

Wisconsin Retirement System

42nd Annual Actuarial Valuation of Retired Lives

December 31, 2024



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February 28, 2025

Employee Trust Funds Board
Madison, Wisconsin

Ladies and Gentlemen:

The results of the **42nd annual actuarial valuation of core and variable annuities** being paid from the Wisconsin Retirement System are presented in this report. The purpose of this report is to establish the ratio of assets to liabilities in the Core and Variable Funds and to make recommendations for related benefit adjustments in accordance with statutory provisions and administrative code. This report should not be relied on for any other purpose.

The date of this valuation was December 31, 2024. Actuarial assumptions used in the valuation are summarized in the Appendix. The assumptions used in this report are reasonable for the purposes of this valuation. The combined effect of the assumptions, excluding prescribed assumptions or methods set by law, is expected to have no significant bias (i.e., not significantly optimistic or pessimistic). The assumptions and methods were unchanged from those used in the prior valuation.

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

	Core	Variable
Number of Annuitants	242,226	43,853
Annual Amount of Annuities Paid	\$ 6,986.1	\$ 521.1
Fund Balance	77,893.5	5,770.5
Actuarial Reserve	76,167.9	4,989.5
Ratio	1.023	1.157

Based upon these results, core annuities will be increased 2.3% and variable annuities will be increased by 15.0%.

This report was prepared at the request of the Wisconsin Retirement System and those designated or approved by the Wisconsin Retirement System. This report may be provided to parties other than the Wisconsin Retirement System only in its entirety and only with the permission of the Wisconsin Retirement System. GRS is not responsible for unauthorized use of this report. The valuation was based upon data furnished by the Wisconsin Retirement System's staff, concerning Fund assets and individual annuitants and beneficiaries. Data was checked for internal consistency, but was not audited. We are not responsible for the accuracy or completeness of the information provided by the Wisconsin Retirement System.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law.

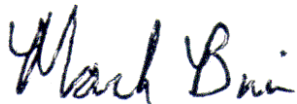
This report was prepared using our proprietary valuation model and related software which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

This report does not include an assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. However, an additional assessment of risk for the Wisconsin Retirement System was conducted in the fall of 2023 in conjunction with the State of Wisconsin Investment Board. Additional discussion of various risk factors is also included in the active lives valuation report issued in June.

To the best of our knowledge this report is complete and accurate. All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. Mark Buis, James D. Anderson and Richard C. Koch Jr. are all 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 signing actuaries are independent of the plan sponsor.

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


Respectfully submitted,
Gabriel, Roeder, Smith & Company



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James D. Anderson, FSA, EA, FCA, MAAA



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MB/JDA/RCK:sc



SECTION A

EXECUTIVE SUMMARY

Executive Summary

1. Retiree Dividend in Core Annuities

The net of fee investment return of 8.55% in the core annuity fund was higher than the assumed investment return of 6.8% on a market value basis. However, under the asset valuation method, investment gains and losses are spread over a 5-year period. Partial recognition of this year's gain was combined with the continued phase-in of investment gains and losses from prior years resulting in a published effective earnings rate of 7.5%. The 7.5% published effective earnings rate exceeds the 5% investment return threshold that triggers an annuity adjustment. This valuation determined the amount of available surplus/deficit. The surplus in the core fund is \$1,725.6 million as of December 31, 2024. After adjusting for various items (described in detail on page 6), **the result is a 2.3% increase in the core annuity benefit.**

2. Change in Variable Annuities

The variable fund effective earnings rate was 20.0% resulting in a surplus of \$781.0 million. The surplus of \$781.0 million will **result in a 15.0% increase in all variable annuities in force.**

3. General Comments

Due to the asset smoothing method used in the core annuity fund, there are approximately \$3.4 billion in unrecognized asset losses as of December 31, 2024 which will be recognized over the next four years. Although only approximately half of this applies to the annuitant reserve, this may still decrease the probability of positive annuity adjustments in the future.

The present value of previously granted Core dividends is approximately \$15.4 billion prior to dividend adjustments and \$17.2 billion after the dividend adjustment. It is important that the value of dividend payments continue to build up in order to avoid the possibility of leveraged negative adjustments in the future. This buildup will happen naturally as long as investments in the core fund achieve results in excess of 5%.

4. Experience Study

An Experience Study was conducted in the Fall of 2024. There were no changes to the investment return or mortality assumptions used in this valuation.

5. Conclusion

In accordance with the Administrative Code, ETF 20.25, Section 40.27(2) and Section 40.28(2) of the Wisconsin Statutes:

- Core annuities will be increased by 2.3%; and
- Variable annuities will be increased by 15.0%.



SECTION B

OPERATION OF THE RETIREMENT SYSTEM

Operation of the Retirement System

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 real 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 in conjunction with the triennial experience study cycle. The second factor is that actual investment earnings are rarely equal to the assumed rate. When either mortality or investment earnings differ from expectations, the difference, positive or negative, is recorded in a supplemental reserve. The operation of the supplemental reserve is described on the next page.

Operation of the Retirement System

The Wisconsin Retirement System (WRS) maintains separate reserves for core and variable annuities.

The basic objective of the Core Fund is to earn an optimum long-term return while taking acceptable risk. The Core Fund has a significant amount of stocks, but also invests in other assets such as bonds, real estate and private equity. It is considered a fully diversified, balanced fund invested for the long-term needs of the Retirement System. The Variable Fund is an “all-stocks” fund. Participants in this fund are exposed to a higher degree of risk (because of possible losses from unfavorable stock market performance), in exchange for the possibility of greater returns over the life of the investment in the fund. Investment return in the Core Fund is smoothed via operation of the Market Recognition Account. Variable Fund returns are not smoothed.

Annuity adjustments for both Core and Variable annuities depend on whether or not returns credited to those funds exceed or fall short of 5%. Even if there are negative Core and/or Variable annuity adjustment rates, the Core portion of a participant’s annuity can never be decreased below the finalized initial amount. However, there is no limit to how much the Variable portion of a participant’s annuity can be reduced.

WRS’ practice with respect to annuity adjustments 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 are rounded to the nearest 1/10th of a percent and 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.

In calculating both the dividend for the Core annuities and the adjustment for Variable annuities, a 5% assumed investment return is used to develop liabilities. Returns in excess of 5% can produce an increase in a member’s annuity. Returns below 5% may result in a decrease. Please see page 29 for a full description of the statutory provisions.



SECTION C

CORE ANNUITIES

Core Annuity Division Development of Assets and Liabilities

	\$ Millions		Ratio
	Assets	Liabilities	
Ending Balance December 31, 2023	\$75,583.6	\$72,951.6	1.036
Closing Adjustments	1.4	0.0	
Variable Terminations	63.7	63.7	
2024 Core Annuity Average Adjustment: 3.6%	0.0	2,510.0	
Beginning Balance January 1, 2024	75,648.7	75,525.3	1.002
Increases			
Reserve Transfers	3,868.6	3,868.6	
Regular Interest (5%)	3,700.5	3,700.5	
Additional Earnings	1,600.3	0.0	
Addition for Experience Study	0.0	0.0	
Other	0.0	0.0	
Total Increases	9,169.4	7,569.1	
Decreases			
Annuities & Lump Sums	6,924.6	6,924.6	
Credit Re-establishments	0.0	0.0	
Subtraction for Experience Study	0.0	0.0	
Other	0.0	1.9	
Total Decreases	6,924.6	6,926.5	
Ending Balance December 31, 2024	\$77,893.5	\$76,167.9	1.023

The ending liability balance includes a data reserve of \$76.1 million and a liability for previously granted dividends of \$15,445 million (prior to any 2025 adjustments calculated in this December 31, 2024 valuation).

Core Fund Reserve Transfer Recommendation

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 \$3,829,946,148. Adjustments to prior transfers, related to estimated annuities for which final computations have now been made, totaled \$38,627,452. Reserve transfers are distributed as follows:

Group	Regular Transfer	Adjustment to Prior Transfer	Total Transfer
General	\$3,249,144,570	\$34,882,570	\$3,284,027,140
Protective with Social Security	426,895,692	2,311,462	429,207,154
Protective without Social Security	126,575,004	798,397	127,373,401
Executive & Elected	27,330,882	635,023	27,965,905
Totals	\$3,829,946,148	\$38,627,452	\$3,868,573,600

Accordingly, we recommend that \$3,868,573,600 be transferred to the Core Annuity Reserve. The results in this report assume that this transfer has been made.

