

**WISCONSIN RETIREMENT SYSTEM**  
**27<sup>TH</sup> ANNUAL ACTUARIAL VALUATION OF RETIRED LIVES**  
**DECEMBER 31, 2009**

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## DECEMBER 31, 2009

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March 2, 2010

Employee Trust Funds Board  
Madison, Wisconsin

Ladies and Gentlemen:

The results of the **27th annual actuarial valuation of core and variable annuities** being paid from the Wisconsin Retirement System are presented in this report. The valuation was based upon data, furnished by the WRS staff, concerning Fund assets and individual annuitants and beneficiaries.

The date of this valuation was **December 31, 2009**. Actuarial assumptions used in the valuation are summarized in the Appendix.

The results of the valuation may be briefly summarized as follows (\$ millions).

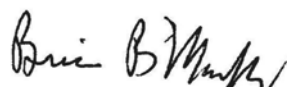
	<b>Core</b>	<b>Variable</b>
Number of Annuitants	150,866	34,836
Annual Amount	\$ 3,451.6	\$ 240.3
Fund Balance	36,655.8	3,078.4
Actuarial Reserve	37,072.7	2,512.7
<b>Ratio</b>	<b>0.989</b>	<b>1.225</b>

**Based upon these results, core annuities were decreased by 1.3% effective April, 2010 and variable annuities were increased by 22%.**

To the best of our knowledge this report is complete and accurate. It was made in accordance with standards of practice prescribed by the American Standards Board. All of the undersigned are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

The cooperation of the Secretary and his staff in gathering materials for this valuation is acknowledged with appreciation.

Respectfully submitted,



Brian B. Murphy, FSA, MAAA



Norman L. Jones, FSA, MAAA



Mark Buis, FSA, MAAA

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**SECTION A**  
**OPERATION OF THE SYSTEM**

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## **OPERATION OF THE RETIREMENT SYSTEM**

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Each year, as of December 31, an actuarial valuation of the liability for retired persons receiving benefits from the Wisconsin Retirement System is conducted. The purpose of the valuation is to determine the actuarial present value of future benefit payments on behalf of current retired lives. This present value is the “actuarial reserve”. Theoretically, if an amount of money equal to the actuarial present value were invested at a yield equal to the valuation interest rate, the initial amount plus the continuing investment income would provide exactly the right amount of money to pay the annuities of all current retired persons and their beneficiaries for the rest of their lives. The fund would decrease each year, and would become zero many decades in the future when the last annuitant dies.

The above is a “closed group” description of the operation of the annuity reserve fund. But the fund is really an “open group”. The size of the fund does not actually decrease because each year more benefits are added to the rolls than are removed, and fresh money is transferred into the annuity reserve fund to finance the benefits of the new annuitants. (The actuary calculates the reserve transfers for new annuitants each year as a by-product of the actuarial valuation.)

According to theory, the fund will eventually reach a state when the number of people entering (retiring) each year is approximately equal to the number of people exiting (dying) each year. When this mature state is reached, the amount of money in the fund will remain approximately level in constant dollars from year to year. Each year, the reserve transfers for the new annuitants plus investment earnings on the whole fund (total money in) will be approximately equal to the benefit payments (total money out). The only source of growth in assets would be the result of the effects of inflation. The dollars in the fund would increase, but the “real” value of the fund would not change.

There are at least two factors that cause the actual operation to be different from the theoretical operation described above. The first is that annuitants may have longer or shorter lifetimes than expected. In recognition of this, the actuary monitors mortality experience of the retirement system and recommends a new mortality table when appropriate. The second factor is that actual investment earnings are rarely equal to the assumed rate. When investment earnings differ from the assumed rate, the difference, positive or negative, is recorded in a supplemental reserve.

## OPERATION OF THE RETIREMENT SYSTEM

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The Wisconsin Retirement System maintains separate reserves for core and variable annuities. Each year, the actuary determines the actuarial reserve for core and variable annuities separately. WRS' practice with respect to the use of supplemental reserves is described below.

***Core Annuity Division:*** If the supplemental reserve is positive and is at least 0.5% of core annuity liabilities, core annuity increases (dividends) may be granted. If the supplemental reserve is negative and is equal to or greater than 0.5% of core annuity liabilities in absolute value, prior core annuity dividends are reduced by an aggregate amount equal to the shortfall. Increases or decreases become effective in April following the December 31 valuation.

***Variable Annuity Division:*** If the supplemental reserve is at least 2% of variable annuity liabilities, substantially all of the reserve (dropping fractions of a percent) is used to increase or decrease variable annuities for the ensuing year. Increases or decreases become effective in April following the December 31 valuation.

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**SECTION B**  
**CORE ANNUITIES**

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**CORE ANNUITY DIVISION**  
**DEVELOPMENT OF ASSETS AND LIABILITIES**

	\$ Millions		Ratio
	Assets	Liabilities	
<b>Ending Balance December 31, 2008</b>	\$35,798.1	\$36,551.5	0.979
Closing Adjustments	(2.3)	0.0	
Variable Terminations	78.8	78.8	
2009 Dividend: -2.1%	0.0	(712.4)	
<b>Beginning Balance January 1, 2009</b>	35,874.6	35,917.9	0.999
<b>Increases</b>			
Reserve Transfers	2,809.4	2,809.4	
Regular Interest	1,780.1	1,780.1	
Additional Earnings	(358.8)	0.0	
Addition to Contingency/Data Reserve	0.0	0.0	
Experience Study	0.0	355.4	
Other	0.0	86.7	
<b>Total Increases</b>	4,230.7	5,031.6	
<b>Decreases</b>			
Annuities & Lump Sums	3,445.5	3,445.5	
Credit Re-establishments	4.0	4.0	
Releases from Contingency/Data Reserve	0.0	427.3	
Experience Study	0.0	0.0	
Other	0.0	0.0	
<b>Total Decreases</b>	3,449.5	3,876.8	
<b>Ending Balance December 31, 2009</b>	<b>\$36,655.8</b>	<b>\$37,072.7</b>	<b>0.989</b>

The ending liability balance includes data and mortality reserves of \$184.7 million.



**RESERVE TRANSFER RECOMMENDATION**  
**DECEMBER 31, 2009**

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Amounts to be transferred from the Employer Reserve and the Employee Reserve to the Annuity Reserve to cover liabilities for new annuities are computed as the first step in the annual actuarial valuation. The actuarial present value at time of retirement of core annuities reported as new since the last actuarial valuation is \$2,788,416,595. Adjustments to prior transfers, related to estimated annuities for which final computations have now been made, totaled \$21,022,965. Reserve transfers are distributed as follows:

<b>Group</b>	<b>Regular Transfer</b>	<b>Adjustment to Prior Transfer</b>	<b>Total Transfer</b>
General	\$2,534,877,837	\$19,036,959	\$2,553,914,796
Protective with Social Security	184,431,813	1,206,067	185,637,880
Protective without Social Security	40,762,511	202,860	40,965,371
Executive & Elected	28,344,434	577,079	28,921,513
<b>Totals</b>	<b>\$2,788,416,595</b>	<b>\$21,022,965</b>	<b>\$2,809,439,560</b>

Accordingly, we recommend that \$2,809,439,560 be transferred to the Core Annuity Reserve. The results in this report assume that this transfer has been made.

## DISCUSSION OF DIVIDEND DECEMBER 31, 2009

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The Core Annuity Fund Balance, \$36,655.8 million, was less than the actuarial present value of core annuities and reserves, \$37,072.7 million, by \$416.9 million or (1.3)% of the actuarial present value (APV) of core annuity payments. The primary sources of the (1.3)% are:

	<b>% of APV</b>
1. SWIB published investment return	22.40%
2. MRA adjustment	(18.20)%
3. Published effective earnings rate	4.20%
4. Adjustment to relate earnings to average fixed annuity balance	(0.20)%
5. Earnings rate based on average balance	4.00%
6. Expected dividend before adjustments: 1.04/1.05-1	(0.95)%
7. Adjustment to relate average asset to ending liability	(0.02)%
8. Carryover from last year due to timing of dividend accounting adjustments and rounding	(0.12)%
9. Adjustments to contingency reserve and data reserve	1.15%
10. Experience Study	(0.96)%
11. Experience and other effects	(0.22)%
12. Statutory adjustment to round to nearest one-tenth percent	0.02%
<b>13. Trial Computed dividend rate: (6)+(7)+(8)+(9)+(10)+(11)+(12)</b>	<b>(1.1)%</b>
14. Adjustment for members not eligible for negative dividend	(0.20)%
<b>15. Final Computed dividend rate: (13)+(14)</b>	<b>(1.3)%</b>

**See pages 28 and 29 for a description of items on this page.**

In accordance with the Administrative Code, ETF 20.25 and Section 40.27(2) Wisconsin Statutes (see page 27), the (1.3)% was effective April, 2010.

