

**BAY COUNTY EMPLOYEES' RETIREMENT SYSTEM
SIXTY-SEVENTH ANNUAL ACTUARIAL VALUATION REPORT
DECEMBER 31, 2012**



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September 13, 2013

The Board of Trustees
Bay County Employees'
Retirement System
Bay City, Michigan

Re: Bay County Employees' Retirement System Actuarial Valuation as of December 31, 2012

Dear Board Members:

The results of the December 31, 2012 Annual Actuarial Valuation of the Bay County Employees' Retirement System are presented in this report.

This report was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board.

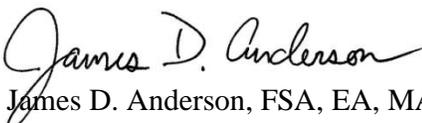
The purpose of the valuation is to measure the System's funding progress, provide actuarial information in connection with applicable Governmental Accounting Standards Board Statements (GASB) and to determine the employer contribution rate for the fiscal year ending December 31, 2014.

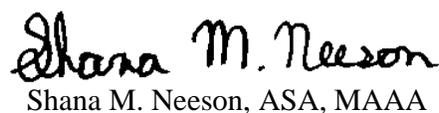
James D. Anderson and Shana M. Neeson are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Please see the following page for additional disclosures required by the Actuarial Standards of Practice.

To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the Bay County Employees' Retirement System as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and with applicable statutes.

Respectfully submitted,


James D. Anderson, FSA, EA, MAAA


Shana M. Neeson, ASA, MAAA

JDA/SMN:bd

Additional Disclosures Required by Actuarial Standards of Practice

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 (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. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

This report should not be relied on for any purpose other than the purpose described in the primary communication. Determinations of the financial results associated with the benefits described in this report in a manner other than the intended purpose may produce significantly different results.

The signing actuaries are independent of the plan sponsor.

The valuation was based upon information furnished by the County, concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year to year consistency, but did not otherwise audit the data. We are not responsible for the accuracy or completeness of the information provided by the County.

The developed findings included in this report consider data or other information through December 31, 2012.

SECTION A
EXECUTIVE SUMMARY

1. Required Employer Contributions - Fiscal Year Beginning January 1, 2014

The computed employer contributions **exclusive of employer paid "member" contributions** are as follows:

Division	Valuation Year Fiscal Year	Contribution Rate	
		12/31/2011 1/1/2013	12/31/2012 1/1/2014
General County		4.08 %	3.87 %
DWS		13.77	15.75
Library		9.89	9.26
BABH		10.17	8.80
Medical Care Facility		9.57	7.22
Sheriff's Department		0.00	0.55
Road Commission		20.78	21.32

It is important to remember that the current contribution rates for General County and Sheriff are lower than the long-term cost of the plan (the normal cost). This is because these divisions have overfunding credits. The credits reduce the required contributions below the normal costs until the overfunding is eliminated. *If future experience were to exactly match each of the assumptions, the employer contribution rates would not remain level. Increases would occur over time and contribution rates would increase towards the normal cost or long-term cost of the benefits.*

2. Funded Ratio Comparison

The funding percentage for each of the valuation groups are shown below.

Division	Funded Ratio	
	12/31/2011	12/31/2012
General County	107 %	105 %
DWS	80	75
Library	99	96
BABH	91	92
Medical Care Facility	100	98
Sheriff's Department	120	112
Road Commission	82	80

This year for all employment divisions combined valuation assets represent 97.6% of accrued liabilities; last year the ratio was 99.8%. If the valuation results were based on market value of assets instead of smoothed funding value, the funded percent of the plan would be 100.7%.

3. Reasons for Change

There are three general reasons why contribution rates change from one valuation to the next. The first is a change in the benefits or eligibility conditions of the plan. The second is a change in the valuation assumptions used to predict future occurrences. The third is the difference during the year between the plan's actual experience and what the assumptions predicted.

As a result of the Experience Study performed earlier this year, various assumptions and methods used in the actuarial valuation were changed. Please refer to the report on the Experience Study as well as the assumptions section of this report for details on which assumptions were revised for this valuation.

There were no changes in benefits.

4. 2012 Plan Experience

The aggregate experience during 2012 was unfavorable, with an overall gain/(loss) of (\$9,674,480). The gain (loss) information is shown separately for each group on page B-6.

Investment return on the market value of assets for calendar year 2012 exceeded the assumed rate of return for the valuation. However, the asset smoothing method only recognizes 20% of a given year's investment gain or loss. Partial recognition of this year's gain was not enough to completely offset continued phase-in of investment losses from prior years, resulting in the investment loss on the smoothed value of assets as shown below. The experience loss on investments and all other experience is quantified below.

Investment Gain (Loss)	\$(12,820,502)
Non-investment Gain (Loss)	<u>3,146,022</u>
Gain (Loss) from all causes	(9,674,480)

Non-investment experience for the plan as a whole was slightly favorable and partially offset the unfavorable investment experience.

5. Retiree Reserve Balance

The retiree accrued liabilities for all divisions are larger than the reported retiree reserve balances. For detail see Comment A on page B-5.

6. Looking Ahead

The investment markets continue to be volatile. The funding value of assets used to determine both the funded status and the required employer contribution, is based on a 5-year smoothed value of assets. This reduces the volatility of the valuation results. As of December 31, 2012 the funding value of assets was 103% of market value. This is the last year the County is reflecting the large market downturn experienced in calendar year 2008.

SECTION B

VALUATION RESULTS AND COMMENTS

Financial Objective

The financial objective of the Retirement System is to establish and receive contributions, expressed as a percentage of active member payroll, which will remain approximately level from year to year and will not have to be increased for future generations of citizens.

Your annual actuarial valuations determine how well the objective is being met.

The Board of Trustees of the Bay County Employees' Retirement System confirms that the System provides for payment of the required employer contribution as described in Section 20m of Michigan Public Act No. 728 of 2002.

Contribution Rates

The Retirement System is supported by contributions from the employers, by member contributions and by the investment income earned on System assets. For some divisions, the required member contributions are paid by the Employer either through contributions to the System or by transferring funds from the employer reserves to the employee reserves. In addition, the Employer provides an actuarially determined contribution.

Member and Employer contributions cover both (i) normal cost, and (ii) the financing of the unfunded accrued liability over a period of future years. The normal cost is the portion of System costs allocated to the current year by the valuation method described on page D-1. The unfunded accrued liability is the portion of System costs not covered by present System assets and future normal costs.

The contribution requirements for the fiscal year beginning January 1, 2014 are presented on page B-2.

**Contributions to Provide Benefits
Member Portion and Employer Portion
Fiscal Year Beginning January 1, 2014**

Contributions for	% of Active Payroll							
	General County	DWS	Library	BABH	Medical Care Facility	Sheriff's Department	Road Commission	Total
Normal cost of benefits:								
Age & service	9.88 %	9.75 %	10.62 %	10.11 %	9.68 %	13.52 %	13.09 %	10.41 %
Disability	0.27	0.28	0.22	0.25	0.37	1.11	0.70	0.37
Death-in-service	0.27	0.28	0.30	0.29	0.16	0.33	0.50	0.27
Total	10.42	10.31	11.14	10.65	10.21	14.96	14.29	11.05
Member contributions#:								
Total	4.23	4.00	4.00	4.00	4.00	6.00	4.75	4.30
Future refunds	0.33	0.35	0.63	0.70	0.30	0.40	0.29	0.44
Available for pensions	3.90	3.65	3.37	3.30	3.70	5.60	4.46	3.86
Administrative expenses	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Employer normal cost	6.92	7.06	8.17	7.75	6.91	9.76	10.23	7.59
Unfunded accrued liability	(3.05)	8.69	1.09	1.05	0.31	(9.21)	11.09	(0.17)
Computed Employer Rate	3.87	15.75	9.26	8.80	7.22	0.55	21.32	7.42

For certain divisions, the member contributions are paid by the employer, either by directly contributing to the Retirement System or by transferring funds from employer reserves to employee reserves.

Unfunded actuarial accrued liabilities were amortized as a level percent of member payroll over a closed period of 30 years and asset surpluses were amortized over an open period of 10 years for all other groups.

The procedure for determining dollar contribution amounts is shown on page B-3.

Page B-4 displays the unfunded accrued liabilities (asset surpluses) that are amortized by the contribution rates shown above.

Determining Dollar Contributions

For any period of time, the percent-of-payroll contribution rates need to be converted to dollar amounts. We recommend one of the following procedures:

- (1) Contribute dollar amounts for a period which are equal to the employer's percent-of-payroll contribution requirement multiplied by the covered active member payroll for the period. Adjustments should be made as necessary to exclude items of pay that are not covered compensation for Retirement System benefits and to include non-payroll payments that are covered compensation; or
- (2) Contribute the dollars for each group based on the table shown below.