Discussion of Dividend

The Core Annuity Fund balance, \$77,893.5 million, was higher than the actuarial present value of core annuities and reserves, \$76,167.9 million, by \$1,725.6 million, which resulted in an annuity adjustment of 2.3%. The following table reconciles the primary sources of the 2.3% adjustment:

	% of APV⁽¹⁾
1. SWIB net of fee investment return	8.55%
2. MRA adjustment	(1.05)%
3. Published effective earnings rate	7.50%
4. Adjustment to relate earnings to average core annuity fund balance	(0.35)%
5. Earnings rate based on average balance	7.15%
6. Expected dividend before adjustments: 1.0715/1.05-1	2.05%
7. Adjustment to relate average asset to ending liability	0.05%
8. Carryover from last year due to timing of dividend, accounting adjustments and rounding	0.16%
9. Experience study adjustment	0.00%
10. Experience and other effects	0.01%
11. Statutory adjustment to round to nearest one-tenth percent	0.03%
12. Computed average dividend rate: (6)+(7)+(8)+(9)+(10)+(11)	2.3%
13. Adjustment for members at or near the statutory floor	0.0%
14. Final computed dividend rate: (12)+(13), if greater than 0.5% (or less than -0.5%) of core annuities, otherwise 0%	2.3%

⁽¹⁾ Actuarial Present Value

See pages 30 and 31 for a description of items on this page.

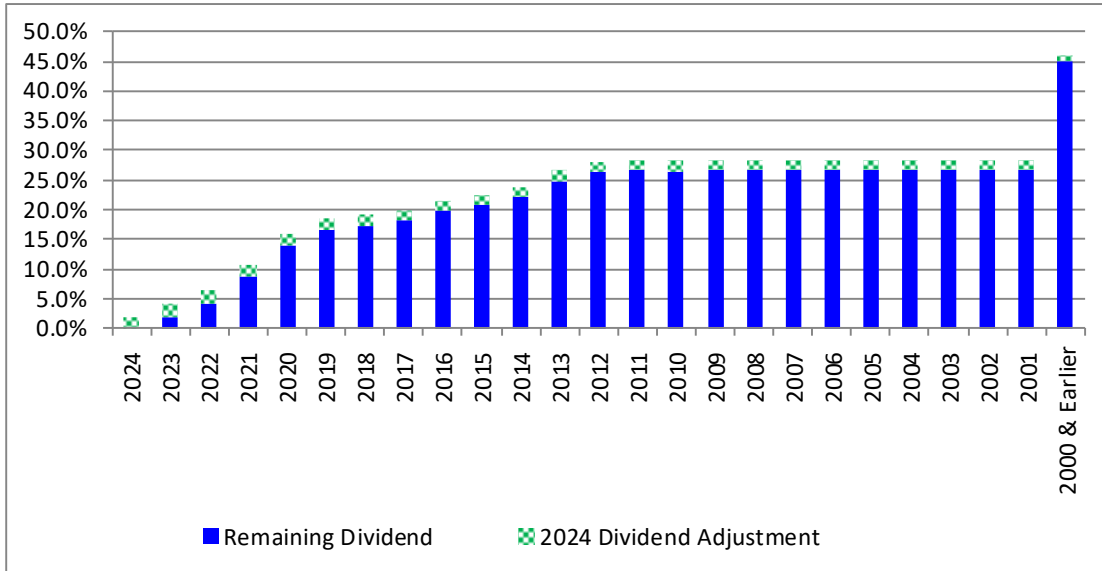
In accordance with the Administrative Code, ETF 20.25 and Section 40.27(2) Wisconsin Statutes (shown on page 29 of this report), the dividend adjustment is 2.3% effective April 1, 2025.



Discussion of Dividend

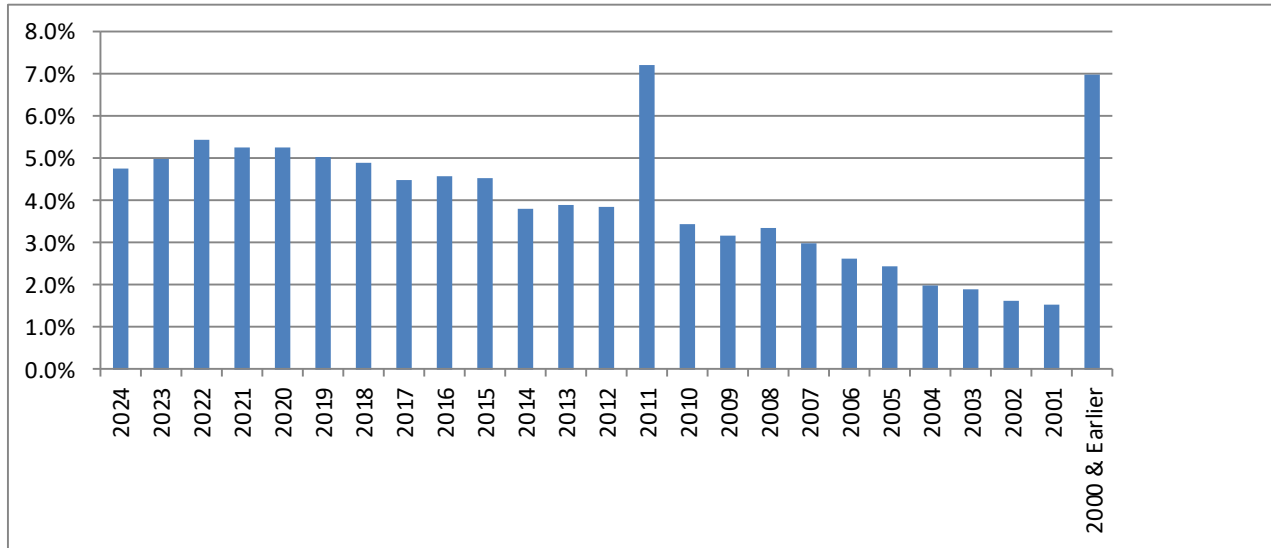
As shown on the prior page, the adjustment for core fund members is 2.3%.

Dividend Remaining (as a Percentage of Total Benefit) by Year of Retirement



After the 2025 dividend adjustment, members retired prior to 2000 continue to have the highest dividend remaining as a percentage of total benefit and also represent a shrinking portion of the liabilities. The chart below shows liabilities by year of retirement.

Liabilities (as a Percentage of Total) by Year of Retirement



Between 2008 and 2012, the liability for dividends decreased from about \$9.2 billion to \$3.0 billion. The value of previously granted dividends is approximately \$15.4 billion as of December 31, 2024 prior to the 2025 dividend adjustment and \$17.2 billion after the adjustment. In addition, there are currently about \$3.4 billion in unrecognized asset losses in the Market Recognition Account that will be recognized over the next four years, about half of which will be applied to the core annuitant reserve.

Transfers to Annuity Reserve to Finance Core Annuities Approved in 2024 Tabulated by Type of Annuity and Option

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
REGULAR RETIREMENT				
SL	Straight Life	1,429	\$ 29,566,707	\$ 411,647,918
SL	Straight Life (accelerated)	0	3,716,454	13,026,961
A60	Life Annuity with 60 payments guaranteed	639	15,172,956	211,187,148
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	2,100,577	7,224,035
A180	Life Annuity with 180 payments guaranteed	1,967	45,567,658	671,444,282
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	8,272,383	31,203,102
A180F	Life Annuity with 180 payments guaranteed (forced)	24	168,764	2,002,775
JOINT	Joint and 75% Survivor	714	20,785,313	319,520,599
JOINT	Joint and 75% Survivor (accelerated)	0	3,065,782	12,198,022
R25	Reduced 25% on First Death	294	9,204,068	134,995,880
R25	Reduced 25% on First Death (accelerated)	0	919,624	4,267,628
C100	100% Continued to Named Survivor	1,000	23,380,542	361,540,455
C100	100% Continued to Named Survivor (accelerated)	0	3,275,193	13,584,096
C180	100% Continued to Named Survivor with 180 payments guaranteed	3,252	91,149,431	1,462,476,328
C180	100% Continued to Named Survivor with 180 payments guaranteed (accelerated)	0	15,854,877	66,527,937
AC24	Annuity Certain with 24 Payments	2	104,625	236,738
AC60	Annuity Certain with 60 Payments	1	232,511	1,103,570
AC120	Annuity Certain with 120 Payments	0	193,858	1,581,140
AC180	Annuity Certain between 24 and 180 Payments	1	224,994	1,234,169
SLNSD	Straight Life - Named Survivor Deceased	1	4,432	54,991
	Total Regular	9,324	\$ 272,960,749	\$ 3,727,057,774
	Average Age at Retirement	61.2 Years		
DISABILITY RETIREMENT				
SL	Straight Life	39	\$ 1,164,904	\$ 15,047,709
A60	Life Annuity with 60 payments guaranteed	4	98,330	1,120,659
A180	Life Annuity with 180 payments guaranteed	37	1,352,825	18,972,985
JOINT	Joint and 75% Survivor	7	242,862	3,573,546
R25	Reduced 25% on First Death	5	186,263	2,860,288
C100	100% Continued to Named Survivor	21	796,777	13,322,429
C180	100% Continued to Named Survivor with 180 payments guaranteed	67	2,093,858	35,375,085
	Total Disability	180	\$ 5,935,819	\$ 90,272,701
	Average Age at Retirement	53.9 Years		
DEATH-IN-SERVICE BENEFITS				
SL	Straight Life	12	\$ 239,926	\$ 3,074,803
SL	Straight Life (accelerated)	0	49,920	374,221
A60	Life Annuity with 60 payments guaranteed	5	105,955	1,482,170
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	58,614	465,124
A180	Life Annuity with 180 payments guaranteed	29	452,651	6,909,787
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	34,160	285,086
AC60	Annuity Certain with 60 Payments	0	5,610	24,482
	Total Death-in-Service	46	\$ 946,836	\$ 12,615,673
	Average Age at Retirement	57.9 Years		
GRAND TOTAL		9,550	\$ 279,843,404	\$ 3,829,946,148

