



STATE OF WISCONSIN
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CORRESPONDENCE MEMORANDUM

DATE: November 14, 2012
TO: Employee Trust Funds Board
FROM: Robert C. Willett, CPA
Chief Trust Finance Officer
SUBJECT: Duty Disability Actuarial Valuation

Staff recommends that the Board accept the January 1, 2012, actuarial valuation of the Duty Disability program.

At its June 2012 meeting, the Employee Trust Funds (ETF) Board accepted the preliminary valuation report for the Duty Disability program. That report was considered preliminary because the active member data needed for the valuation was not yet available. Deloitte has now finalized the valuation.

Significant improvements in funding were realized during 2011. The unfunded actuarial liability decreased from \$86.0 million to \$27.8 million, while the funded ratio increased from 82.8% to 94.2%. It is anticipated the program will be fully funded by 2014.

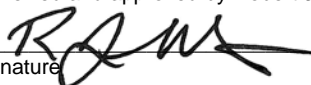
Significant factors in the improved funding were as follows: lower than assumed wage inflation, contributions in excess of the actuarially-required contribution, and implementation of the actuarial assumption changes approved by the ETF Board for the Wisconsin Retirement System in March 2011. Offsetting these gains was an investment loss as the five year smoothing of the 2008 investment loss continues to be recognized.

Employer contributions are based on a tiered premium schedule that recognizes the number of claims experienced by the employer, as well as claims as a percent of covered payroll. Deloitte has recommended not changing the tiered premium schedule for 2013. If funding progress continues as expected, the Board will be able to consider a lower premium schedule for 2014. We anticipate providing the Board with recommendations for lower premiums at your June 2013 board meeting.

Staff will be at the Board meeting to answer any questions.

Attach: Duty Disability Program, January 1, 2012 Actuarial Valuation

Board	Mtg Date	Item #
ETF	12.6.12	4C

Reviewed and approved by Robert J. Marchant, Deputy Secretary

Signature _____ Date 11/21/12

State of Wisconsin
Duty Disability Program

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Executive Summary

The purpose of this report is to provide the actuarial value of assets and actuarial accrued liability of the Wisconsin Duty Disability Program (“the Plan”) as of the valuation date as well as the changes in these values over the past year. This information is important to provide an understanding of the sufficiency of the contribution policy to meet the future obligations of the Plan. This report also provides a version of the information necessary for the Department of Employee Trust Funds’ financial statement disclosures under the Statement of Governmental Accounting Standards No. 43 (GASB 43).

Prior to 2011, the review of the sufficiency of the contribution policy and the GASB 43 disclosure information were contained in separate reports. Prior to this date, the actuarial reviews of the contribution policy were based on the liability for participants receiving benefits, the liability for participants who had become disabled but not yet started receiving benefits, and a reserve for conservatism.

Since 2011, the actuarial valuation has been based on the standards required under GASB 43, which necessitate that the liabilities attributable to the current active population be accrued during their working career. Therefore, a liability is determined for active participants based on expected future disablements in addition to current disabled participants and survivors.

As of January 1, 2012, the Plan is 94% funded on an actuarial basis. The current contribution policy is projected to result in the Plan becoming fully funded in 2013. It is our recommendation that no change be made to the contribution policy at this time; however, it would be appropriate for the Board to consider future changes in the contribution policy as the level of funding improves.

A brief summary of the results of the current and prior GASB 43 valuations are shown below (dollar values in millions):

	<u>2011</u>	<u>2012</u>
Actuarial Accrued Liability		
Actives	\$ 129	\$ 118
Disableds and Survivors	<u>370</u>	<u>359</u>
Total	\$ 499	\$ 477
Actuarial Value of Assets	<u>\$ (413)</u>	<u>\$ (449)</u>
Unfunded Actuarial Accrued Liability	\$ 86	\$ 28
Funded ratio	83%	94%
Annual Required Contribution (GASB 43)	\$ 50	\$ 48

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November 2012

ACTUARIAL VALUATION CERTIFICATION

This report presents the results of the actuarial valuation of the State of Wisconsin Duty Disability Program (“the Plan”) as of January 1, 2012.

The State of Wisconsin provided the participant data, financial information and plan descriptions used in this valuation. The actuary has checked the data for reasonableness, but has not independently audited the data. The actuary has no reason to believe the data is not complete and accurate, and knows of no further information that is essential to the preparation of the actuarial valuation.

Actuarial information under Government Accounting Standards Board Statement No. 43 (GASB 43) is for purposes of fulfilling plan financial accounting requirements. The results have been made on a basis consistent with GASB 43 and are based upon assumptions prescribed by the State of Wisconsin.

In our opinion, all costs, liabilities, rates of interest, and other factors under the Plan have been determined on the basis of actuarial assumptions and methods that are each reasonable (or consistent with authoritative guidance), taking into account the experience of the Plan and future expectations and that, when combined, represent our best estimate of anticipated experience under the Plan.

