2011 Actuarial Valuation Results

Requirements per Statute (19-2-405, MCA)

- The Montana Public Employees' Retirement Board (PERB) is required to retain a competent, accredited and experienced actuary.
- The actuary performs an annual actuarial valuation of each defined benefit plan administered by the PERB. Experience studies are performed every 5-7 years to evaluate and adjust the actuarial assumptions used in the valuations.
- Normal Cost is funded by required employee (EE) contributions and a portion of the required employer (ER) contributions to each Defined Benefit (DB) retirement plan.
- The unfunded liability contribution rate is entirely funded by a portion of the required ER contributions to the retirement plans. The contribution must amortize the unfunded actuarial liabilities over a reasonable period of time, not to exceed 30 years.

Defined Benefit Plan Funding Background

- In a Defined Benefit (DB) Retirement Plan – the benefit is guaranteed based on a formula.
- EE contributions are held in a separate account until a refund or retirement is requested.
- ER contributions from each employer are combined in one account.
- EE and ER contributions are pooled and invested by the BOI to achieve the best long-term interest rate possible by investment experts.

- DB pension trust funds are well-funded when there is enough money in reserve to meet all expected future obligations to participants.

- Basic Funding Equation $B = C + I - E$

- The Montana Constitution, State Law and GASB require the retirement systems to be funded on an actuarially sound basis.

- Investments are critical in funding the retirement plans. Recent market volatility illustrates the importance of using a long-term perspective to counter-act large swings from year to year.

Key Actuarial Terms

- **Normal Cost (NC)** – The cost assigned to a member that would meet the continuing costs of that particular benefit, if contributed each year starting from the date of membership. ***The average cost of membership.***

- **Actuarial Liability (AL)** – The assets required to pay off the future benefit payments for current members and retirees.

- **Actuarial Value of Assets (AVA)** – Market value of assets smoothed over four years.

- **Unfunded Actuarial Liability (UAL)** – The excess, if any, of the Actuarial Liability over Actuarial Value of Assets.

- **Funded Ratio** – The ratio of the Actuarial Liabilities to the Actuarial Value of Assets.

- **Actuarial Assumed Rate of Return** – The average annual rate of return expected over the life of the plan. The assumed rate of return is 7¾%.

- **Actuarial Required Contributions (ARC)** – The amount of total contributions required to fund the Normal Cost of the Plan **and** to amortize the UAL over a period not to exceed 30 years.

Actuarial Results as of June 30, 2011

- Mr. Stephen McElhaney, FSA from *Cheiron* is the Board's consulting actuary.

- The purpose of the valuation is to measure and disclose the financial condition of each system, indicate trends in the financial progress, determine the sufficiency of the statutory contributions rate paid by the employers and provide specific information and documentation required by the Governmental Accounting Standards Board (GASB).

- Still smoothing in the extraordinary losses of 2008 and 2009.

- Projections look better than they did last fiscal year because the systems experienced 21% to 22% investment returns; however, only a portion of those gains was recognized in the 2011 valuation. The remainder will be smoothed in over the next three years.

- PERS – 2011 Legislation reduced the early retirement benefit. This plan amendment reduced the actuarial liability in PERS by $36M and reduced the contribution shortfall by 0.44%

- VFCA – 2011Legislation eliminated the 30-year cap on maximum years of service (dependent on less than 20-year amortization period). This plan amendment increased the unfunded liability by $151,000

- The valuation results for all plans will get slightly worse before they get better because we still have one more year to smooth in the 2009 investment loss. Liabilities continue to grow. Retirement funds are not receiving the ARC in PERS, SRS and GWPORS. The ARC has not been received in these systems for the past three years (FY2009, 2010 & 2011). The ARC has not been received for HPORS in FY 2011. Just as investment gains compound so do consecutive investment losses and consecutive years of contribution shortfalls.

- 2011 Legislation Plan design changes to address long-term plan sustainability are not taken into effect on this evaluation date. Those changes are effective July 1, 2011. The impact of those changes will grow; however, they will be slight in the beginning. The positive impacts

will not override the current contribution shortfall until the majority of the current active members are in the new tier.