Group:	General County	DWS	Library	BABH	Medical Care Facility	Sheriff's Department	Road Commission	Total
Contribution:	\$ 604,501	\$ 347,884	\$ 187,033	\$ 1,296,047	\$ 745,867	\$ 22,252	\$ 656,310	\$ 3,859,894

These amounts are based on the payroll information provided for the valuation.

Timing of Contribution Payments

The contribution requirements in this report anticipate regular payments throughout the year. Examples would be at each payroll date or in 12 monthly installments. If the employer contribution pattern is significantly different, an adjustment to the costs may be appropriate. For example, a lump sum contribution at the beginning of the year is available for investment throughout the year and, therefore, ought to be somewhat smaller than 12 monthly payments. Similarly, a lump sum contribution at the end of the year will not generate any investment income that year.

Determination of Unfunded Accrued Liability

	General County	DWS	Library	BABH	Medical Care Facility	Sheriff's Department	Road Commission	Total
A. Accrued liability								
1. For retirees and beneficiaries	\$43,742,424	\$8,048,031	\$4,791,234	\$ 13,316,406	\$23,272,226	\$ 14,376,816	\$19,189,141	\$ 126,736,278
2. For vested terminated members	2,817,564	17,474	244,755	2,008,958	734,173	291,811	220,746	6,335,481
3. For present active members								
a. Value of expected future benefit payments	50,715,388	6,755,907	6,130,864	35,796,604	27,404,470	16,975,915	13,524,544	157,303,692
b. Value of future normal costs	11,340,631	1,631,764	1,644,022	13,411,847	7,477,904	5,610,638	3,988,778	45,105,584
c. Active member liability: (a) - (b)	<u>39,374,757</u>	<u>5,124,143</u>	<u>4,486,842</u>	<u>22,384,757</u>	<u>19,926,566</u>	<u>11,365,277</u>	<u>9,535,766</u>	<u>112,198,108</u>
4. Total actuarial accrued liability	85,934,745	13,189,648	9,522,831	37,710,121	43,932,965	26,033,904	28,945,653	245,269,867
B. Valuation assets	89,969,006	9,907,850	9,128,783	34,843,222	43,146,174	29,239,131	23,046,574	239,280,740
C. Unfunded accrued liability (Excess assets): (A.4) - (B)								
	(4,034,261)	3,281,798	394,048	2,866,899	786,791	(3,205,227)	5,899,079	5,989,127
D. Funding ratio: (B) / (A.4)	104.7%	75.1%	95.9%	92.4%	98.2%	112.3%	79.6%	97.6%

Comments

COMMENT A: We developed the value of anticipated future benefit payments to retired members and their beneficiaries. We then compared this accrued liability to the reported value of the retirement reserve account. The figures below compare the retired liabilities and reserves for each division.

Division	Retiree Accrued Liability	Reported Retiree Reserve	Unfunded Retiree Liability
General County	\$ 43,742,424	\$ 41,111,297	\$ 2,631,127
DWS	8,048,031	7,502,786	545,245
Library	4,791,234	4,449,357	341,877
BABH	13,316,406	10,851,841	2,464,565
Medical Care Facility	23,272,226	22,656,885	615,341
Sheriff's Department	14,376,816	12,435,250	1,941,566
Road Commission	19,189,141	17,543,019	1,646,122
Total	\$126,736,278	\$116,550,435	\$10,185,843

As of the valuation date, there is a shortfall in the retiree reserve for all groups. This valuation anticipates that the difference between the accrued liability and the reported reserve will be transferred from the Retirement System employer reserve to the retiree reserve effective January 1, 2013 to fully fund the retiree accrued liability.

COMMENT B: Contribution rates changed during the year for various reasons. In particular, all divisions experienced the impact of the unfavorable investment performance. Demographic experience varied by division.

Two Groups in the Retirement System are anticipated to come out of an overfunded position (assets exceeding liabilities) in the coming years. When this happens, contribution rates can increase significantly from one year to the next as they approach the long-term cost of the plan. In the long run, as the overfunding is used up the contributions will increase towards the normal cost or long-term cost of the benefits.

COMMENT C: The chart on the following page shows the experience gain (loss) for 2012. Non-investment experience during 2012 was favorable, with the exception of the DWS, Library, and Sheriff's divisions. The development of the investment gain/loss is shown on page B-7.

Determination of Experience Gain (Loss) Year Ended December 31, 2012

Actual experience will never (except by coincidence) exactly match assumed experience. It is hoped that gains and losses will cancel each other over a period of years, but sizable year to year fluctuations are common. Detail on the determination of the experience gain (loss) is shown below.

	General County	DWS	Library	BABH	Medical Care Facility	Sheriff's Department	Road Commission	Total
(1) UAAL at start of year	\$(5,736,674)	\$ 2,466,776	\$ 97,778	\$ 3,332,946	\$ 169,467	\$(5,005,587)	\$ 5,259,389	\$ 584,095
(2) Normal cost for the year 2012	1,761,458	234,853	254,165	1,774,939	1,288,398	621,286	466,114	6,401,213
(3) Actual employer & employee contributions	(1,374,661)	(334,973)	(209,027)	(1,872,971)	(1,087,426)	(80,280)	(653,272)	(5,612,610)
(4) Net interest accrual on (1), (2) and (3)	(415,920)	181,299	9,006	246,339	20,156	(355,376)	387,520	73,024
(5) Expected UAAL before changes: (1) + (2) + (3) + (4)	(5,765,797)	2,547,955	151,922	3,481,253	390,595	(4,819,957)	5,459,751	1,445,722
(6) Change from benefit increases	-	-	-	-	-	-	-	-
(7) Change from revised actuarial assumptions or methods	(1,546,411)	196,011	(321,494)	(1,467,986)	(1,268,894)	(429,633)	(292,668)	(5,131,075)
(8) Expected UAAL after changes: (5) + (6) + (7)	(7,312,208)	2,743,966	(169,572)	2,013,267	(878,299)	(5,249,590)	5,167,083	(3,685,353)
(9) Actual UAAL at end of year	(4,034,261)	3,281,798	394,048	2,866,899	786,791	(3,205,227)	5,899,079	5,989,127
(10) Gain (Loss): (8) - (9)	(3,277,947)	(537,832)	(563,620)	(853,632)	(1,665,090)	(2,044,363)	(731,996)	(9,674,480)
(11) Actuarial accrued liabilities at start of year	85,479,928	12,540,514	9,332,506	36,807,082	43,645,981	24,891,205	29,094,601	241,791,817
(12) Gain (Loss) as a percent of actuarial accrued liabilities at start of year: (10)/(11)	(3.8)%	(4.3)%	(6.0)%	(2.3)%	(3.8)%	(8.2)%	(2.5)%	(4.0)%
(13) Investment Gain (Loss)	(4,834,434)	(533,154)	(489,980)	(1,822,860)	(2,311,286)	(1,577,878)	(1,250,910)	(12,820,502)
(14) Gain (Loss) from all other causes	1,556,487	(4,678)	(73,640)	969,228	646,196	(466,485)	518,914	3,146,022