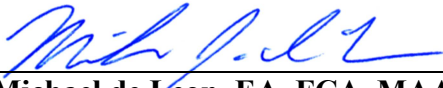
Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operations of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law.

Our scope did not include analyzing the potential range of such future measurements, and we did not perform that analysis.

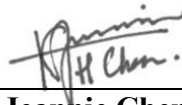
The undersigned with actuarial credentials collectively meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Any tax advice included in this written communication was not intended or written to be used, and it cannot be used by the taxpayer, for the purpose of avoiding any penalties that may be imposed by any governmental taxing authority or agency.

Deloitte Consulting LLP



**Michael de Leon, EA, FCA, MAAA
Senior Manager**



**Jeannie Chen, ASA, MAAA
Manager**

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Section I - Background and Comments

The Governmental Accounting Standards Board released the Statement of Governmental Accounting Standards No. 43 (“GASB 43”) and No. 45 (“GASB 45”) in 2004. These statements require trusts (GASB 43) and employers (GASB 45) to accrue the cost of Postretirement Welfare Plans while employees who will receive these benefits are providing services to the employer. The State of Wisconsin was a Phase 1 entity for implementation of GASB 43 and was therefore required to adopt GASB 43 for the financial period beginning January 1, 2006. The purpose of this report is to provide the information required under GASB 43 to be disclosed on the Plan’s financial statements for the financial period ending December 31, 2012. This report also provides the information necessary to provide an understanding of the sufficiency of the contribution policy to meet the future obligations of the Plan.

Plan Overview

The State of Wisconsin provides duty disability benefits for protective occupation participants at no cost to the employees. There were no changes to the plan provisions since the previous valuation. The substantive plan benefits are described in Section XI of this report.

Assumptions

Where applicable, the assumptions used in this actuarial valuation were based on the assumptions used for the WRS actuarial valuation as of December 31, 2010. Some additional or differing assumptions were required to handle issues unique to the plan and estimate the potential offsets to the Duty Disability benefits. The actuarial methods and assumptions are described in Section X of this report.

Since the January 1, 2011 actuarial valuation, there have been several changes in assumptions. The discount rate was changed to 7.20% (previously 7.80%). The payroll growth, Social Security pay increases and Social Security Taxable Wage Base increases were changed to 3.20% (previously 4.10%). The wage inflation component of salary increase was changed to 3.50% (previously 4.10%). The Social Security cost-of-living adjustment was changed to 2.50% (previously 3.00%). The Annual Benefit Increases before age 60 (salary-indexed increases) was changed to 3.50% (previously 4.10%). The Annual Benefit Increases after age 60 (WRS dividend-indexed increases) was changed to 2.10% (previously 2.67%). Disability, withdrawal, and retirement were changed from being assumed to occur at the beginning of the year to be spread evenly throughout the year. These changes combined to decrease the Unfunded Actuarial Accrued Liability (UAAL) by \$13.1 million.

Actuarial Experience

During 2011, the market value of assets experienced an estimated investment return of 0.8%. Compared to the investment return assumption of 7.8%, there was a market value

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loss of about 7.0% or \$28.8 million. The Actuarial Value of Assets uses a method to smooth investment gains and losses over a five-year period. On an actuarial value basis, there was an asset loss of \$19.3 million from the partial recognition of market value gains and losses from 2008 to 2012. The effective rate of return on investments on an actuarial value basis was 3.3%.

There was also a liability gain of \$31.4 million during 2011 primarily due to lower than expected increases in salary and disability benefits combined with a lower than expected number of disabled participants.

Funding Policy

The program is funded entirely by employer contributions, which vary by experience. The contribution policy does not meet the GASB 43 requirements for determining an Annual Required Contribution (ARC), which requires using a consistent amortization policy for the unfunded actuarial accrued liability; therefore, an amortization policy for the purpose of determining the ARC under GASB 43 was created. The initial amortization period was selected to approximate the actual contribution policy as of January 1, 2006. Subsequent gains and losses were amortized over 15 years.

The actual contribution policy resulted in employer contributions that were \$2.0 million more than the ARC. Additional details about the policy used to determine contributions under this plan can be found in Section XI.

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Section II – Summary of Actuarial Valuation Results

Presented below are the actuarial valuation results for the State of Wisconsin Duty Disability Program. Dollar amounts are in thousands.