- Plan Valuations can be found on MPERA's website under the *About MPERA* tab, URL: http://mpera.mt.gov/actuarialvaluations.shtml

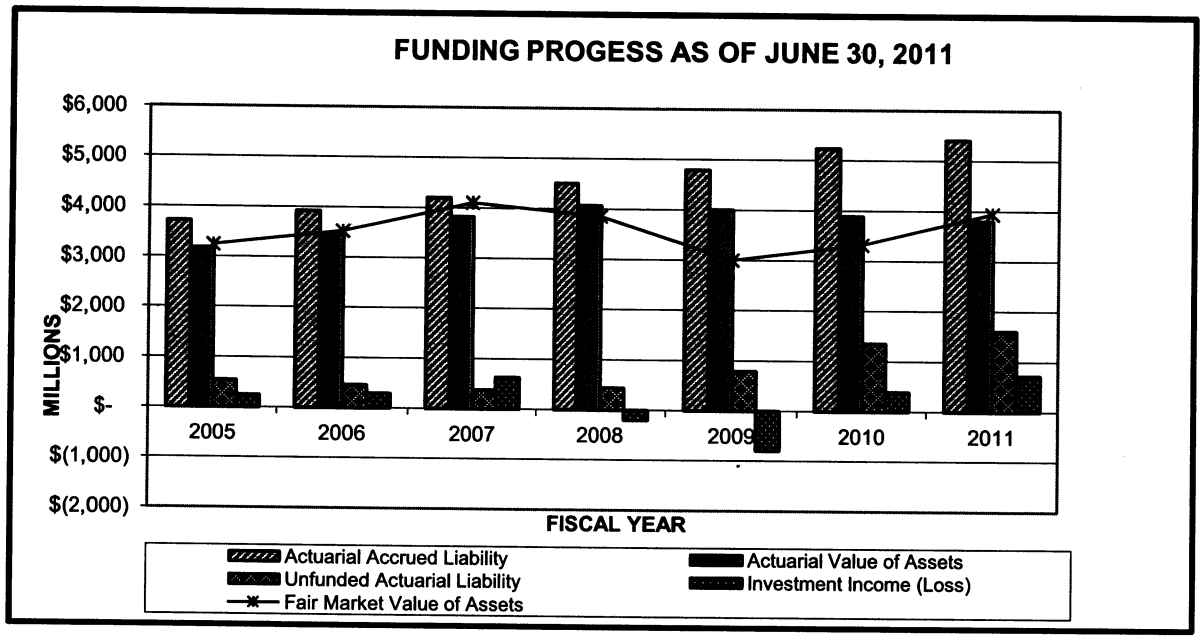
Valuation Results
June 30, 2011
($ in millions)

	PERS	SRS	GWPORS	HPORS	MPORS	FURS	JRS	VFCA
AAL	$5,410.1	$266.5	$119.8	$155.7	$401.4	$355.2	$43.4	$35.2
AVA	3,800.5	203.7	90.4	95.3	221.7	219.9	61.3	26.2
UAL	$1,609.6	$62.8	$29.4	$60.4	$179.7	$135.3	($17.9)	$9.0
Funded Ratio	70.2%	76.4%	75.4%	61.2%	55.2%	61.9%	141.1%	74.4%
Statutory Contribution Rate	14.07%	19.36%	19.56%	45.38%	52.78%	57.66%	32.81%	n/a
NC Rate	12.59%	18.88%	19.33%	24.14%	26.26%	26.54%	24.13%	n/a
Available for Amortization	1.48%	0.48%	0.23%	21.24%	26.52%	31.12%	8.68%	n/a
Years to Amortize	Does not Amortize	Does not Amortize	Does not Amortize	48.2	25.0	16.0	0.0	8.8
Shortfall	6.32%	5.22%	3.80%	5.33%	n/a	n/a	n/a	n/a