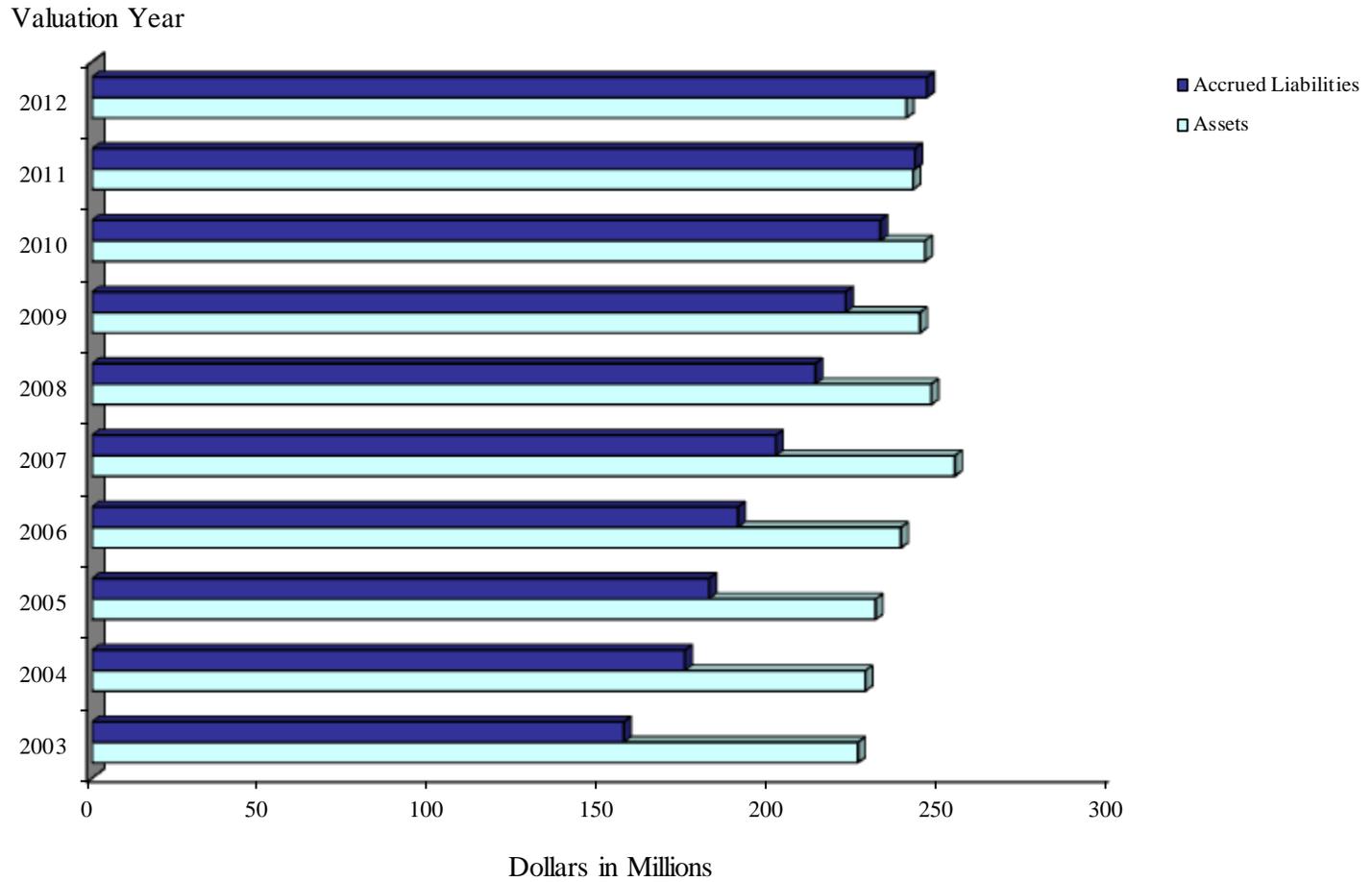
Development of Valuation Investment Gain (Loss) Year Ended December 31, 2012

We anticipate an average return on valuation assets of 7.5% for future years.

(1) Total 2012 valuation investment income:	\$ 5,009,943
(2) Average valuation assets:	237,739,260
(3) Expected investment income: $(.075) \times (2)$	17,830,445
(4) Gain (Loss): $(1) - (3)$	(12,820,502)
(5) Valuation rate of return for 2012: $(1) / (2)$	2.11 %

Please note that this analysis uses asset values and investment income as defined for the actuarial valuation. It is not, therefore, appropriate as a measure of manager performance.

Assets & Accrued Liabilities



2003 assets equaled 144.0% of accrued liabilities.
 2012 assets equaled 97.6% of accrued liabilities.

Computed Contributions - Comparative Statement

Valuation Date	Valuation Payroll			Annual Dollar Requirement	Employer Requirements As Percents of Valuation Payroll						
	Total	Average	% Incr.		General County	DWS+	Library+	BABH+	Medical Care Facility	Sheriff's Department	Road Commission
12/31/1993	\$26,304,070	\$25,688	2.9	\$ 994,327	1.84 %				3.41 %	3.94 %	18.64 %
12/31/1994	27,358,462	26,105	1.6	848,833	1.66				2.25	1.18	16.64
12/31/1995 #	28,878,179	26,913	3.1	624,607	0.91				1.56	0.00	13.62
12/31/1996 #	30,646,324	27,835	3.4	430,513	0.00				1.69	0.00	12.76
12/31/1997 #	32,216,234	28,739	3.2	248,762	0.00				0.00	0.00	9.15
12/31/1998 #	34,308,505	29,885	4.0	45,010	0.00				0.00	0.00	1.67
12/31/1999 #	35,763,978	31,072	4.0	0	0.00				0.00	0.00	0
12/31/2000 #	38,314,967	32,090	3.3	0	0.00				0.00	0.00	0.00
12/31/2001 #*	39,761,644	33,218	3.5	0	0.00	0.00 %	0.00 %	0.00 %	0.00	0.00	0.00
12/31/2002	41,331,916	33,658	1.3	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/31/2003 *	43,053,950	35,175	4.5	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/31/2004 #	43,550,999	36,202	2.9	405,110	0.00	0.00	0.68	1.11	0.00	0.00	8.19
12/31/2005	43,104,046	36,010	(0.5)	588,948	0.00	0.00	1.60	2.53	0.00	0.00	9.34
12/31/2006 #	42,024,045	37,455	4.0	644,945	0.00	0.00	0.00	3.24	0.00	0.00	10.82
12/31/2007 #	44,687,752	39,269	4.8	688,871	0.00	0.00	0.00	3.70	0.00	0.00	9.17
12/31/2008	46,482,897	39,695	1.1	1,578,548	0.00	4.44	0.00	6.95	2.32	0.00	14.13
12/31/2009 ^	47,244,573	40,208	1.3	2,443,118	0.00	7.40	2.74	8.83	5.05	0.00	17.64
12/31/2010	47,090,560	40,771	1.4	3,074,891	1.19	11.71	6.91	9.08	7.36	0.00	18.05
12/31/2011 #	48,583,176	41,702	2.3	4,289,438	4.08	13.77	9.89	10.17	9.57	0.00	20.78
12/31/2012 *	48,571,798	41,444	(0.6)	3,859,894	3.87	15.75	9.26	8.80	7.22	0.55	21.32

+ Prior to 12/31/2001 included with General County.

Retirement System amended.

* Revised actuarial assumptions or methods.

^ Implementation of a one year lag between valuation date and first day of the fiscal year to which the contributions apply.

SECTION C

SUMMARY OF BENEFIT PROVISIONS AND VALUATION DATA

Brief Summary of Plan Provisions as of December 31, 2012

No.	Division Name	Retirement Eligibility		
		Normal	Early	Deferred
1	Elected Officials and Department Heads	Age 55 with 30 yrs of svc or age 60 with 8/10* yrs of svc	Age 55 with 8/10* yrs of svc	8/10* yrs of svc
2	Judges			
3	General County			
4	General Circuit Court			
5	General District Court			
6	General Probate Court			
7	BCAMPS			
8	USWA General			
9	USWA Part-Time Employees			
15	District Court AFSCME			
10	Nurses	Age 55 with 30 yrs of svc or age 60 with 8/10# yrs of svc	Age 55 with 8/10# yrs of svc	8/10# yrs of svc
16	Probate Court USWA	Age 55 with 30 yrs of svc or age 60 with 8 yrs of svc	Age 55 with 8 yrs of svc	8 yrs of svc
23	Behavioral Health AFSCME			
24	Behavioral Health General			
18	Library - Employee Members of UWUA Local 542	Age 55 with 30 yrs of svc or age 60 with 8/10! yrs of svc	Age 55 with 8/10! yrs of svc	8/10! yrs of svc
19	General Library			
30	ICEA/PERA 1203			
31	ICEA/PERA 612			
14	Circuit Court Govt. Employees Labor Council (GELC)	Age 55 with 30 yrs of svc or age 60 with 8/10@ yrs of svc	Age 55 with 8/10@ yrs of svc	8/10@ yrs of svc
32	Road Patrol Supervisory Unit	25 yrs of svc regardless of age or age 60 with 8/10@ yrs of svc	Age 55 with 8/10@ yrs of svc	8/10@ yrs of svc
11	Sheriff - Road Patrol	25 yrs of svc regardless of age or age 60 with 8/10* yrs of svc	Age 55 with 8/10* yrs of svc	8/10* yrs of svc
12	Sheriff Correctional Facility Officers	Age 55 with 25 yrs of svc or age 60 with 8/10* yrs of svc	25 yrs of svc regardless of age or age 55 with 8/10* yrs of svc	8/10* yrs of svc
13	Dispatchers	30 yrs of svc regardless of age, age 55 with 25 yrs of svc, or age 60 with 8/10* yrs of svc	25 yrs of svc regardless of age or age 55 with 8/10* yrs of svc	8/10* yrs of svc
20	Medical Care Facility United Steel Workers Local 15301	30 yrs of svc regardless of age, age 55 with 25 yrs of svc, or age 60 with 8 yrs of svc	Age 55 with 8 yrs of svc	8 yrs of svc
21	Medical Care Facility RN & LPN Nursing Council			
22	General Medical Care Facility			
25	Road Commission AFSCME Local 1096	30 yrs of svc regardless of age or age 60 with 8/10* yrs of svc	Age 55 with 8/10* yrs of svc	8 yrs of svc
26	Road Commission Class I Supervisory and Admin. Employees			
28	Water and Sewer UWUA Local 546	30 yrs of svc regardless of age or age 60 with 8/10^ yrs of svc	Age 55 with 8/10^ yrs of svc	8/10^ yrs of svc
29	Water and Sewer General			

@ 10 yrs of svc for members hired after 1/1/2006.