**TRANSFERS TO ANNUITY RESERVE  
TO FINANCE CORE ANNUITIES APPROVED IN 2009  
TABULATED BY TYPE OF ANNUITY AND OPTION**

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
<b>REGULAR RETIREMENT</b>				
SL	Straight Life	1,184	\$ 23,997,883	\$ 326,235,314
SL	Straight Life (accelerated)	0	5,207,020	18,838,986
A60	Life Annuity with 60 payments guaranteed	762	16,343,969	221,385,420
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	3,896,226	13,336,674
A180	Life Annuity with 180 payments guaranteed	1,517	29,677,169	424,894,624
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	8,418,215	32,609,948
A180F	Life Annuity with 180 payments guaranteed (forced)	44	276,092	3,357,628
JOINT	Joint and 75% Survivor	783	20,206,585	304,110,160
JOINT	Joint and 75% Survivor (accelerated)	0	5,632,735	20,377,369
R25	Reduced 25% on First Death	336	10,246,033	147,480,128
R25	Reduced 25% on First Death (accelerated)	0	1,858,249	6,585,075
C100	100% Continued to Named Survivor	724	14,970,652	229,530,156
C100	100% Continued to Named Survivor (accelerated)	0	3,459,836	11,996,751
C180	100% Continued to Named Survivor with 180 payments guaranteed	2,405	56,235,116	879,823,256
C180	100% Continued to Named Survivor with 180 payments guaranteed (accelerated)	0	17,019,575	63,820,589
LOLF	Life with Optional Length Guaranteed (Forced)	1	1,286	13,666
AC24	Annuity Certain with 24 Payments	4	604,778	1,175,527
AC60	Annuity Certain with 60 Payments	4	102,052	478,353
AC120	Annuity Certain with 120 Payments	7	395,048	3,264,652
AC180	Annuity Certain between 24 and 180 Payments	7	158,682	1,309,499
SLNSD	Straight Life - Named Survivor Deceased	1	40,181	546,654
	Total Regular	7,779	\$218,747,382	\$2,711,170,429
	Average Age at Retirement	60.4 Years		
<b>DISABILITY RETIREMENT</b>				
SL	Straight Life	27	\$ 739,092	\$ 9,961,007
A60	Life Annuity with 60 payments guaranteed	10	237,641	3,222,506
A180	Life Annuity with 180 payments guaranteed	29	815,408	11,203,091
JOINT	Joint and 75% Survivor	11	276,200	4,324,014
R25	Reduced 25% on First Death	2	51,008	792,210
C100	100% Continued to Named Survivor	18	499,135	7,625,011
C180	100% Continued to Named Survivor with 180 payments guaranteed	59	1,554,454	24,461,895
	Total Disability	156	\$ 4,172,938	\$ 61,589,734
	Average Age at Retirement	54.8 Years		
<b>DEATH-IN-SERVICE BENEFITS</b>				
SL	Straight Life	21	\$ 360,412	\$ 5,001,824
A60	Life Annuity with 60 payments guaranteed	7	62,053	796,940
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	15,399	38,712
A180	Life Annuity with 180 payments guaranteed	45	613,748	9,184,444
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	143,372	621,076
AC24	Annuity Certain with 24 Payments	0	7,365	13,436
	Total Death-in-Service	73	\$ 1,202,349	\$ 15,656,432
	Average Age at Retirement	56.2 Years		
<b>GRAND TOTAL</b>		<b>8,008</b>	<b>\$224,122,669</b>	<b>\$2,788,416,595</b>

*In cases where an individual is receiving more than one annuity, the person only appears once in the above number counts, but the corresponding annual amounts can show up in several different places, depending on the option elected for the different annuities. This can result in, for example, a number count of zero (or a very low number count) combined with a significant annual dollar amount in the above table.*

## CORE ANNUITIES BEING PAID DECEMBER 31, 2009 TABULATED BY TYPE OF ANNUITY AND OPTION

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
<b>REGULAR RETIREMENT</b>				
SL	Straight Life	18,953	\$ 353,464,208	\$ 3,629,258,643
SL	Straight Life (accelerated)	0	20,846,670	51,086,234
A60	Life Annuity with 60 payments guaranteed	18,724	348,584,022	3,385,869,312
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	18,738,484	39,336,582
A120	Life Annuity with 120 payments guaranteed	317	5,276,076	18,722,153
A180	Life Annuity with 180 payments guaranteed	31,596	583,193,433	6,008,461,144
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	46,153,320	114,686,850
A180F	Life Annuity with 180 payments guaranteed (forced)	216	1,437,282	14,444,537
JOINT	Joint and 75% Survivor	17,490	434,555,313	5,154,115,777
JOINT	Joint and 75% Survivor (accelerated)	0	29,905,131	68,875,487
R25	Reduced 25% on First Death	12,551	367,376,315	3,793,230,594
R25	Reduced 25% on First Death (accelerated)	0	10,590,922	25,310,390
C100	100% Continued to Named Survivor	12,215	257,713,997	3,092,953,069
C100	100% Continued to Named Survivor (accelerated)	0	17,396,205	40,747,445
C180	100% Continued to Named Survivor with 180 payments guaranteed	29,748	677,549,226	9,251,992,479
C180	100% Continued to Named Survivor with 180 payments guaranteed (accelerated)	0	84,595,776	210,361,693
LOL	Life with Optional Length Guaranteed	103	1,671,126	8,512,617
LOLF	Life with Optional Length Guaranteed (Forced)	9	170,999	909,125
AC24	Annuity Certain with 24 Payments	0	180,558	271,782
AC60	Annuity Certain with 60 Payments	0	146,194	570,001
AC120	Annuity Certain with 120 Payments	0	484,122	3,680,606
AC180	Annuity Certain between 24 and 180 Payments	5	3,502,635	16,855,403
C50	50% Continued to One Beneficiary	98	2,016,100	8,560,319
C50W180	50% Continued to One Beneficiary with 180 Months guaranteed	16	152,536	611,957
C75WSS	75% Continued to One Beneficiary and Social Security Integrated	97	2,290,981	14,620,762
R25W120	Reduced 25% on Death of Annuitant or Named Survivor with 120 Months guaranteed	14	266,181	811,158
A60WSS	Life with 60 Months Guaranteed and Social Security Integrated	253	1,989,814	8,403,790
A180WSS	Life with 180 Months Guaranteed and Social Security Integrated	187	4,230,622	19,880,932
PF6213	Police and Firemen s.62.13	227	7,923,920	38,497,988
SLNSD	Straight Life - Named Survivor Deceased	442	13,200,076	131,054,328
Total Regular		143,261	\$3,295,602,244	\$35,152,693,157

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*In cases where an individual is receiving more than one annuity, the person only appears once in the above number counts, but the corresponding annual amounts can show up in several different places, depending on the option elected for the different annuities. This can result in, for example, a number count of zero (or a very low number count) combined with a significant annual dollar amount in the above table.*

**CORE ANNUITIES BEING PAID DECEMBER 31, 2009**  
**TABULATED BY TYPE OF ANNUITY AND OPTION**

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
<b>DISABILITY RETIREMENT</b>				
SL	Straight Life	880	\$ 20,661,690	\$ 188,823,334
A60	Life Annuity with 60 payments guaranteed	475	11,434,483	112,683,687
A180	Life Annuity with 180 payments guaranteed	1,208	28,063,575	297,012,389
JOINT	Joint and 75% Survivor	499	11,431,756	128,321,500
R25	Reduced 25% on First Death	228	5,239,146	56,256,974
C100	100% Continued to Named Survivor	1,226	24,643,696	293,373,118
C180	100% Continued to Named Survivor with 180 payments guaranteed	1,638	35,585,187	485,711,595
AC180	Annuity Certain between 24 and 180 Payments	0	2,824	6,985
DWSMC	Disability with Spouse or Minor/Dependent Child	29	679,234	5,899,584
DWOSMC	Disability without Spouse or Minor/Dependent Child	4	78,578	817,473
CWD	Conservation Warden - Disability	2	1,503	4,935
PF6213	Police and Firemen s.62.13	29	593,985	3,038,668
SLNSD	Straight Life - Named Survivor Deceased	6	118,189	1,040,215
Total Disability		6,224	\$ 138,533,846	\$ 1,572,990,457
<b>DEATH-IN-SERVICE BENEFITS</b>				
SL	Straight Life	261	\$ 2,984,486	\$ 31,217,127
SL	Straight Life (accelerated)	0	59,595	141,836
A60	Life Annuity with 60 payments guaranteed	122	1,828,725	18,419,654
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	60,413	232,956
A180	Life Annuity with 180 payments guaranteed	713	8,783,367	106,189,312
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	961,107	3,856,355
C180	100% Continued to Named Survivor with 180 payments guaranteed	2	11,913	195,501
LOL	Life with Optional Length Guaranteed	14	186,669	745,161
AC24	Annuity Certain with 24 Payments	0	7,365	5,977
AC180	Annuity Certain between 24 and 180 Payments	4	88,793	220,926
A60WSS	Life with 60 Months Guaranteed and Social Security Integrated	66	96,012	442,302
A180WSS	Life with 180 Months Guaranteed and Social Security Integrated	1	12,453	70,173
PF6213	Police and Firemen s.62.13	3	96,948	614,099
Total Death-in-Service		1,186	\$ 15,177,846	\$ 162,351,379
<b>GRAND TOTAL</b>		<b>150,671</b>	<b>\$3,449,313,936</b>	<b>\$36,888,034,993</b>