AAL – Actuarial Accrued Liability
AVA – Actuarial Value of Assets
UAL – Unfunded Actuarial Liability
NC – Normal Cost

PERS

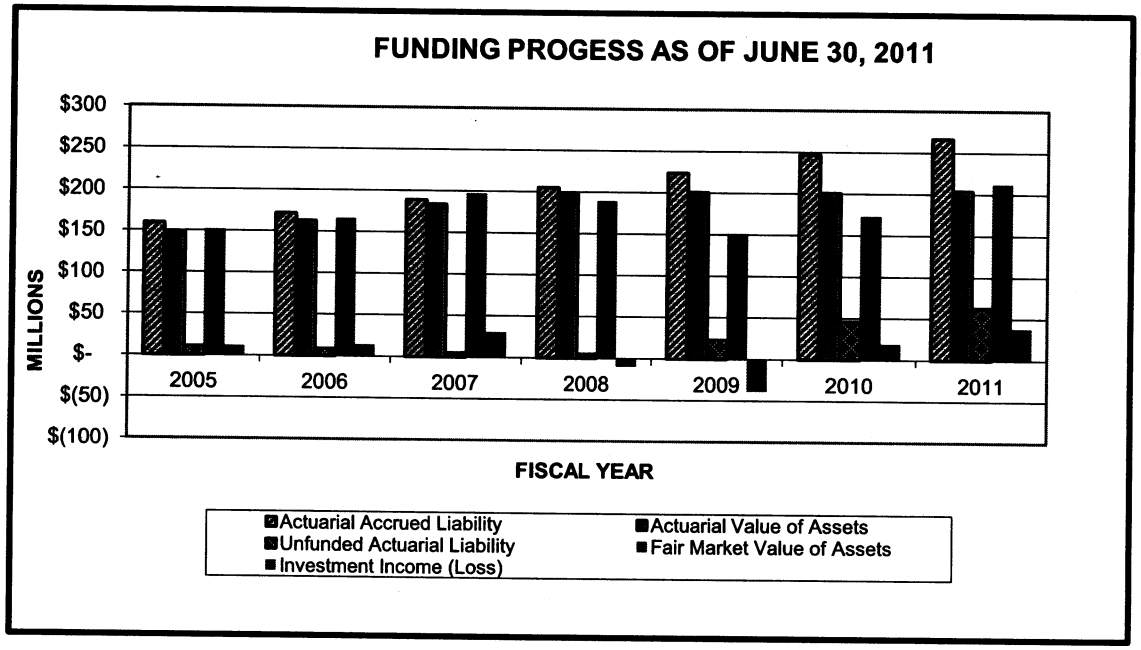
Funding Progress	2005	2006	2007	2008	2009	2010	2011
Actuarial Accrued Liability	$ 3,720	$ 3,919	$ 4,201	$ 4,504	$ 4,792	$ 5,241	$ 5,410
Actuarial Value of Assets	3,179	3,459	3,825	4,065	4,002	3,889	3,800
Unfunded Actuarial Liability	541	460	376	439	790	1,351	1,609
Fair Market Value of Assets	3,242	3,520	4,102	3,853	2,999	3,316	3,940
Investment Income (Loss)	245	294	630	(197)	(796)	387	715
Funding Ratio	85%	88%	91%	90%	83%	74%	70%
Year to Amortize	**does not amortize**		22	24	**does not amortize**		
Normal Cost Rate	12.12%	12.17%	12.22%	12.13%	12.16%	12.61%	12.59%



Actuarial Accrued Liability(AAL): Assets required to pay future benefits for current members and retirees
Actuarial Value of Assets(AVA): Market Value of Assets smoothed over 4years
Unfunded Actuarial Liability(UAL): Excess of Actuarial Liability over Actuarial Value of Assets (UAL = AAL - AVA)