	<u>January 1, 2011</u>	<u>January 1, 2012</u>
a. Actuarial Accrued Liability		
- Actives	\$ 128,702	\$ 117,525
- Disableds and Survivors	<u>370,332</u>	<u>359,454</u>
- Total	\$ 499,034	\$ 476,979
b. Actuarial Value of Assets	\$ 412,988	\$ 449,177
c. Unfunded Actuarial Accrued Liability (UAAL): (a) – (b)	\$ 86,046	\$ 27,802
d. Funded ratio: (b / a)	82.8%	94.2%
e. UAAL as a percentage of covered payroll: (c / h.2)	6.6%	2.2%
f. Annual Required Contribution (ARC)		
- Normal Cost	\$ 12,907	\$ 12,542
- Amortization Payment	33,813	32,586
- Interest to End of Year	<u>3,644</u>	<u>3,249</u>
- Total	\$ 50,364	\$ 48,377
g. Discount rate	7.8%	7.2%
h. Census data used		
1. Count of Covered Participants		
- Actives	22,716	22,188
- Disableds and Survivors*	<u>957</u>	<u>964</u>
- Total	23,673	23,152
2. Covered payroll	\$ 1,297,690	\$ 1,285,854
3. Expected Benefit Payments	\$ 29,410	\$ 27,940

* Includes 57 and 59 disabled participants with zero benefits in 2011 and 2012, respectively.

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Section III – Market Value of Assets and Summary of Transactions

A summary of the transactions during 2011 of the assets for the State of Wisconsin Duty Disability Program is shown below. Dollar amounts are in thousands.

1. Market value of assets as of January 1, 2011		\$ 401,162
2. Income		
Employer Contributions	\$ 52,335	
Investment Income	<u>3,885</u>	
Total Income		\$ 56,220
3. Disbursements		
Benefit Payments	\$ 29,963	
Expenses	<u>504</u>	
Total Disbursements		\$ 30,467
4. Net Change in Assets: (2) – (3)		\$ 25,753
5. Market Value of Assets as of December 31, 2011 (1) + (4)		\$ 426,915
6. Estimated Rate of Investment Return		0.82%

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Section IV – Actuarial Value of Assets

The following table develops the Actuarial Value of Assets as of January 1, 2012. Dollar amounts are in thousands.

1. Market value of assets as of January 1, 2011	\$ 401,162
2. Contributions*	52,335
3. Benefit payments*	(29,963)
4. Assumed earnings at 7.80% on (1), (2), and (3)	<u>32,163</u>
5. Expected assets at January 1, 2011: (1) + (2) + (3) + (4)	\$ 455,697
6. Actual assets at January 1, 2012	\$ 426,915
7. Investment gain (loss)	
a. Gain (loss) for 2011: (6) – (5)	\$ (28,782)
b. Gain (loss) for 2010	15,529
c. Gain (loss) for 2009	38,767
d. Gain (loss) for 2008	(120,301)
8. Gain (loss) not yet reflected in actuarial value of assets	
a. 80% of 2011 gain (loss)	\$ (23,026)
b. 60% of 2010 gain (loss)	9,317
c. 40% of 2009 gain (loss)	15,507
d. 20% of 2008 gain (loss)	<u>(24,060)</u>
e. Total gain (loss) not yet reflected in actuarial value of assets:	(22,262)
9. Preliminary actuarial value of plan assets as of January 1, 2012: (6) - (8e)	\$ 449,177
10. Maximum and minimum values:	
a. 80% of market	\$ 341,532
b. 120% of market	512,298
11. Actuarial value of assets as of January 1, 2012: (item (9) but not less than (10.a) or greater than (10.b))	\$ 449,177
12. Estimated rate of return on actuarial value of assets	3.26%

* Contributions and Benefit payments are assumed to be paid evenly throughout the year.

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Section V – Development of Unfunded Actuarial Accrued Liability

Presented below is the development of the Unfunded Actuarial Accrued Liability as of January 1, 2012, which is the excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. The Actuarial Accrued Liability is the portion of the Present Value of Future Benefits (PVFB) accrued to date. The Present Value of Future Normal Costs represents the portion of the PVFB expected to accrue in the future, based on the current population. Dollar amounts are in thousands.

a.	Present Value of Future Benefits	
	Actives	\$ 197,313
	Disableds and Survivors	<u>359,454</u>
	Total	\$ 556,767
b.	Present Value of Future Normal Costs	\$ 79,788
c.	Actuarial Accrued Liability: (a) – (b)	\$ 476,979
d.	Actuarial Value of Assets	\$ 449,177
e.	Unfunded Accrued Actuarial Liability as of January 1, 2012: (c) – (d)	\$ 27,802

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Section VI – Actuarial Experience

Actuarial gains and losses arise from experience different from that assumed, changes in actuarial assumptions and methods, and changes in plan provisions. The following summarizes the changes in the Unfunded Actuarial Accrued Liability (UAAL) due to these sources from January 1, 2011 to January 1, 2012. Dollar amounts are in thousands.

a.	UAAL as of January 1, 2011	\$ 86,046
b.	Normal Cost for 2011	12,907
c.	Annual Required Contribution for 2011	(50,364)
d.	Interest on UAAL and Normal Cost at 7.8%	<u>7,718</u>
e.	Expected UAAL as of January 1, 2012	\$ 56,307
f.	2011 (Gain)/Loss	<u>(28,505)</u>
g.	UAAL as of January 1, 2012	\$ 27,802

Sources of 2011 (Gain)/Loss*

	Demographic (gain)/loss	\$ (30,641)
	(Gain)/Loss due to assumption changes	(13,121)
	(Gain)/Loss due to (over)/underpayment of ARC	(1,972)
	(Gain)/loss due to asset returns	<u>17,229</u>
	Total	\$ (28,505)

* See Section I for additional details regarding the sources of the 2011 gains and losses.

