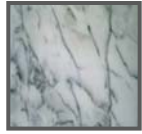

Massachusetts Housing Finance Agency Employees' Retirement System



Actuarial Valuation
January 1, 2011





STONE
CONSULTING, INC.

June 13, 2011

MHFA
One Beacon Street
Boston, MA 02108-4805

Dear MHFA Retirement Board:

Stone Consulting, Inc. has performed a January 1, 2011 actuarial valuation of the MHFA Retirement System. This valuation and report was prepared using generally accepted actuarial principles and practices and meets the parameters set by the Governmental Accounting Standards Board Statement (GASB) No. 25. To the best of our knowledge, this report is complete and accurate, and the assumptions used represent our best estimate of anticipated experience of the system.

As part of performing the valuation, Stone Consulting, Inc. was furnished member data by the MHFA Retirement System's administrative staff. Although examined for general reasonableness, the data was not audited by the actuary. In addition, the administrative staff furnished financial statements that were not audited by the actuary or by the plan's auditors.

The funding objective of the plan has been to fully fund the system while attempting to maintain a stable contribution amount for the upcoming fiscal year that is consistent with prior funding schedules or if employer finances allow it, to increase the contribution amount. The funding objective has been modified to allow for a portion of the significant actuarial gains to reduce the current contribution amount for Fiscal 2012 to 95% of the Fiscal 2011 contribution amount.

We anticipate over time the contribution level to decrease as a percentage of payroll. The contribution rate is determined by adding the normal cost plus an amortization of the unfunded actuarial accrued liability. The normal cost is expected to remain at a level percentage of payroll. The number of years

of the amortization and/or the rate of increase of the amortization is adjusted to achieve the contribution level for the upcoming fiscal year. The length of the funding schedule contained in this actuarial valuation report is eleven years with a level amortization. The schedule's length cannot exceed nineteen years (fully funded by Fiscal 2030) and the amortization increase cannot exceed 4.50% annually. These limits are contained in Chapter 32 of the Massachusetts General Laws. By using Section 22F of Chapter 32, these limits have been modified to Fiscal 2040 and an amortization increase of no more than 4.00%.

The contribution amount for Fiscal Year 2012 is \$3,156,358 that is \$192,749 less than the anticipated contribution amount from the prior funding schedule. Chapter 32, PERAC and GASB guidelines indicate that actuarial valuations should be conducted at least every other year. The MHFA Retirement Board conducted their previous actuarial valuation effective January 1, 2009. This satisfies these guidelines.

We are pleased to present the results of this valuation. If the Retirement Board has any questions on the content of this report, we would be glad to respond. Please note that this report is meant to be used in its entirety. Use of excerpts of this report may result in inaccurate or misleading understanding of the results.

Respectfully submitted,
STONE CONSULTING, INC.
Actuaries for the Plan

Lawrence B. Stone
Member, American Academy of Actuaries



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INTRODUCTION

This report presents the results of the actuarial valuation of the MHFA Retirement System. The valuation was performed at the request of the Retirement Board as of January 1, 2011 for the purpose of determining the contribution requirements for Fiscal Year 2012 and beyond. The contribution requirements are based on:

- The financial condition of the system as of December 31, 2010
- The benefit provisions of M.G.L. Chapter 32 and related statutes;
- The demographics of members in the system (i.e., active and inactive participants, retirees and beneficiaries as of January 1, 2011);
- Economic assumptions regarding salary increases and investment earnings; and
- Other actuarial assumptions (i.e., withdrawals, retirement, death, etc.)