* 10 yrs of svc for members hired after 1/1/2007.

10 yrs of svc for members hired after 3/1/2007.

^ 10 yrs of svc for members hired after 7/1/2008.

! 10 yrs of svc for members hired after 3/1/2008.

Brief Summary of Plan Provisions as of December 31, 2012 (Continued)

Eligibility	Amount
NORMAL RETIREMENT	
See prior page.	Total service times FAC times: 2.00% for division 23 2.25% for divisions 1-10, 14, 16, 18-22, 24, and 28-31 2.50% for divisions 12, 13, 15, and 32 2.80% for division 11 2.50% for members hired before 1/1/1996; for members hired after 1/1/1996 2.50% for service through 3/31/2011 and 2.25% for service after 3/31/2011 for Division 26 2.50% for members hired before 1/1/2011. 2.25% for members hired after 1/1/2011 for Division 25. Maximum County-financed is 75% of FAC. Type of FAC - Highest 5 years. Some lump sums included.
EARLY RETIREMENT	
See prior page.	Normal retirement reduced to the actuarial equivalent of a pension at normal retirement age.
DEFERRED RETIREMENT	
Service condition as indicated on page C-1. Benefit begins at age 60 or reduced at age 55.	Computed as a normal retirement but based on service and final average compensation at time of termination.
NON-DUTY DEATH IN SERVICE	
10 or more years of credited service at any age.	Computed as a normal retirement but actuarially reduced in accordance with a 100% joint and survivor election.
DUTY DEATH IN SERVICE	
No age or service requirements. Benefits begin upon termination of Worker's Compensation.	To the spouse, a refund of accumulated contributions plus a benefit equal to the Worker's Compensation amount. Unmarried children under 18 and parents receive a benefit equal to the Worker's Compensation amount.

Brief Summary of Plan Provisions as of December 31, 2012 (Concluded)

Eligibility	Amount
NON-DUTY DISABILITY	
10 or more years of credited service.	Computed as a normal retirement. Worker's Compensation payments may be offset.
DUTY DISABILITY	
No age or service requirements.	Computed as a normal retirement with additional service credit granted to age 55. Worker's Compensation payments may be offset.
POST-RETIREMENT COST-OF-LIVING ADJUSTMENTS	
One-time increases have been granted.	
MEMBER CONTRIBUTIONS	
6% of annual compensation for: Sheriff-Road Patrol (div. 11) Sheriff Correctional Facility Officers (div. 12) Road Patrol Supervisory Unit (div. 32) Dispatchers (div. 13) District Court AFSCME (div. 15) 5% of annual compensation for Road Commission local 1096 (div. 25). 4% of annual compensation for remaining groups. For certain employee groups, the employer pays the member contribution either by directly contributing to the Retirement System or by transferring funds from the employer to the employee reserves.	
EMPLOYER CONTRIBUTIONS	
Actuarially determined amounts which, together with member contributions, are sufficient to cover both (i) normal costs of the plan, and (ii) financing of unfunded accrued liabilities over a selected period of future years.	

Development of Valuation Assets December 31, 2012

	2008	2009	2010	2011	2012
1. Beginning of Year Assets					
a) Market Value	\$254,228,599	\$170,175,086	\$205,994,725	\$235,379,259	\$225,721,975
b) Valuation Assets	253,492,248	246,577,567	243,271,514	244,728,050	241,207,722
2. End of Year Market Value Assets	170,175,086	205,994,725	235,379,259	225,721,975	246,909,696
3. Net Additions to Market Value					
a) Net Contributions	2,095,200	3,483,271	4,708,935	5,056,891	5,612,610
b) Net Investment Income = (3d) - (3a) - (3c)	(76,722,629)	42,482,215	35,749,975	(2,820,894)	28,124,646
c) Benefit Payments, Refunds, and Admin. Expenses	(9,426,084)	(10,145,847)	(11,074,376)	(11,893,281)	(12,549,535)
d) Total Additions to Market Value = (2) - (1a)	(84,053,513)	35,819,639	29,384,534	(9,657,284)	21,187,721
4. Average Valuation Assets = (1b) + .5 x [(3a) + (3c)]	249,826,806	243,246,279	240,088,794	241,309,855	237,739,260
5. Expected Income at Valuation Rate = 7.5% x (4)	18,737,010	18,243,471	18,006,660	18,098,239	17,830,445
6. Gain (Loss) = (3b) - (5)	(95,459,639)	24,238,744	17,743,315	(20,919,133)	10,294,201
7. Phased-In Recognition of Investment Return					
a) Current Year: 0.2 x (6)	(19,091,928)	4,847,749	3,548,663	(4,183,827)	2,058,840
b) First Prior Year	97,164	(19,091,928)	4,847,749	3,548,663	(4,183,827)
c) Second Prior Year	413,668	97,164	(19,091,928)	4,847,749	3,548,663
d) Third Prior Year	(1,153,602)	413,668	97,164	(19,091,928)	4,847,749
e) Fourth Prior Year	1,413,891	(1,153,601)	413,669	97,166	(19,091,927)
f) Total Recognized Investment Gain	(18,320,807)	(14,886,948)	(10,184,683)	(14,782,177)	(12,820,502)
8. Change in Valuation Assets (3a) + (3c) + (5) + (7f)	(6,914,681)	(3,306,053)	1,456,536	(3,520,328)	(1,926,982)
9. End of Year Assets					
a) Market Value = (2)	170,175,086	205,994,725	235,379,259	225,721,975	246,909,696
b) Valuation Assets = (1b) + (8)	246,577,567	243,271,514	244,728,050	241,207,722	239,280,740
c) Difference Between Market & Valuation Assets	(76,402,481)	(37,276,789)	(9,348,791)	(15,485,747)	7,628,956
10. Recognized Rate of Return = [(5) + (7f)] / (4)	0.17 %	1.38 %	3.26 %	1.37 %	2.11 %
11. Market Rate of Return = 2 x (3b) / [(1a) + (2) - (3b)]	(30.62)%	25.46 %	17.63 %	(1.22)%	12.65 %

Retirees and Beneficiaries Comparative Schedule

Year Ended	Added to Rolls*		Removed from Rolls		Rolls End of Year		% Incr. in		Discounted	
	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances	Annual Allowances	Average Allowance	Total Value of Allowances	Average
12/31/1988	21	\$ 129,984	13	\$ 31,463	301	\$ 1,156,646	9.3	\$ 3,843	\$ 11,454,502	\$ 38,055
12/31/1989	22	211,970	@ 10	49,709	313	1,318,907	14.0	4,214	12,945,627	41,360
12/31/1990	15	123,980	8	16,587	320	1,426,300	8.1	4,457	13,497,767	42,181
12/31/1991	29	358,208	15	43,361	334	1,741,147	22.1	5,213	16,803,661	50,310
12/31/1992	15	157,350	4	8,780	345	1,889,717	8.5	5,477	18,909,686	54,811
12/31/1993	27	306,059	3	16,365	369	2,179,407	15.3	5,906	21,666,249	58,716
12/31/1994	18	131,596	14	50,875	373	2,260,128	3.7	6,059	22,112,422	59,283
12/31/1995	24	261,820	12	31,551	386	2,490,397	10.2	6,452	24,080,999	62,386
12/31/1996	29	404,810	7	55,615	408	2,839,592	14.0	6,960	27,838,060	68,231
12/31/1997	28	392,818	8	44,327	428	3,188,083	12.3	7,449	31,558,085	73,734
12/31/1998	24	393,550	7	46,973	445	3,534,660	10.9	7,943	34,794,848	78,191
12/31/1999	23	295,915	@ 29	83,717	439	3,746,858	6.0	8,535	36,670,326	83,531
12/31/2000	46	645,474	27	201,656	458	4,190,676	11.8	9,150	40,970,172	89,455
12/31/2001	31	732,306	@ 13	45,724	476	4,877,258	16.4	10,246	46,616,261	97,933
12/31/2002	34	464,636	18	126,234	492	5,215,660	6.9	10,601	49,634,941	100,884
12/31/2003	37	514,935	17	72,960	512	5,657,635	8.5	11,050	53,369,747	104,238
12/31/2004	95	2,073,773	16	133,099	591	7,598,309	34.3	12,857	74,362,328	125,825
12/31/2005	43	786,641	26	170,645	608	8,214,306	8.1	13,510	80,594,476	132,557
12/31/2006	39	844,464	24	579,276	623	8,479,494	3.2	13,611	85,797,333	137,716
12/31/2007	29	423,246	14	93,660	638	8,809,080	3.9	13,807	88,063,580	138,031
12/31/2008	47	725,060	26	204,104	659	9,330,036	5.9	14,158	92,573,860	140,476
12/31/2009	58	1,303,182	34	338,544	683	10,294,674	10.3	15,073	102,921,818	150,691
12/31/2010	46	1,166,301	24	210,133	705	11,250,842	9.3	15,959	112,893,161	160,132
12/31/2011	51	953,802	16	199,264	740	12,005,380	6.7	16,223	119,532,453	161,530
12/31/2012	58	1,114,368	12	127,382	786	12,992,366	8.2	16,530	126,736,278	161,242