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 Tabulated by Type of Annuity and Option

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
REGULAR RETIREMENT				
SL	Straight Life	32,862	\$ 819,836,276	\$ 8,501,805,582
SL	Straight Life (accelerated)	0	18,093,587	44,434,493
A60	Life Annuity with 60 payments guaranteed	21,242	544,114,244	5,347,315,504
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	9,884,790	23,946,721
A120	Life Annuity with 120 payments guaranteed	6	56,277	123,182
A180	Life Annuity with 180 payments guaranteed	46,363	1,129,895,142	11,840,650,394
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	38,628,188	106,255,069
A180F	Life Annuity with 180 payments guaranteed (forced)	349	3,867,106	31,289,857
JOINT	Joint and 75% Survivor	24,774	799,076,946	8,740,696,548
JOINT	Joint and 75% Survivor (accelerated)	0	15,517,193	42,707,319
R25	Reduced 25% on First Death	13,531	471,566,004	4,558,317,636
R25	Reduced 25% on First Death (accelerated)	0	6,444,497	16,902,040
C100	100% Continued to Named Survivor	23,547	638,494,102	7,482,700,562
C100	100% Continued to Named Survivor (accelerated)	0	16,651,282	47,241,473
C180	100% Continued to Named Survivor with 180 payments guaranteed	69,753	2,132,576,533	26,499,450,353
C180	100% Continued to Named Survivor with 180 payments guaranteed (accelerated)	0	78,917,675	232,190,809
LOL	Life with Optional Length Guaranteed	19	543,067	3,367,491
LOLF	Life with Optional Length Guaranteed (Forced)	2	16,563	67,041
AC24	Annuity Certain with 24 Payments	4	559,589	489,546
AC60	Annuity Certain with 60 Payments	9	928,473	2,565,936
AC120	Annuity Certain with 120 Payments	10	1,642,549	8,198,610
AC180	Annuity Certain between 24 and 180 Payments	5	2,074,406	10,277,873
C50	50% Continued to One Beneficiary	12	98,755	345,294
C75WSS	75% Continued to One Beneficiary and Social Security Integrated	9	200,220	698,393
A60WSS	Life with 60 Months Guaranteed and Social Security Integrated	3	6,104	9,230
A180WSS	Life with 180 Months Guaranteed and Social Security Integrated	3	55,630	117,495
PF6213	Police and Firemen s.62.13 *	6	214,734	661,431
SLNSD	Straight Life - Named Survivor Deceased	887	29,240,719	264,642,335
Total Regular		233,396	\$6,759,200,651	\$73,807,468,217

(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.



Core Annuities Being Paid Tabulated by Type of Annuity and Option

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
DISABILITY RETIREMENT				
SL	Straight Life ⁽¹⁾	1,949	\$ 52,036,481	\$ 395,300,644
A60	Life Annuity with 60 payments guaranteed	336	10,543,174	93,656,588
A180	Life Annuity with 180 payments guaranteed	1,019	30,999,745	312,417,120
JOINT	Joint and 75% Survivor	455	12,979,521	139,629,712
R25	Reduced 25% on First Death	172	4,970,250	52,618,697
C100	100% Continued to Named Survivor	1,015	23,191,726	250,879,823
C180	100% Continued to Named Survivor with 180 payments guaranteed	2,377	62,980,068	793,065,853
DWSMC	Disability with Spouse or Minor/Dependent Child	1	21,351	111,981
PF6213	Police and Firemen s.62.13 *	3	65,768	350,174
SLNSD	Straight Life - Named Survivor Deceased	8	293,802	2,959,598
Total Disability		7,335	\$ 198,081,886	\$ 2,040,990,190
DEATH-IN-SERVICE BENEFITS				
SL	Straight Life	277	\$ 4,954,176	\$ 54,473,570
SL	Straight Life (accelerated)	0	180,415	792,454
A60	Life Annuity with 60 payments guaranteed	133	2,878,239	30,063,109
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	123,631	598,303
A180	Life Annuity with 180 payments guaranteed	1,071	19,794,265	229,142,082
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	648,027	3,374,988
C180	100% Continued to Named Survivor with 180 payments guaranteed	2	13,347	175,596
LOL	Life with Optional Length Guaranteed	6	149,410	552,731
AC60	Annuity Certain with 60 Payments	0	5,610	23,381
AC120	Annuity Certain with 120 Payments	0	28,258	174,010
A60WSS	Life with 60 Months Guaranteed and Social Security Integrated	5	4,176	15,127
PF6213	Police and Firemen s.62.13 *	1	33,063	73,754
Total Death-in-Service		1,495	\$ 28,812,617	\$ 319,459,105
GRAND TOTAL		242,226	\$ 6,986,095,154	\$ 76,167,917,512

⁽¹⁾ Includes 1,153 members formerly covered under the LTDI program.

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.

*Additional Information for Police and Firemen 62.13 Annuities

	<u>Regular Retirement</u>			<u>Disability Retirement</u>			<u>Death-in-Service Retirement</u>		
	Original	Dividends	Total	Original	Dividends	Total	Original	Dividends	Total
Benefit Amount	\$ 47,754	\$ 166,980	\$ 214,734	\$ 12,025	\$ 53,743	\$ 65,768	\$ 6,193	\$ 26,870	\$ 33,063
Present Value	141,985	519,446	661,431	64,029	286,145	350,174	13,815	59,939	73,754



Core Annuities Being Paid 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	8	\$ 42,498	8	\$ 42,498
20-24	0	0	4	60,588	8	77,697	12	138,285
25-29	0	0	6	61,860	15	151,325	21	213,185
30-34	0	0	14	294,502	26	229,146	40	523,648
35-39	1	5,469	45	1,207,988	36	273,341	82	1,486,798
40-44	6	78,926	120	3,400,543	44	429,322	170	3,908,791
45-49	43	685,640	251	7,085,764	49	678,464	343	8,449,868
50-54	1,602	60,254,789	510	14,760,975	76	1,171,798	2,188	76,187,562
55-59	12,826	435,333,443	856	24,703,710	124	2,337,648	13,806	462,374,801
60-64	27,743	800,220,180	1,403	37,544,806	198	3,394,373	29,344	841,159,359
65-69	44,668	1,209,231,539	1,025	29,330,899	243	4,982,529	45,936	1,243,544,967
70-74	51,244	1,515,346,500	1,098	30,431,202	239	5,761,220	52,581	1,551,538,922
75-79	44,348	1,323,466,370	890	23,835,965	183	4,506,208	45,421	1,351,808,543
80-84	26,543	747,676,407	578	13,770,219	108	2,302,301	27,229	763,748,927
85-89	14,621	399,156,153	367	8,284,668	66	1,322,703	15,054	408,763,524
90-94	6,519	185,725,968	137	2,743,449	23	315,317	6,679	188,784,734
95 & Up	1,978	51,716,155	31	564,748	18	290,338	2,027	52,571,241
Certain Only*	1,254	30,303,112	0	0	31	546,389	1,285	30,849,501
Totals	233,396	\$6,759,200,651	7,335	\$198,081,886	1,495	\$28,812,617	242,226	\$6,986,095,154