SRS

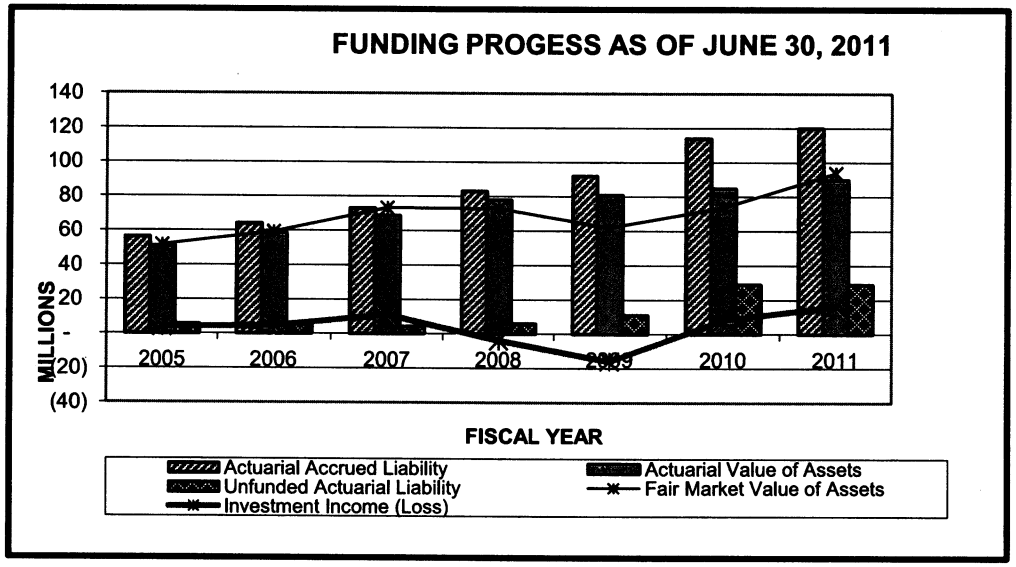
Funding Progress	2005	2006	2007	2008	2009	2010	2011
in millions							
Actuarial Accrued Liability	$ 159	$ 172	$ 189	$ 205	$ 224	$ 247	$ 267
Actuarial Value of Assets	148	163	184	199	201	201	204
Unfunded Actuarial Liability	11	9	5	5	23	46	63
Fair Market Value of Assets	151	166	197	189	151	173	212
Investment Income (Loss)	11	14	30	(10)	(39)	19	38
Funding Ratio	93%	95%	97%	98%	90%	81%	76%
Year to Amortize	**does not amortize**		20	16	**does not amortize**		
Normal Cost Rate	19.45%	19.45%	19.46%	19.24%	19.41%	19.02%	18.88%



Actuarial Accrued Liability(AAL): Assets required to pay future benefits for current members and retirees
Actuarial Value of Assets(AVA): Market Value of Assets smoothed over 4years
Unfunded Actuarial Liability(UAL): Excess of Actuarial Liability over Actuarial Value of Assets (UAL = AAL - AVA)

