

City of Worcester Retirement System

*Actuarial Valuation and Review
as of January 1, 2010*

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The Segal Company
116 Huntington Ave., 8th Floor Boston, MA 02116
T 617.424.7300 F 617.424.7390 www.segalco.com

May 24, 2010

*City of Worcester Retirement System
City Hall, Room 103, 455 Main Street
Worcester, MA 01608*

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of January 1, 2010. It summarizes the actuarial data used in the valuation, establishes the funding requirements for fiscal 2011 and later years and analyzes the preceding year's experience.

The census information and financial information on which our calculations were based was prepared by the staff of the Worcester Retirement System. That assistance is gratefully acknowledged. The actuarial calculations were completed under my supervision.

This actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the Plan.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,

THE SEGAL COMPANY

By:

*Kathleen A. Riley, FSA, MAAA, EA
Senior Vice President and Actuary*

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SECTION 1: Valuation Summary for the City of Worcester Retirement System

Purpose

This report has been prepared by The Segal Company to present a valuation of the City of Worcester Retirement System as of January 1, 2010. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The contribution requirements presented in this report are based on:

- The benefit provisions of the M.G.L. Chapter 32;
- The characteristics of covered active participants, inactive participants, and retired participants and beneficiaries as of December 31, 2009;
- The assets of the Plan as of December 31, 2009;
- Economic assumptions regarding future salary increases and investment earnings; and
- Other actuarial assumptions, regarding employee terminations, retirement, death, etc.

Significant Issues in Valuation Year

The following key findings were the result of this actuarial valuation:

- The actuarial valuation report as of January 1, 2010 is based on financial information as of that date. Changes in the value of assets subsequent to that date are not reflected.
- With this valuation we have changed the asset valuation method to reflect a 10% corridor around market value, compared to the 20% corridor used in the prior valuation. The actuarial value of assets as of December 31, 2009 was \$720,581,704 or 116.6% of the market value of \$617,736,339 (as reported in the draft Annual Statement) before the change in method and \$679,509,973 or 110% of market value after the change. The actuarial rate of return was 17.15% before the change in the asset method and 10.56% after the change. The market value return for 2009 was 21.12%.
- During the year ended December 31, 2009, there was an experience gain of \$43,164,805 due to an investment gain of \$55,454,843 (before the change in the asset method), partially offset by an experience loss of \$12,290,038.
- Effective with this valuation, we have changed the disabled life mortality table from the 1994 Group Annuity Mortality Table set forward 10 years to the 1994 Group Annuity Mortality Table set forward 7 years.
- As indicated in Section 2, Subsection B of this report, the total unrecognized investment loss as of December 31, 2009 is \$61,773,634. This investment loss will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years, to the extent it is not offset by recognition of investment gains derived from future

SECTION 1: Valuation Summary for the City of Worcester Retirement System

experience. This implies that earning the assumed rate of investment return of 8.25% per year (net of expenses) on a market value basis will result in investment losses on the actuarial value of assets in the next few years. A projection of the market value of and actuarial value of assets indicates that large losses will be recognized as of December 31, 2011 and December 31, 2012. These losses are reflected in the fiscal 2013 and fiscal 2014 appropriations shown in the funding schedule in Section 3, Exhibit G.

- The unfunded liability has increased from \$297.7 million as of January 1, 2009 to \$308.2 million as of January 1, 2010 due to the change in the asset method and the change to the disabled life mortality table, partially offset by the investment gain.
- The funding schedule shown in this report assumes that legislation will be approved which allows Retirement Systems to extend their funding schedules to June 30, 2040 with amortization payments that increase 4.0% per year and with a maximum increase in the appropriation from one fiscal year to the next of 8.0%. On this basis, the recommended contribution for fiscal 2011 is \$29,770,499. The 2002 ERI is amortized in level dollar amounts through fiscal 2018 (eight payments remaining), the 2003 ERI in level dollar amounts through fiscal 2012 (two payments remaining), the Section 90 ACD liability in level dollar amounts through fiscal 2014 (four payments remaining), and the remaining unfunded liability in increasing payments (4.0% per year) through fiscal 2040 (30 payments remaining). If the funding schedule is not extended, the recommended contribution for fiscal 2011 is \$33,543,187 (remaining unfunded liability amortized in increasing (4.5% per year) payments through fiscal 2030). The recommended contribution for fiscal 2011 of \$29,770,499 is a 4.4% increase from the fiscal 2010 budgeted appropriation shown in the prior valuation report.
- The funded ratio has increased from 67.98% as of January 1, 2009 to 68.80% as of January 1, 2010.

SECTION 1: Valuation Summary for the City of Worcester Retirement System

Summary of Key Valuation Results

	2010	2009
Contributions:		
Recommended for fiscal 2011 and 2010	\$29,770,499	\$28,505,066
Funding elements for plan year beginning January 1:		
Normal cost, including administrative expenses	\$24,074,576	\$23,936,084
Market value of assets	617,736,339	526,578,330
Actuarial value of assets	679,509,973	631,893,995
Actuarial accrued liability	987,692,295	929,569,464
Unfunded actuarial accrued liability	308,182,322	297,675,469
GASB 25/27:		
Annual required contributions	\$29,770,499	\$28,505,066
Actual contributions	--	28,505,066
Percentage contributed	--	100.00%
Funded ratio	68.80%	67.98%
Demographic data for plan year beginning January 1:		
Number of retired participants and beneficiaries	2,774	2,792
Number of inactive participants entitled to a return of their employee contributions	697	850
Number of inactive participants with a vested right to a deferred or immediate benefit	73	60
Number of active participants	3,262	3,352
Total payroll in prior calendar year*	\$158,581,999	\$158,326,882
Average payroll in prior calendar year*	48,615	47,234

* Calendar year 2009 payroll figures were increased by 4.0% for police officers to reflect unsettled contracts. Calendar year 2008 payroll figures were reduced to reflect retroactive salary payments made in 2008 for police officials.

SECTION 2: Valuation Results for the City of Worcester Retirement System

A. PARTICIPANT DATA

The Actuarial Valuation and Review considers the number and demographic characteristics of covered participants, including active participants, inactive participants, retired participants and beneficiaries.

This section presents a summary of significant statistical data on these participant groups.

More detailed information for this valuation year and the preceding valuation can be found in Section 3, Exhibits A and B.

A historical perspective of how the participant population has changed over the past ten valuations can be seen in this chart.

CHART 1
Participant Population: 2000 – 2009

Year Ended December 31	Active Participants	Inactive Participants	Retired Participants and Beneficiaries	Ratio of Non-Actives to Actives
2000	3,910	905	2,950	0.99
2001	4,080	929	2,905	0.94
2002	3,679	1,094	3,001	1.11
2003	3,409	1,102	2,996	1.20
2004	3,498	1,017	2,964	1.14
2005	3,430	1,007	2,919	1.14
2006	3,397	1,072	2,864	1.16
2007	3,299	898	2,849	1.14
2008	3,352	910	2,792	1.10
2009	3,262	770	2,774	1.09

SECTION 2: Valuation Results for the City of Worcester Retirement System

Active Participants

Plan costs are affected by the age, years of service and payroll of active participants. In this year's valuation, there were 3,262 active participants with an average age of 47.2, average years of service of 14.0 years and average payroll of \$48,615. The 3,352 active participants in the prior valuation had an average age of 46.9, average service of 13.5 years and average payroll of \$47,234.

Among the active participants, there were none with unknown age and/or service information.

Inactive Participants

In this year's valuation, there were 73 participants with a vested right to a deferred or immediate vested benefit and 697 participants entitled to a return of their employee contributions.

These graphs show a distribution of active participants by age and by years of service.