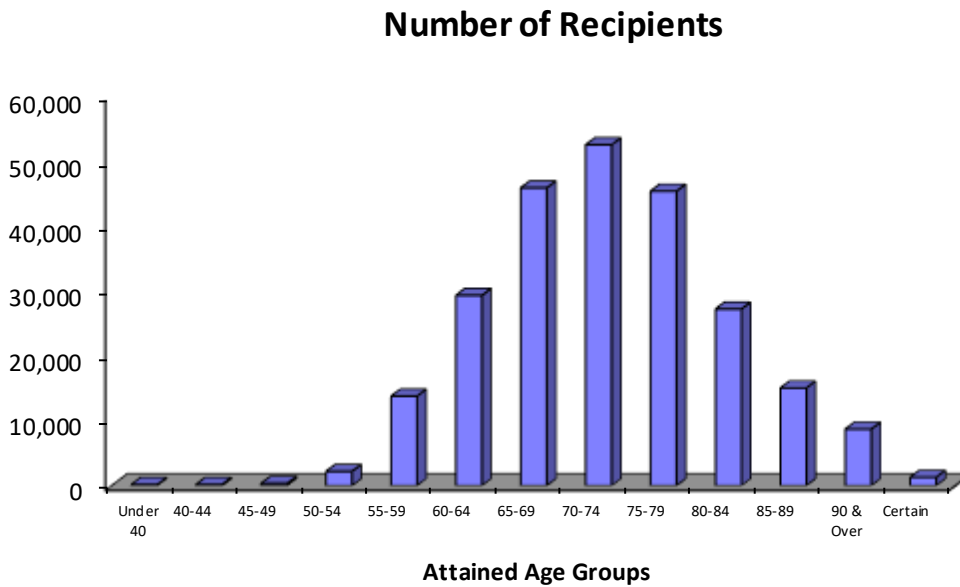
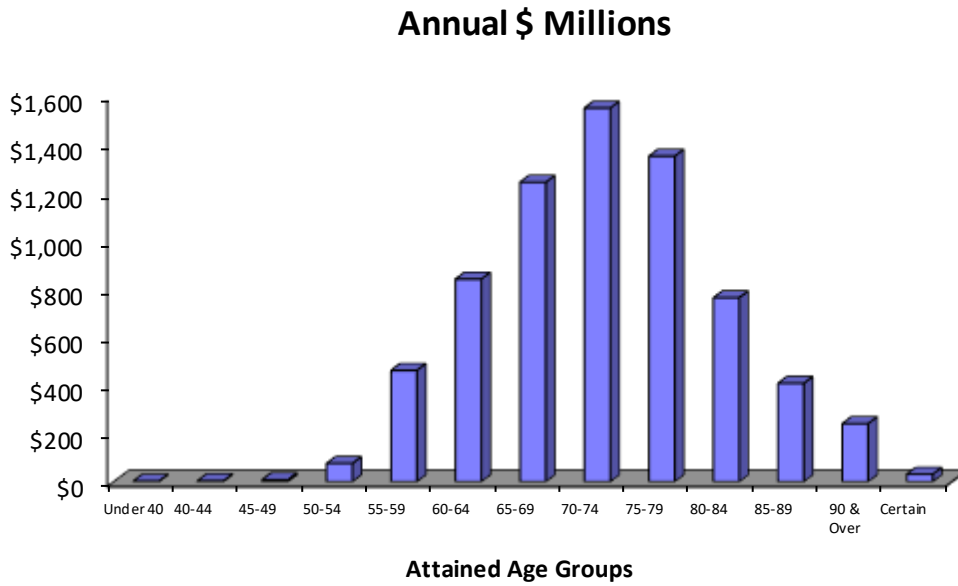
Averages in Years

Age at retirement	60.0	50.7	52.2	59.7
Attained age	72.1	65.8	67.2	72.0

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

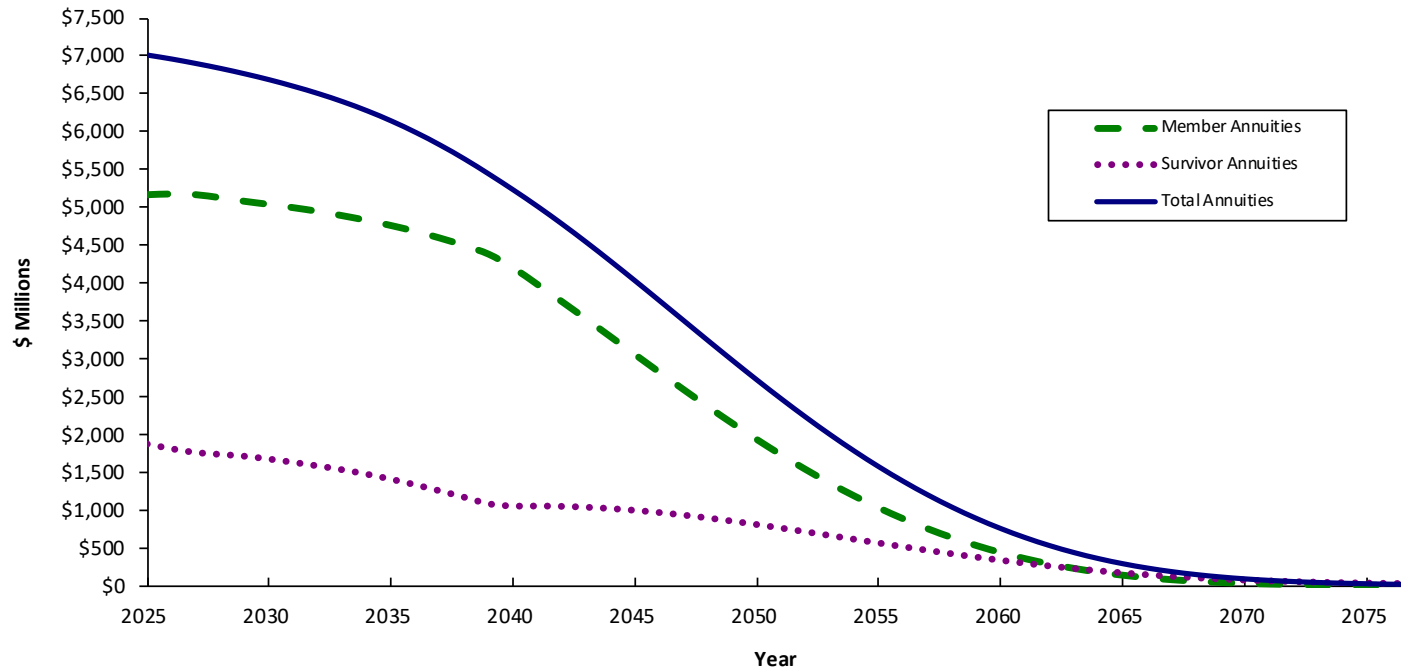


Core Annuities Being Paid by Attained Age*



* 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 Present and Future Expected Dividends



	\$ Billions	
	<u>With Expected Dividends</u>	<u>Without Expected Dividends</u>
Total Future Benefit Payments	\$158.9	\$126.6
Present Assets	77.9	77.9
Future Investment Return Needed	81.0	48.7

Based upon the assumptions used in the valuation, future dividends are expected to be approximately 1.7% per year. Of course actual dividends will be based upon actual future investment return and the operation of the Market Recognition Account.

SECTION D

VARIABLE ANNUITIES

Variable Annuity Division Development of Assets and Liabilities

	\$ Millions		Ratio
	Assets	Liabilities	
Ending Balance December 31, 2023	\$5,089.2	\$4,404.8	1.155
Closing Adjustments	(3.5)	0.0	
Variable Terminations	(63.7)	(63.7)	
2024 Adjustment: 15%	0.0	637.1	
Beginning Balance January 1, 2024	5,022.0	4,978.2	1.009
Increases			
Reserve Transfers	291.3	291.3	
Regular Interest (5%)	243.6	243.6	
Additional Earnings	718.1	0.0	
Addition for Experience Study	0.0	0.0	
Other	0.0	0.0	
Total Increases	1,253.0	534.9	
Decreases			
Annuities & Lump Sums	504.5	504.5	
Credit Re-establishments	0.0	0.0	
Subtraction for Experience Study	0.0	0.0	
Other	0.0	19.1	
Total Decreases	504.5	523.6	
Ending Balance December 31, 2024	\$5,770.5	\$4,989.5	1.157

Variable Fund Reserve Transfer Recommendation

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 \$287,339,465. Adjustments to prior transfers, relating to estimated annuities for which final computations have now been made, totaled \$3,947,052. Reserve transfers were distributed as follows:

Group	Regular Transfer	Adjustment to Prior Transfer	Total Transfer
General	\$255,488,971	\$2,244,882	\$257,733,853
Protective with Social Security	22,849,195	1,413,793	24,262,988
Protective without Social Security	5,912,309	349,722	6,262,031
Executive & Elected	3,088,990	(61,345)	3,027,645
Totals	\$287,339,465	\$3,947,052	\$291,286,517

Accordingly, we recommend that \$291,286,517 be transferred to the Variable Annuity Reserve. The results in this report assume that this transfer has been made.

Discussion of Variable Annuity Change

Variable Annuity Reserves, \$5,770.5 million, were more than the actuarial present value of variable annuities, \$4,989.5 million, by \$781.0 million as of December 31, 2024 or 15.7% of the Actuarial Present Value (APV) of variable annuity payments. In accordance with Section 40.28(2) of the Wisconsin Statutes (see page 29 of this report), variable annuities will be increased by 15.0% effective April 1, 2025. The following table reconciles the primary sources of the 15.0% adjustment:

	% of APV⁽¹⁾
1. SWIB net of fee investment return	18.7%
2. Adjustment to published effective rate	1.3%
3. Published effective earnings rate	20.0%
4. Adjustment to relate earnings to average variable annuity fund balance	(0.4)%
5. Earnings rate based on average balance	19.6%
6. Expected change before adjustments: 1.196/1.05-1	13.9%
7. Adjustment to relate average asset to ending liability	0.5%
8. Carryover from last year due to timing of distribution, accounting adjustments and truncation	0.9%
9. Experience study adjustment	0.0%
10. Experience and other effects	0.4%
11. Statutory adjustment: (truncate to whole percent)	(0.7)%
12. Variable annuity change: (6)+(7)+(8)+(9)+(10)+(11)	15.0%

⁽¹⁾ Actuarial Present Value.

Please see pages 30 and 31 for a description of the items on this page.

In accordance with the Administrative Code, ETF 20.25 and Section 40.28(2) Wisconsin Statutes (shown on page 29 of this report), variable annuities will be increased by 15.0% effective April 1, 2025.