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Section VII – Determination of Annual Required Contribution

GASB 43 requires the disclosure of the Annual Required Contribution. The following is a brief explanation of the components of the Annual Required Contribution:

- **Normal Cost:** The portion of the total present value of benefits attributed to employee service during the current fiscal year.

- **Amortization Payments:** closed, 8-year level percent of pay amortization of the initial unfunded actuarial accrued liability, and closed 15-year level percent of pay amortizations of any future experience gains and losses, assumption changes, and contribution deficiencies or excess contributions (contributions less than or greater than the Annual Required Contribution, respectively). The total amortization of the UAAL, determined by the preceding method, will not be less than the amount necessary to create an equivalent single amortization period of 30 years (consistent with GASB 43 requirements for disclosure).

Presented below is an illustration of the expected Annual Required Contribution for the fiscal year ending December 31, 2012. Dollar amounts are in thousands.

**Annual Required Contribution
for Fiscal Year Ending
December 31, 2012**

a.	Normal Cost	\$ 12,542
b.	Amortization Payment	32,586
c.	Interest to End of Year	<u>3,249</u>
d.	Annual Required Contribution	\$ 48,377

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Section VII – Determination of Annual Required Contribution (continued)

**Schedule of Amortization Payments
(000's)**

	<u>Date</u> <u>Established</u>	<u>Initial</u> <u>Amount</u>	<u>Initial</u> <u>Years</u>	<u>Remaining</u> <u>Years</u>	<u>1/1/2012</u> <u>Balance</u>	<u>Amortization</u>
Initial UAAL	1/1/2006	\$ 204,397	8	2	\$ 71,594	\$ 36,478
2006 (Gain)/Loss	1/1/2007	(5,925)	15	10	(5,207)	(614)
2007 (Gain)/Loss	1/1/2008	(6,047)	15	11	(5,524)	(603)
2008 (Gain)/Loss	1/1/2009	15,364	15	12	15,807	1,610
2009 (Gain)/Loss	1/1/2010	6,256	15	13	6,034	577
2010 (Gain)/Loss	1/1/2011	(27,205)	15	14	(26,709)	(2,415)
2011 (Gain)/Loss	1/1/2012	(28,505)	15	15	<u>(28,505)</u>	<u>(2,447)</u>
Total					\$ 27,490	\$ 32,586

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Section VIII - Disclosure Information Pursuant to Statement No. 43 of the Governmental Accounting Standards Board

Governmental Accounting Standards Board (“GASB”) Statement No. 43 requires disclosure of notes to the financial statements and supplementary information that includes information shown in two schedules, the Schedule of Funding Progress and the Schedule of Employer Contributions. Table A shows the Schedule of Funding Progress. Table B shows the Schedule of Employer Contributions.

**Table A
GASB No. 43 Schedule of Funding Progress
(000’s)**

(a)	(b)	(c)	(d)	(e)	(f)	
<u>Actuarial Valuation Date</u>	<u>Actuarial Value of Assets</u>	<u>Actuarial Accrued Liability (AAL)</u>	Unfunded Actuarial Accrued Liability (UAAL) <u>(b - a)</u>	Funded Ratio <u>(a / b)</u>	Covered <u>Payroll</u>	UAAL as a Percentage of Covered Payroll <u>(c) / (e)</u>
January 1, 2006	\$ 222,692	\$ 427,089	\$ 204,397	52.1%	\$ 1,144,529	17.9%
January 1, 2008	311,778	471,668	159,890	66.1	1,257,666	12.7
January 1, 2010	373,048	512,785	139,737	72.7	1,370,978	10.2
January 1, 2011	412,988	499,034	86,046	82.8	1,297,690	6.6
January 1, 2012	449,177	476,979	27,802	94.2	1,285,854	2.2

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Section VIII - Disclosure Information Pursuant to Statement No. 43 of the Governmental Accounting Standards Board (continued)

Table B
GASB No. 43 Schedule of Employer Contributions
(000's)

<u>Year Ended</u>	(a) <u>Annual Required Contribution</u>	(b) <u>Employer Contribution</u>	(c) <u>Percentage Contributed (b / a)</u>
December 31, 2006	\$ 44,397	\$ 44,566	100.4%
December 31, 2007	46,174	47,765	103.4
December 31, 2008	47,684	50,574	106.1
December 31, 2009	50,193	51,556	102.7
December 31, 2010	53,181	51,861	97.5
December 31, 2011	50,364	52,335	103.9
December 31, 2012	48,377	TBD	TBD

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Section IX – 10-Year Projection of Employer Benefit Payments

Presented below are the projected employer benefit payments for the next ten years starting in 2012 based on the current plan design. These projected benefit payments are based on the actuarial assumptions shown in Section X. If actual experience differs from that expected by the actuarial assumptions, the actual employer benefit payments will vary from those presented below. Dollar amounts are in thousands.