CHART 2
Distribution of Active Participants by Age as of December 31, 2009

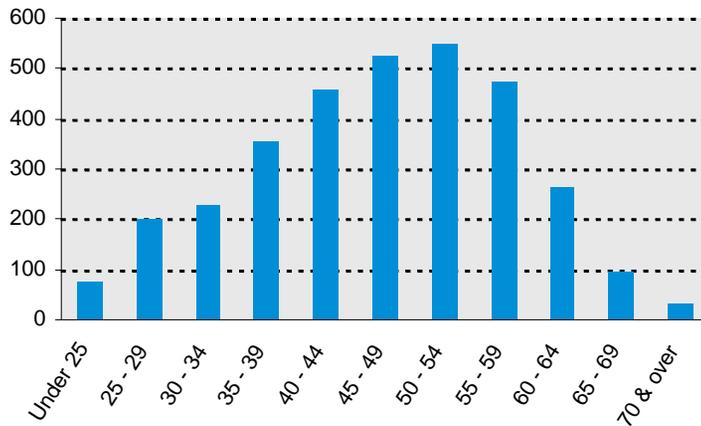
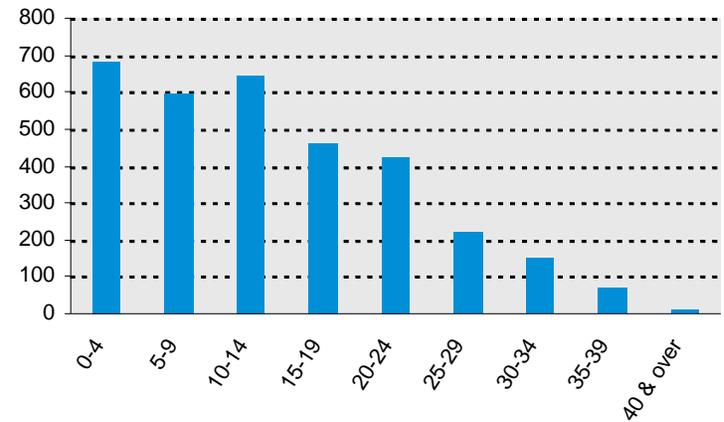


CHART 3
Distribution of Active Participants by Years of Service as of December 31, 2009



SECTION 2: Valuation Results for the City of Worcester Retirement System

Retired Participants and Beneficiaries

As of December 31, 2009, 2,252 retired participants and 522 beneficiaries were receiving total monthly benefits of \$4,796,365 excluding COLAs reimbursed by the Commonwealth. For comparison, in the previous valuation, there were 2,261 retired participants and 531 beneficiaries receiving monthly benefits of \$4,567,655 excluding COLAs reimbursed by the Commonwealth.

These graphs show a distribution of the current retired participants and beneficiaries based on their monthly amount and age, by type of pension.

CHART 4
Distribution of Retired Participants and Beneficiaries by Type and by Monthly Amount as of December 31, 2009

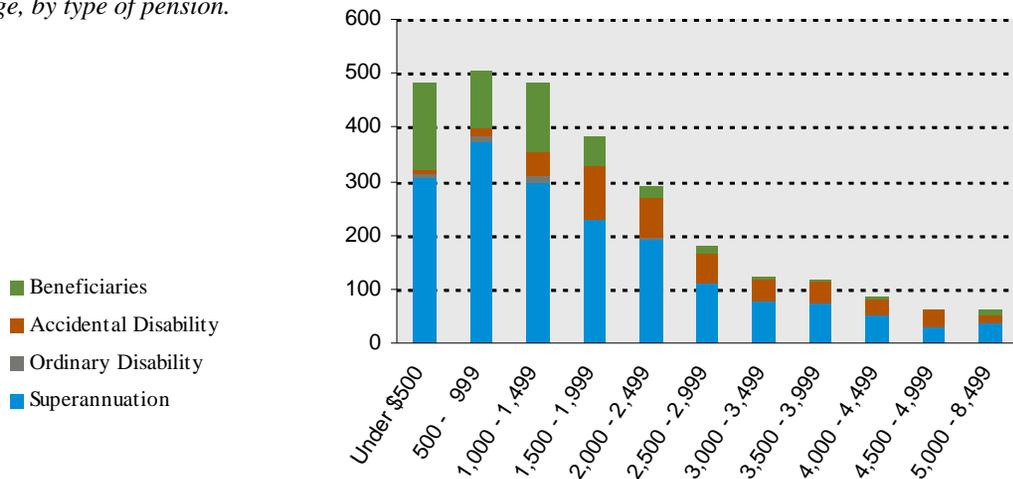
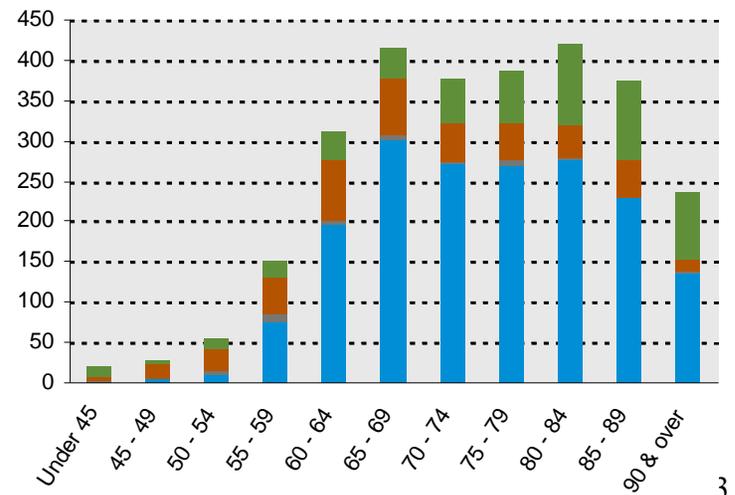


CHART 5
Distribution of Retired Participants and Beneficiaries by Type and by Age as of December 31, 2009



SECTION 2: Valuation Results for the City of Worcester Retirement System

B. FINANCIAL INFORMATION

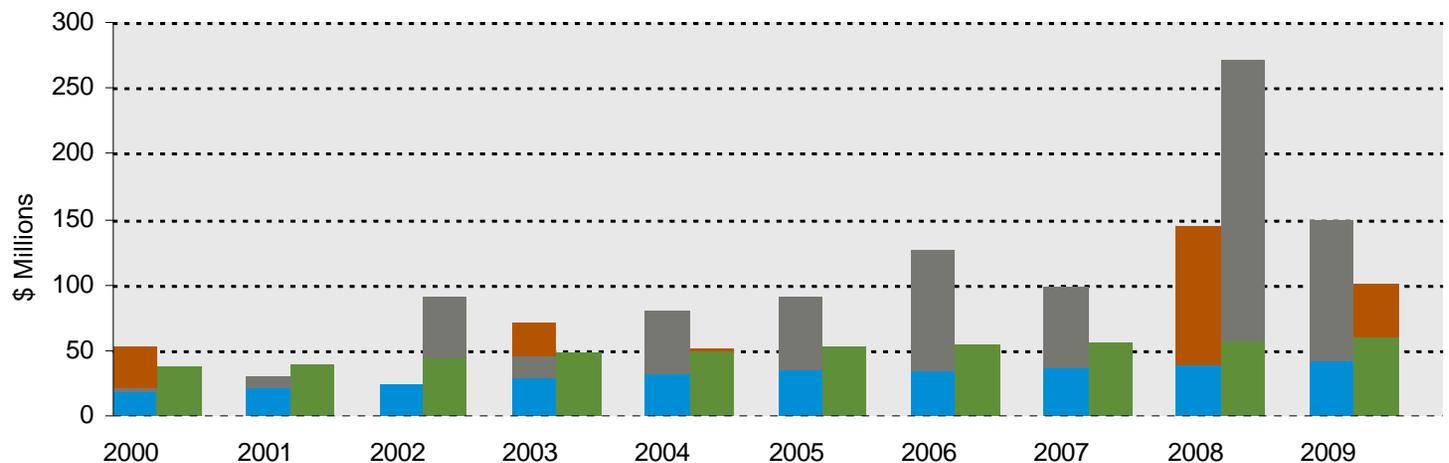
Retirement plan funding anticipates that, over the long term, both net contributions (less administrative expenses) and net investment earnings (less investment fees) will be needed to cover benefit payments.