Transfers to Annuity Reserve to Finance Variable Annuities Approved in 2024 Tabulated by Type of Annuity and Option

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
REGULAR RETIREMENT				
SL	Straight Life	229	\$ 2,331,951	\$ 33,270,090
SL	Straight Life (accelerated)	0	305,165	1,156,373
A60	Life Annuity with 60 payments guaranteed	94	998,816	14,213,791
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	235,785	795,251
A180	Life Annuity with 180 payments guaranteed	352	3,422,425	51,439,231
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	831,483	3,316,523
JOINT	Joint and 75% Survivor	130	1,411,017	22,295,780
JOINT	Joint and 75% Survivor (accelerated)	0	299,588	1,332,604
R25	Reduced 25% on First Death	59	769,626	11,674,993
R25	Reduced 25% on First Death (accelerated)	0	124,428	590,691
C100	100% Continued to Named Survivor	179	1,725,991	27,459,730
C100	100% Continued to Named Survivor (accelerated)	0	350,901	1,400,535
C180	100% Continued to Named Survivor with 180 payments guaranteed	596	6,504,165	105,826,391
C180	100% Continued to Named Survivor with 180 payments guaranteed (accelerated)	0	1,470,525	6,314,154
AC24	Annuity Certain with 24 Payments	0	2,385	4,357
AC60	Annuity Certain with 60 Payments	0	27,553	129,468
AC120	Annuity Certain with 120 Payments	0	19,879	161,196
AC180	Annuity Certain between 24 and 180 Payments	0	6,755	74,636
	Total Regular	1,639	\$ 20,838,438	\$ 281,455,794
	Average Age at Retirement	59.6 Years		
DISABILITY RETIREMENT				
SL	Straight Life	9	\$ 72,432	\$ 870,540
A60	Life Annuity with 60 payments guaranteed	2	14,799	182,321
A180	Life Annuity with 180 payments guaranteed	3	38,845	537,915
JOINT	Joint and 75% Survivor	2	15,655	221,003
R25	Reduced 25% on First Death	3	36,507	543,816
C100	100% Continued to Named Survivor	1	8,863	161,661
C180	100% Continued to Named Survivor with 180 payments guaranteed	10	113,343	1,831,449
	Total Disability	30	\$ 300,444	\$ 4,348,705
	Average Age at Retirement	54.6 Years		
DEATH-IN-SERVICE BENEFITS				
SL	Straight Life	3	\$ 42,374	\$ 585,469
A180	Life Annuity with 180 payments guaranteed	5	64,647	949,497
	Total Death-in-Service	8	\$ 107,021	\$ 1,534,966
	Average Age at Retirement	63.6 Years		
GRAND TOTAL		1,677	\$ 21,245,903	\$ 287,339,465

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 Tabulated by Type of Annuity and Option

Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
REGULAR RETIREMENT				
SL	Straight Life	5,420	\$ 57,079,533	\$ 534,849,249
SL	Straight Life (accelerated)	0	1,156,341	2,850,063
A60	Life Annuity with 60 payments guaranteed	3,426	37,382,381	324,258,403
A60	Life Annuity with 60 payments guaranteed (accelerated)	0	619,434	1,558,866
A120	Life Annuity with 120 payments guaranteed	2	5,239	9,888
A180	Life Annuity with 180 payments guaranteed	8,426	84,321,000	802,158,847
A180	Life Annuity with 180 payments guaranteed (accelerated)	0	2,917,783	8,715,253
A180F	Life Annuity with 180 payments guaranteed (forced)	31	233,815	1,641,564
JOINT	Joint and 75% Survivor	4,966	68,987,952	655,886,949
JOINT	Joint and 75% Survivor (accelerated)	0	1,198,133	3,357,296
R25	Reduced 25% on First Death	3,032	53,576,159	415,722,219
R25	Reduced 25% on First Death (accelerated)	0	627,670	1,969,147
C100	100% Continued to Named Survivor	4,215	49,654,719	505,987,570
C100	100% Continued to Named Survivor (accelerated)	0	1,241,031	3,500,632
C180	100% Continued to Named Survivor with 180 payments guaranteed	12,565	143,161,308	1,578,789,201
C180	100% Continued to Named Survivor with 180 payments guaranteed (accelerated)	0	4,912,761	15,252,340
LOL	Life with Optional Length Guaranteed	2	58,952	100,483
AC24	Annuity Certain with 24 Payments	1	25,556	25,791
AC60	Annuity Certain with 60 Payments	2	63,590	192,242
AC120	Annuity Certain with 120 Payments	2	155,455	759,612
AC180	Annuity Certain between 24 and 180 Payments	0	212,442	536,138
C50	50% Continued to One Beneficiary	5	69,849	192,890
C75WSS	75% Continued to One Beneficiary and Social Security Integrated	6	58,048	212,736
A60WSS	Life with 60 Months Guaranteed and Social Security Integrated	0	0	0
A180WSS	Life with 180 Months Guaranteed and Social Security Integrated	0	1,868	3,345
SLNSD	Straight Life - Named Survivor Deceased	151	1,927,079	16,032,208
	Total Regular	42,252	\$509,648,098	\$4,874,562,932

(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 Tabulated by Type of Annuity and Option

Numeric Code	Alpha Code	Type of Benefit	Number	Annual Amount	Present Value
DISABILITY RETIREMENT					
1	SL	Straight Life	134	\$ 929,728	\$ 8,843,614
3	A60	Life Annuity with 60 payments guaranteed	67	573,934	4,812,068
7	A180	Life Annuity with 180 payments guaranteed	237	1,369,262	13,582,222
10	JOINT	Joint and 75% Survivor	98	945,999	9,183,411
12	R25	Reduced 25% on First Death	43	356,092	3,296,359
14	C100	100% Continued to Named Survivor	182	1,294,880	11,283,773
16	C180	100% Continued to Named Survivor with 180 payments guaranteed	483	3,274,750	36,598,689
		Total Disability	1,244	\$ 8,744,645	\$ 87,600,136
DEATH-IN-SERVICE BENEFITS					
1	SL	Straight Life	75	\$ 680,190	\$ 6,644,256
2	SL	Straight Life (accelerated)	0	6,069	19,716
3	A60	Life Annuity with 60 payments guaranteed	26	206,620	1,769,950
7	A180	Life Annuity with 180 payments guaranteed	255	1,724,788	18,364,392
8	A180	Life Annuity with 180 payments guaranteed (accelerated)	0	60,454	332,643
22	AC120	Annuity Certain with 120 Payments	0	40,938	251,836
28	A60WSS	Life with 60 Months Guaranteed and Social Security Integrated	1	896	2,261
		Total Death-in-Service	357	\$ 2,719,955	\$ 27,385,054
GRAND TOTAL			43,853	\$ 521,112,698	\$ 4,989,548,122

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 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	\$ 3,279	3	\$ 3,279
20-24	0	0	3	8,182	1	853	4	9,035
25-29	0	0	3	5,937	5	9,082	8	15,019
30-34	0	0	4	12,221	3	4,216	7	16,437
35-39	0	0	9	24,620	8	7,897	17	32,517
40-44	0	0	16	72,634	7	9,196	23	81,830
45-49	15	129,460	26	153,628	12	74,564	53	357,652
50-54	320	3,692,165	73	478,912	22	111,408	415	4,282,485
55-59	2,612	33,003,773	134	900,342	28	258,143	2,774	34,162,258
60-64	4,785	44,494,637	182	1,027,972	54	331,449	5,021	45,854,058
65-69	7,024	51,142,720	205	920,664	44	233,939	7,273	52,297,323
70-74	8,704	70,838,344	223	1,056,869	61	369,128	8,988	72,264,341
75-79	8,566	109,253,104	157	1,494,453	42	427,748	8,765	111,175,305
80-84	4,978	91,832,100	94	1,230,493	28	341,950	5,100	93,404,543
85-89	2,703	61,751,377	78	1,015,684	17	306,527	2,798	63,073,588
90-94	1,395	31,408,378	30	268,168	5	103,007	1,430	31,779,553
95 & Up	501	10,484,041	7	73,866	8	74,433	516	10,632,340
Certain Only*	649	1,617,999	0	0	9	53,136	658	1,671,135
Totals	42,252	\$509,648,098	1,244	\$8,744,645	357	\$2,719,955	43,853	\$521,112,698