GWPORS

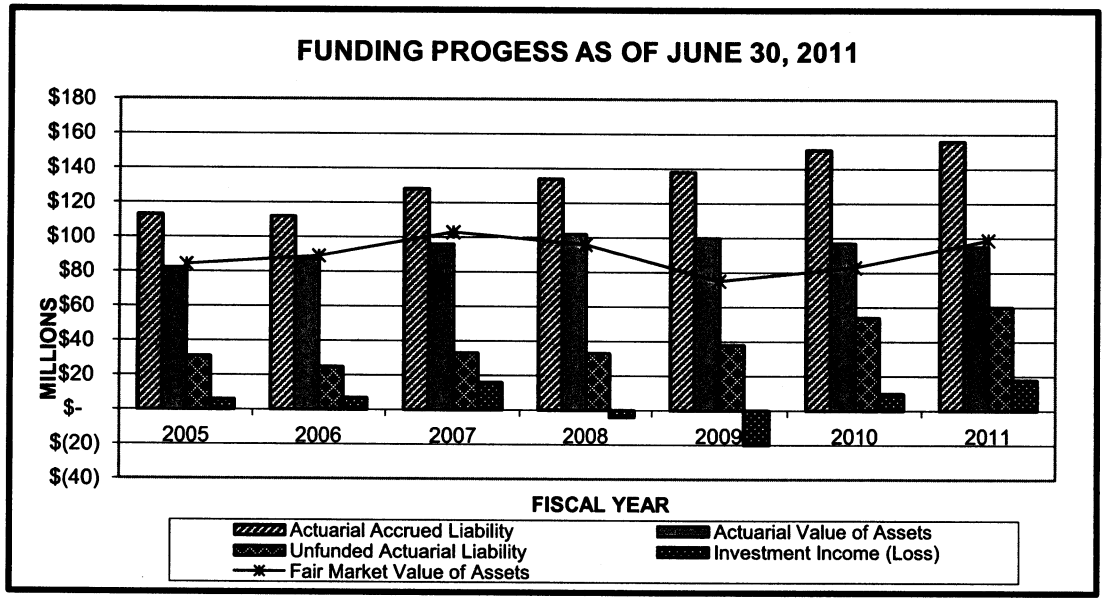
Funding Progress	2005	2006	2007	2008	2009	2010	2011
in millions							
Actuarial Accrued Liability	56	64	73	83	92	114	120
Actuarial Value of Assets	51	59	69	78	81	85	90
Unfunded Actuarial Liability	5	5	4	6	11	29	29
Fair Market Value of Assets	52	59	73	73	62	74	94
Investment Income (Loss)	4	5	11	(4)	(16)	8	16
Funding Ratio	90%	92%	94%	93%	88%	75%	75%
Year to Amortize	50	32	11	13	does not amortize		
Normal Cost Rate	18.56%	18.54%	18.67%	18.54%	18.53%	19.26%	19.33%



Actuarial Accrued Liability(AAL): Assets required to pay future benefits for current members and retirees
Actuarial Value of Assets(AVA): Market Value of Assets smoothed over 4years
Unfunded Actuarial Liability(UAL): Excess of Actuarial Liability over Actuarial Value of Assets (UAL = AAL - AVA)

HPORS

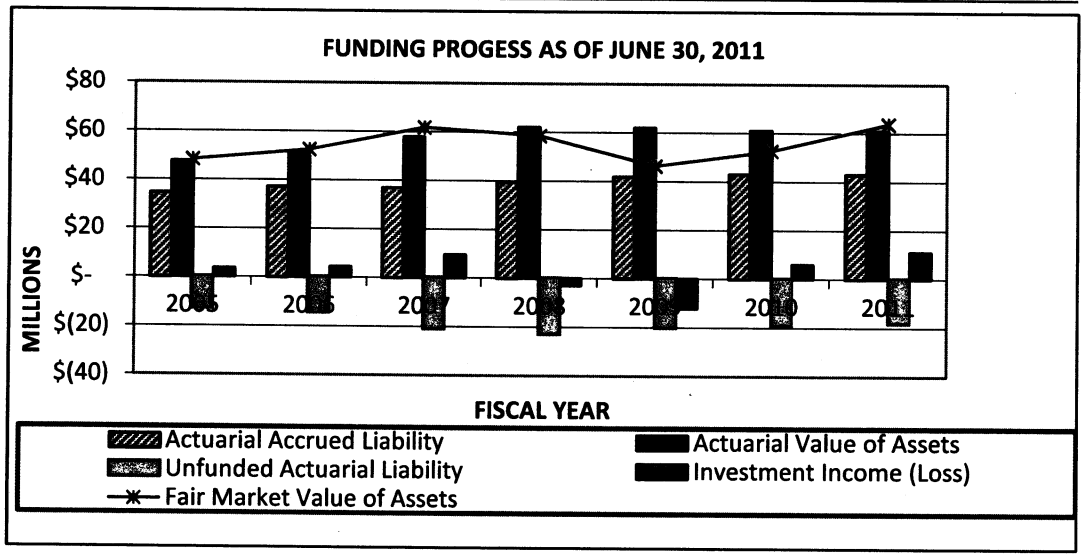
Funding Progress	2005	2006	2007	2008	2009	2010	2011
in millions							
Actuarial Accrued Liability	$ 113	$ 112	$ 128	$ 134	$ 138	$ 151	$ 156
Actuarial Value of Assets	82	87	96	102	100	97	95
Unfunded Actuarial Liability	31	25	33	33	38	54	60
Fair Market Value of Assets	84	89	103	96	75	83	99
Investment Income (Loss)	6	7	16	(4)	(20)	10	18
Funding Ratio	73%	78%	75%	75%	72%	64%	61%
Year to Amortize	21	18	19	17	22	30	48
Normal Cost Rate	22.00%	22.00%	22.00%	22.25%	22.35%	23.72%	24.14%