JANUARY 1, 2011 VALUATION SUMMARY

	January 1, 2011	January 1, 2009	Change
Contribution Fiscal 2012	\$3,156,358	\$3,349,107	(\$192,749)
Funding Schedule Length	11 years	17 years	-6 years
Amortization Increase	0.00%	0.00%	0.00%
Funding Ratio	77%	65%	12%
Interest Rate Assumption	8.00%	8.00%	0.00%
Salary Increase Rate Assumption	5% grading down to 3.50%	6% grading down to 3.75%	-0.25% ultimate rate

- The Fiscal Year 2012 contribution is \$192,749 less than the planned 2012 contribution. The System experienced a \$9.5 million actuarial asset gain from the expected market value return since January 1, 2009 (the prior valuation date). Stone Consulting, with agreement from the Retirement Board, values assets using market value.

MHFA RETIREMENT SYSTEM

The System experienced a 16.3% average annual return on the market value of assets versus our assumption of an 8.00% return over the past two years. The System's asset portfolio, effective December 31, 2010 was 73% equities and 27% fixed income and short-term investments. The interest rate assumption was maintained at 8.00% to reflect anticipated market performance.

- We have changed the salary increase rate to 5% grading down to 3.50% after 8 years of service, from 6% grading down to 3.75% for the 2009 actuarial valuation. This decreased the accrued liability by \$595,000. Total compensation changed by 4.5% over the past two year's since the prior valuation, and average annual compensation (compensation divided by number of active members) changed by 3.0%. This assumption is based on expected future experience. There was a decrease in actuarial accrued liability (AAL) of over \$3 million when comparing actual salary increases with expected salary increases from 2009.
- The funding level of the MHFA Retirement System is 77%, compared to 65% for the January 1, 2009 actuarial valuation. Chapter 68 requires a minimum funding ratio of 65% along with additional criteria in order to avoid being labeled an "under performing system" and having the system's assets transferred to PRIT. The funding level is estimated to be in the second quartile of Massachusetts' Contributory Retirement Systems.

The schedule length is eleven (11) years. The maximum length is 19 years under Chapter 32 of the Massachusetts General Laws (2030). The amortization percentage stayed the same as the prior valuation, while decreasing the FY2012 contribution level compared to the prior valuation. The first year amortization is set so that the Fiscal 2012 contribution is equal to 95% of the Fiscal 2011 contribution. The eleventh year amortization is set to make the unfunded liability equal to zero. The maximum amortization permitted under Chapter 32 is 4.50%.

Non-economic assumptions were changed from the January 1, 2009 actuarial valuation. The mortality assumption was changed to the RP 2000 Mortality Table projected 11 years using Scale AA. This change increased the actuarial accrued liability by \$350,000.

The funding methodology has continued to reflect the effect of 3(8)(c) payments. The MHFA receives significantly more 3(8)(c) amounts than it pays out. Payments received and

MHFA RETIREMENT SYSTEM

paid under 3(8)(c) are due to MHFA retirees having service with other Chapter 32 Systems or other systems retirees having MHFA service. It appears that the MHFA is a “destination employer” and as such currently receives over \$300,000 in net 3(8)(c) payments an increase of \$100,000 from 2009.

There was a shift in the proportion of the cost that was allocated to prior service (AAL) and to this year’s service (normal cost – NC). This was due to more accurate reporting of dates of membership. This resulted in a greater share of the plan costs being assigned to past service and a smaller share for the present year.

JANUARY 1, 2011 ACTUARIAL VALUATION RESULTS

	January 1, 2011	January 1, 2009	Percentage Change*
Funding			
• Contribution for Fiscal 2012	\$3,156,358		
• Contribution for Fiscal 2012 based on current schedule		\$3,349,107	-5.8%
• Contribution for Fiscal 2011		\$3,322,482	-5.0%
Members *			
• Actives			
a. Number	354	349	1.4%
b. Annual Compensation	\$29,743,985	\$28,475,479	4.5%
c. Average Annual Compensation	\$84,023	\$81,592	3.0%
d. Average Attained Age	48.3	46.7	3.4%
e. Average Past Service	13.7	10.5	30.5%
• Retired, Disabled and Beneficiaries			
a. Number	98	95	3.2%
b. Total Benefits*	\$2,975,168	\$2,794,188	6.5%
c. Average Benefits*	\$30,359	\$29,413	3.2%
d. Average Age	69.3	67.8	2.2%
• Inactives			
a. Number	54	72	-25.0%
Normal Cost			
a. Total Normal Cost as of January 1, 2011	\$2,615,176	\$2,806,935	-6.8%
b. Less Expected Members' Contributions	<u>2,694,497</u>	<u>2,620,615</u>	2.8%
c. Normal Cost to be funded by the Agency	\$(79,321)	\$186,320	-142.6%
d. Adjustment to July 1, 2011	(1,474)	3,690	-139.9%
e. Administrative Expense Assumption	<u>428,000</u>	<u>450,000</u>	-4.9%
f. Normal Cost Adjusted to July 1, 2011	\$347,205	\$640,010	-45.8%