*In cases where an individual is receiving more than one annuity, the person only appears once in the above number counts, but the corresponding annual amounts can show up in several different places, depending on the option elected for the different annuities. This can result in, for example, a number count of zero (or a very low number count) combined with a significant annual dollar amount in the above table.*

**CORE ANNUITIES BEING PAID DECEMBER 31, 2009**  
**TABULATED BY ATTAINED AGES**

Attained Ages	Regular		Disability		Death-in-Service		Totals	
	No.	Annual Amount	No.	Annual Amount	No.	Annual Amount	No.	Annual Amount
Under 20	0	\$ 0	0	\$ 0	3	\$ 22,500	3	\$ 22,500
20-24	0	0	6	49,842	12	74,505	18	124,347
25-29	0	0	6	49,553	9	63,050	15	112,603
30-34	0	0	8	83,926	19	146,502	27	230,428
35-39	7	48,671	26	282,491	21	104,328	54	435,490
40-44	13	170,547	77	1,455,192	24	173,235	114	1,798,974
45-49	71	797,254	197	4,039,934	41	397,914	309	5,235,102
50-54	1,034	26,867,688	554	12,149,502	77	991,534	1,665	40,008,724
55-59	13,956	416,967,595	1,098	26,113,887	119	2,167,840	15,173	445,249,322
60-64	29,885	756,625,534	1,193	28,457,525	155	2,724,472	31,233	787,807,531
65-69	29,301	624,477,827	980	22,733,915	151	2,379,720	30,432	649,591,462
70-74	23,006	493,514,953	799	18,468,309	124	1,686,931	23,929	513,670,193
75-79	18,092	405,141,257	593	12,378,051	119	1,220,590	18,804	418,739,898
80-84	13,746	305,240,454	405	7,674,215	126	1,409,791	14,277	314,324,460
85-89	8,502	175,252,825	213	3,617,499	90	733,445	8,805	179,603,769
90-94	3,595	59,243,047	56	840,373	48	336,068	3,699	60,419,488
95& Up	1,078	13,620,138	13	136,802	16	177,937	1,107	13,934,877
Certain Only*	975	17,634,454	0	2,830	32	367,484	1,007	18,004,768
<b>Totals</b>	<b>143,261</b>	<b>\$3,295,602,244</b>	<b>6,224</b>	<b>\$138,533,846</b>	<b>1,186</b>	<b>\$15,177,846</b>	<b>150,671</b>	<b>\$3,449,313,936</b>

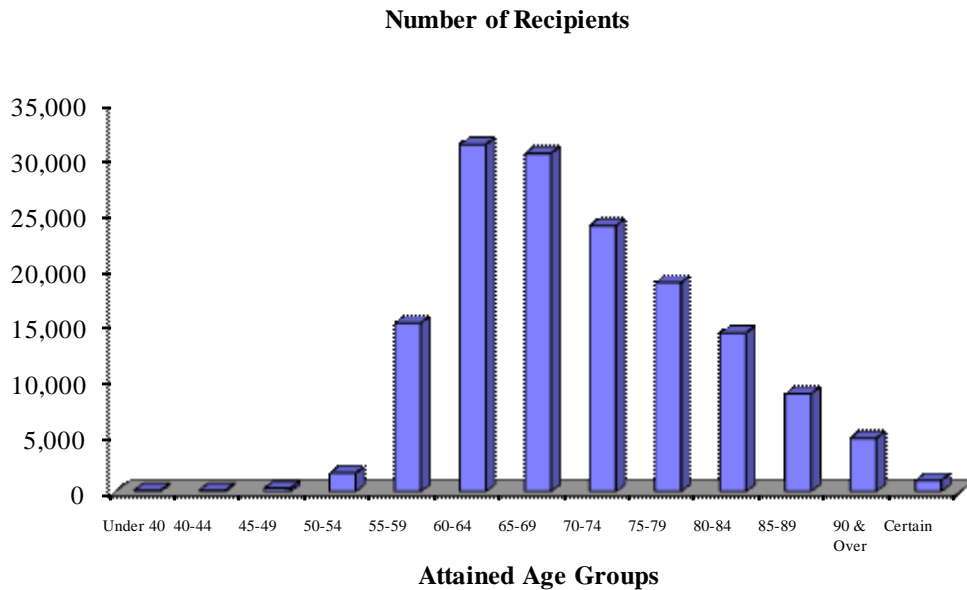
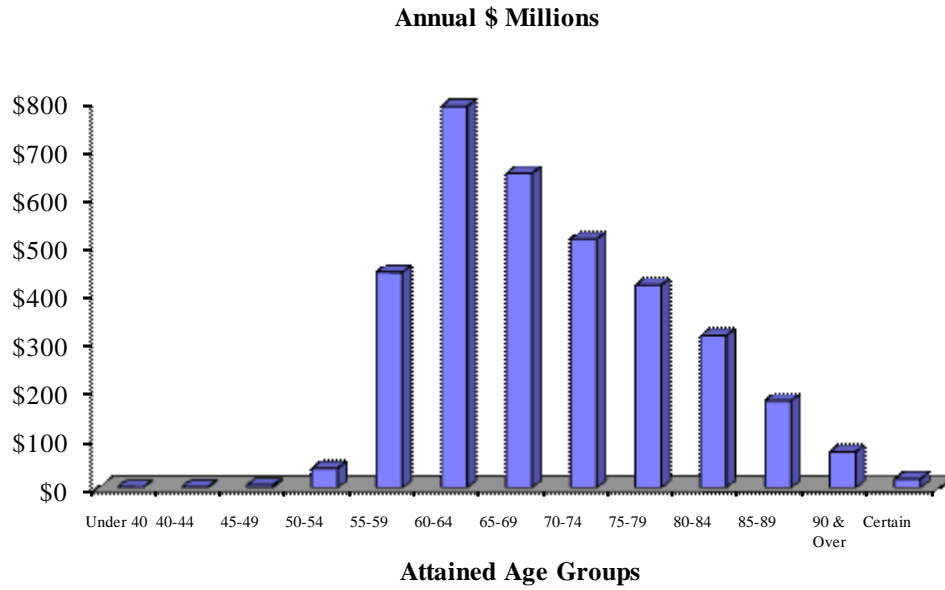
Averages in Years

Age at retirement	59.9	52.1	50.4	59.5
Attained age	70.6	65.4	67.8	70.4

\* Certain Only category consists of continuations of 5, 10 and 15-year certain and life annuities to beneficiaries of deceased annuitants.