Actuarial Accrued Liability(AAL): Assets required to pay future benefits for current members and retirees
Actuarial Value of Assets(AVA): Market Value of Assets smoothed over 4years
Unfunded Actuarial Liability(UAL): Excess of Actuarial Liability over Actuarial Value of Assets (UAL = AAL - AVA)

JRS

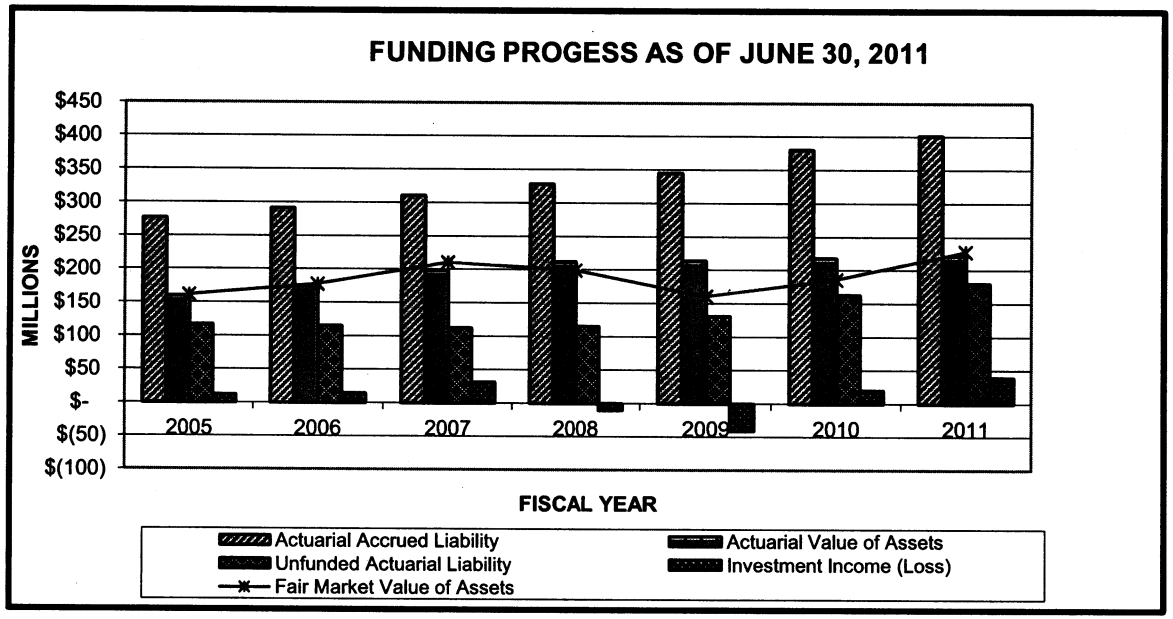
FUNDING PROGRESS	2005	2006	2007	2008	2009	2010	2011
in millions							
Actuarial Accrued Liability	$ 35	$ 37	$ 37	$ 39	$ 42	$ 43	$ 43
Actuarial Value of Assets	48	52	58	62	62	61	61
Unfunded Actuarial Liability	(13)	(15)	(21)	(23)	(20)	(19)	(18)
Fair Market Value of Assets	49	53	62	59	47	53	64
Investment Income (Loss)	4	4	9	(3)	(12)	6	11
Funding Ratio	138%	139%	157%	157%	148%	144%	141%
Normal Cost Rate	25.66%	25.74%	25.19%	25.12%	25.90%	23.04%	24.13%