Retirement plan assets change as a result of the net impact of these income and expense components. Additional financial information, including a summary of these transactions for the valuation year, is presented in Section 3, Exhibits C and D.

The chart depicts the components of changes in the actuarial value of assets over the last ten years. Note: The first bar represents increases in assets during each year while the second bar details the decreases.

CHART 6
Comparison of Increases and Decreases in the Actuarial Value of Assets for Years Ended December 31, 2000 – 2009

- Change in asset method
- Net investment income
- Benefits paid
- Net contributions



SECTION 2: Valuation Results for the City of Worcester Retirement System

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable. For this valuation, we have reduced the corridor around market value from 20% to 10%.

The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

The chart shows the determination of the actuarial value of assets as of the valuation date.

**CHART 7
Determination of Actuarial Value of Assets for Year Ended December 31, 2009**

1. Market value of assets			\$617,736,339
	Original	Unrecognized	
2. Calculation of unrecognized return*	<u>Amount</u>	<u>Return</u>	
(a) Year ended December 31, 2009	\$66,613,685	\$53,290,948	
(b) Year ended December 31, 2008	-275,514,085	-165,308,451	
(c) Year ended December 31, 2007	3,341,587	1,336,635	
(d) Year ended December 31, 2006	39,177,515	7,835,503	
(e) Year ended December 31, 2005	4,698,351	<u>0</u>	
(f) Total unrecognized return			-102,845,365
3. Preliminary actuarial value: (1) - (2f)			720,581,704
4. Adjustment to be within 10% corridor			-41,071,731
5. Final actuarial value of assets: (3) + (4)			<u>\$679,509,973</u>
6. Actuarial value as a percentage of market value: (5) ÷ (1)			110.0%

* Unrecognized return is the difference between the total return and the expected return on a market value basis and is recognized over a five-year period.

SECTION 2: Valuation Results for the City of Worcester Retirement System

In 2001, the Board approved an asset valuation method that gradually adjusts to market value. A smoothing method was used through 2004.

From 2005 through 2008, the actuarial value of assets was set equal to market value.

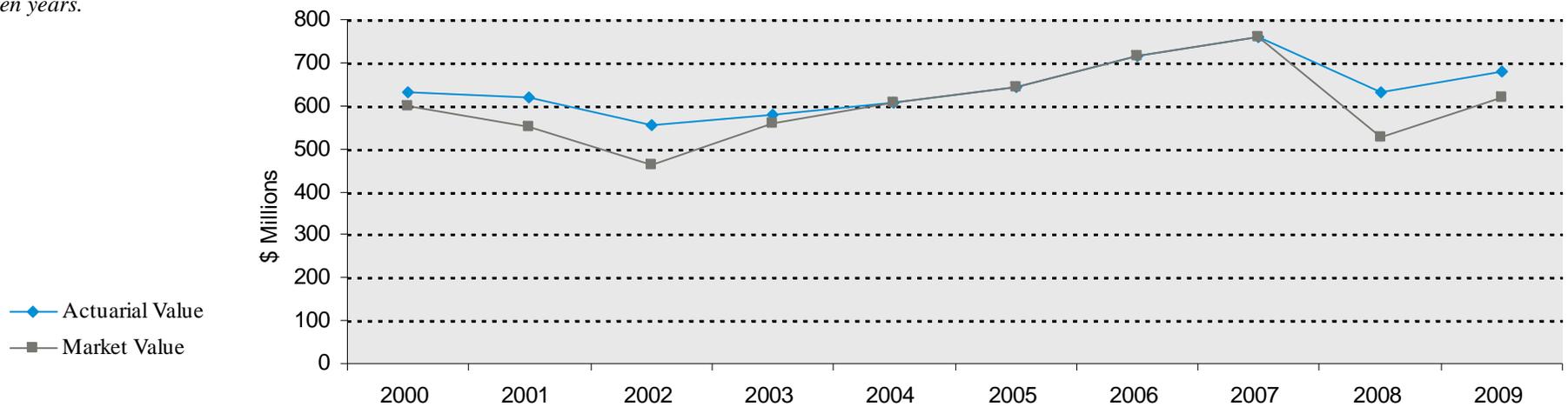
In 2009, the Board approved an asset valuation method that gradually adjusts to market value.

Effective with the 2010 valuation, we have reduced the corridor around market value from 20% to 10%.

The actuarial asset value is significant because the Worcester Retirement System’s liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

This chart shows the change in the actuarial value of assets versus the market value over the past ten years.

CHART 8
Actuarial Value of Assets vs. Market Value of Assets as of December 31, 2000 – 2009



SECTION 2: Valuation Results for the City of Worcester Retirement System

C. ACTUARIAL EXPERIENCE

To calculate the required contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), the contribution requirement will decrease from the previous year. On the other hand, the contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term development and that, over the long term, experience will

return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

The total experience gain for the year ended December 31, 2009 is \$43,164,805. If the effect of the change in the corridor around market value is subtracted from the investment gain, the investment gain becomes \$14,383,112 and the total experience gain becomes \$2,093,074. A discussion of the major components of the actuarial experience is on the following pages.

This chart provides a summary of the actuarial experience during the past year.

**CHART 9
Actuarial Experience for Year Ended December 31, 2009**

1. Net gain from investments (before reducing the corridor around market value to 10%)*	\$55,454,843
2. Net gain from administrative expenses	93,113
3. Net loss from other experience**	<u>-12,383,151</u>
4. Net experience gain: (1) + (2) + (3)	\$43,164,805

* Details in Chart 10

** Details in Chart 13

SECTION 2: Valuation Results for the City of Worcester Retirement System

Investment Rate of Return

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the Worcester Retirement System’s investment policy. For valuation purposes, the assumed rate of return on the actuarial value of assets is 8.25%. The actual rate of return on an actuarial basis for the 2009 plan year was 17.15% using the 20% corridor and 10.56% using the 10% corridor.

Since the actual return for the year was greater than the assumed return, the Worcester Retirement System experienced an actuarial gain during the year ended December 31, 2009 with regard to its investments.

This chart shows the gain/(loss) due to investment experience.

CHART 10
Actuarial Value Investment Experience for Year Ended December 31, 2009

1. Actual return	\$106,837,422
2. Average value of assets	622,819,139
3. Actual rate of return: (1) ÷ (2)	17.15%
4. Assumed rate of return	8.25%
5. Expected return: (2) x (4)	\$51,382,579
6. Actuarial gain/(loss): (1) – (5)	<u>\$55,454,843</u>

SECTION 2: Valuation Results for the City of Worcester Retirement System

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the market value investment return for the last ten years, including five-year and ten-year averages.

Based upon this experience and future expectations, we have maintained the assumed rate of return of 8.25%.