*From prior valuation to this valuation.

**SUMMARY OF JANUARY 1, 2011 VALUATION
(Continued)**

	January 1, 2011	January 1, 2009	Percentage Change*
Actuarial Accrued Liability as of January 1, 2011			
a. Active Members	\$72,982,793	\$52,790,858	38.2%
b. Inactive Members	1,396,110	2,078,237	-32.8%
c. Retired Members and Beneficiaries	<u>28,239,552</u>	<u>27,217,023</u>	3.8%
d. Total	\$102,618,455	\$82,086,118	25.0%
Unfunded Actuarial Accrued Liability			
a. Actuarial Accrued Liability as of January 1, 2011	\$102,618,455	\$82,086,118	25.0%
b. Less Actuarial Value of Assets as of January 1, 2011	<u>79,405,677</u>	<u>53,530,185</u>	48.3%
c. Unfunded Actuarial Accrued Liability as of January 1, 2011	\$23,212,778	\$28,555,933	-18.7%
d. Adjustment to July 1, 2011	<u>\$ 869,432</u>	<u>\$1,217,078</u>	
e. Unfunded Actuarial Accrued Liability as of July 1, 2011	\$24,082,210	\$29,773,011	

*From prior valuation to this valuation.

DEMOGRAPHIC INFORMATION

Members	January 1, 2011	Percentage Change
• <i>Actives</i>		
a. Number	354	1.4%
b. Annual Compensation	\$29,743,985	4.5%
c. Average Annual Compensation	\$84,023	3.0%
d. Average Attained Age	48.3	3.4%
e. Average Past Service	13.7	30.5%
• <i>Retired, Disabled and Beneficiaries</i>		
a. Number	98	3.2%
b. Total Annual Retirement Allowance excluding State-reimbursed COLA	\$2,975,168	6.5%
• <i>Inactives</i>		
a. Number	54	-25.0%

- The data was supplied by the MHFA Retirement Board. The data was checked under broad parameters of reasonableness. With the assistance of the staff of the MHFA Retirement Board, we were able to develop a database sufficient for valuation purposes.
- Total annual compensation changed by 4.5% over the course of the past two years. Average annual compensation changed by 3.0% over the same time period.
- The salary increase assumption includes general wage adjustments, step increases, and promotional increases.

HISTORY OF ACTIVE PARTICIPANTS

Valuation Year	Number	Average Age	Average Past Service	Average Ann'l Compensation
2011	354	48.3	13.7	\$84,023
2009	349	46.7	10.5	\$81,592
2007	334	45.8	9.9	\$76,532
2005*	315	43.8	8.5	\$71,966
2002	312	43.6	7.9	\$65,134

*(EE Data as of 1/1/2004)

- Employee age has increased by 4.7 years and service has increased by 5.8 years over the course of the past nine years. The large increase in past service from 2009 to 2011 is a result of more accurate reporting of hire dates in 2011. Average annual compensation has grown by 29.0% over the same time period (2.9% per year).

The charts on the following pages summarize demographic information regarding active and retiree members.