Averages in Years

Age at retirement	59.2	52.7	51.7	59.0
Attained age	72.0	67.1	67.2	71.9

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



SECTION E

COMPARATIVE STATEMENTS

Core Annuities Comparative Statement 1990 Through 2024

Valuation Date	Number	\$ Millions				Change in		
		Annual	Fund	Actuarial	Ratio	Annuities		CPI*
		Annuities	Balance	Reserve		Average	Maximum	
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)%	(2.1)%	0.1 %
2009	150,671	3,449.3	36,655.8	37,072.7	0.989	(1.1)%	(1.3)%	2.7 %
2010	155,775	3,532.4	37,798.4	38,148.5	0.991	(0.9)%	(1.2)%	1.5 %
2011	167,453	3,842.0	40,411.5	42,078.3	0.960	(4.0)%	(7.0)%	3.0 %
2012	173,655	3,806.3	40,591.6	41,852.4	0.970	(3.0)%	(9.6)%	1.7 %
2013	180,056	3,800.7	44,273.2	42,300.5	1.047	4.7 %		1.5 %
2014	185,605	4,102.3	47,135.7	45,790.7	1.029	2.9 %		0.8 %
2015	191,795	4,364.9	49,147.0	48,897.5	1.005	0.5 %		0.7 %
2016	197,647	4,523.1	51,972.0	50,941.4	1.020	2.0 %		2.1 %
2017	203,202	4,747.0	54,900.0	53,590.0	1.024	2.4 %		2.1 %
2018	211,126	5,040.9	56,493.8	56,629.3	0.998	0.0 %		1.9 %
2019	216,944	5,183.7	59,138.4	58,157.0	1.017	1.7 %		2.3 %
2020	222,723	5,423.2	63,805.8	60,691.1	1.051	5.1 %		1.4 %
2021	228,161	5,842.6	69,910.7	65,085.4	1.074	7.4 %		7.0 %
2022	233,804	6,409.7	72,108.4	70,987.2	1.016	1.6%		6.5 %
2023	238,111	6,639.1	75,583.6	72,951.6	1.036	3.6%		3.4 %
2024	242,226	6,986.1	77,893.5	76,167.9	1.023	2.3%		2.9 %
35-Year Average						3.2 %		2.7 %
20-Year Average						1.6 %		2.6 %
10-Year Average						2.6 %		3.0 %
5-Year Average						4.0 %		4.2 %

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

** Including 10.6% Act 11 transfer.

In cases where there is a negative dividend, a maximum decrease is calculated to account for annuitants that are already at the floor and whose dividend cannot be reduced.



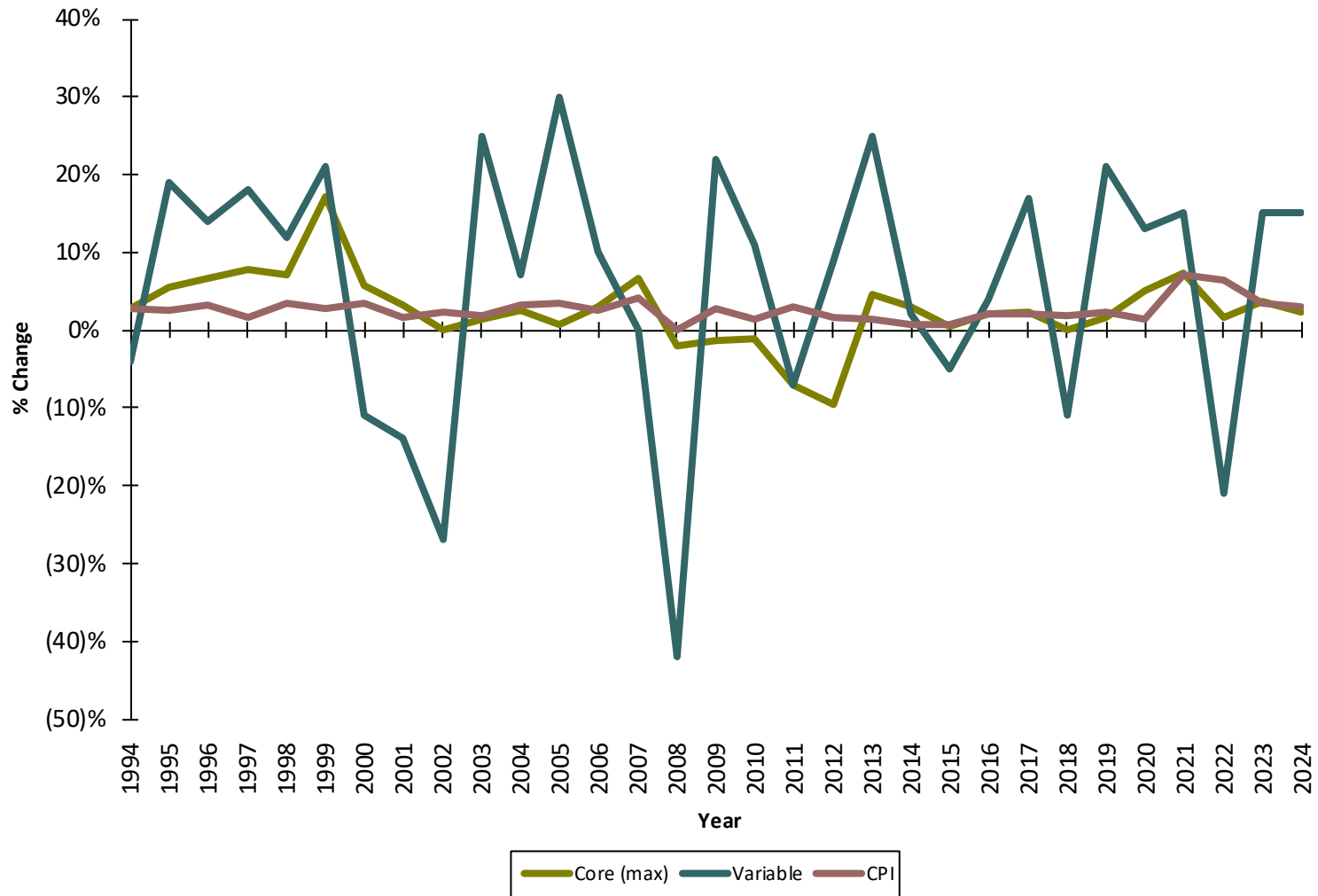
Variable Annuities Comparative Statement 1990 Through 2024

Valuation Date	Number	\$ Millions				Change in	
		Annual Annuities	Fund Balance	Actuarial Reserve	Ratio	Annuities	CPI*
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 %
2010	35,866	288.4	3,340.6	3,005.4	1.111	11.0 %	1.5 %
2011	38,949	330.3	3,197.9	3,462.9	0.924	(7.0)%	3.0 %
2012	39,873	304.6	3,463.9	3,169.6	1.093	9.0 %	1.7 %
2013	40,317	324.5	4,187.3	3,347.0	1.251	25.0 %	1.5 %
2014	39,420	386.5	3,995.4	3,917.1	1.020	2.0 %	0.8 %
2015	40,152	387.8	3,704.8	3,910.1	0.947	(5.0)%	0.7 %
2016	40,647	363.6	3,792.0	3,645.1	1.040	4.0 %	2.1 %
2017	40,877	369.9	4,324.9	3,682.1	1.175	17.0 %	2.1 %
2018	41,187	425.8	3,738.6	4,207.6	0.891	(10.0)%	1.9 %
2019	41,777	379.7	4,519.4	3,728.6	1.212	21.0 %	2.3 %
2020	41,753	449.7	4,954.0	4,383.0	1.130	13.0 %	1.4 %
2021	42,251	502.6	5,618.0	4,866.0	1.155	15.0 %	7.0 %
2022	43,007	578.5	4,403.0	5,586.5	0.788	(21.0)%	6.5 %
2023	43,560	457.8	5,089.2	4,404.8	1.155	15.0 %	3.4 %
2024	43,853	521.1	5,770.5	4,989.5	1.157	15.0 %	2.9 %
35-Year Average						3.7 %	2.7 %
20-Year Average						3.4 %	2.6 %
10-Year Average						5.5 %	3.0 %
5-Year Average						6.3 %	4.2 %

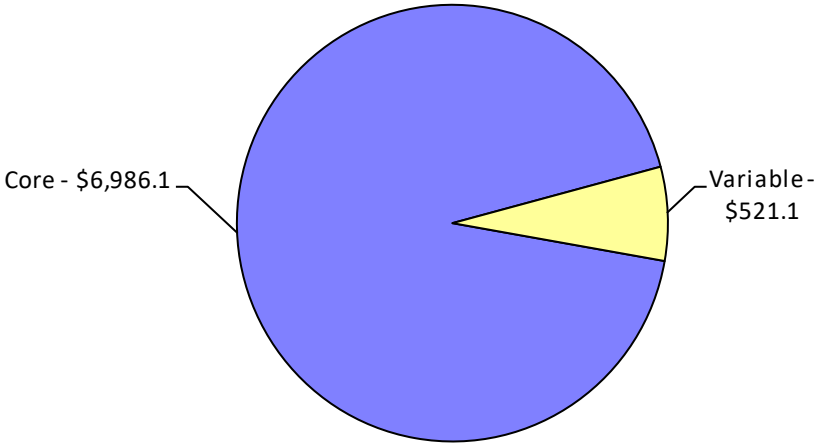
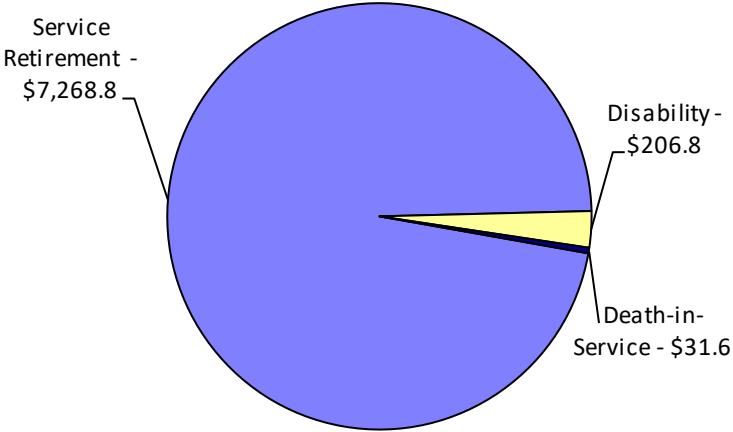
* CPI percentage increase determined by ratio of current year CPI-U67 December index over prior year December index.