CHART 11

Investment Return – Actuarial Value vs. Market Value: 2000 - 2009

Year Ended December 31	Actuarial Value Investment Return		Market Value Investment Return	
	Amount	Percent	Amount	Percent
2000	\$35,128,309	5.80	\$2,494,022	0.41
2001	8,897,926	1.43	-29,978,425	-5.09
2002	-46,582,424	-7.63	-67,436,801	-12.50
2003	41,670,173	7.65	115,476,574	25.52
2004	47,848,351	8.43	66,406,965	12.09
2005	55,470,778	9.29	55,470,778	9.29
2006	91,535,234	14.42	91,535,234	14.42
2007	61,690,401	8.72	61,690,401	8.72
2008	-108,338,167	-14.45	-213,653,832	-28.49
2009	<u>65,765,691</u>	10.56	<u>109,307,722</u>	21.12
Total	\$253,086,272		\$191,312,638	
	Five-year average return	5.02%		3.25%
	Ten-year average return	4.04%		3.22%

*Notes: Each year's yield is weighted by the average asset value in that year.
2000, 2003, 2004, 2008 and 2009 actuarial value investment returns include a change in asset method.*

SECTION 2: Valuation Results for the City of Worcester Retirement System

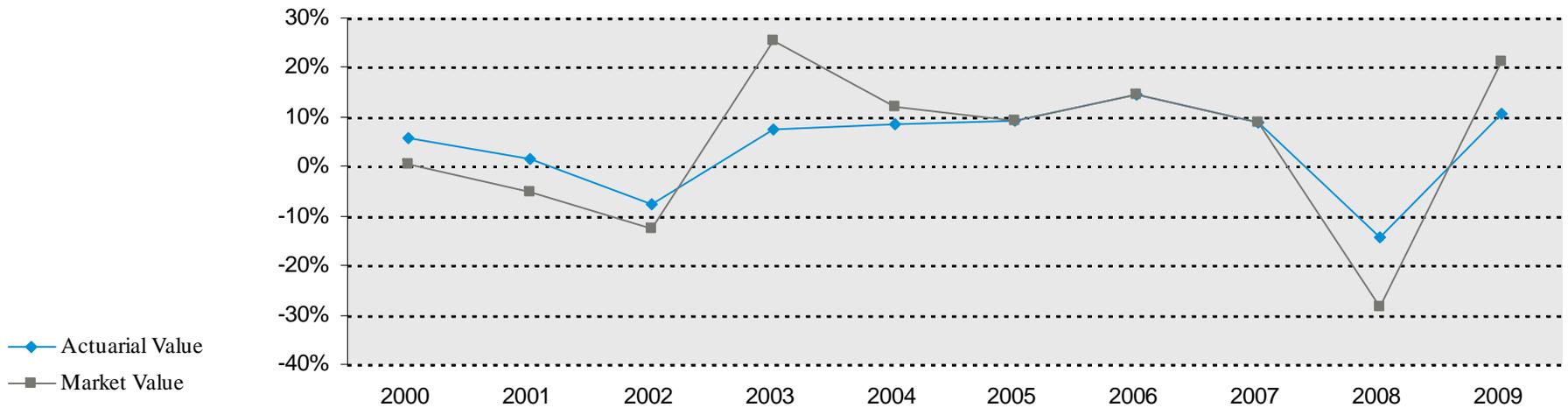
Chart 12 shows the actuarial rate of return and the market value rate of return for the past ten years.

Administrative Expenses

Administrative expenses for the year ended December 31, 2009 totaled \$538,983 compared to the assumption of \$625,000 payable at the beginning of the year. This resulted in a gain of \$93,113 for the year including an adjustment for timing. We have maintained the assumption of \$625,000 for the current year.

This chart illustrates how this leveling effect has actually worked over the years 2000 - 2009.

CHART 12
Market and Actuarial Rates of Return for Years Ended December 31, 2000 - 2009



SECTION 2: Valuation Results for the City of Worcester Retirement System

Other Experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- the extent of turnover among the participants,
- retirement experience (earlier or later than expected),
- mortality (more or fewer deaths than expected),

- the number of disability retirements, and
- salary increases different than assumed.

The net loss from this other experience for the year ended December 31, 2009 amounted to \$12,383,151 which is 1.3% of the actuarial accrued liability.

The disabled life mortality table was changed from the 1994 Group Annuity Mortality Table set forward 10 years to the 1994 Group Annuity Mortality Table set forward 7 years.

The chart shows elements of the experience gain/(loss) for the most recent year.

CHART 13

Experience Due to Changes in Demographics for Year Ended December 31, 2009

1. Salary increases for continuing actives greater than expected	-\$2,753,382
2. Miscellaneous experience loss	<u>-9,629,769</u>
3. Total	-\$12,383,151

SECTION 2: Valuation Results for the City of Worcester Retirement System

D. RECOMMENDED CONTRIBUTION

The amount of annual contribution required to fund the Plan is comprised of an employer normal cost payment and a payment on the unfunded actuarial accrued liability.

The funding schedule shown in this report assumes that legislation will be approved which allows Retirement Systems to extend their funding schedules to June 30, 2040 with amortization payments that increase 4.0% per year and with a maximum increase in the appropriation from one fiscal year to the next of 8.0%. On this basis, the recommended contribution for fiscal 2011 is \$29,770,499. The 2002 ERI is amortized in level dollar amounts through fiscal 2018 (eight payments remaining), the 2003 ERI in level dollar amounts through fiscal 2012 (two payments remaining), the Section 90 ACD liability in level dollar amounts through fiscal 2014 (four payments remaining),

and the remaining unfunded liability in increasing payments (4.0% per year) through fiscal 2040 (30 payments remaining). If the funding schedule is not extended, the recommended contribution for fiscal 2011 is \$33,543,187 (remaining unfunded liability amortized in increasing (4.5% per year) payments through fiscal 2030). The recommended contribution for fiscal 2011 of \$29,770,499 is a 4.4% increase from the fiscal 2010 budgeted appropriation shown in the prior valuation report.

Exhibit G in Section 3 shows the recommended contributions through fiscal 2040 based on this funding schedule.

The chart compares this valuation's recommended contribution with the prior valuation.

**CHART 14
Recommended Contribution**

	Year Beginning January 1		2009	
	2010		2009	
	Amount	% of Payroll	Amount	% of Payroll
1. Total normal cost	\$23,449,576	14.09%	\$23,311,084	14.04%
2. Administrative expenses	625,000	0.38%	625,000	0.38%
3. Expected employee contributions	<u>-14,834,807</u>	<u>-8.92%</u>	<u>-14,635,718</u>	<u>-8.81%</u>
4. Employer normal cost: (1) + (2) + (3)	\$9,239,769	5.55%	\$9,300,366	5.60%
5. Actuarial accrued liability	987,692,295		929,569,464	
6. Actuarial value of assets	<u>679,509,973</u>		<u>631,893,995</u>	
7. Unfunded actuarial accrued liability: (5) - (6)	\$308,182,322		\$297,675,469	
8. Employer normal cost projected to July 1, 2009 and 2008	9,422,752	5.55%	9,484,550	5.60%
9. Projected unfunded actuarial accrued liability	320,642,935		309,711,263	
10. Payment on projected unfunded actuarial accrued liability	20,347,747	11.99%	22,574,596	13.33%
11. Recommended contribution: (8) + (10)	\$29,770,499	17.54%	\$32,059,146	18.93%
12. Budgeted appropriation	N/A		\$28,505,066	16.83%
13. Projected payroll as of July 1	\$169,687,287		\$169,338,535	

Note: Recommended contributions are assumed to be paid at the beginning of the fiscal year.

SECTION 2: Valuation Results for the City of Worcester Retirement System

E. INFORMATION REQUIRED BY THE GASB

Governmental Accounting Standards Board (GASB) reporting information provides standardized information for comparative purposes of governmental pension plans. This information allows a reader of the financial statements to compare the funding status of one governmental plan to another on relatively equal terms.

Critical information to the GASB is the historical comparison of the GASB required contributions to the actual contributions. This comparison demonstrates whether a plan is being funded within the range of the GASB reporting requirements. Chart 15 below presents a graphical representation of this information for the Plan.

The other critical piece of information regarding the Plan's financial status is the funded ratio. This ratio compares the

actuarial value of assets to the actuarial accrued liabilities of the plan as calculated under the GASB. High ratios indicate a well-funded plan with assets sufficient to pay most benefits. Lower ratios may indicate recent changes to benefit structures, funding of the plan below actuarial requirements, poor asset performance, or a variety of other factors.

Although the GASB requires that the actuarial value of assets be used to determine the funded ratio, Chart 16 shows the funded ratio calculated using both the actuarial value of assets (68.80%) and the market value of assets (62.54%).