* Includes survivors of deceased retirees.

@ Includes one time benefit increases.

**Retirees and Beneficiaries December 31, 2012
Tabulated by Type of Benefit and Option Elected**

General County Retirees

Type of Pensions Being Paid	Type of Benefit					Total
	Age & Service	Disability		Death		
		Non-Duty	Duty	Non-Duty	Duty	
Regular	115	10				125
A - 10 Year Certain	18					18
B - 100% J & S	75	8				83
C - 50% J & S	28					28
Social Security Equated*						
- Regular	10					10
- 10 Year Certain	1					1
- 100% J & S	7					7
- 50% J & S	3					3
Survivor	24	3		5		32
Total Pensions Being Paid	281	21		5		307

DWS Retirees

Type of Pensions Being Paid	Type of Benefit					Total
	Age & Service	Disability		Death		
		Non-Duty	Duty	Non-Duty	Duty	
Regular	6					6
A - 10 Year Certain	1					1
B - 100% J & S	16	1				17
C - 50% J & S	5					5
Social Security Equated*						
- Regular						
- 10 Year Certain						
- 100% J & S						
- 50% J & S						
Survivor	1					1
Total Pensions Being Paid	29	1				30

* Upon attaining Social Security Age, these members are re-characterized as non-Social Security equated options.

**Retirees and Beneficiaries December 31, 2012
Tabulated by Type of Benefit and Option Elected
(Continued)**

Library Retirees

Type of Pensions Being Paid	Type of Benefit					Total
	Age & Service	Disability		Death		
		Non-Duty	Duty	Non-Duty	Duty	
Regular	19					19
A - 10 Year Certain	2					2
B - 100% J & S	9					9
C - 50% J & S	4					4
Social Security Equated*						
- Regular						
- 10 Year Certain						
- 100% J & S						
- 50% J & S						
Survivor				1		1
Total Pensions Being Paid	34			1		35

BABH Retirees

Type of Pensions Being Paid	Type of Benefit					Total
	Age & Service	Disability		Death		
		Non-Duty	Duty	Non-Duty	Duty	
Regular	27	2	1			30
A - 10 Year Certain	1	1				2
B - 100% J & S	18	3				21
C - 50% J & S	6					6
Social Security Equated*						
- Regular	2					2
- 10 Year Certain						
- 100% J & S	1					1
- 50% J & S						
Survivor	3	1		1		5
Total Pensions Being Paid	58	7	1	1		67

* Upon attaining Social Security Age, these members are re-characterized as non-Social Security equated options.

Retirees and Beneficiaries December 31, 2012
Tabulated by Type of Benefit and Option Elected
(Continued)

MCF Retirees

Type of Pensions Being Paid	Type of Benefit					Total
	Age & Service	Disability		Death		
		Non-Duty	Duty	Non-Duty	Duty	
Regular	75	3				78
A - 10 Year Certain	5					5
B - 100% J & S	42	6				48
C - 50% J & S	37					37
Social Security Equated*						
- Regular	4					4
- 10 Year Certain	1					1
- 100% J & S	4					4
- 50% J & S	4					4
Survivor	9	1		1		11
Total Pensions Being Paid	181	10		1		192

Sheriff Department Retirees

Type of Pensions Being Paid	Type of Benefit					Total
	Age & Service	Disability		Death		
		Non-Duty	Duty	Non-Duty	Duty	
Regular	9	2	2			13
A - 10 Year Certain		1				1
B - 100% J & S	16	2	2			20
C - 50% J & S	2					2
Social Security Equated*						
- Regular	6	1				7
- 10 Year Certain	2					2
- 100% J & S	5					5
- 50% J & S	1					1
Survivor	11	2		2		15
Total Pensions Being Paid	52	8	4	2		66

* Upon attaining Social Security Age, these members are re-characterized as non-Social Security equated options.

**Retirees and Beneficiaries December 31, 2012
Tabulated by Type of Benefit and Option Elected
(Concluded)**

Road Commission Retirees

Type of Pensions Being Paid	Type of Benefit					Total
	Age & Service	Disability		Death		
		Non-Duty	Duty	Non-Duty	Duty	
Regular	11		1			12
A - 10 Year Certain	1	1				2
B - 100% J & S	39	3	2			44
C - 50% J & S	5					5
Social Security Equated*						
- Regular	1					1
- 10 Year Certain						
- 100% J & S	5					5
- 50% J & S						
Survivor	15	4		1		20
Total Pensions Being Paid	77	8	3	1		89

* Upon attaining Social Security Age, these members are re-characterized as non-Social Security equated options.

Retirees and Beneficiaries December 31, 2012
Tabulated by Attained Age

Attained Age	Age & Service		Disability		Survivor of Death-in-Service		Total	
	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances	No.	Annual Allowances
35 - 39	3	\$ 58,041	1	\$ 3,960			4	\$ 62,001
40 - 44			4	73,928			4	73,928
45 - 49	4	58,291	5	68,421			9	126,712
50 - 54	15	452,686	4	39,461	2	\$ 33,105	21	525,252
55 - 59	65	1,713,504	13	221,774	3	69,452	81	2,004,730
60 - 64	172	3,516,885	12	184,739	2	27,723	186	3,729,347
65 - 69	157	3,010,786	11	130,208			168	3,140,994
70 - 74	102	1,448,944	4	47,785			106	1,496,729
75 - 79	73	802,230	3	13,296	2	30,081	78	845,607
80	17	184,970	3	25,587			20	210,557
81	14	126,601	1	13,014			15	139,615
82	7	36,074	1	6,076			8	42,150
83	10	105,800	1	3,844			11	109,644
84	10	112,716					10	112,716
85	8	46,135			1	11,159	9	57,294
86	13	91,667					13	91,667
87	9	64,340			1	2,858	10	67,198
88	7	41,050					7	41,050
89	6	30,312					6	30,312
90	5	24,675					5	24,675
91	3	11,856					3	11,856
92	5	27,312					5	27,312
95	2	7,239					2	7,239
96	2	6,116					2	6,116
98	1	3,452					1	3,452
99	1	1,971					1	1,971
100	1	2,242					1	2,242
Totals	712	\$11,985,895	63	\$832,093	11	\$174,378	786	\$12,992,366

Average Age at Retirement: 58.0 years

Average Age Now: 69.0 years

Inactive Members

An inactive member is a person who has left County Employment with entitlement to a retirement allowance after attaining voluntary retirement age. Inactive members, as of December 31, 2012, totaled 90, as follows:

Valuation Division	Number	Estimated Annual Deferred Pensions
General County	37	\$425,121
DWS	1	4,494
Library	7	39,430
BABH	23	327,412
Medical Care Facility	16	129,008
Sheriff's Department	4	53,795
Road Commission	2	28,659
Total	90	\$1,007,919