<u>Year</u>	<u>Total</u>
2013	\$ 29,633
2014	31,314
2015	32,981
2016	34,622
2017	36,228
2018	37,816
2019	39,350
2020	40,795
2021	42,149
2022	43,446

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Section X - Summary of Actuarial Methods and Assumptions

Actuarial Cost Method

The Actuarial Cost Method used in this valuation to determine the Actuarial Accrued Liability and the Annual Required Contribution (ARC) was the Projected Unit Credit Method with service prorated to date of disability.

Under this method, the total present value of benefits is determined by projecting the benefit to be paid after the disability date and discounting those amounts to the valuation date. The Normal Cost is computed by dividing the total present value of benefits by the participant's total service (actual plus expected service) to date of disability.

The Actuarial Accrued Liability under this method represents the total present value of benefits multiplied by the ratio of the participant's actual service to date to expected service at decrement.

The Actuarial Accrued Liability for participants currently receiving payments is calculated as the actuarial present value of future benefits expected to be paid. No normal cost is payable for these participants.

This actuarial cost method is one of the GASB 43 approved methods.

Actuarial Value of Assets

The Actuarial Value of Assets is determined using a Five-Year Smoothed Market Value with a 20% Corridor. Under this method, the Actuarial Value of Assets equals the Market Value less a decreasing fraction (4/5, 3/5, 2/5, etc.) of the prior five years of investment gains and losses compared to the assumed rate of investment return (currently 7.20%). Furthermore, the resulting Actuarial Value must fall within 80% to 120% of Market Value.

Amortization of Unfunded Accrued Actuarial Liability

The Unfunded Accrued Actuarial Liability (UAAL) is the excess of the Accrued Actuarial Liability over the Actuarial Value of Assets. This excess will be amortized in the following ways:

- 8-year, level percent of pay, closed amortization period for the initial UAAL;
- 15-year, level percent of pay, closed amortization periods for future gains and losses; and

The total amortization of the UAAL, determined by the preceding method, will not be less than the amount necessary to create an equivalent single amortization period of 30 years (consistent with GASB 43 requirements for disclosure).

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Section X - Summary of Actuarial Methods and Assumptions (continued)

Valuation Date: January 1, 2012

Census Date: January 1, 2012

Discount Rate: 7.20% (net of expenses)

Salary Increases: Salary increase assumptions for individual active members are shown for sample services below. Part of the assumption for each age is for merit and longevity increase, and another 3.5% recognizes wage inflation, including price inflation, productivity increases, and other macroeconomic forces.

% Merit & Longevity Increase Next Year

<u>Service</u>	<u>Protective with Social Security</u>	<u>Protective w/o Social Security</u>
1	5.0%	5.0%
2	5.0	5.0
3	4.4	4.3
4	3.7	3.6
5	3.1	2.9
10	1.4	1.4
15	1.1	0.7
20	0.9	0.6
25	0.8	0.5
30	0.6	0.4

Payroll Growth: 3.2% annually

Pre-Retirement Mortality: This assumption applies to death while in service. Rates follow the Wisconsin Projected Experience Table – 2005 for males and females. Sample rates of mortality are as follows:

<u>Age</u>	<u>Males</u>	<u>Females</u>
25	0.0303%	0.0085%
35	0.0391	0.0203
45	0.0725	0.0445
55	0.2085	0.1280

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Section X - Summary of Actuarial Methods and Assumptions (continued)

Post-Retirement Mortality: This assumption applies to spouse mortality. Rates follow the Wisconsin Projected Experience Table – 2005 for males and females. Sample rates of mortality are as follows:

<u>Age</u>	<u>Males</u>	<u>Females</u>
45	0.1449%	0.0891%
55	0.4171	0.2561
65	0.9320	0.6650
75	3.0059	1.9501
85	9.2413	6.5117

Post-Disability Mortality: This assumption applies to death after disablement. Rates follow the Wisconsin Projected Experience Table – 2005 for males and females. Sample rates of mortality are as follows:

<u>Age</u>	<u>Males</u>	<u>Females</u>
45	0.3864%	0.1871%
55	1.1122	0.5378
65	2.4852	1.3965
75	8.0158	4.0952
85	24.6434	13.6746

Disability: Percent of employees expected to become disabled each year are as follows:

<u>Age</u>	<u>Protective with Social Security</u>	<u>Protective w/o Social Security</u>
20	0.01%	0.01%
25	0.03	0.03
30	0.07	0.07
35	0.12	0.12
40	0.19	0.19
45	0.25	0.25
50	0.33	0.33
55	0.28	0.28
60	0.20	0.20

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Section X - Summary of Actuarial Methods and Assumptions (continued)