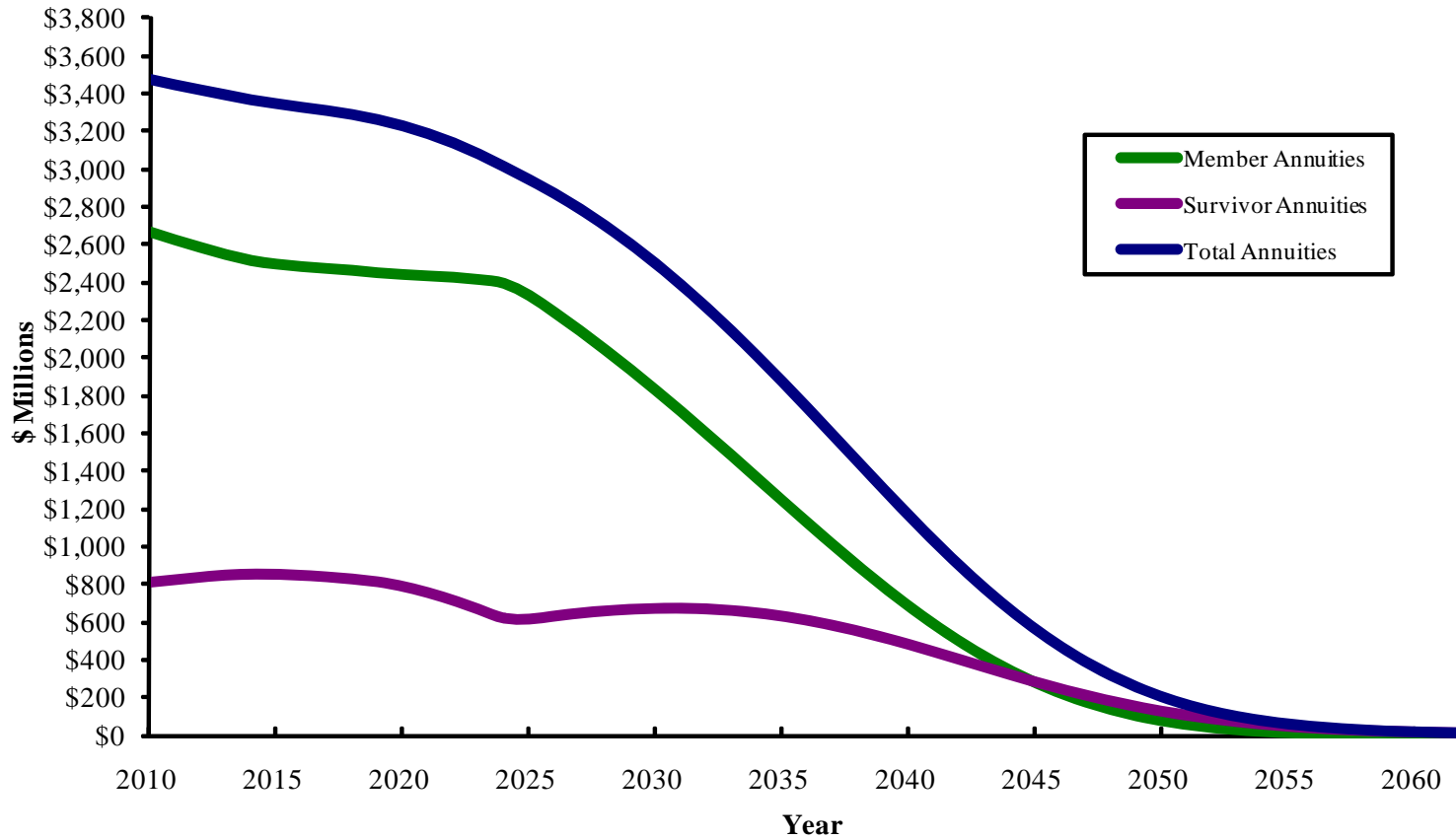
# CORE ANNUITIES BEING PAID BY ATTAINED AGE\* DECEMBER 31, 2009

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\* Includes regular and disability retirees and survivor beneficiaries. The "certain" category includes annuities paid for a fixed period which is not dependent upon the age of the recipient.

**PROJECTED FUTURE CORE ANNUITY PAYMENTS  
ON BEHALF OF PRESENT RETIRED LIVES  
INCLUDING FUTURE DIVIDENDS**



Total Future Payments	\$90.0 billion
From Present Assets	36.7
From Investment Return	53.3



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**SECTION C**  
**VARIABLE ANNUITIES**

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**VARIABLE ANNUITY DIVISION**  
**DEVELOPMENT OF ASSETS AND LIABILITIES**

	\$ Millions		Ratio
	Assets	Liabilities	
<b>Ending Balance December 31, 2008</b>	\$2,574.5	\$4,491.0	0.573
Closing Adjustments	(0.2)	0.0	
Variable Terminations	(78.8)	(78.8)	
2009 Adjustment: -42%	0.0	(1,818.7)	
Beginning Balance January 1, 2009	2,495.5	2,593.5	0.962
<b>Increases</b>			
Reserve Transfers	108.1	108.1	
Regular Interest	125.2	125.2	
Additional Earnings	638.6	0.0	
Addition to Contingency/Data Reserve	0.0	0.0	
Experience Study	0.0	29.2	
Other	0.0	4.6	
<b>Total Increases</b>	871.9	267.1	
<b>Decreases</b>			
Annuities & Lump Sums	288.5	288.5	
Credit Re-establishments	0.5	0.5	
Release from Contingency/Data Reserve	0.0	58.9	
Experience Study	0.0	0.0	
Other	0.0	0.0	
<b>Total Decreases</b>	289.0	347.9	
<b>Ending Balance December 31, 2009</b>	<b>\$3,078.4</b>	<b>\$2,512.7</b>	<b>1.225</b>

The ending liability balance includes mortality reserves of \$7.5 million.

**RESERVE TRANSFER RECOMMENDATION**  
**DECEMBER 31, 2009**

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Amounts to be transferred from the Employer Reserve and the Employee Reserve to the Annuity Reserve to cover liabilities for new annuities are computed as the first step in the annual actuarial valuation. The actuarial present value at time of retirement of variable annuities reported as new since the last actuarial valuation is \$109,379,686. Adjustments to prior transfers, relating to estimated annuities for which final computations have now been made, totaled \$(1,300,603). Reserve transfers were distributed as follows:

<b>Group</b>	<b>Regular Transfer</b>	<b>Adjustment to Prior Transfer</b>	<b>Total Transfer</b>
General	\$104,369,826	(\$1,290,931)	\$103,078,895
Protective with Social Security	3,011,035	(41,910)	2,969,125
Protective without Social Security	899,403	11,000	910,403
Executive & Elected	1,099,422	21,238	1,120,660
<b>Totals</b>	<b>\$109,379,686</b>	<b>(\$1,300,603)</b>	<b>\$108,079,083</b>

Accordingly, we recommend that \$108,079,083 be transferred to the Variable Annuity Reserve. The results in this report assume that this transfer has been made.

## DISCUSSION OF VARIABLE ANNUITY CHANGE DECEMBER 31, 2009

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Variable Annuity Reserves, \$3,078.4 million, exceeded the actuarial present value of variable annuities, \$2,512.7 million, by \$565.7 million as of December 31, 2009 or 22% of the actuarial present value (APV) of variable annuity payments. In accordance with Section 40.28(2) of the Wisconsin statutes (see page 27), variable annuities will be increased by 22% effective April 1, 2010. The primary sources of the 22% are as follows:

	<b>% of APV</b>
1. SWIB published investment return	33.7%
2. Adjustment to published effective rate	(0.7)%
3. Published effective earnings rate	33.0%
4. Adjustment to relate earnings to average variable annuity fund balance	(1.2)%
5. Earnings rate based on average balance	31.8%
6. Expected change before adjustments: 1.318/1.05-1	25.5%
7. Adjustment to relate average asset to ending liability	(0.1)%
8. Carryover from last year due to timing of distribution, accounting adjustments and truncation	(3.9)%
9. Adjustments to contingency reserve	2.3%
10. Experience Study	(1.2)%
11. Experience and other effects	(0.1)%
12. Statutory adjustment (truncate to whole percent or adjust to zero if reserve is less than 2%)	(0.5)%
<b>13. Variable annuity change: (6)+(7)+(8)+(9)+(10)+(11)+(12)</b>	<b>22.0%</b>

**Please see pages 28 and 29 for a description of the items on this page.**

**TRANSFERS TO ANNUITY RESERVE  
TO FINANCE VARIABLE ANNUITIES APPROVED IN 2009  
TABULATED BY TYPE OF ANNUITY AND OPTION**

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
<b>REGULAR RETIREMENT</b>				
SL	Straight Life	253	\$ 981,938	\$ 12,689,078
SL	Straight Life (accelerated)	0	160,333	620,175
A60	Life Annuity with 60 payments guaranteed	173	761,288	9,166,585
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	121,782	465,000
A180	Life Annuity with 180 payments guaranteed	351	1,158,090	16,317,746
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	299,307	1,214,571
A180F	Life Annuity with 180 payments guaranteed (forced)	7	26,407	322,633
JOINT	Joint and 75% Survivor	195	923,626	13,561,595
JOINT	Joint and 75% Survivor (accelerated)	0	186,292	662,064
R25	Reduced 25% on First Death	94	660,272	9,064,958
R25	Reduced 25% on First Death (accelerated)	0	74,315	214,817
C100	100% Continued to Named Survivor	142	573,010	8,614,717
C100	100% Continued to Named Survivor (accelerated)	0	94,984	362,769
C180	100% Continued to Named Survivor with 180 payments guaranteed	616	2,000,809	31,003,788
C180	100% Continued to Named Survivor with 180 payments guaranteed (accelerated)	0	599,947	2,116,553
AC24	Annuity Certain with 24 Payments	1	23,442	55,403
AC60	Annuity Certain with 60 Payments	0	1,729	8,863
AC120	Annuity Certain with 120 Payments	2	9,132	72,139
AC180	Annuity Certain between 24 and 180 Payments	2	55,730	588,467
	Total Regular	1,836	\$8,712,433	\$107,121,921
	Average Age at Retirement	59.6 Years		
<b>DISABILITY RETIREMENT</b>				
SL	Straight Life	5	\$ 6,413	\$ 87,519
A60	Life Annuity with 60 payments guaranteed	2	1,617	24,004
A180	Life Annuity with 180 payments guaranteed	11	15,232	208,550
JOINT	Joint and 75% Survivor	3	2,823	41,424
C100	100% Continued to Named Survivor	3	4,130	65,365
C180	100% Continued to Named Survivor with 180 payments guaranteed	13	46,283	753,771
	Total Disability	37	\$ 76,498	\$ 1,180,633
	Average Age at Retirement	54.1 Years		
<b>DEATH-IN-SERVICE BENEFITS</b>				
SL	Straight Life	8	\$ 43,150	\$ 616,849
A60	Life Annuity with 60 payments guaranteed	1	705	10,228
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	705	2,092
A180	Life Annuity with 180 payments guaranteed	11	29,762	427,976
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	5,476	13,173
	Total Death-in-Service	20	\$ 83,513	\$ 1,077,096
	Average Age at Retirement	57.2 Years		
<b>GRAND TOTAL</b>		<b>1,893</b>	<b>\$8,872,444</b>	<b>\$109,379,650</b>