The details regarding the calculations of these values and other GASB numbers may be found in Section 4, Exhibits II, III, and IV.

These graphs show key GASB factors.

CHART 15
Required Versus Actual Contributions

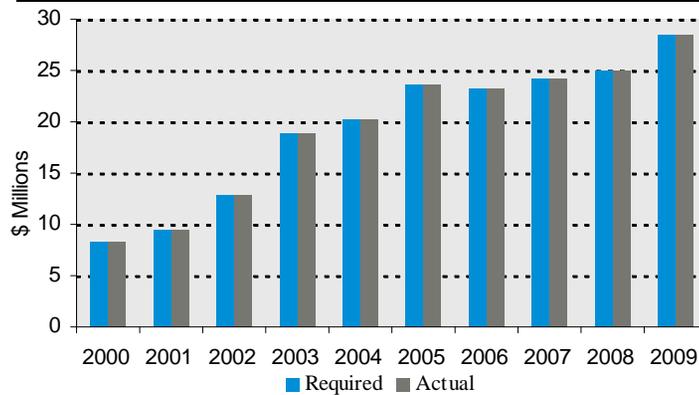
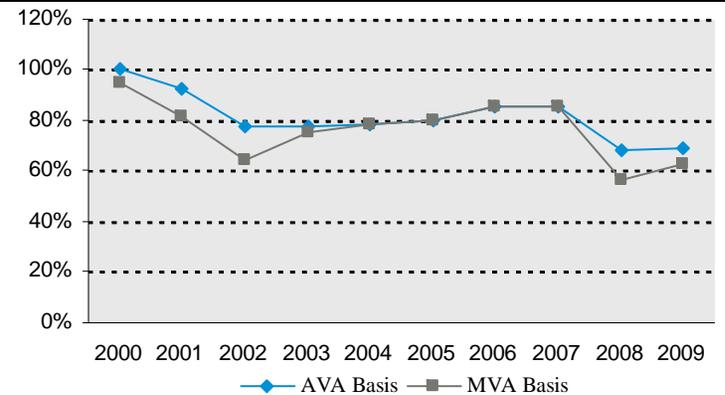


CHART 16
Funded Ratio



SECTION 3: Supplemental Information for the City of Worcester Retirement System

EXHIBIT A

Table of Plan Coverage

Category	Year Ended December 31		Change From Prior Year
	2009	2008	
Active participants in valuation:			
Number	3,262	3,352	-2.7%
Average age	47.2	46.9	N/A
Average service	14.0	13.5	N/A
Total payroll*	\$158,581,999	\$158,326,882	0.2%
Average payroll*	48,615	47,234	2.9%
Member contributions	151,961,970	146,646,365	3.6%
Inactive participants entitled to a return of their employee contributions	697	850	-18.0%
Inactive participants with a vested right to a deferred or immediate vested benefit	73	60	21.7%
Retired participants:			
Number in pay status	1,771	1,769	0.1%
Average age	75.1	75.1	N/A
Average monthly benefit	\$1,673	\$1,580	5.9%
Disabled participants:			
Number in pay status	481	492	-2.2%
Average age	69.0	68.9	N/A
Average monthly benefit	\$2,547	\$2,447	4.1%
Beneficiaries in pay status	522	531	-1.7%

* Calendar year 2009 payroll figures were increased by 4.0% for police officers to reflect unsettled contracts. Calendar year 2008 payroll figures were reduced to reflect retroactive salary payments made in 2008 for police officials.

SECTION 3: Supplemental Information for the City of Worcester Retirement System

EXHIBIT B

**Participants in Active Service as of December 31, 2009
By Age, Years of Service, and Average Payroll**

Age	Years of Service									
	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & over
Under 25	75	74	1	--	--	--	--	--	--	--
	\$22,585	\$45,413	\$42,215	--	--	--	--	--	--	--
25 - 29	201	159	39	3	--	--	--	--	--	--
	\$35,415	\$55,769	\$46,339	\$32,140	--	--	--	--	--	--
30 - 34	227	97	95	34	1	--	--	--	--	--
	\$46,503	\$62,902	\$56,241	\$47,692	\$39,980	--	--	--	--	--
35 - 39	356	81	114	113	45	3	--	--	--	--
	\$53,815	\$54,845	\$57,165	\$60,359	\$67,220	\$39,104	--	--	--	--
40 - 44	459	86	96	99	129	48	1	--	--	--
	\$53,368	\$60,224	\$41,715	\$53,518	\$69,976	\$65,263	\$66,613	--	--	--
45 - 49	526	70	84	128	85	114	43	2	--	--
	\$50,706	\$62,855	\$35,261	\$38,057	\$61,259	\$72,213	\$67,970	\$69,636	--	--
50 - 54	549	56	76	117	83	102	77	35	3	--
	\$48,712	\$56,191	\$35,877	\$35,706	\$46,852	\$57,655	\$72,676	\$72,610	\$51,141	--
55 - 59	475	40	49	76	65	75	64	82	23	1
	\$53,394	\$61,766	\$37,742	\$42,799	\$43,394	\$48,407	\$70,043	\$78,869	\$65,811	\$33,773
60 - 64	265	15	28	47	35	52	22	27	33	6
	\$45,514	\$119,219	\$37,443	\$37,298	\$42,333	\$37,421	\$47,921	\$61,151	\$65,638	\$57,111
65 - 69	96	2	11	23	14	23	10	3	7	3
	\$36,800	\$43,822	\$32,363	\$36,054	\$34,886	\$35,688	\$33,492	\$50,727	\$46,298	\$46,519
70 & over	33	1	3	6	7	6	4	--	3	3
	\$36,032	\$21,357	\$22,639	\$27,652	\$31,231	\$47,670	\$54,135	--	\$28,096	\$42,807
Total	3,262	681	596	646	464	423	221	149	69	13
	\$48,615	\$56,422	\$44,839	\$44,716	\$56,459	\$56,847	\$66,397	\$73,498	\$61,471	\$49,570

* Calendar year 2009 payroll figures were increased by 4.0% for police officers to reflect unsettled contracts.

SECTION 3: Supplemental Information for the City of Worcester Retirement System

EXHIBIT C

Summary Statement of Income and Expenses on an Actuarial Value Basis

	Year Ended December 31, 2009	Year Ended December 31, 2008
Contribution income:		
Employer contributions	\$28,505,066	\$24,947,158
Employee contributions	14,190,598	14,428,460
Less administrative expenses	<u>-538,983</u>	<u>-554,276</u>
Net contribution income	\$42,156,681	\$38,821,342
Net investment income	<u>106,837,422</u>	<u>-213,653,832</u>
Total income available for benefits	\$148,994,103	-\$174,832,490
Less benefit payments:		
Pensions	-\$51,203,670	-\$49,329,487
Net 3(8)(c) reimbursements	-2,358,945	-1,646,298
Refunds, annuities, & Option B refunds	-8,669,489	-8,221,772
State reimbursements	<u>1,925,710</u>	<u>1,198,044</u>
Net benefit payments	-\$60,306,394	-\$57,999,513
Change in actuarial asset method	-\$41,071,731	\$105,315,665
Change in reserve for future benefits	\$47,615,978	-\$127,516,338

SECTION 3: Supplemental Information for the City of Worcester Retirement System

EXHIBIT D

Development of the Fund Through December 31, 2009

Year Ended December 31	Employer Contributions	Employee Contributions	Other Contributions	Net Investment Return*	Administrative Expenses	Benefit Payments	Actuarial Value of Assets at End of Year
2000	\$8,280,410	\$10,219,772	0	\$35,128,309	\$391,295	\$37,417,498	\$630,714,618
2001	9,480,000	11,481,856	\$3,471	8,897,926	462,010	39,301,554	620,814,307
2002	12,956,778	11,182,339	0	-46,582,424	573,697	43,607,213	554,190,090
2003	18,928,252	10,333,125	0	41,670,173	440,295	47,558,278	577,123,067
2004	20,150,377	11,692,796	0	47,848,351	518,078	50,196,897	606,099,616
2005	23,579,478	11,905,078	0	55,470,778	556,781	52,481,665	644,016,504
2006	23,354,603	12,607,303	0	91,535,234	621,648	54,095,226	716,796,770
2007	24,166,318	12,829,448	0	61,690,401	555,774	55,516,831	759,410,332
2008	24,947,158	14,428,460	0	-108,338,166	554,276	57,999,513	631,893,995
2009	28,505,066	14,190,598	0	65,765,691	538,983	60,306,394	679,509,973

* Net of investment expenses. Reflects changes in asset method in 2000, 2003, 2004, 2008 and 2009.