Actuarial Accrued Liability(AAL): Assets required to pay future benefits for current members and retirees
Actuarial Value of Assets(AVA): Market Value of Assets smoothed over 4years
Unfunded Actuarial Liability(UAL): Excess of Actuarial Liability over Actuarial Value of Assets (UAL = AAL - AVA)

MPORS

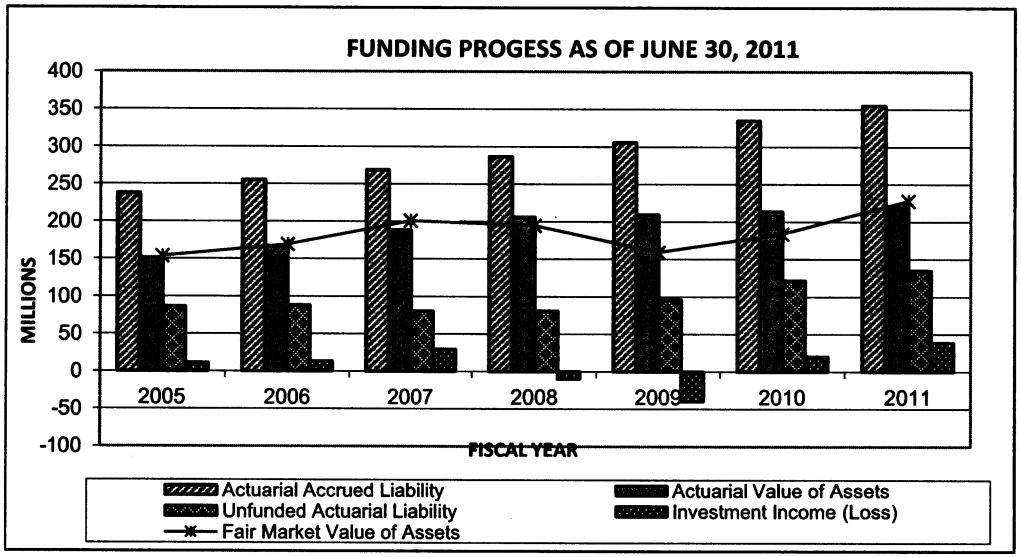
Funding Progress	2005	2006	2007	2008	2009	2010	2011
in millions							
Actuarial Accrued Liability	$ 276	$ 291	$ 310	$ 328	$ 345	$ 380	$ 401
Actuarial Value of Assets	159	176	198	212	214	218	222
Unfunded Actuarial Liability	117	115	112	115	131	163	180
Fair Market Value of Assets	162	178	211	200	162	187	229
Investment Income (Loss)	12	14	31	(10)	(41)	20	39
Funding Ratio	58%	60%	64%	65%	62%	57%	55%
Year to Amortize	24	21	21	19	22	23	25
Normal Cost Rate	25.60%	25.45%	26.45%	26.65%	26.82%	26.32%	26.26%



Actuarial Accrued Liability(AAL): Assets required to pay future benefits for current members and retirees
Actuarial Value of Assets(AVA): Market Value of Assets smoothed over 4years
Unfunded Actuarial Liability(UAL): Excess of Actuarial Liability over Actuarial Value of Assets (UAL = AAL - AVA)

FURS

Funding Progress	2005	2006	2007	2008	2009	2010	2011
			$ in '000's				
Actuarial Accrued Liability	238	256	269	287	306	335	355
Actuarial Value of Assets	151	167	189	206	210	214	220
Unfunded Actuarial Liability	87	88	81	81	96	122	135
Fair Market Value of Assets	154	169	201	195	159	184	228
Investment Income (Loss)	11	13	30	(10)	(39)	20	39
Funding Ratio	64%	65%	70%	72%	69%	64%	62%
Year to Amortize	18	13	16	11	13	15	16
Normal Cost Rate	26.00%	25.99%	26.05%	26.15%	26.34%	26.45%	26.54%