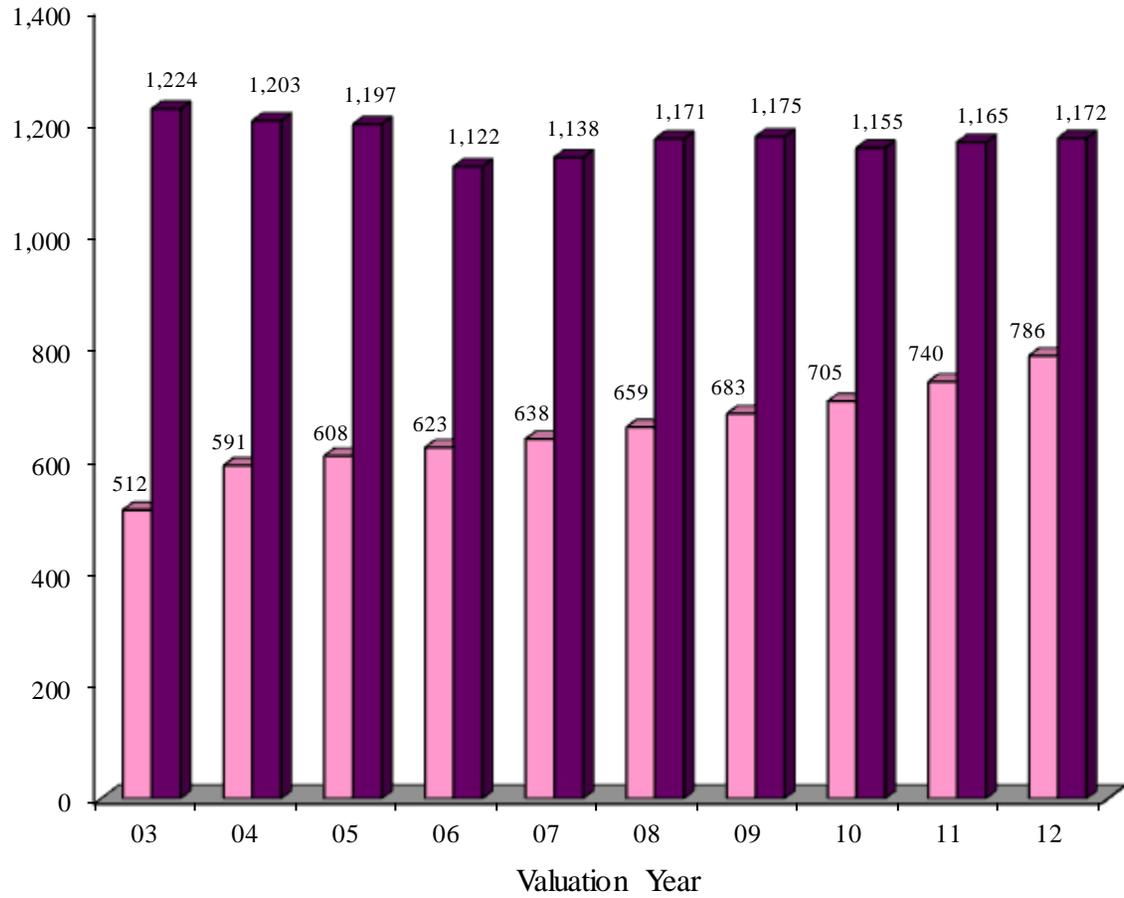
The schedule on the next page is an age distribution of the inactive members.

**Inactive Members December 31, 2012
Tabulated by Attained Age**

Attained Age	No.	Estimated Deferred Allowances
34	2	\$ 28,908
35	1	8,184
42	5	53,966
44	1	12,828
45	3	58,152
46	8	82,789
47	5	54,988
48	4	30,016
49	5	67,242
50	5	27,708
51	4	27,055
52	7	71,526
53	6	73,166
54	3	28,311
55	5	44,569
56	6	154,542
57	7	57,146
58	5	45,532
59	8	81,291
Total	90	\$1,007,919

Active Members & Benefit Recipients

Covered Persons



Benefit Recipients Active Members

Active Members December 31, 2012 Tabulated by Valuation Division

Valuation Division	Number	Annual Payroll
General County	365	\$14,581,604
DWS	39	2,061,924
Library	42	1,885,498
BABH	276	13,748,562
Medical Care Facility	319	9,643,694
Sheriff's Department	75	3,776,816
Road Commission	56	2,873,700
Total Active Members	1,172	\$48,571,798

Comparative Schedule

Valuation Date	Active Members								Valuation Payroll	Average		
	Gen.	DWS	Library	BABH	M.C.F.	Sheriff's	Road	Total		Age	Service	Pay
12/31/1993	624				258	71	71	1,024	\$26,304,065	42.5	9.5	\$25,688
12/31/1994	644				257	72	75	1,048	27,358,462	42.9	9.8	26,105
12/31/1995	662				264	73	74	1,073	28,878,179	43.1	10.0	26,913
12/31/1996	676				279	73	73	1,101	30,677,224	42.8	10.0	27,835
12/31/1997	688				283	76	74	1,121	32,216,234	43.1	10.0	28,739
12/31/1998	713				286	77	72	1,148	34,308,505	43.4	10.1	29,885
12/31/1999	718				284	76	73	1,151	35,763,978	43.7	10.4	31,072
12/31/2000	742				300	77	75	1,194	38,314,967	43.4	10.0	32,090
12/31/2001	465	40	63	180	296	78	75	1,197	39,761,644	43.8	10.3	33,218
12/31/2002	465	42	64	195	308	80	74	1,228	41,331,916	44	10.5	33,658
12/31/2003	456	41	67	206	302	76	76	1,224	43,053,950	44.7	10.7	35,175
12/31/2004	427	41	72	208	303	76	76	1,203	43,550,999	44.3	10.3	36,202
12/31/2005	429	41	74	211	293	75	74	1,197	43,104,046	44.7	10.5	36,010
12/31/2006	412	41	30	205	292	75	67	1,122	42,024,045	45.0	11.1	37,455
12/31/2007	415	39	39	216	288	74	67	1,138	44,687,752	45.3	11.3	39,269
12/31/2008	410	38	42	235	305	75	66	1,171	46,482,897	45.3	11.4	39,695
12/31/2009	407	39	45	253	297	76	58	1,175	47,244,573	45.1	11.3	40,208
12/31/2010	389	37	45	261	295	74	54	1,155	47,090,560	45.4	11.4	40,771
12/31/2011	378	38	44	274	298	77	56	1,165	48,583,176	45.3	11.2	41,702
12/31/2012	365	39	42	276	319	75	56	1,172	48,571,798	45.0	11.1	41,444

**General County Active Members December 31, 2012
by Attained Age and Years of Service**

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	2							2	\$ 55,349
25-29	8	2						10	298,557
30-34	19	10	7					36	1,293,299
35-39	5	11	9	1				26	1,026,230
40-44	7	13	18	8	1			47	1,841,908
45-49	5	10	13	12	9	6	2	57	2,304,024
50-54	12	10	17	12	6	11	2	70	2,843,750
55-59	2	13	12	11	9	8	10	65	2,815,806
60	3	2	2	2	2			11	286,127
61		2	1	5	1	1	1	11	516,032
62		4	1	1		1		7	214,454
63	3	3	1	1		1	1	10	519,832
64	1	1		1	1			4	213,748
65				1				1	73,361
66		1		2		1		4	217,172
67			1	1				2	43,889
70							1	1	8,673
79						1		1	9,393
Totals	67	82	82	58	29	30	17	365	\$14,581,604

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 48.5 years

Service: 13.3 years

Annual Pay: \$39,950

**DWS Active Members December 31, 2012
by Attained Age and Years of Service**

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
25-29	3							3	\$ 136,581
30-34	4							4	185,626
35-39	1			1				2	89,421
40-44	4		1		1			6	291,083
45-49		2	2		5			9	433,808
50-54	2	2	1					5	314,343
55-59	1		1		3	2	2	9	572,009
61		1						1	39,053
Totals	15	5	5	1	9	2	2	39	\$2,061,924

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 45.9 years

Service: 12.3 years

Annual Pay: \$52,870

**Library Active Members December 31, 2012
by Attained Age and Years of Service**

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
25-29		1						1	\$ 39,456
30-34	4							4	161,122
35-39	1		1					2	91,385
40-44	2		1					3	153,754
45-49	2		2	1				5	226,238
50-54		4	1			1		6	245,888
55-59	2	1	3	3			3	12	507,548
60			2		2			4	178,586
63	1	1						2	142,542
64					1		1	2	97,712
66						1		1	41,267
Totals	12	7	10	4	3	2	4	42	\$1,885,498

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 51.1 years

Service: 13.2 years

Annual Pay: \$44,893

**BABH Active Members December 31, 2012
by Attained Age and Years of Service**

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	1							1	\$ 37,600
25-29	17	2						19	746,385
30-34	24	7	4					35	1,692,910
35-39	22	7	6	1				36	1,711,123
40-44	17	9	10	1	1			38	1,800,190
45-49	9	3	8	4	7	3		34	1,818,016
50-54	15	8	9	2	7	8	1	50	2,471,507
55-59	8	9	7	7	5	5	2	43	2,214,132
60		1						1	52,363
61	2	2	2		1			7	281,243
62	1	3						4	260,491
63	1					1		2	101,600
64		2			1			3	199,024
65	1		1	1				3	361,978
Totals	118	53	47	16	22	17	3	276	\$13,748,562