SECTION 3: Supplemental Information for the City of Worcester Retirement System

EXHIBIT E

Development of Unfunded Actuarial Accrued Liability for Year Ended December 31, 2009

1. Unfunded actuarial accrued liability at beginning of year		\$297,675,469
2. Normal cost at beginning of year		23,936,084
3. Total contributions		-42,695,664
4. Interest		
(a) For whole year on (1) + (2)	\$26,532,953	
(b) For half year on (3)	<u>-1,591,325</u>	
(c) Total interest		<u>24,941,628</u>
5. Expected unfunded actuarial accrued liability		\$303,857,517
6. Changes due to:		
(a) Investment gain	-\$55,454,843	
(b) Change to asset corridor	41,071,731	
(c) Administrative expense gain	-93,113	
(d) Change to the disabled mortality table	6,417,879	
(e) Greater than expected salary increases	2,753,382	
(f) Miscellaneous loss	<u>9,629,769</u>	
(g) Total changes		<u>4,324,805</u>
7. Unfunded actuarial accrued liability at end of year		<u>\$308,182,322</u>

SECTION 3: Supplemental Information for the City of Worcester Retirement System

EXHIBIT F

Table of Amortization Bases as of July 1, 2010

Type	Annual Payment	Rate of Increase	Years Remaining	Outstanding Balance
2002 ERI	\$1,557,632	0.0%	8	\$9,598,361
2003 ERI	485,625	0.0%	2	934,241
Section 90 ACD liability	1,116,983	0.0%	4	3,982,619
Remaining unfunded liability	<u>17,187,507</u>	4.0%	30	<u>306,127,714</u>
Total	\$20,347,747			\$320,642,935

Note: Recommended contributions are assumed to be paid at the beginning of the fiscal year.

SECTION 3: Supplemental Information for the City of Worcester Retirement System

**EXHIBIT G
Funding Schedule**

(1) Fiscal Year Ended June 30	(2) Employer Normal Cost	(3) Amortization of 2002 ERI Liability	(4) Amortization of 2003 ERI Liability	(5) Amortization of Section 90 ACD Liability	(6) Amortization of Remaining Unfunded Liability	(7) Total Plan Cost: (2) + (3) + (4) + (5) + (6)	(8) Total UAAL at the Beginning of the Fiscal Year
2011	\$9,422,752	\$1,557,632	\$485,625	\$1,116,983	\$17,187,507	\$29,770,499	\$320,642,935
2012	9,799,662	1,557,632	485,625	1,116,983	18,083,428	31,043,330	328,716,511
2013	10,191,648	1,557,632	-	1,116,983	20,660,534	33,526,797	378,166,809
2014	10,599,314	1,557,632	-	1,116,983	22,935,011	36,208,940	431,580,021
2015	11,023,287	1,557,632	-	-	25,506,433	38,087,352	425,903,913
2016	11,464,218	1,557,632	-	-	26,608,366	39,630,217	433,060,162
2017	11,922,787	1,557,632	-	-	27,747,042	41,227,461	439,467,341
2018	12,399,698	1,557,632	-	-	28,856,923	42,814,253	444,001,087
2019	12,895,686	-	-	-	30,011,200	42,906,886	447,707,421
2020	13,411,513	-	-	-	31,211,648	44,623,161	452,156,159
2021	13,947,974	-	-	-	32,460,114	46,408,088	455,672,433
2022	14,505,893	-	-	-	33,758,519	48,264,412	458,127,335
2023	15,086,129	-	-	-	35,108,860	50,194,989	459,379,243
2024	15,689,574	-	-	-	36,513,214	52,202,788	459,272,690
2025	16,317,157	-	-	-	37,973,743	54,290,900	457,637,133
2026	16,969,843	-	-	-	39,492,693	56,462,536	454,285,620
2027	17,648,637	-	-	-	41,072,401	58,721,038	449,013,343
2028	18,354,582	-	-	-	42,715,297	61,069,879	441,596,070
2029	19,088,765	-	-	-	44,423,909	63,512,674	431,788,437
2030	19,852,316	-	-	-	46,200,865	66,053,181	419,322,102
2031	20,646,409	-	-	-	48,048,900	68,695,309	403,903,739
2032	21,472,265	-	-	-	49,970,856	71,443,121	385,212,863
2033	22,331,156	-	-	-	51,969,690	74,300,846	362,899,473
2034	23,224,402	-	-	-	54,048,478	77,272,880	336,581,490
2035	24,153,378	-	-	-	56,210,417	80,363,795	305,841,985
2036	25,119,513	-	-	-	58,458,834	83,578,347	270,226,172
2037	26,124,294	-	-	-	60,797,187	86,921,481	229,238,143
2038	27,169,266	-	-	-	63,229,074	90,398,340	182,337,335
2039	28,256,037	-	-	-	65,758,237	94,014,274	128,934,693
2040	29,386,278	-	-	-	68,388,514	97,774,792	68,388,514

Notes: Assumes payment at the beginning of the fiscal year.

Normal cost and expenses are assumed to increase at 4.0% per year.

Amortization payments on the remaining unfunded liability calculated to increase at 4.0% per year.

Anticipates deferred investment losses.

Maximum increase in the appropriation from one fiscal year to the next is 8.0%.

SECTION 3: Supplemental Information for the City of Worcester Retirement System

EXHIBIT H

Department Allocations of 2002 and 2003 ERI Amortization Payments and Section 90 ACD Amortization Payments

The total recommended employer contribution, excluding the ERI and Section 90 ACD amortizations, is \$26,610,259. This amount will be allocated to each department based on September 30 payroll. The ERI and Section 90 ACD amortizations are allocated to each department based on actual ERI and Section 90 ACD participants, as shown below.

Department Allocation of ERI Amortizations

Department	Allocation of 2002 ERI Amortization	Allocation of 2003 ERI Amortization	Allocation of Section 90 ACD Amortization
DPW – Other	--	\$110,745	\$20,817
DPW – Sewer	\$74,604	40,800	11,358
DPW – Water	99,053	18,186	25,864
Fire	297,106	--	426,980
Housing Authority	148,593	--	--
Police	112,960	--	366,575
Public Schools	356,312	113,388	49,667
Other	<u>469,004</u>	<u>202,506</u>	<u>215,722</u>
Total Fiscal Year 2011 Payment	\$1,557,632	\$485,625	\$1,116,983

SECTION 3: Supplemental Information for the City of Worcester Retirement System

EXHIBIT I

Definitions of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Assumptions or actuarial assumptions:

The estimates on which the cost of the Plan is calculated including:

- (a) Investment return — the rate of investment yield that the Plan will earn over the long-term future;
- (b) Mortality rates — the death rates of employees and pensioners; life expectancy is based on these rates;
- (c) Retirement rates — the rate or probability of retirement at a given age;
- (d) Turnover rates — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.

Normal cost:

The amount of contributions required to fund the benefit allocated to the current year of service.

Actuarial accrued liability for actives:

The equivalent of the accumulated normal costs allocated to the years before the valuation date.