History of % Changes in Annuities and CPI



Annual Annuities Being Paid by Type \$ Millions



Annuities Being Paid Tabulated by Year of Retirement⁽¹⁾ (\$1,000s annually)

Year Ret'd ⁽²⁾	Core Annuities				Variable Annuities				Avg. Total Annuity
	No.	Initial	Increases	Total	No.	Initial	Increases	Total	
2024	9,090	\$ 267,349	\$ 0	\$ 267,349	1,621	\$ 20,171	\$ 0	\$ 20,171	\$35,315
2023	9,509	276,568	5,430	281,998	1,591	16,363	2,447	18,810	35,203
2022	10,951	296,699	13,319	310,018	1,813	22,117	(2,024)	20,093	33,107
2021	10,567	279,731	26,249	305,980	1,648	16,571	755	17,326	33,667
2020	10,627	263,348	42,464	305,812	1,514	12,718	2,297	15,015	32,768
2019	10,198	245,368	48,803	294,171	1,504	9,699	4,157	13,856	33,015
2018	9,998	240,807	50,077	290,884	1,456	10,795	3,084	13,879	33,019
2017	9,592	220,950	49,027	269,977	1,430	7,667	3,866	11,533	32,140
2016	9,855	224,705	55,436	280,141	1,484	7,761	4,380	12,141	31,922
2015	9,943	224,862	58,969	283,831	1,600	8,430	4,098	12,528	32,375
2014	8,939	190,199	53,906	244,105	1,614	8,234	4,248	12,482	31,280
2013	9,261	191,089	63,295	254,384	1,596	6,504	5,821	12,325	31,448
2012	9,075	189,997	68,584	258,581	1,612	5,585	5,949	11,534	32,607
2011	14,542	363,103	131,675	494,778	2,928	13,403	12,340	25,743	39,583
2010	7,871	180,242	65,140	245,382	1,515	5,144	5,823	10,967	35,763
2009	7,176	167,008	60,516	227,524	1,276	3,540	5,668	9,208	36,120
2008	7,737	182,772	66,244	249,016	1,508	8,959	4,563	13,522	34,636
2007	7,481	166,809	60,365	227,174	1,638	9,816	5,001	14,817	32,530
2006	7,138	150,027	54,364	204,391	1,528	10,043	6,624	16,667	31,100
2005	7,048	145,821	52,847	198,668	1,484	9,995	7,093	17,088	30,726
2004	6,212	121,636	44,141	165,777	1,385	9,631	7,985	17,616	29,694
2003	6,075	119,910	43,522	163,432	1,263	7,935	10,206	18,141	30,052
2002	5,564	106,576	38,705	145,281	1,093	10,537	7,060	17,597	29,469
2001	5,580	106,605	38,623	145,228	1,137	16,405	7,141	23,546	30,525
2000	5,316	101,058	36,705	137,763	939	18,655	5,177	23,832	30,692
1999	4,301	70,886	38,397	109,283	746	11,462	6,253	17,715	29,672
1998	3,995	62,608	40,175	102,783	740	10,271	7,510	17,781	30,491
1997	3,084	47,449	35,854	83,303	576	6,658	6,939	13,597	31,739
1996	2,809	42,554	37,434	79,988	594	5,937	7,871	13,808	33,837
1995	2,322	34,322	33,656	67,978	485	4,011	7,115	11,126	34,574
1994	1,951	26,819	28,599	55,418	447	3,620	6,013	9,633	34,112
1993	1,647	21,979	24,896	46,875	374	2,516	4,900	7,416	33,513
1992	1,280	15,385	19,243	34,628	286	1,855	3,896	5,751	32,174
1991	998	11,603	15,868	27,471	247	1,261	3,351	4,612	33,007
1990	1,537	19,443	28,522	47,965	396	2,402	5,158	7,560	37,265
1989	950	11,998	19,614	31,612	239	1,255	3,325	4,580	38,791
1988	553	5,002	9,376	14,378	148	564	1,783	2,347	30,916
1987	391	3,049	6,140	9,189	102	322	941	1,263	27,724
1986	319	2,630	6,161	8,791	96	335	1,080	1,415	33,461
1985	241	1,866	4,790	6,656	62	137	592	729	31,563
Prior	503	1,960	6,172	8,132	138	212	1,131	1,343	9,466
Total	242,226	\$5,402,792	\$1,583,303	\$6,986,095	43,853	\$329,496	\$191,617	\$521,113	\$30,993

⁽¹⁾ Includes 1,153 members formerly covered under the LTDI program based on year of termination.

⁽²⁾ The number of retirements during 2024 may not match the number of new retirees on page 8 of this report due to a reporting lag.

As of December 31, 2024, the median annual Core benefit is approximately \$24,100, the median annual Variable benefit is approximately \$7,300 and the median combined benefit is \$26,400.



Liabilities as of December 31, 2024 Tabulated by Year of Retirement⁽¹⁾ (\$1,000s)

Year Ret'd ⁽²⁾	Core Liabilities				Variable Liabilities				Total
	No.	Initial	Increases	Total	No.	Initial	Increases	Total	Liabilities
2024	9,090	\$ 3,642,024	\$ 0	\$ 3,642,024	1,621	\$ 274,235	\$ 0	\$ 274,235	\$ 3,916,259
2023	9,509	3,722,960	73,067	3,796,027	1,591	217,605	32,536	250,141	4,046,168
2022	10,951	3,964,163	177,909	4,142,072	1,813	294,814	(26,982)	267,832	4,409,904
2021	10,567	3,672,801	344,578	4,017,379	1,648	216,202	9,803	226,005	4,243,384
2020	10,627	3,437,451	554,235	3,991,686	1,514	162,584	29,362	191,946	4,183,632
2019	10,198	3,186,930	633,732	3,820,662	1,504	123,402	52,888	176,290	3,996,952
2018	9,998	3,090,116	642,628	3,732,744	1,456	130,976	37,416	168,392	3,901,136
2017	9,592	2,796,466	624,246	3,420,712	1,430	96,142	48,478	144,620	3,565,332
2016	9,855	2,783,341	692,417	3,475,758	1,484	93,519	52,784	146,303	3,622,061
2015	9,943	2,733,642	721,695	3,455,337	1,600	99,587	48,420	148,007	3,603,344
2014	8,939	2,250,927	643,327	2,894,254	1,614	94,339	48,671	143,010	3,037,264
2013	9,261	2,214,083	739,947	2,954,030	1,596	73,443	65,730	139,173	3,093,203
2012	9,075	2,163,802	786,324	2,950,126	1,612	62,185	66,240	128,425	3,078,551
2011	14,542	4,024,931	1,463,535	5,488,466	2,928	140,800	129,641	270,441	5,758,907
2010	7,871	1,919,072	696,609	2,615,681	1,515	53,054	60,056	113,110	2,728,791
2009	7,176	1,759,932	640,493	2,400,425	1,276	35,744	57,233	92,977	2,493,402
2008	7,737	1,868,514	678,737	2,547,251	1,508	87,011	44,302	131,313	2,678,564
2007	7,481	1,680,018	609,474	2,289,492	1,638	95,980	48,893	144,873	2,434,365
2006	7,138	1,468,490	533,664	2,002,154	1,528	95,095	62,722	157,817	2,159,971
2005	7,048	1,377,264	500,016	1,877,280	1,484	91,771	65,124	156,895	2,034,175
2004	6,212	1,104,928	401,234	1,506,162	1,385	86,451	71,674	158,125	1,664,287
2003	6,075	1,053,301	382,849	1,436,150	1,263	69,851	89,846	159,697	1,595,847
2002	5,564	901,880	327,652	1,229,532	1,093	90,641	60,739	151,380	1,380,912
2001	5,580	851,523	308,719	1,160,242	1,137	128,819	56,077	184,896	1,345,138
2000	5,316	769,452	279,346	1,048,798	939	140,058	38,871	178,929	1,227,727
1999	4,301	514,700	277,761	792,461	746	81,520	44,472	125,992	918,453
1998	3,995	429,171	275,337	704,508	740	67,336	49,235	116,571	821,079
1997	3,084	306,969	231,561	538,530	576	43,136	44,964	88,100	626,630
1996	2,809	260,089	228,349	488,438	594	34,560	45,813	80,373	568,811
1995	2,322	197,746	193,959	391,705	485	22,384	39,705	62,089	453,794
1994	1,951	145,014	154,754	299,768	447	19,451	32,315	51,766	351,534
1993	1,647	112,274	127,519	239,793	374	12,192	23,727	35,919	275,712
1992	1,280	74,658	93,564	168,222	286	8,629	18,118	26,747	194,969
1991	998	53,185	72,899	126,084	247	5,562	14,785	20,347	146,431
1990	1,537	86,234	126,690	212,924	396	10,392	22,320	32,712	245,636
1989	950	49,878	81,948	131,826	239	4,965	13,152	18,117	149,943
1988	553	20,102	37,825	57,927	148	2,156	6,806	8,962	66,889
1987	391	11,715	23,633	35,348	102	1,203	3,513	4,716	40,064
1986	319	9,300	21,904	31,204	96	1,183	3,812	4,995	36,199
1985	241	6,725	17,379	24,104	62	518	2,239	2,757	26,861
Prior	503	7,277	23,355	30,632	138	725	3,828	4,553	35,185
Total	242,226	\$60,723,048	\$15,444,870	\$76,167,918	43,853	\$3,370,220	\$1,619,328	\$4,989,548	\$81,157,466