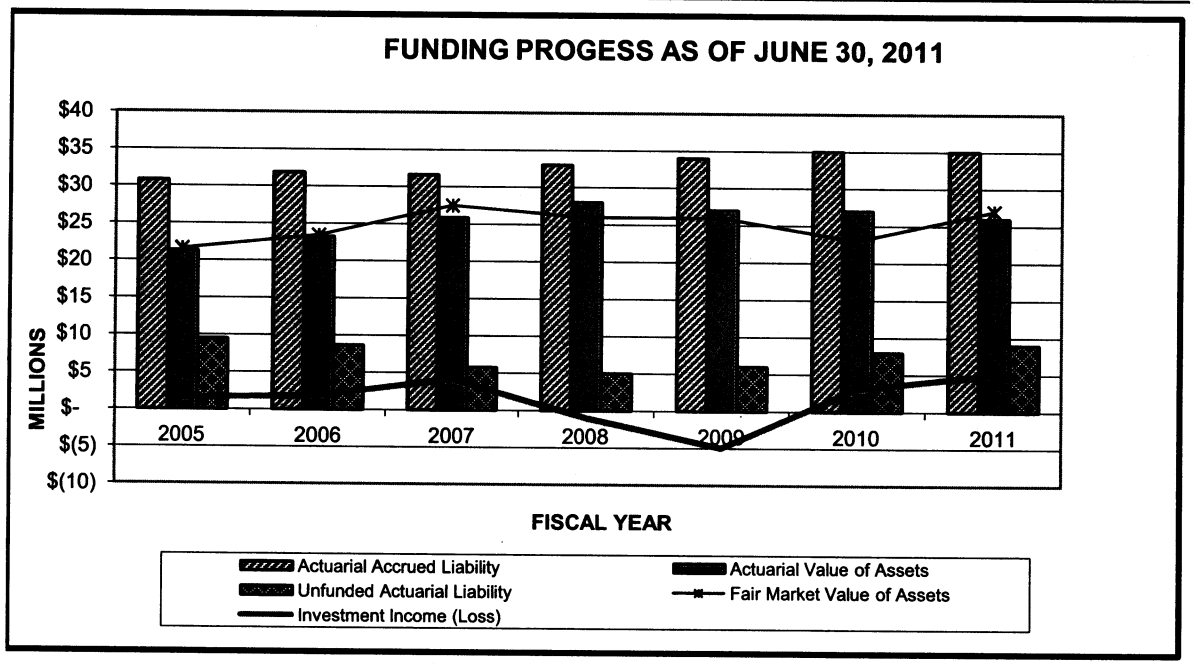
Actuarial Accrued Liability (AAL): Assets required to pay future benefits for current members and retirees

Actuarial Value of Assets (AVA): Market Value of Assets smoothed over 4 years

Unfunded Actuarial Liability (UAL): Excess of Actuarial Liability over Actuarial Value of Assets (UAL = AAL - AVA)

VFCA

Funding Progress	2005	2006	2007	2008	2009	2010	2011
In '000s							
Actuarial Accrued Liability	$ 31	$ 32	$ 32	$ 33	$ 34	$ 35	$ 35
Actuarial Value of Assets	21	23	26	28	27	27	26
Unfunded Actuarial Liability	9	9	6	5	6	8	9
Fair Market Value of Assets	22	23	28	26	26	23	27
Investment Income (Loss)	2	2	4	(1)	(5)	3	5
Funding Ratio	69%	73%	82%	84%	81%	77%	74%
Year to Amortize	20	20	20	5	7	8	9



Actuarial Accrued Liability(AAL): Assets required to pay future benefits for current members and retirees
Actuarial Value of Assets(AVA): Market Value of Assets smoothed over 4years
Unfunded Actuarial Liability(UAL): Excess of Actuarial Liability over Actuarial Value of Assets (UAL = AAL - AVA)