*In cases where an individual is receiving more than one annuity, the person only appears once in the above number counts, but the corresponding annual amounts can show up in several different places, depending on the option elected for the different annuities. This can result in, for example, a number count of zero (or a very low number count) combined with a significant annual dollar amount in the above table.*

## VARIABLE ANNUITIES BEING PAID DECEMBER 31, 2009 TABULATED BY TYPE OF ANNUITY AND OPTION

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
<b>REGULAR RETIREMENT</b>				
SL	Straight Life	3,954	\$ 24,568,520	\$ 234,247,502
SL	Straight Life (accelerated)	0	824,691	1,755,044
A60	Life Annuity with 60 payments guaranteed	3,795	22,040,166	204,067,615
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	857,435	1,729,492
A120	Life Annuity with 120 payments guaranteed	80	398,641	1,414,996
A180	Life Annuity with 180 payments guaranteed	6,680	38,257,541	383,846,927
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	1,860,720	4,048,893
A180F	Life Annuity with 180 payments guaranteed (forced)	25	129,627	1,241,703
JOINT	Joint and 75% Survivor	4,383	32,478,932	371,670,826
JOINT	Joint and 75% Survivor (accelerated)	0	1,326,507	2,615,996
R25	Reduced 25% on First Death	3,763	36,167,106	357,422,921
R25	Reduced 25% on First Death (accelerated)	0	462,118	920,514
C100	100% Continued to Named Survivor	2,884	19,755,911	220,215,732
C100	100% Continued to Named Survivor (accelerated)	0	627,724	1,364,993
C180	100% Continued to Named Survivor with 180 payments guaranteed	7,364	48,670,004	635,754,491
C180	100% Continued to Named Survivor with 180 payments guaranteed (accelerated)	0	3,425,643	7,216,379
LOL	Life with Optional Length Guaranteed	11	130,096	591,843
LOLF	Life with Optional Length Guaranteed (Forced)	0	0	0
AC120	Annuity Certain with 120 Payments	0	9,264	68,458
AC180	Annuity Certain between 24 and 180 Payments	4	657,043	3,014,215
C50	50% Continued to One Beneficiary	65	368,382	1,511,948
C50W180	50% Continued to One Beneficiary with 180 Months guaranteed	14	63,253	265,234
C75WSS	75% Continued to One Beneficiary and Social Security Integrated	33	136,430	875,899
R25W120	Reduced 25% on Death of Annuitant or Named Survivor with 120 Months guaranteed	9	67,629	205,228
A60WSS	Life with 60 Months Guaranteed and Social Security Integrated	74	156,951	663,130
A180WSS	Life with 180 Months Guaranteed and Social Security Integrated	41	153,289	707,794
SLNSD	Straight Life - Named Survivor Deceased	85	839,152	7,744,179
Total Regular		33,264	\$234,457,946	\$2,445,234,591

(concluded on next page)

*In cases where an individual is receiving more than one annuity, the person only appears once in the above number counts, but the corresponding annual amounts can show up in several different places, depending on the option elected for the different annuities. This can result in, for example, a number count of zero (or a very low number count) combined with a significant annual dollar amount in the above table.*

**VARIABLE ANNUITIES BEING PAID DECEMBER 31, 2009**  
**TABULATED BY TYPE OF ANNUITY AND OPTION**

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
<b>DISABILITY RETIREMENT</b>				
SL	Straight Life	173	\$ 501,618	\$ 3,562,317
A60	Life Annuity with 60 payments guaranteed	83	350,511	3,289,802
A180	Life Annuity with 180 payments guaranteed	225	780,091	7,681,718
JOINT	Joint and 75% Survivor	113	534,720	5,548,039
R25	Reduced 25% on First Death	56	237,356	2,404,493
C100	100% Continued to Named Survivor	245	901,616	9,678,782
C180	100% Continued to Named Survivor with 180 payments guaranteed	337	1,224,974	15,471,296
DWSMC	Disability with Spouse or Minor/Dependent Child	4	10,903	40,279
DWOSMC	Disability without Spouse or Minor/Dependent Child	0	0	0
SLNSD	Straight Life - Named Survivor Deceased	1	7,683	55,768
Total Disability		1,237	\$ 4,549,472	\$ 47,732,494
<b>DEATH-IN-SERVICE BENEFITS</b>				
SL	Straight Life	56	\$ 284,552	\$ 2,704,081
SL	Straight Life (accelerated)	0	5,140	1,938
A60	Life Annuity with 60 payments guaranteed	33	176,851	1,604,386
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	9,140	18,420
A180	Life Annuity with 180 payments guaranteed	215	751,717	7,527,975
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	41,351	152,726
LOL	Life with Optional Length Guaranteed	4	15,134	59,927
AC180	Annuity Certain between 24 and 180 Payments	3	7,191	29,503
A60WSS	Life with 60 Months Guaranteed and Social Security Integrated	24	17,752	78,271
Total Death-in-Service		335	\$ 1,310,983	\$ 12,178,976
<b>GRAND TOTAL</b>		<b>34,836</b>	<b>\$240,318,401</b>	<b>\$2,505,146,061</b>

*In cases where an individual is receiving more than one annuity, the person only appears once in the above number counts, but the corresponding annual amounts can show up in several different places, depending on the option elected for the different annuities. This can result in, for example, a number count of zero (or a very low number count) combined with a significant annual dollar amount in the above table.*

**VARIABLE ANNUITIES BEING PAID DECEMBER 31, 2009**  
**TABULATED BY ATTAINED AGES**

Attained Ages	Regular		Disability		Death-in-Service		Totals	
	No.	Annual Amount	No.	Annual Amount	No.	Annual Amount	No.	Annual Amount
25-29	0	\$ 0	1	\$ 704	2	\$ 108	3	\$ 812
30-34	0	0	0	0	2	3,000	2	3,000
35-39	2	9,192	5	21,582	10	8,599	17	39,373
40-44	3	6,523	18	20,309	3	980	24	27,812
45-49	15	44,019	37	18,730	14	20,890	66	83,639
50-54	268	623,105	108	141,635	20	27,312	396	792,052
55-59	3,639	16,435,909	222	501,774	36	135,214	3,897	17,072,897
60-64	7,620	47,263,049	218	891,572	39	136,415	7,877	48,291,036
65-69	6,221	46,214,007	176	1,005,126	38	242,125	6,435	47,461,258
70-74	4,538	39,203,256	159	765,213	34	186,852	4,731	40,155,321
75-79	4,029	34,185,051	131	583,636	26	114,300	4,186	34,882,987
80-84	3,380	26,822,710	85	339,371	38	126,393	3,503	27,288,474
85-89	2,172	15,320,991	51	183,299	29	127,780	2,252	15,632,070
90-94	918	5,427,223	18	64,289	21	104,673	957	5,596,185
95& Up	268	1,377,802	5	8,931	7	26,197	280	1,412,930
Certain Only*	191	1,525,109	3	3,301	16	50,145	210	1,578,555
<b>Totals</b>	<b>33,264</b>	<b>\$234,457,946</b>	<b>1,237</b>	<b>\$4,549,472</b>	<b>335</b>	<b>\$1,310,983</b>	<b>34,836</b>	<b>\$240,318,401</b>

Averages in Years

Age at retirement	59.4	52.7	51.2	59.2
Attained age	70.3	65.8	69.4	70.2

\* Certain only category consists of continuations of 5, 10 and 15-year certain and life annuities to beneficiaries of deceased annuitants.



