Retirees \$ 2,573,000
- Active employees 8,288,000
- Total \$10,861,000

Past service liability

Projected Unit Credit, Level \$

Service Cost and Amortization

For GASB 45 (Other Post Employment Benefits)

- Service cost \$ 341,000
- Amortization of unfunded past service liability
- (15 years, 4%) 716,000
- ARC \$ 1,057,000

Role of the ARC Adjustment

- If not contributing the full ARC, the OPEB Obligation consists of service cost and an unfunded amortization of the unfunded liability
- In subsequent years, amortization of unfunded liability (UL) picks up a portion of the UL already accounted for in prior years OPEB Obligation
- The ARC Adjustment removes that portion of the service cost and amortization already accounted for in the prior year's OPEB Obligation

ARC Adjustment Example 1

- Year 1 level dollar (\$)
 - Unfunded liability: 7,954,000
 - Service cost: 341,000
 - Amortization UAL: 716,000
 - ARC: 1,057,000
 - Benefit payments: (349,000)
 - OPEB Obligation: 708,000

ARC Adjustment Example 1 (cont)

- Year 2 (level \$)
 - Unfunded liability: 8,265,000
 - Amortization factor: 10.56 (14 years, 4%)
 - Amortization UAL: 783,000
 - Prior year Obligation: 708,000
 - Amortization factor: 10.56
 - ARC Adjustment: (67,000)
 - Net amortization: 716,000 (same as year 1)

ARC Adjustment Example 1 (cont)

- Year 2 (level \$) cont.
 - Service cost: 334,000
 - Amortization: 783,000
 - ARC: 1,117,000
 - Interest on Prior year Obligation:
 - (4% X 708,000) 28,000
 - ARC Adjustment: (67,000)
 - OPEB Cost: 1,078,000

ARC Adjustment Example 1 (cont)

- Year 2 (level \$) cont.

– Year 2 OPEB Cost:	1,078,000
– Year 2 benefits:	(400,000)
– Increase in Obligation:	678,000
– Year 1 Obligation:	708,000
– Year 2 Obligation:	1,386,000

OPEB Obligation

		Interest on					Change in	Net OPEB
		Net OPEB	ARC	Amort.	OPEB	Contri-	Net OPEB	Obligation
Year	ARC	Obligation	Adjustment	Factor	Cost	bution	Obligation	Balance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Contrib. req.	int% x (9)	(9)/(5)		(2)+(3)-(4)		(6)-(7)	BB*+(8)
2011	1,057,000	-	-	-	1,057,000	349,000	708,000	708,000
2012	1,117,000	28,000	67,000	10.56	1,078,000	400,000	678,000	1,386,000

Estimating Year 2 ARC - Level \$

(Actuarial calculations required every 2 years if 200+ lives, else every 3 years)

- Year 2 (level \$)
 - Prior year ARC: 1,057,000
 - Estimated ARC: 1,057,000
 - Benefit payments: (400,000)
 - Increase in Obligation: 657,000
 - Prior year Obligation: 708,000
 - Current year Obligation: 1,393,000
 - Prior year X 1.04 plus increase in Obligation

ARC Adjustment Example 2

- Year 1 Level Percent of Pay (3% SS)
 - Unfunded liability: 8,567,000
 - Service cost: 265,000
 - Amortization UAL: 635,000
 - ARC: 900,000
 - Benefit payments: 349,000
 - OPEB Obligation: 551,000

ARC Adjustment Example 2 (cont)

- Year 2 (level %)
 - Unfunded liability: 8,826,000
 - Amortization factor: 12.65
 - Amortization UAL: 698,000
 - Prior year Obligation: 551,000
 - Amortization factor: 12.65
 - ARC Adjustment: (44,000)
 - Net amortization: 654,000 (635 X 1.03)

Estimating Year 2 ARC - Level %

- Year 2 (level %)
 - Prior year ARC: 900,000
 - Estimated ARC: 927,000 (900 X 1.03)
 - Benefit payments: (400,000)
 - Increase in Obligation: 527,000
 - Prior year Obligation: 551,000
 - Current year Obligation: 1,100,000
 - Prior year X 1.04 plus increase in Obligation

Estimating Year 2 ARC Summary

- If projecting and amortizing the unfunded liability and projecting the service cost, year two ARC is adjusted by interest on prior year obligation and ARC adjustment
- If projecting the ARC directly from the current ARC, no adjustment needed. OPEB Obligation is prior year Obligation with interest plus difference between ARC and benefit payments

Prefunding – Contributing the ARC

- Year 1 level dollar (\$)
 - Unfunded liability: 7,954,000
 - Service cost: 341,000
 - Amortization UAL: 716,000
 - ARC: 1,057,000
 - Contribution: 1,057,000
 - OPEB Obligation: -0-
 - (OPEB Assets = 1,057,000 – 349,000 = 708,000)

Prefunding (cont)

- Year 2 (level \$)
 - Actuarial liability: 8,265,000
 - Assets: 708,000
 - Unfunded liability: 7,557,000
 - Amortization factor: 10.56 (14 years, 4%)
 - Amortization UAL: 716,000 (same as year 1)
 - (Note: because Year 1 OPEB Obligation is -0-, no ARC adjustments in Year 2)

Prefunding (cont)

- Establish irrevocable trust
- The trust has investment options not otherwise available to general operating funds
- Higher expected returns imply use of a higher discount rate = lower liabilities and ARC
- Lower OPEB obligation on balance sheet

OPEB Obligation – Prefunding

Projected Unit Credit, 7.5%, 15 year amortization

		Interest on					Change in	Net OPEB
		Net OPEB	ARC	Amort.	OPEB	Contri-	Net OPEB	Obligation
Year	ARC	Obligation	Adjustment	Factor	Cost	bution	Obligation	Balance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Contrib. req.	int% x (9)	(9)/(5)		(2)+(3)-(4)		(6)-(7)	BB*+(8)
2011	837,046	-	-	-	837,046	837,046	-	-
2012	834,928	-	-	8.49	834,928	834,928	-	-

Prefunding (cont)

- GASB 43
 - Plan (not sponsor) statement
 - Measures funded status; assets and past service liability
 - Plan assets are in an irrevocable trust – trust established exclusively for paying retiree medical benefits

Reviewing a GASB report

- Plan provisions
 - Is plan operation consistent with stated provisions?
- Key Actuarial Assumptions
 - Retirement rates (especially for pre-Medicare benefits)
 - Discount rate; higher rate, lower liability
 - Inflation; is the plan actively managed?
 - Should an implicit subsidy be valued?

Reviewing a GASB report

- Accounting
 - Controlling OPEB costs via Deferring recognition
 - Amortization period; average future service or 30 years?
 - Level percent of pay or level dollar cost method?
 - Changing assumptions and/or accounting does not change the cost of the plan!

Questions?



AGAWestMichigan@gmail.com