Withdrawal: Percent of employees expected to terminate each year within the first 10 years of employment are as follows:

<u>Service</u>	<u>Protective with Social Security</u>	<u>Protective w/o Social Security</u>
0	13.0%	5.2%
1	7.0	3.4
2	4.6	2.1
3	4.1	1.5
4	3.2	1.4
5	3.0	1.3
6	2.7	1.2
7	2.5	1.0
8	2.3	0.9
9	1.9	0.9

Percent of employees expected to terminate each year after the first 10 years of employment are as follows:

<u>Age</u>	<u>Protective with Social Security</u>	<u>Protective w/o Social Security</u>
25	1.9%	0.9%
30	1.9	0.8
35	1.7	0.8
40	1.3	0.7
45	1.1	0.7
50	1.0	0.6
55	1.0	0.6
60	1.0	0.6

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Section X - Summary of Actuarial Methods and Assumptions (continued)

Retirement: Percent of employees expected to retire each year are as follows.

<u>Age</u>	<u>Protective with Social Security</u>	<u>Protective w/o Social Security</u>
50	8%	4%
51	8	4
52	9	6
53	28	23
54	20	28
55	17	28
56	17	28
57	17	37
58	17	32
59	17	35
60	17	22
61	20	15
62	20	20
63	30	20
64	18	20
65	30	40
66	30	40
67	23	40
68	23	40
69	20	40
70	100	100

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Section X - Summary of Actuarial Methods and Assumptions (continued)

Benefit Offsets: There are many potential offsets to the member's basic benefit. The following assumptions estimate those offsets.

<u>Offset</u>	<u>Valuation Estimate</u>
WRS Benefits and LTDI	<p>Assume 20% of members qualify for a WRS disability benefit or LTDI.</p> <p>Assume 10% of members under age 50 who do not qualify for a WRS disability benefit or LTDI elect to receive a WRS separation benefit.</p> <p>Assume other members commence a WRS retirement benefit at age 50 (requirement of plan).</p> <p>Benefits are based on plan provisions and actuarial assumptions stated above.</p>
Social Security	<p>Assume 10% of members covered by Social Security qualify for a Social Security disability award.</p> <p>Benefits are based on Social Security formula and assuming:</p> <ul style="list-style-type: none"> • 3.2% pay increases • 3.2% Social Security Taxable Wage Base increases • 2.5% cost-of-living adjustments
Unemployment Compensation:	<p>None (No offsets observed)</p>
Combined Offset from: <ul style="list-style-type: none"> • Worker's Compensation • Employer Earnings • Other Earnings 	<p>Assume 3% reduction to 75%/80% target benefit (Observed reduction from all these offsets was about 3.2% of target benefit. This observation does not include a review of income tax returns or one-time earnings offsets as observation is taken from the December Payroll of each year.)</p>

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Section X - Summary of Actuarial Methods and Assumptions (continued)

Active Members Included:	Current eligible WRS active members were included only.
Expenses:	None included.
Future Service:	All members earn a full year of service in each calendar year.
Marital Status:	100% of members are married. Husbands are assumed to be three years older than their wives.
Dependents:	No dependent children are assumed to be covered at retirement.
Annual Benefit Increases:	Before age 60 (salary-indexed increases): 3.50% After age 60 (WRS dividend-based increases): 2.10%
Benefit Adjustment for Inactive Members:	The current benefits of inactive members were reduced by 8% under the assumption, consistent with recent experience, that not all benefit offsets have been reported.
Changes Since Prior Valuation:	The following assumptions were changed: <ul style="list-style-type: none">- Discount rate- Payroll growth assumption- Wage inflation- Social security pay increases- Social security taxable wage base- Social security cost-of-living adjustment- Annual Benefit Increases before age 60 (salary-indexed increases)- Annual Benefit Increases before age 60 (WRS dividend-based increases)

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Section XI - Summary of Substantive Plan Provisions

Participants Included: State and local protective occupation active employees, and retirees and their survivors who are currently receiving duty disability program benefits

Benefit Eligibility: Member must satisfy all of the following

- injured while performing duties or contracted disease due to occupation
- disability is work-related
- disability is expected to be permanent

Also, the disability must result in one of the following

- reduction in pay or position
- assignment to light duty
- retirement
- impairs promotional opportunities

Member Benefits: 80% of salary (75% for local employees who are not eligible for a Social Security disability award and not eligible for a WRS disability benefit or LTDI). For local members who have been terminated but not approved for WRS disability or LTDI only, the percentage is reduced by 0.5% for each month of WRS creditable service over 25. For local members who have not been terminated or have been approved for WRS disability or LTDI, the percentage is reduced by 0.5% per month for every month over 30 years. For all members, the offsets are as follows (with mandatory commencement ages in parenthesis if applicable):

- Any Social Security benefit based upon the participant's work record (age 62; if not already receiving SSDI)
- Unemployment compensation
- Worker's Compensation
- Any WRS retirement, separation, or disability benefit based upon member's earnings and service (age 50)
- all earnings from the employer where the disability occurred
- a percent of other earnings as follows:
 - 1/3 of earnings less than 40% of salary

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Section XI - Summary of Substantive Plan Provisions (continued)

- 1/2 of earnings between 40% and 80% of salary
- 2/3 of earnings over 80% of salary

a 5% reduction for non-state members who have not filed a Worker's Compensation claim for permanent disability
Individuals receive an annual increase of either 1 or 2 below.