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**SECTION D**  
**COMPARATIVE STATEMENTS**

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**CORE ANNUITIES  
COMPARATIVE STATEMENT  
1983 THROUGH 2009**

Valuation Date	Number	Annual Annuities	Fund Balance	Actuarial Reserve	Ratio	Change in	
						Annuities	CPI*
1983	57,770	\$ 177.7	\$ 1,830.3	\$ 1,738.3	1.053	5.0 %	3.8 %
1984	60,302	214.3	2,255.5	2,120.3	1.064	6.0 %	4.0 %
1985	62,953	257.6	2,758.2	2,561.0	1.077	7.2 %	3.8 %
1986	65,425	303.5	3,256.9	3,021.2	1.078	7.6 %	1.1 %
1987	67,688	366.9	3,833.7	3,594.6	1.067	6.7 %	4.4 %
1988	70,017	420.6	4,319.6	4,150.9	1.041	4.1 %	4.4 %
1989	73,232	488.7	5,487.4	4,928.1	1.113	11.3 %	4.6 %
1990	77,666	611.3	6,443.8	6,219.1	1.036	3.6 %	6.2 %
1991	79,465	660.4	7,137.8	6,711.3	1.063	6.3 %	3.0 %
1992	81,508	732.3	7,782.4	7,456.6	1.044	4.4 %	3.0 %
1993	83,836	801.7	8,608.2	8,205.3	1.049	4.9 %	2.7 %
1994	86,214	882.2	9,286.2	9,029.6	1.028	2.8 %	2.7 %
1995	88,998	955.8	10,351.7	9,804.1	1.056	5.6 %	2.6 %
1996	92,198	1,065.8	11,699.8	10,977.1	1.066	6.6 %	3.3 %
1997	95,128	1,188.4	13,185.1	12,240.4	1.077	7.7 %	1.7 %
1998	99,112	1,349.5	14,951.8	13,943.0	1.072	7.2 %	1.6 %
1999	102,817	1,513.8	16,857.8	15,687.2	1.075	17.1 % **	2.7 %
2000	107,425	1,867.0	20,517.8	19,405.3	1.057	5.7 %	3.4 %
2001	112,142	2,048.6	21,979.7	21,283.6	1.033	3.3 %	1.6 %
2002	116,289	2,226.6	23,142.4	23,202.9	0.997	0.0 %	2.4 %
2003	121,582	2,364.7	25,071.9	24,724.0	1.014	1.4 %	1.9 %
2004	126,211	2,500.3	26,920.0	26,232.2	1.026	2.6 %	3.3 %
2005	131,674	2,691.4	28,575.3	28,359.7	1.008	0.8 %	3.4 %
2006	137,117	2,843.6	31,180.5	30,273.9	1.030	3.0 %	2.6 %
2007	142,906	3,075.3	35,050.1	32,877.5	1.066	6.6 %	4.1 %
2008	144,033	3,399.3	35,798.1	36,551.5	0.979	(2.1)%	0.1 %
2009	150,671	3,449.3	36,655.8	37,072.7	0.989	(1.3)%	2.7 %
<b>27-Year Average</b>						<b>4.9 %</b>	<b>3.0 %</b>
<b>10-Year Average</b>						<b>2.0 %</b>	<b>2.5 %</b>

\* CPI percentage increase determined by ratio of current year CPI-U67 December index over prior year December index.

\*\* Including 10.6% Act 11 transfer.

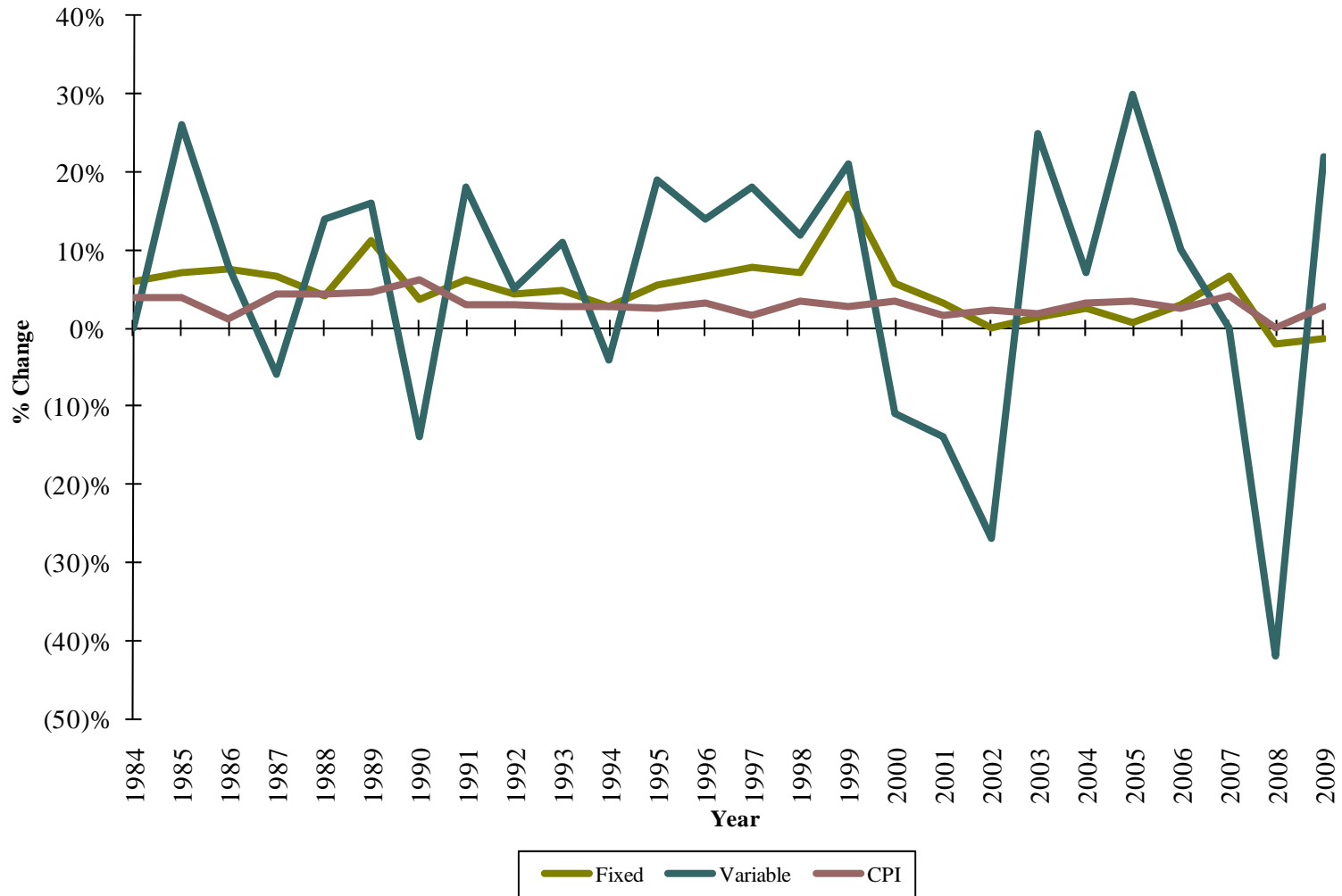
Please note that the decrease in the 10-Year average from 3.7% last year to 2.0% was heavily impacted by the removal of the 1999 year (17.1% dividend) in the average.

**VARIABLE ANNUITIES  
COMPARATIVE STATEMENT  
1983 THROUGH 2009**

Valuation		\$ Millions				Change in	
		Annual	Fund	Actuarial	Ratio		
Date	Number	Annuities	Balance	Reserve	Ratio	Annuities	CPI*
1983	13,598	\$ 25.9	\$ 289.4	\$ 245.0	1.181	18.0 %	3.8 %
1984	14,520	34.2	329.2	327.5	1.005	0.0 %	4.0 %
1985	15,529	38.0	463.1	366.6	1.263	26.0 %	3.8 %
1986	16,276	51.8	538.7	498.6	1.080	8.0 %	1.1 %
1987	17,084	60.4	548.8	584.2	0.939	(6.0)%	4.4 %
1988	17,779	61.4	682.6	594.0	1.149	14.0 %	4.4 %
1989	18,502	75.9	878.1	756.5	1.161	16.0 %	4.6 %
1990	19,922	101.0	868.6	1,013.4	0.857	(14.0)%	6.2 %
1991	20,538	91.5	1,101.3	929.7	1.184	18.0 %	3.0 %
1992	20,968	112.6	1,208.6	1,147.4	1.053	5.0 %	3.0 %
1993	21,623	123.7	1,407.9	1,268.6	1.110	11.0 %	2.7 %
1994	22,248	144.6	1,418.0	1,487.0	0.954	(4.0)%	2.7 %
1995	22,978	150.2	1,854.2	1,556.0	1.192	19.0 %	2.6 %
1996	23,725	189.8	2,264.9	1,976.7	1.146	14.0 %	3.3 %
1997	24,462	228.2	2,800.0	2,371.5	1.181	18.0 %	1.7 %
1998	25,424	289.5	3,400.5	3,035.5	1.120	12.0 %	1.6 %
1999	26,257	345.8	4,432.9	3,659.1	1.212	21.0 %	2.7 %
2000	27,321	445.3	4,211.4	4,749.3	0.887	(11.0)%	3.4 %
2001	28,314	424.4	3,901.8	4,547.4	0.858	(14.0)%	1.6 %
2002	28,662	374.0	2,899.3	3,999.1	0.726	(27.0)%	2.4 %
2003	29,496	273.3	3,635.9	2,892.2	1.257	25.0 %	1.9 %
2004	30,270	346.0	3,909.9	3,654.5	1.070	7.0 %	3.3 %
2005	31,499	376.5	4,092.7	3,970.7	1.031	3.0 %	3.4 %
2006	32,683	391.8	4,594.2	4,145.2	1.108	10.0 %	2.6 %
2007	33,880	432.6	4,625.0	4,563.7	1.013	0.0 %	4.1 %
2008	34,927	427.0	2,574.5	4,491.0	0.573	(42.0)%	0.1 %
2009	34,836	240.3	3,078.4	2,512.7	1.225	22.0 %	2.7 %
<b>27-Year Average</b>						<b>4.1 %</b>	<b>3.0 %</b>
<b>10-Year Average</b>						<b>(5.0)%</b>	<b>2.5 %</b>