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 45.4 years

Service: 9.4 years

Annual Pay: \$49,814

**Medical Care Facility Active Members December 31, 2012
by Attained Age and Years of Service**

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-14	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
15-19	9							9	\$ 75,030
20-24	39							39	814,140
25-29	30	11	1					42	1,012,220
30-34	18	9	5	1				33	933,001
35-39	18	5	6	7	1			37	1,330,989
40-44	13	4	3	3	1			24	719,701
45-49	8	5	9	2	6	6		36	1,370,692
50-54	12	9	8	6	6	4	4	49	1,672,131
55-59	4	6	3	5	8	2	2	30	975,082
60	2		1		3			6	178,076
61	2		3	1	1			7	362,123
62	1	1						2	81,095
63	1		1					2	27,588
64			1				1	2	63,742
69		1						1	28,084
Totals	157	51	41	25	26	12	7	319	\$9,643,694

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 40.1 years

Service: 8.6 years

Annual Pay: \$30,231

**Sheriff's Department Active Members December 31, 2012
by Attained Age and Years of Service**

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-15	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	4							4	\$ 148,836
25-29	7							7	289,907
30-34	3	6	3					12	596,112
35-39	3	2	4	1				10	517,997
40-44		1	4	9				14	795,481
45-49	1		3	5	5	1		15	768,953
50-54		1			2	1		4	187,789
55-59			2	1	1		1	5	252,600
60						1		1	38,435
62							1	1	57,269
63							1	1	72,521
68				1				1	50,916
Totals	18	10	16	17	8	3	3	75	\$3,776,816

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 41.0 years

Service: 12.7 years

Annual Pay: \$50,358

**Road Commission Active Members December 31, 2012
by Attained Age and Years of Service**

Attained Age	Years of Service to Valuation Date							Totals	
	0-4	5-9	10-15	15-19	20-24	25-29	30 Plus	No.	Valuation Payroll
20-24	1							1	\$ 40,539
25-29	2							2	81,262
30-34		1						1	43,479
35-39	2	1						3	158,215
40-44	2	1		4				7	365,338
45-49		3	2	7	1	3		16	850,327
50-54	1	4	2	4	3	3		17	926,024
55-59			2	1		3		6	268,311
62				1				1	79,911
63				1				1	46,875
69		1						1	13,419
Totals	8	11	6	18	4	9		56	\$2,873,700

While not used in the financial computations, the following group averages are computed and shown because of their general interest.

Age: 47.8 years

Service: 15.2 years

Annual Pay: \$51,316

SECTION D

ACTUARIAL COST METHODS AND ACTUARIAL ASSUMPTIONS

Valuation Methodology

Normal Cost/Accrued Liability. Normal cost and the allocation of actuarial present values between service rendered before and after the valuation date were determined using an individual entry-age actuarial cost method having the following characteristics:

- (i) the annual normal costs for each individual active member, payable from date of hire to the member's projected date of retirement, are sufficient to accumulate the actuarial present value of the member's anticipated benefit at the time of retirement;
- (ii) each annual normal cost is a constant percentage of the member's year by year projected covered pay.

Amortization of Unfunded Actuarial Accrued Liabilities. Unfunded actuarial accrued liabilities (UAAL) or asset surpluses were amortized by level percent-of-payroll contributions (principal and interest combined) as follows: If the liabilities exceed the assets (unfunded liabilities), the difference is amortized over a closed period of 30 years; if the assets exceed the liabilities (overfunding) the difference is amortized over an open period of 10 years. The amortization method was first adopted for the December 31, 2012 actuarial valuation. The UAAL payment reflects any payments expected to be made between the valuation date and the date contributions determined by this report are scheduled to begin. Active member payroll was assumed to increase 3.5% for the purpose of determining the level-percent contributions.

Asset valuation method. The actuarial value equals:

- (a) Actuarial value of assets from the previous valuation, plus
- (b) employer and member contributions since the last valuation, minus
- (c) benefit payments and refunds since the last valuation, plus
- (d) estimated investment income at the assumed investment return, plus
- (e) portion of gain/(loss) recognized in the current valuation.

For the above purpose, gain/(loss) is defined as the excess during the period of the investment return on the market value of assets over the expected investment income. Twenty percent of the difference is recognized over a 5 year period in the actuarial value of assets.

This method was first adopted for the December 31, 2003 actuarial valuation.

Actuarial Assumptions Used for the Valuation

Investment Return (net of investment expenses).

4.0% per year in excess of pay inflation. If pay inflation matches the assumption of 3.5%, this implies a 7.5% rate of return. This assumption was first adopted for the December 31, 2012 actuarial valuation and is used to equate the value of payments due at different points in time. Approximate rates of investment return, for the purpose of comparisons with assumed rates, are shown below. Actual increases in average active member pay are also shown for comparative purposes.

	<u>Year Ended December 31</u>					<u>5 Year Average*</u>
	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>	<u>2008</u>	
Rate of Investment Return	2.1 %	1.4 %	3.3 %	1.4 %	0.2 %	1.7 %
Average Increase in Pay#	<u>2.4</u>	<u>4.0</u>	<u>2.7</u>	<u>3.1</u>	<u>4.3</u>	<u>3.3</u>
Real Rate of Return	(0.3)	(2.6)	0.6	(1.7)	(4.1)	(1.6)

* *Compound rate of increase.*

Based on employees active during both years.

The nominal rate of return was computed using the approximate formula $i = I$ divided by $1/2 (A + B - I)$, where I is actual investment income net of expenses, A is the beginning of year asset value, and B is the end of year asset value.

Please note that this analysis uses asset values and investment income as defined for the actuarial valuation which deals with market value changes on a gradual basis.

These rates of return should not be used for measurement of an investment advisor's performance or for comparisons with other systems.

Pay Projections. These assumptions are used to project current pays to those upon which benefits will be based. In addition to the Merit and Longevity rates shown in the table, members are also assumed to receive a base increase of 3.5%.

Years of Service	Annual Rate of Pay Increase for Merit & Longevity						
	General	DWS	Library	BABH	MCF	Sheriff's	Road Commission
1	3.75%	3.75%	3.75%	3.75%	0.75%	6.00%	6.00%
2	3.00%	3.00%	3.00%	3.00%	0.75%	5.25%	3.75%
3	2.25%	2.25%	2.25%	2.25%	0.75%	5.25%	3.75%
4	2.25%	2.25%	2.25%	2.25%	0.75%	4.50%	3.75%
5	0.75%	0.75%	0.75%	0.75%	0.75%	3.75%	0.75%
6+	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%

If the number of active members remains constant, the total active member payroll will increase by about the level of pay inflation (assumed to be 3.5% per year). This increasing payroll was recognized in amortizing unfunded actuarial accrued liabilities. The payroll growth assumptions were first adopted for the December 31, 2012 actuarial valuation.

Changes actually experienced in pays have averaged as follows:

Year Ended December 31					5 Year Average*
2012	2011	2010	2009	2008	
2.4%	4.0%	2.7%	3.1%	4.3%	3.3%

* *Compound rate of increase.*

Lump sum payments: Lump sum payments for unused sick leave and vacation were assumed to increase final average compensation by 4.5% for the General and Library groups, 5% for the BABH group, 6% for the Sheriff's group, 7.0% for the DWS group, 7.5% for the Medical Care Facility, and 9.0% for the Road Commission. The lump sum payment assumptions were first adopted for the December 31, 2012 actuarial valuation.

Mortality. This assumption is used to measure the probabilities of members dying before retirement and the probabilities of each benefit payment being made after retirement. The RP-2000 Mortality Combined Healthy Tables, projected 20 years with U.S. Population Scale BB (multiplied by 75% for pre-retirement mortality and 110% for post-retirement mortality for both males and females) were used for healthy lives. The present values and the life expectancy at various ages under this mortality table are shown below:

Sample Ages	Actuarial Present Value of \$1 Monthly for Life*		Future Life Expectancy (Years)	
	Men	Women	Men	Women
50	\$143.50	\$146.82	32.15	34.70
55	\$136.00	\$140.26	27.56	30.04
60	\$126.67	\$131.76	23.16	25.50
65	\$115.39	\$121.27	19.01	21.19
70	\$102.07	\$109.03	15.16	17.19
75	\$86.95	\$95.23	11.66	13.58
80	\$70.84	\$80.10	8.62	10.36

* These present value amounts were calculated using a 7.5% interest rate.