**Annual Increases in
Member Benefits:**

- 1) Social Security salary index for the following individuals:
 - under age 60, or
 - older than 60 and receiving a regular disability retirement or regular LTDI
- 2) Prior year's WRS core annuity dividend for the following individuals:
 - over age 60 and receiving special disability retirement or special LTDI, or
 - over age 60 not receiving any regular disability retirement or LTDI, or
 - receiving a duty disability death benefit

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Section XI - Summary of Substantive Plan Provisions (continued)

- Survivor Benefits:** State employees and pre-5/3/88 applications for local employees
- 1/3 of the participant's monthly salary at time of death to surviving spouse or domestic partner (State employees only), plus
 - \$15/month to the guardian of each unmarried child under the age of 18
 - not to exceed 65% of the participant's monthly salary at time of death
 - no annual adjustments
- Post-5/3/88 applications for local employees
- 1/2 of the participant's monthly salary at time of death to surviving spouse less other income sources that are based on the participant's earnings record, plus
 - 1/10 of the participant's monthly salary at time of death to each unmarried child under the age of 18
 - not to exceed 70% of the participant's monthly salary at time of death less offsets for other income
 - subject to annual adjustments based on salary indexing
- Cancer Presumptive Law (state and local)
- 70% of the participant's monthly salary at time of death to surviving spouse or domestic partner, less other income sources that are based on the participant's earnings record
 - 1/10 of the participant's monthly salary at time of death to the guardian of each unmarried child under the age of 18, as long as there is no surviving spouse or domestic partner
 - there is no maximum on dependent benefits
 - subject to annual adjustments based on salary indexing
- Survivor benefits are offset by Chapter 102 Worker's Compensation death benefits
- Contributions:** Funded entirely by Employer contributions, which vary by experience as detailed in the following table.

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Section XI - Summary of Substantive Plan Provisions (continued)

Contribution Rate Schedule

% of Covered Payroll	Applicable To
1.9	Groups with claims payout during the prior year of less than or equal to 0.5% of payroll.
2.4	Groups with one claim in which the payout during the prior year exceeded 0.5% of payroll, and groups with two or more claims in which the payout was more than 0.5% but less than 1.0% of payroll.
3.6	Groups with two or more claims in which the payout during the prior year was more than 1.0% but less than 2.0% of payroll.
5.4	Groups with two or more claims in which the payout during the prior year was more than 2.0% and less than 3.0% of payroll.
6.6	Groups with two or more claims in which the payout exceeded 3.0% but was less than 6.6% of payroll during the prior year.
6.6 + ½ of claims over 6.6%	Groups with two or more claims in which the payout exceeded 6.6% of payroll during the prior year.

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Section XII - Summary of Participant Demographic Information

The participant data used in the valuation was provided by the State of Wisconsin as of January 1, 2012. While the participant data was checked for reasonableness, the data was not audited, and the valuation results presented in this report are dependent upon the accuracy of the participant data provided. The table below presents a summary of the basic participant information for the active and inactive participants covered under the terms of the Plan.

	<u>Protective with Social Security</u>	<u>Protective w/o Social Security</u>	<u>Total</u>
a. Active participants			
Count	19,497	2,691	22,188
Average Age	40.6	41.5	40.8
Average Service	12.7	14.5	12.9
Average 2011 Pay	\$56,531	\$69,610	\$58,117
b. Disabled participants and Survivors*			
Count			964
Average Age			59.8
Average Current Benefit**			\$30,352

* Includes 59 disabled participants with zero benefits.

**Prior to 8% reduction to account for benefit offsets not yet reported.

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Section XII - Summary of Participant Demographic Information (continued)

Distribution by Age, Service and Average 2012 Pay – Actives – Protective with Social Security