Actuarial accrued liability for pensioners:

The single sum value of lifetime benefits to existing pensioners. This sum takes account of life expectancies appropriate to the ages of the pensioners and the interest that the sum is expected to earn before it is entirely paid out in benefits.

Unfunded actuarial accrued liability:

The extent to which the actuarial accrued liability of the Plan exceeds the assets of the Plan. There are many approaches to paying off the unfunded actuarial accrued liability, from meeting the interest accrual only to amortizing it over a specific period of time.

SECTION 3: Supplemental Information for the City of Worcester Retirement System

**Amortization of the unfunded
actuarial accrued liability:**

Payments made over a period of years equal in value to the Plan's unfunded actuarial accrued liability.

Investment return:

The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.

SECTION 4: Reporting Information for the City of Worcester Retirement System

EXHIBIT I

Summary of Actuarial Valuation Results

The valuation was made with respect to the following data supplied to us:

1. Retired participants as of the valuation date (including 522 beneficiaries in pay status)	2,774
2. Participants active during the year ended December 31, 2009 with total accumulated contributions of \$151,961,970 and projected 2010 total payroll of \$166,392,075	3,262
3. Inactive participants with a vested right to a return of their employee contributions as of December 31, 2009	697
4. Inactive participants with a vested right to a deferred or immediate benefit as of December 31, 2009	73

The actuarial factors as of January 1, 2010 are as follows:

1. Normal cost, including administrative expenses	\$24,074,576
2. Expected employer contributions	<u>-14,834,807</u>
3. Employer normal cost: (1) + (2)	\$9,239,769
4. Actuarial accrued liability	987,692,295
Retired participants and beneficiaries	\$524,211,594
Active participants	455,623,759
Inactive participants	7,856,942
5. Actuarial value of assets (\$617,736,339 at market value as reported in the draft Annual Statement)	679,509,973
6. Unfunded actuarial accrued liability: (4) – (5)	308,182,322

The actuarial factors projected to July 1, 2010 are as follows:

1. Employer normal cost projected to July 1, 2010	\$9,422,752
2. Projected unfunded actuarial accrued liability	320,642,935
3. Payment on projected unfunded actuarial accrued liability (non-ERI payment increasing 4.0% per year) amortized through 2040	20,347,747
4. Recommended contribution: (1) + (3)	29,770,499
5. Projected payroll as of July 1, 2010	169,687,287
6. Total recommended contribution as a percentage of projected payroll: (4) ÷ (5)	17.54%

Note: Recommended contributions are assumed to be paid at the beginning of the fiscal year.

SECTION 4: Reporting Information for the City of Worcester Retirement System

EXHIBIT II

Supplementary Information Required by the GASB – Schedule of Employer Contributions

Plan Year Ended December 31	Annual Required Contributions	Actual Contributions	Percentage Contributed
2000	\$8,280,410	\$8,280,410	100.0%
2001	9,480,000	9,480,000	100.0%
2002	12,956,778	12,956,778	100.0%
2003	18,928,252	18,928,252	100.0%
2004	20,150,377	20,150,377	100.0%
2005	22,228,892	23,579,478	106.1%
2006	23,316,836	23,354,603	100.2%
2007	24,166,318	24,166,318	100.0%
2008	24,947,158	24,947,158	100.0%
2009	28,505,066	28,505,066	100.0%

SECTION 4: Reporting Information for the City of Worcester Retirement System

EXHIBIT III

Supplementary Information Required by the GASB – Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Projected Payroll (c)	UAAL as a Percentage of Projected Payroll [(b) - (a)] / (c)
01/01/2001	\$630,714,618	\$628,681,483	-\$2,033,135	100.32%	\$136,000,517	-1.49%
01/01/2002	620,814,307	671,876,943	51,062,636	92.40%	148,764,543	34.32%
01/01/2003	554,190,090	715,855,564	161,665,474	77.42%	142,802,508	113.21%
01/01/2004	577,123,067	743,570,440	166,447,373	77.62%	138,796,895	119.92%
01/01/2005	606,099,616	771,948,311	165,848,695	78.52%	147,126,606	112.73%
01/01/2006	644,016,504	806,957,464	162,940,960	79.81%	145,830,593	111.73%
01/01/2007	716,796,770	837,608,233	120,811,463	85.58%	152,838,201	79.05%
01/01/2008	759,410,332	889,924,310	130,513,978	85.33%	156,585,326	83.35%
01/01/2009	631,893,995	929,569,464	297,675,469	67.98%	166,050,095	179.27%
01/01/2010	679,509,973	987,692,295	308,182,322	68.80%	166,392,075	185.21%

SECTION 4: Reporting Information for the City of Worcester Retirement System

EXHIBIT IV

Supplementary Information Required by the GASB

Valuation date	January 1, 2010
Actuarial cost method	Entry Age Normal Cost Method
Amortization method	Level payments on the 2002 and 2003 ERI liability and the Section 90 ACD liability and 4.0% increasing payments on the remaining unfunded liability
Remaining amortization period	8 years for the 2002 ERI liability 2 years for the 2003 ERI liability 4 years for the Section 90 ACD liability and 30 years for the remaining unfunded liability
Asset valuation method	The difference between the expected return and the actual investment return on a market value basis is recognized over a five-year period.
Actuarial assumptions:	
Investment rate of return	8.25%
Projected salary increases	5.00%
Cost of living adjustments	3.00% of first \$12,000 of retirement income
Plan membership:	
Retired participants and beneficiaries receiving benefits	2,774
Inactive participants entitled to a return of their employee contributions	697
Inactive participants with a vested right to a deferred or immediate benefit	73
Active participants	<u>3,262</u>
Total	6,806

SECTION 4: Reporting Information for the City of Worcester Retirement System

EXHIBIT V

Actuarial Assumptions and Actuarial Cost Method

Mortality Rates:

Healthy: 1994 Group Annuity Mortality Table
Disabled: 1994 Group Annuity Mortality Table set forward 7 years (previously, 1994 Group Annuity Mortality Table set forward 10 years)

Termination Rates before Retirement:	Rate (%)				
	Age	Mortality		Groups 1 and 2	
		Male	Female	Disability	Withdrawal
	20	0.05	0.03	0.02	12.00
	25	0.07	0.03	0.03	8.78
	30	0.08	0.04	0.04	5.55
	35	0.09	0.05	0.05	3.93
	40	0.11	0.07	0.07	2.31
	45	0.16	0.10	0.13	1.89
	50	0.26	0.14	0.19	1.46
	55	0.44	0.23	0.29	0.00
	60	0.80	0.44	0.38	0.00

*Notes: 55% of the disability rates shown represent accidental disability.
 20% of the accidental disabilities will die from the same cause as the disability.
 55% of the death rates shown represent accidental death.*

SECTION 4: Reporting Information for the City of Worcester Retirement System

Age	Mortality		Group 4	
	Male	Female	Disability	Withdrawal
20	0.05	0.03	0.08	2.10
25	0.07	0.03	0.12	1.88
30	0.08	0.04	0.17	1.65
35	0.09	0.05	0.41	1.11
40	0.11	0.07	0.65	0.56
45	0.16	0.10	0.89	0.28
50	0.26	0.14	1.13	0.00
55	0.44	0.23	1.33	0.00
60	0.80	0.44	1.53	0.00

*Notes: 90% of the disability rates shown represent accidental disability.
 60% of the accidental disabilities will die from the same cause as the disability.
 90% of the death rates shown represent accidental death.*

Retirement Rates:

Rate (%)			
Age	Groups 1 and 2	Age	Group 4
55	12.55	50	32.00
56	3.21	51	7.21
57	3.10	52	5.90
58	3.34	53	8.00
59	3.48	54	7.71
60	7.84	55	15.51
61	6.92	56	9.11
62	15.11	57	9.09
63	10.71	58	11.90
64	10.37	59	11.42
65	35.68	60	23.95
66	22.14	61	13.60

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Retirement Rates (continued):

		Rate (%)	
Age	Groups 1 and 2	Age	Group 4
67	21.59	62	19.50
68	21.64	63	12.53
69	25.36	64	18.73
70	100.00	65	100.00

Unknown Data for Participants: Same as those exhibited by participants with similar known characteristics.