The RP-2000 Mortality Combined Healthy Tables, projected 20 years with U.S. Population Scale BB with ages set forward 10 years was used for disabled lives.

The mortality assumptions were first adopted for the December 31, 2012 actuarial valuation. The mortality rates were adjusted to include margin for future mortality improvements as described in the table names above.

Administration Expenses. Non-investment administration expenses are assumed to average 0.4% of payroll annually. This assumption is unchanged from previous valuations. This assumption was not changed as a result of the experience study.

Active Member Group Size. The number of active members was assumed to remain constant. This assumption is unchanged from previous valuations.

Rates of separation from active membership. The rates do not apply to members eligible to retire and do not include separation on account of death or disability. This assumption measures the probabilities of members remaining in employment. This assumption was first adopted for the December 31, 2012 actuarial valuation.

		% of Active Members Separating within Next Year					Road	
Sample	Years of	General	DWS	Library	BABH	MCF	Sheriff's*	Commission*
Ages	Service							
ALL	0	15.00%	15.00%	15.00%	15.00%	25.00%	N/A	N/A
	1	9.00	9.00	9.00	9.00	25.00	N/A	N/A
	2	9.00	9.00	9.00	9.00	15.00	N/A	N/A
	3	8.00	8.00	8.00	8.00	12.50	N/A	N/A
	4	8.00	8.00	8.00	8.00	8.75	N/A	N/A
20	5 & Over	7.50	7.50	7.50	7.50	7.50	4.50	4.50
25		7.50	7.50	7.50	7.50	7.50	4.50	4.50
30		7.00	7.00	7.00	7.00	5.00	3.75	3.90
35		7.00	7.00	7.00	7.00	5.00	2.25	2.30
40		4.00	4.00	4.00	4.00	3.75	1.50	0.90
45		3.00	3.00	3.00	3.00	2.50	1.50	0.50
50		2.00	2.00	2.00	2.00	2.00	1.25	0.50
55		2.00	2.00	2.00	2.00	2.00	0.75	0.50
60		2.00	2.00	2.00	2.00	2.00	0.75	0.50

* These groups do not have service based rates of separation. All rates of separation are based on ages.

Rates of Disability. These rates represent the probabilities of active members becoming disabled. This assumption was first adopted for the December 31, 2012 actuarial valuation.

Percent Becoming Disabled		
within Next Year		
Sample	Sheriff	All Other
Ages		Groups
20	0.12 %	0.06 %
25	0.12	0.06
30	0.12	0.06
35	0.12	0.06
40	0.30	0.15
45	0.40	0.20
50	0.74	0.37
55	1.34	0.67
60	2.12	1.06

We assumed that 50% of disabilities are duty related and 50% are non-duty related for Sheriff's. For all other groups we assumed 85% of disabilities are non-duty related and 15% are duty related.

Rates of Retirement. These rates are used to measure the probabilities of an eligible member retiring during the next year.

Retirement Ages	Percent of Active Members Retiring Within Next Year						
	General	DWS	Library	BABH	MCF	Sheriff's	Road Commission
50					20 %		15 %
51					20		15
52					20		25
53					20		25
54					20		25
55	20 %	25 %	15 %	15 %	30		25
56	15	20	10	10	40		15
57	15	20	10	10	50		15
58	15	20	10	10	50		15
59	15	20	10	10	50		15
60	30	35	25	25	30	15 %	15
61	25	30	20	20	30	15	15
62	15	20	10	10	50	30	35
63	15	20	10	10	25	15	35
64	15	20	10	10	25	15	35
65	30	35	25	25	100	100	100
66	15	20	10	10			
67	15	20	10	10			
68	15	20	10	10			
69	15	20	10	10			
70	100	100	100	100			

The following table shows the rates used for the Road Patrol and Road Patrol Supervisory Unit 25 & Out provision and the Correctional Facility Officers 55 & 25 provision.

25 & Out		55 & 25	
Years of Service	Sheriff's Road Patrol and Road Patrol Supervisory Unit	Age	Correctional Facility Officers
25	40%	55	40%
26	40	56	40
27	40	57	40
28	25	58	25
29	25	59	25
30	25	60	25
31	25	61	25
32	25	62	25
33	25	63	25
34	100	64	100

The following table shows the rates for the 55 & 8 and/or 55 & 10 Early Retirement provision:

55 & 8 and/or 55 & 10 Early Retirement			
Retirement			All Other
Ages	General	DWS	Groups
55	10 %	15 %	5 %
56	10	15	5
57	10	15	5
58	10	15	5
59	10	15	5

The retirement assumptions were first adopted for the December 31, 2012 actuarial valuation.

Miscellaneous and Technical Assumptions

Marriage Assumption:	100% of males and 100% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses.
Pay Increase Timing:	Six months after the valuation date.
Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
Benefit Service:	Exact fractional service is used to determine the amount of benefit payable.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Decrement Operation:	Disability and death-in-service decrements do not operate during the first 5 years of service. Disability and withdrawal do not operate during retirement eligibility.
Normal Form of Benefit:	The assumed normal form of benefit is straight life form.
Loads:	Lump sum payments for unused sick leave and vacation. For current retirees who elected a joint and survivor form of payment with a pop-up, the liabilities are loaded 2% because the pop-up benefits are not provided in the data.
Incidence of Contributions:	Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made. New entrant normal cost contributions are applied to the funding of new entrant benefits.

SECTION E

DISCLOSURE MATERIAL IN COMPLIANCE WITH STATEMENT NO. 25 OF THE GOVERNMENTAL ACCOUNTING STANDARDS BOARD

This information is presented in draft form for review by the System's auditor. Please let us know if there are any items that the auditor changes so that we may maintain consistency with the System's financial statements.

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL) (b) – (a)	Funded Ratio (a)/(b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll [(b) – (a)] / (c)
12/31/2003 #	\$225,029,045	\$156,241,874	\$(68,787,171)	144.0 %	\$43,053,950	none %
12/31/2004 *	227,174,445	174,175,401	(52,999,044)	130.4	43,550,999	none
12/31/2005	230,242,485	181,304,958	(48,937,527)	127.0	43,104,046	none
12/31/2006 *	237,681,108	189,810,766	(47,870,342)	125.2	42,024,045	none
12/31/2007 *	253,492,248	200,933,482	(52,558,766)	126.2	44,687,752	none
12/31/2008	246,577,567	212,530,757	(34,046,810)	116.0	46,482,897	none
12/31/2009	243,271,514	221,407,973	(21,863,541)	109.9	47,244,573	none
12/31/2010 *	244,728,050	231,625,254	(13,102,796)	105.7	47,090,560	none
12/31/2011 *	241,207,722	241,791,817	584,095	99.8	48,583,176	0.01
12/31/2012 #	239,280,740	245,269,867	5,989,127	97.6	48,571,798	0.12

* Plan amended.

Certain assumptions or methods revised.

Actuarial Cost Method

Individual Entry Age Normal Cost.

Amortization Method

Level percent of payroll.

Amortization periods

30 years closed for groups that are underfunded (unfunded accrued liability is positive). 10 years open for groups that are overfunded (unfunded accrued liability is negative).

Asset Valuation Method

Market value with 5 year smoothing of gains and losses.

Principal Actuarial Assumptions
(last revised for the 12/31/12 valuation):

- Net Investment Return 7.5%
- Projected Salary Increases 3.5% pay inflation plus merit and longevity.
- Cost-of-Living Adjustments None

Schedule of Employer Contributions

Plan Year Ended December 31	Fiscal Year Ended December 31	Annual Required Contribution
2003	2004	\$ 0
2004	2005	405,110
2005	2006	588,948
2006	2007	644,945
2007	2008	688,871
2008	2009	1,578,548
2009	2011	2,443,118
2010 ^	2012	3,074,891
2011	2013	4,289,438
2012	2014	3,859,894

^ Implementation of a one year lag between valuation date and first day of the fiscal year to which the contributions apply.

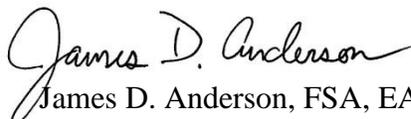
September 16, 2013

Ms. Crystal Hebert
Finance Officer
Bay County Employees' Retirement System
515 Center Avenue, Suite 706
Bay City, Michigan 48708

Dear Ms. Hebert:

Enclosed please find 20 copies of the report of the Sixty-Seventh Annual Actuarial Valuation for the Bay County Employees' Retirement System.

Sincerely,



James D. Anderson, FSA, EA, MAAA

JDA:bd
Enclosures

cc: Mark Buis (GRS)
Mr. Jerry Desloover (Rehman, Robson)