Age Group	0-4 Years		5-9 Years		10-14 Years		15-19 Years		20-24 Years		25-29 Years		30 Years +		All Years	
	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay
0-24	651	\$30,175	25	\$41,645	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	676	\$30,599
25-29	1,626	42,285	793	52,187	40	49,620	-	-	-	-	-	-	-	-	2,459	45,598
30-34	702	40,321	1,364	54,978	916	57,070	12	55,953	-	-	-	-	-	-	2,994	52,185
35-39	373	40,533	634	53,732	1,634	60,325	529	63,509	7	66,890	-	-	-	-	3,177	57,230
40-44	246	39,678	393	51,228	1,020	58,229	1,474	65,172	525	68,367	3	65,541	-	-	3,661	60,486
45-49	166	34,326	246	48,975	478	56,660	674	64,101	1,023	70,703	374	73,631	12	72,886	2,973	63,497
50-54	109	38,537	191	45,975	285	53,810	338	62,592	457	68,856	566	75,104	216	76,274	2,162	64,720
55-59	66	26,936	108	47,846	153	51,073	179	59,807	163	64,632	167	67,763	171	74,269	1,007	59,599
60-64	26	24,611	47	45,148	67	50,483	42	59,680	62	63,420	42	66,020	45	69,092	331	55,785
65 & Up	12	12,781	6	42,783	14	51,291	14	57,563	5	57,023	1	75,584	5	78,426	57	47,138
Total	3,977	\$38,736	3,807	\$52,532	4,607	\$57,860	3,262	\$63,982	2,242	\$69,094	1,153	\$73,208	449	\$74,724	19,497	\$56,531

Distribution by Age, Service and Average 2012 Pay – Actives – Protective without Social Security

Age Group	0-4 Years		5-9 Years		10-14 Years		15-19 Years		20-24 Years		25-29 Years		30 Years +		All Years	
	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay
0-24	59	\$41,914	2	\$61,580	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	61	\$42,559
25-29	183	51,906	80	65,921	-	-	-	-	-	-	-	-	-	-	263	56,169
30-34	113	52,929	175	66,141	97	67,962	-	-	-	-	-	-	-	-	385	62,722
35-39	39	55,146	90	66,392	254	68,899	67	74,984	-	-	-	-	-	-	450	68,112
40-44	15	47,592	56	65,991	161	70,458	186	73,278	78	76,829	-	-	-	-	496	71,322
45-49	4	44,072	16	66,739	75	70,255	139	73,332	202	76,243	67	80,559	1	64,553	504	74,543
50-54	4	83,881	7	63,393	23	70,539	50	74,691	120	75,344	133	82,379	46	87,874	383	78,789
55-59	1	25,425	2	70,281	1	75,892	15	75,734	46	78,686	42	80,388	26	84,538	133	79,487
60-64	-	-	1	129,382	2	95,494	1	137,698	5	80,800	5	80,545	2	98,363	16	91,345
65 & Up	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	418	\$51,087	429	\$66,256	613	\$69,486	458	\$73,919	451	\$76,405	247	\$81,510	75	\$86,686	2,691	\$69,610

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Section XII - Summary of Participant Demographic Information (continued)

Distribution by Age, Service and Average 2012 Pay – Actives – Total

Age Group	0-4 Years		5-9 Years		10-14 Years		15-19 Years		20-24 Years		25-29 Years		30 Years +		All Years	
	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay	Count	Avg Pay
0-24	710	\$31,150	27	\$43,122	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	737	\$31,589
25-29	1,809	43,258	873	53,446	40	49,620	-	-	-	-	-	-	-	-	2,722	46,619
30-34	815	42,069	1,539	56,247	1,013	58,113	12	55,953	-	-	-	-	-	-	3,379	53,386
35-39	412	41,916	724	55,306	1,888	61,478	596	64,799	7	66,890	-	-	-	-	3,627	58,580
40-44	261	40,133	449	53,069	1,181	59,896	1,660	66,080	603	69,462	3	65,541	-	-	4,157	61,779
45-49	170	34,555	262	50,060	553	58,504	813	65,679	1,225	71,617	441	74,684	13	72,245	3,477	65,098
50-54	113	40,142	198	46,591	308	55,059	388	64,151	577	70,205	699	76,488	262	78,311	2,545	66,837
55-59	67	26,913	110	48,254	154	51,234	194	61,038	209	67,725	209	70,300	197	75,624	1,140	61,919
60-64	26	24,611	48	46,903	69	51,788	43	61,494	67	64,717	47	67,565	47	70,337	347	57,424
65 & Up	12	12,781	6	42,783	14	51,291	14	57,563	5	57,023	1	75,584	5	78,426	57	47,138
Total	4,395	\$39,911	4,236	\$53,922	5,220	\$59,225	3,720	\$65,205	2,693	\$70,319	1,400	\$74,672	524	\$76,436	22,188	\$58,117

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Section XII - Summary of Participant Demographic Information (continued)

Distribution by Age and Average Current Benefits – Disableds and Survivors*

Age Group	Count	Average Current Benefit
Under 30	-	\$ -
30 to 34	4	41,659
35 to 39	23	33,188
40 to 44	43	40,656
45 to 49	84	41,900
50 to 54	140	35,671
55 to 59	180	32,410
60 to 64	180	31,208
65 to 69	140	24,468
70 to 74	98	22,227
75 to 79	52	23,925
80 to 84	16	19,059
85 to 89	4	15,239
Total	964	\$ 30,972

* Includes 59 disabled participants with zero benefits; average current benefit prior to 8% reduction to account for offsets not yet reported.