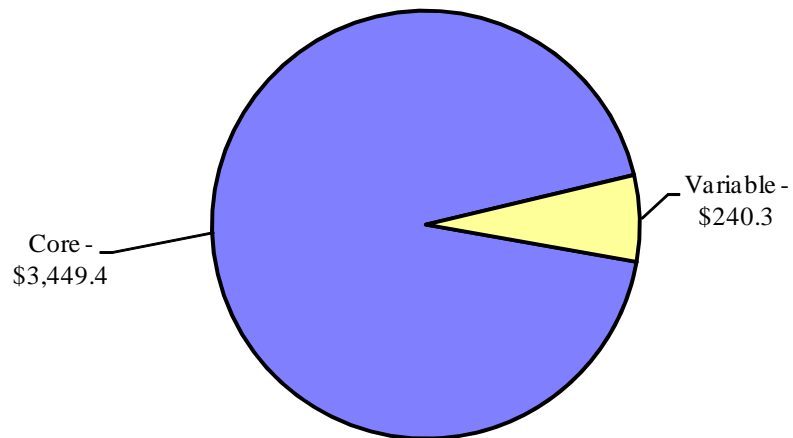
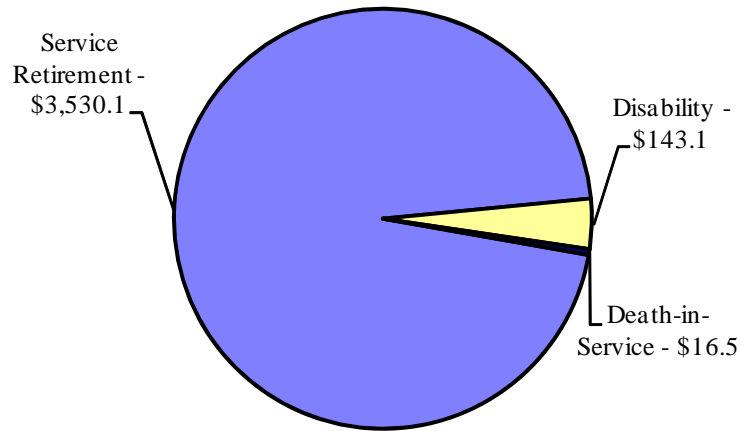
\* CPI percentage increase determined by ratio of current year CPI-U67 December index over prior year December index.

## HISTORY OF % CHANGES IN ANNUITIES AND CPI



**ANNUITIES BEING PAID BY TYPE**  
**DECEMBER 31, 2009**  
**\$ MILLIONS**

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**ANNUITIES BEING PAID DECEMBER 31, 2009**  
**TABULATED BY YEAR OF RETIREMENT**  
**(\$1,000S ANNUALLY)**

Year Ret'd	Core Annuities				Variable Annuities				Avg. Total Annuity
	No.	Initial	Increases	Total	No.	Initial	Increases	Total	
2009	7,249	\$ 196,094	\$ 0	\$ 196,091	1,719	\$ 6,847	\$ 0	\$ 6,847	\$27,996
2008	8,772	241,034	0	241,034	2,065	17,007	(7,102)	9,905	28,607
2007	8,655	222,138	3,393	225,531	2,139	17,647	(7,412)	10,235	27,240
2006	8,376	200,342	12,130	212,472	1,961	17,004	(6,156)	10,848	26,662
2005	8,361	190,007	15,043	205,050	2,007	17,852	(6,120)	11,732	25,928
2004	7,549	157,734	15,477	173,211	1,825	15,891	(4,718)	11,173	24,425
2003	7,655	154,486	18,475	172,961	1,684	12,529	(1,517)	11,012	24,033
2002	7,213	131,115	16,506	147,621	1,512	16,264	(5,824)	10,440	21,913
2001	7,326	131,646	19,150	150,796	1,611	25,149	(11,268)	13,881	22,478
2000	7,391	128,080	25,382	153,462	1,452	29,012	(14,764)	14,248	22,691
1999	6,300	94,090	36,613	130,703	1,231	20,189	(8,193)	11,996	22,650
1998	6,219	87,405	42,275	129,680	1,253	18,112	(6,059)	12,053	22,790
1997	5,311	72,156	42,896	115,052	1,089	13,039	(2,793)	10,246	23,592
1996	5,323	70,554	49,745	120,299	1,106	11,674	(1,235)	10,439	24,561
1995	4,843	61,850	49,616	111,466	1,018	8,768	562	9,330	24,942
1994	4,245	52,076	45,526	97,602	994	8,475	196	8,671	25,035
1993	3,959	45,333	43,152	88,485	933	6,625	892	7,517	24,249
1992	3,429	37,582	38,959	76,541	791	5,435	1,043	6,478	24,211
1991	3,201	32,877	37,651	70,528	768	4,290	1,723	6,013	23,912
1990	5,105	55,865	69,312	125,177	1,293	8,235	1,728	9,963	26,472
1989	3,898	42,139	59,439	101,578	927	5,074	2,045	7,119	27,885
1988	3,060	26,253	41,811	68,064	775	3,393	2,033	5,426	24,016
1987	2,698	21,363	37,708	59,071	713	2,934	1,480	4,414	23,531
1986	2,460	18,830	37,599	56,429	661	2,603	1,623	4,226	24,657
1985	2,260	17,713	39,280	56,993	601	1,723	1,800	3,523	26,777
1984	1,812	13,053	31,496	44,549	533	1,522	1,592	3,114	26,304
1983	1,576	8,734	22,564	31,298	442	1,066	1,502	2,568	21,488
1982	1,229	5,449	15,679	21,128	336	630	1,110	1,740	18,607
1981	1,122	4,291	13,318	17,609	299	502	882	1,384	16,928
1980	835	2,790	8,954	11,744	241	309	727	1,036	15,305
1979	617	2,052	7,034	9,086	155	160	435	595	15,691
1978	530	1,482	5,273	6,755	157	135	403	538	13,759
1977	473	1,354	4,737	6,091	151	150	413	563	14,068
1976	385	944	3,529	4,473	104	62	191	253	12,278
1975	311	754	2,797	3,551	94	67	232	299	12,377
1974	222	507	1,925	2,432	57	38	119	157	11,658
1973	169	333	1,255	1,588	51	37	100	137	10,208
1972	118	178	696	874	25	15	37	52	7,840
1971	65	91	343	434	15	12	32	44	7,332
1970	61	73	293	366	12	6	20	26	6,450
Prior	288	284	1,155	1,439	36	21	56	77	3,833
<b>Total</b>	<b>150,671</b>	<b>\$2,531,131</b>	<b>\$918,186</b>	<b>\$3,449,314</b>	<b>34,836</b>	<b>\$300,503</b>	<b>\$ (60,185)</b>	<b>\$240,318</b>	<b>\$24,488</b>

**COMPARISON OF ACTUAL TO EXPECTED DEATHS AMONG RETIRED LIVES  
(NORMAL RETIREMENT ONLY)  
DURING 2009**

Age	Male Deaths			Female Deaths			Total Deaths		
	Actual	Expected	Exposure	Actual	Expected	Exposure	Actual	Expected	Exposure
30-34						1			1
35-39						6			6
40-44						16			16
45-49			10			82			92
50-54	1	2	758	2		470	3	2	1,228
55-59	27	33	6,412	16	28	7,961	43	61	14,373
60-64	109	94	13,406	66	81	15,877	175	175	29,283
65-69	172	153	13,088	103	119	15,238	275	272	28,326
70-74	204	215	10,466	166	169	12,354	370	384	22,820
75-79	270	319	8,268	224	240	9,851	494	559	18,119
80-84	381	392	5,895	328	354	7,981	709	746	13,876
85-89	353	346	3,091	497	462	5,561	850	808	8,652
90-94	194	194	1,081	417	402	2,782	611	596	3,863
95-99	79	62	244	217	184	822	296	246	1,066
100 & Up	5	4	13	55	55	151	60	59	164
<b>Totals</b>	<b>1,795</b>	<b>1,814</b>	<b>62,732</b>	<b>2,091</b>	<b>2,094</b>	<b>79,153</b>	<b>3,886</b>	<b>3,908</b>	<b>141,885</b>
Average Ages	79.9	79.7	69.8	84.3	83.5	71.1	82.3	81.7	70.5

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**SECTION E**  
**APPENDIX**

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## ACTUARIAL ASSUMPTIONS USED IN THE RETIRED LIFE ACTUARIAL VALUATION

The interest rate used in the valuation was 5.0% a year, compounded yearly, as provided in Section 40.02 of the Wisconsin Statutes. The mortality table used in the valuation was the Wisconsin Projected Experience Mortality Table-2005, as adopted by the Board in connection with the 2006-2008 Experience Study (the male table was multiplied by 90%). In addition, retired life liabilities in the valuations contain a reserve for mortality improvement. The reserve level used in this valuation was 0.3%.