Age of Spouse: Females three years younger than their spouses.

Percent Married: 80%

Net Investment Return: 8.25%

Salary Increases:

Age	Present salary as a percent of salary at 65	Annual increase rate (%)
20	11.13%	5.00
25	14.20	5.00
30	18.13	5.00
35	23.14	5.00
40	29.53	5.00
45	37.69	5.00
50	48.10	5.00
55	61.39	5.00
60	78.35	5.00

Includes allowance for inflation of 4.00%.

Administrative Expenses: \$625,000 for calendar 2010

SECTION 4: Reporting Information for the City of Worcester Retirement System

2009 Salary:	<p>2009 salary equal to salaries provided in the data, except for new hires where salaries were calculated from annualized contributions divided by the contribution rate(s) reported.</p> <p>The salaries of police officers were increased by 4% to reflect unsettled bargaining contracts.</p>
Total Service:	<p>Total creditable service reported in the data. (Previously, total creditable service based on date of hire.)</p>
Net 3(8)(c) Liability:	<p>Estimated liability of \$20.1 million based on estimated net annual benefits of \$2.4 million.</p>
Actuarial Value of Assets:	<p>Market value of assets as reported in the System’s Annual Statement less unrecognized return in each of the last five years. Unrecognized return is equal to the difference between the actual market value return and the expected market value return and is recognized over a five-year period, further adjusted, if necessary, to be within 10% of the market value. (Previously, adjusted to be within 20% of the market value.)</p>
Actuarial Cost Method:	<p>Entry Age Normal Actuarial Cost Method. Entry Age is the age of the participant less Total Service. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary.</p>
Changes in Assumptions:	<p>The disabled life mortality table was changed from the 1994 Group Annuity Mortality Table set forward 10 years to the 1994 Group Annuity Mortality Table set forward 7 years.</p> <p>The actuarial value of assets was changed from being within 20% of the market value of assets to being within 10% of the market value of assets.</p>

SECTION 4: Reporting Information for the City of Worcester Retirement System

EXHIBIT VI

Summary of Plan Provisions

This exhibit summarizes the major provisions of Chapter 32 of the Laws of Massachusetts.

Plan Year: January 1 – December 31

Retirement Benefits

Employees covered by the Contributory Retirement Law are classified into one of four groups depending on job classification. Group 1 comprises most positions in state and local government. It is the general category of public employees. Group 4 comprises mainly police and firefighters. Group 2 is for other specified hazardous occupations. (Officers and inspectors of the State Police are classified as Group 3.)

The annual amount of the retirement allowance is based on the member's final three-year average salary multiplied by the number of years and full months of creditable service at the time of retirement and multiplied by a percentage according to the following table based on the age of the member at retirement:

Age Last Birthday at Date of Retirement			
Percent	Group 1	Group 2	Group 4
2.5	65 or over	60 or over	55 or over
2.4	64	59	54
2.3	63	58	53
2.2	62	57	52
2.1	61	56	51
2.0	60	55	50
1.9	59	--	49
1.8	58	--	48
1.7	57	--	47
1.6	56	--	46
1.5	55	--	45

A member's final three-year average salary is defined as the greater of the highest consecutive three-year average annual rate of regular compensation and the average

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annual rate of regular compensation received during the last three years of creditable service prior to retirement. The \$30,000 cap on salary used in a benefit determination for any employee hired after January 1, 1979 has been removed.

The maximum annual amount of the retirement allowance is 80 percent of the member's final three-year average salary. Any member who is a veteran also receives an additional yearly retirement allowance of \$15 per year of creditable service, not exceeding \$300. The veteran allowance is paid in addition to the 80 percent maximum.

Employee Contributions

<u>Date of Hire</u>	<u>Contribution Rate</u>
Prior to January 1, 1975	5%
January 1, 1975 – December 31, 1983	7%
January 1, 1984 – June 30, 1996	8%
July 1, 1996 onward	9%

In addition, employees hired after December 31, 1978 contribute an additional 2 percent of salary in excess of \$30,000.

Employees hired after 1983 who leave with less than five years of credited service receive no interest on their contributions, and employees who leave with five but less than ten years receive one-half the rate of regular interest otherwise payable.

Retirement Benefits (Superannuation)

Members of Group 1, 2 or 4 may retire upon the attainment of age 55. For retirement at ages below 55, twenty years of creditable service is required.

Members who terminate before age 55 with ten or more years of creditable service are eligible for a retirement allowance upon the attainment of age 55 (provided they have not withdrawn their accumulated deductions from the Annuity Savings Fund of the System).

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Ordinary Disability Benefits

A member who is unable to perform his or her job due to a non-occupational disability will receive a retirement allowance if he or she has ten or more years of creditable service and has not reached age 55. The annual amount of such allowance shall be determined as if the member retired for superannuation at age 55, based on the amount of creditable service at the date of disability. For veterans, there is a minimum benefit of 50 percent of the member's most recent year's pay plus an annuity based on his or her own contributions.

Accidental Disability Benefit

For a job-connected disability, the benefit is 72 percent of the member's most recent annual pay plus an annuity based on his or her own contributions, plus additional amounts for surviving children. Benefits are capped at 75 percent of annual rate of regular compensation for employees who become members after January 1, 1988.

Death Benefits

In general, the beneficiary of an employee who dies in active service will receive a refund of the employee's own contributions. Alternatively, if the employee were eligible to retire on the date of death, a spouse's benefit will be paid equal to the amount the employee would have received under Option C. The surviving spouse of a member who dies with two or more years of credited service has the option of a refund of the employee's contributions or a monthly benefit regardless of eligibility to retire, if they were married for at least one year. There is also a minimum widow's pension of \$500 per month, and there are additional amounts for surviving children. If an employee's death is job-connected, the spouse will receive 72 percent of the member's most recent annual pay, in addition to a refund of the member's accumulated deductions, plus additional amounts for surviving children. However, in accordance with Section 100 of Chapter 32, the surviving spouse of a police officer, firefighter or corrections officer is killed in the line of duty will be eligible to receive an annual benefit equal to the maximum salary held by the member at the time of death.

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"Heart And Lung Law" And Cancer Presumption

Any case of hypertension or heart disease resulting in total or partial disability or death to a uniformed fireman, permanent member of a police department, or certain employees of a county correctional facility is presumed to have been suffered in the line of duty, unless the contrary is shown by competent evidence. Any case of disease of the lungs or respiratory tract resulting in total disability or death to a uniformed fireman is presumed to have been suffered in the line of duty, unless the contrary is shown by competent evidence. There is an additional presumption for uniformed firemen that certain types of cancer are job-related if onset occurs while actively employed or within five years of retirement.

Options

Members may elect to receive a full retirement allowance payable for life under Option A. Under Option B a member may elect to receive a lower monthly allowance in exchange for a guarantee that at the time of death any contributions not expended for annuity payments will be refunded to the beneficiary. Option C allows the member to take a lesser retirement allowance in exchange for providing a survivor with two-thirds of the lesser amount. Option C pensioners will have benefits converted from a reduced to a full retirement if the beneficiary predeceases the retiree.

Post-Retirement Benefits

The Board has adopted the provisions of Section 51 Chapter 127 of the Acts of 1999, which provide that the Retirement Board may approve an annual COLA in excess of the Consumer Price Index but not to exceed a 3% COLA on the first \$12,000 of a retirement allowance. Cost-of-living increases granted prior to July 1, 1998 are reimbursed by the Commonwealth and not reflected in this report.

Changes in Plan Provisions

There have been no changes in plan provisions since the last valuation.