⁽¹⁾ Includes 1,153 members formerly covered under the LTDI program based on year of termination.

⁽²⁾ The number of retirements during 2024 may not match the number of new retirees on page 8 of this report due to reporting lag.



Comparison of Actual vs. Expected Deaths Among Retired Lives (Normal Retirement Only on a Benefit-Weighted basis) During 2024

Age	Male Deaths (Benefit-Weighted)			Female Deaths (Benefit-Weighted)			Total Deaths (Benefit-Weighted)								
	Actual	Expected	A/E Ratio	Actual	Expected	A/E Ratio	Actual	Expected	A/E Ratio						
30-34															
35-39						N/A			N/A						
40-44			N/A	\$	6	N/A	\$	6	N/A						
45-49		\$	51		42	N/A		93	N/A						
50-54			8,293	\$	7,431	2,142	\$	7,431	10,435	N/A					
55-59	\$	71,537	63,933	112%	41,259	52,736	78%	112,796	116,669	97%					
60-64		161,630	165,582	98%	148,248	160,771	92%	309,878	326,353	95%					
65-69		333,930	392,937	85%	321,170	361,803	89%	655,100	754,740	87%					
70-74		847,124	837,549	101%	696,021	772,841	90%	1,543,145	1,610,390	96%					
75-79		1,485,388	1,445,272	103%	1,042,676	1,180,097	88%	2,528,064	2,625,369	96%					
80-84		1,779,250	1,731,749	103%	1,165,687	1,310,881	89%	2,944,937	3,042,630	97%					
85-89		1,809,791	1,817,784	100%	1,552,453	1,556,670	100%	3,362,244	3,374,454	100%					
90-94		1,341,593	1,444,874	93%	1,512,005	1,486,515	102%	2,853,598	2,931,389	97%					
95-99		490,490	498,997	98%	696,640	715,677	97%	1,187,130	1,214,674	98%					
100 & Up		54,155	50,560	107%	165,729	162,152	102%	219,884	212,712	103%					
Totals	\$	8,374,888	\$	8,457,581	99%	\$	7,349,319	\$	7,762,333	95%	\$	15,724,207	\$	16,219,914	97%
Average															
Ages		82.1	82.2		84.1	83.7		83.2	83.0						

Since the mortality assumption is developed on a benefit-weighted basis, we have shown the mortality experience for the current year on a benefit-weighted basis. The exhibit above shows the amount of benefits actually released and the amount of benefits expected to be released due to mortality in the current year. The A/E Ratio is the ratio of the actual to expected benefits released.



SECTION F

APPENDIX

Actuarial Assumptions Used in the Retired Life Actuarial Valuation

The interest rate used in the valuation was 5% per year, compounded yearly, as provided in Section 40.02 of the Wisconsin Statutes. The liability for current dividends was calculated assuming those dividends would always be paid. However, continued payment of those dividends is not guaranteed. Unfavorable investment performance or other factors could cause all or a portion of those dividends to be rolled back. If that happened, liabilities would be lower than reported in this valuation. The mortality table used in the valuation was the 2020 WRS Experience Table, as adopted by the Board in connection with the 2018-2020 Experience Study. This table includes margin for future improvements in mortality by incorporating 100% of the MP-2021 fully generational mortality projection scale. There were no changes to the mortality table in connection with the 2021-2023 Experience Study.

Single Life Retirement Values 2020 WRS Experience Table – with 5% Interest

Sample Attained Ages in 2024	Present Value of \$1 Monthly for Life		Future Life Expectancy (years)		Probability of Death Next Year	
	Males	Females	Males	Females	Males	Females
40	\$216.85	\$218.46	47.3	49.3	0.066%	0.044%
45	208.94	210.99	42.0	44.1	0.084%	0.055%
50	198.90	201.58	36.8	38.9	0.123%	0.086%
55	186.50	190.17	31.7	33.7	0.240%	0.220%
60	171.72	176.80	26.8	28.8	0.413%	0.344%
65	154.31	160.64	22.1	24.0	0.674%	0.494%
70	134.15	141.35	17.6	19.4	1.120%	0.781%
75	111.64	119.35	13.5	15.0	2.031%	1.478%
80	88.06	95.93	9.8	11.1	3.868%	2.965%
85	65.40	72.92	6.8	7.8	7.478%	5.868%

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

Sample Attained Ages in 2024	Present Value of \$1 Monthly for Life		Future Life Expectancy (years)		Probability of Death Next Year	
	Males	Females	Males	Females	Males	Females
40	\$176.01	\$179.43	32.4	35.2	1.014%	0.887%
45	165.47	169.01	28.5	31.2	1.262%	1.124%
50	154.10	158.90	24.8	27.4	1.727%	1.568%
55	142.54	149.53	21.4	24.0	2.278%	1.983%
60	130.85	139.52	18.4	20.8	2.894%	2.344%
65	118.71	127.21	15.6	17.7	3.468%	2.497%
70	105.20	111.92	12.9	14.5	4.085%	2.903%
75	89.57	94.50	10.3	11.3	5.193%	4.050%
80	72.67	76.56	7.8	8.5	7.390%	6.320%
85	56.45	60.13	5.8	6.3	11.176%	10.166%



Statutory Provisions – Post-Retirement Adjustments

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, except as otherwise provided by the department by rule, 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 and such deficit would result in a 0.5 percent or greater decrease in the amount of annuities in force, except as otherwise provided by the department by rule.

(d) Notwithstanding s 40.03 (2) (i), (7) (d), and (8) (d), the department may promulgate rules under this subsection without the approval of the teachers retirement board and the Wisconsin retirement board.”

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 Core and Variable Annuity Adjustments Shown on Pages 6 and 16

- 1. SWIB Net of Fee Investment Return**
State of Wisconsin Investment Board net earnings rate on the Core/Variable Fund.
- 2. MRA Adjustment (Core)/Adjustment to Published Effective Rate (Variable)**
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.
- 3. Published Effective 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 Average Core/Variable 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 Core/Variable Adjustment 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 core/variable adjustment 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 adjustment 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 core or variable annuity adjustments are made effective April 1 of each year. This adjustment takes into account the fact that the prior year core/variable adjustment 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 Core and Variable Annuity Adjustments Shown on Pages 6 and 16

9. Experience Study Adjustment

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 core/variable adjustment. Although the mortality table now includes a projection for expected future improvements in mortality, each valuation may phase into the full table incrementally over the three year experience study cycle, depending on the size of the adjustment. By increasing reserves gradually each year, instead of all at once every three years, the effect on core and variable annuity adjustments will also be more gradual.

10. 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.

11. Statutory Adjustment to Round/Truncate

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

12. Computed Average Core/Variable Annuity Adjustment

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 11.

13. 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 may not have any remaining dividends and hence are not subject to a further negative adjustment.

14. Final Maximum Computed Core Annuity Adjustment

When there is a negative core annuity adjustment for the Core Fund, this will affect people differently based upon year of retirement. In years when there is a negative core annuity adjustment, this will be the largest negative core annuity adjustment that will occur in the Core Fund. If greater in absolute value than 0.5% of core annuities, Item 12 plus Item 13, otherwise 0%.

Dividend Risk Measure

In accordance with the Funding Policy, a Dividend Risk Measure (DRM) is calculated annually.

The Dividend Risk Measure is defined as the dividend liability divided by the total retiree core assets in the MRA. For 2024, dividend liability (after the dividend adjustment in April) is approximately \$17.2 billion. As of December 31, 2024, the total retiree assets are approximately \$77.9 billion, resulting in a DRM of 22.1%. This means that the retiree assets would need to decrease by 22.1% to deplete the existing dividend liability. The higher the DRM ratio, the less likely it is for the dividend liability to be depleted. Shown below is the historical DRM measure based on the Market Recognition account as well as the DRM measure on a market value basis.