### SINGLE LIFE RETIREMENT VALUES

#### Wisconsin Projected Experience Table - 2005 with 5% Interest

Sample Attained Ages	Present Value of \$1 Monthly for Life		Future Life Expectancy (years)		Probability of Death Next Year	
	Males	Females	Males	Females	Males	Females
40	\$207.44	\$213.54	41.9	45.3	0.098%	0.057%
45	198.25	205.53	37.1	40.5	0.145%	0.089%
50	187.11	195.62	32.4	35.7	0.237%	0.123%
55	174.05	183.60	27.9	30.9	0.417%	0.256%
60	158.95	169.88	23.5	26.4	0.608%	0.435%
65	140.97	153.66	19.3	22.0	0.932%	0.665%
70	120.85	134.71	15.3	17.8	1.634%	1.065%
75	99.35	113.77	11.7	13.9	3.006%	1.950%
80	78.71	91.62	8.6	10.4	5.428%	3.387%
85	59.77	69.69	6.2	7.4	9.241%	6.512%

The values shown above are for non-disabled participants. Sample values for disabled participants are as follows:

Sample Attained Ages	Present Value of \$1 Monthly for Life		Future Life Expectancy (years)		Probability of Death Next Year	
	Males	Females	Males	Females	Males	Females
40	\$188.17	\$202.09	33.0	38.9	0.262%	0.119%
45	175.49	191.71	28.5	34.1	0.386%	0.187%
50	160.60	179.05	24.1	29.5	0.631%	0.258%
55	144.08	164.05	20.0	24.9	1.112%	0.538%
60	126.15	147.80	16.2	20.7	1.620%	0.913%
65	105.47	129.25	12.5	16.8	2.485%	1.396%
70	83.80	108.29	9.3	13.0	4.358%	2.237%
75	62.40	86.39	6.5	9.6	8.016%	4.095%
80	44.25	64.71	4.3	6.7	14.473%	7.112%
85	29.47	44.71	2.8	4.4	24.643%	13.675%

## **POST-RETIREMENT ADJUSTMENTS**

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### **CORE ANNUITIES - 40.27(2)**

“CORE ANNUITY RESERVE SURPLUS DISTRIBUTIONS. Surpluses in the core annuity reserve established under s. 40.04(6) and (7) shall be distributed by the board if the distribution will result in at least a 0.5% increase in the amount of annuities in force, on recommendation of the actuary, as follows:

(a) The distributions shall be expressed as percentage increases in the amount of the monthly annuity in force, including prior distributions of surpluses but not including any amount paid from funds other than the core annuity reserve fund, preceding the effective date of the distribution. For purposes of this subsection, annuities in force include any disability annuity suspended because the earnings limitation had been exceeded by that annuitant in that year.

(b) Prorated percentages based on the annuity effective date may be applied to annuities with effective dates during the calendar year preceding the effective date of the distribution, as provided by rule, but no other distinction may be made among the various types of annuities payable from the core annuity reserve.

(c) The distributions shall not be offset against any other benefit being received but shall be paid in full, nor shall any other benefit being received be reduced by the distributions. The annuity reserve surplus distributions authorized under this subsection may be revoked by the board in part or in total as to future payments upon recommendation of the actuary if a deficit occurs in the core annuity reserves.”

### **VARIABLE ANNUITIES - 40.28(2)**

“Whenever the balance in the variable annuity reserve, as of December 31 of any year, exceeds or is less than the then present value of all variable annuities in force, determined in accordance with the rate of interest and approved actuarial tables then in effect, by at least 2% of the present value of all variable annuities in force, the amount of each variable annuity payment shall be proportionately increased or decreased, disregarding fractional percentages, and effective on a date determined by rule, so as to reduce the variance between the balance of the variable annuity reserve and the present value of variable annuities to less than one percent.”

## **NARRATIVE REGARDING THE DEVELOPMENT OF DIVIDEND AND VARIABLE ANNUITY CHANGES SHOWN ON PAGES 6 AND 15**

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**1. SWIB Published Investment Return**

The earnings rate published by State of Wisconsin Investment Board on the Core/Variable Fund.

**2. Adjustment to Relate Earnings to Averaged Core/Variable Annuity Balance**

Item 3 below minus Item 1 above. For core annuities, this is the MRA adjustment which takes into account five-year smoothing of gains and losses. For variable annuities, it converts a figure based on an average balance to a figure based on a beginning year balance.

**3. Published Earnings Rate**

The earnings rate published by DETF is funds' earnings credits expressed as a percentage of the beginning year balance adjusted for benefit payments and reserve transfers.

**4. Adjustment to Relate Earnings to Averaged Core Annuity Balance**

Item 5 below minus Item 3 above.

**5. Earnings Rate Based on Average Balance**

This is similar to the published earnings rate except that the rate is determined as a percentage of the average balance during the year instead of the adjusted beginning of year balance.

**6. Expected Dividend (Variable Change) before Adjustments**

The relative difference in fund growth based on actual versus the 5% assumed earnings rates.

**7. Adjustment to Relate Average Asset to Ending Liability**

The final dividend/variable change is calculated based on the end of year assets divided by the end of year liabilities. Since the calculations in Items 5 and 6 are based on average (approximately mid-year) balances, this adjustment is needed so that the final rate will be based on the end of year liabilities.

**8. Carryover from Last Year Due to Timing of Distribution and Accounting Adjustments (and Truncation for Variable Annuity)**

The dividend or variable rate changes are made effective April 1 of each year. This adjustment takes into account the fact that the prior year dividend/variable increase was in effect for less than a full year as well as any accounting adjustments made to the asset value at the beginning of the year. This adjustment also carries over any truncated or rounded amounts from the prior year.

## **NARRATIVE REGARDING THE DEVELOPMENT OF DIVIDEND AND VARIABLE ANNUITY CHANGES SHOWN ON PAGES 6 AND 15**

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### **9. Adjustments to Contingency Reserve and Data Reserve**

Currently there is a reserve for incomplete data for the dividend calculation of 0.2% and a mortality improvement reserve for both the dividend and variable calculations that starts at 0.3% and grades to 1.0% over a 3-year experience period. The adjustment is equal to the amount held in reserve for the current year less the amount held in reserve for the prior year expressed as a percent of the end of year liability. This reserve is accumulated to reflect the fact that over time, mortality rates tend to improve. By increasing reserves gradually each year, instead of all at once every three years, the effect on dividends and variable increases will also be more gradual.

### **10. Experience Study**

A study is conducted for WRS every three years to analyze the assumptions that are made in the valuation versus the experience that actually occurred. If the results of the study show material changes in experience, WRS generally adopts a new set of assumptions. When assumptions are changed, this item displays the effect of the change on the dividend/variable rate calculation.

### **11. Experience and Other Effects**

After making all other known adjustments, this is the remainder of all other experience. Changes here are primarily attributable to mortality experience and, generally to a lesser extent, on any data adjustments.

### **12. Statutory Adjustment to Round/Truncate**

By statute, the dividend rate is calculated to the nearest one-tenth of a percent. For the variable annuity change, the rate is truncated to a whole percent. This is the adjustment made from the calculated dividend/variable annuity rate change without rounding/truncation to the statutory rate.

### **13. Computed Dividend Rate/Variable Annuity Change.**

This is the end of year asset value divided by the end of year liability. It is reconciled to the published earnings rate (Item 3) by making the adjustments in Items 6 through 12.

### **14. Adjustment for Members Not Eligible for Negative Dividend.**

This is an adjustment that is sometimes made for Core Fund recipients to reflect that some members are not eligible for a negative dividend (once the dividend has been depleted).

### **15. Computed Dividend Rate.**

Item 13 + Item 14



March 2, 2010

Mr. David Stella  
Wisconsin Department of Employee Trust Funds  
801 W. Badger Road  
Madison, Wisconsin 53713-2526

**Re: Retired Life Actuarial Valuation**

Dear Dave:

Enclosed are 40 copies of the report of the December 31, 2009 Retired Lives Actuarial Valuation with the remaining 35 copies to follow under separate cover tomorrow.

Sincerely,

Mark Buis

MB:lr  
Enclosures