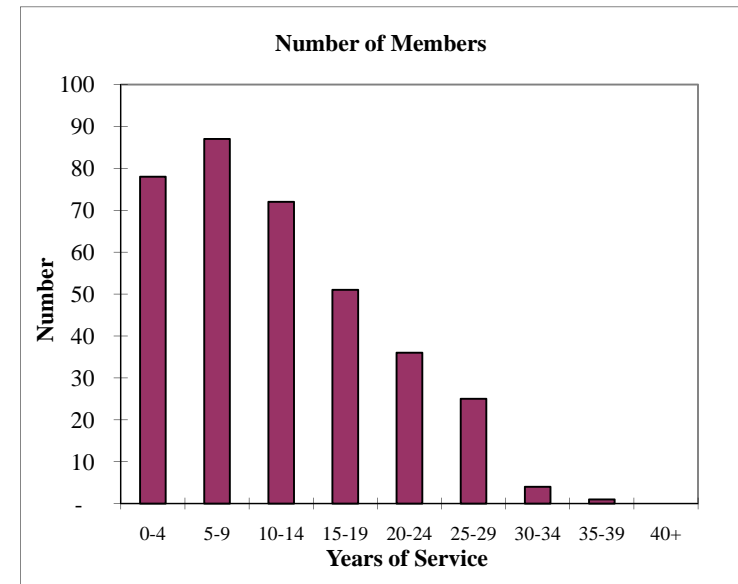
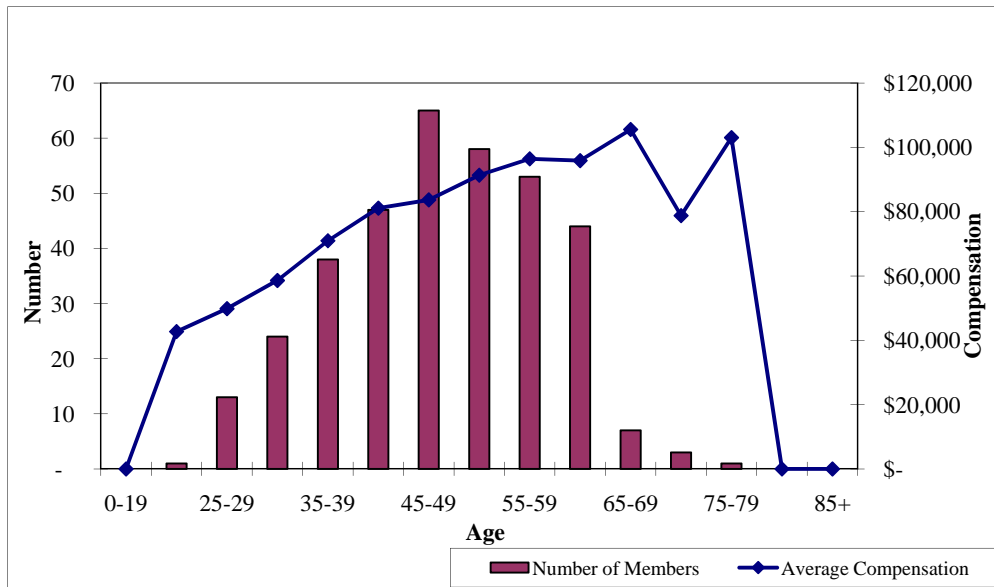


MHFA CONTRIBUTORY RETIREMENT SYSTEM

Distribution of Plan Members as of January 1, 2011

Active Members

AGE	0-4 Years	5-9 Years	10-14 Years	15-19 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40 + Years	Total	Total		Average	
											Compensation		Compensation	
0-19	-	-	-	-	-	-	-	-	-	-	\$	-	\$	-
20-24	1	-	-	-	-	-	-	-	-	1		42,710		42,710
25-29	11	2	-	-	-	-	-	-	-	13		647,803		49,831
30-34	15	6	3	-	-	-	-	-	-	24		1,406,266		58,594
35-39	16	15	5	2	-	-	-	-	-	38		2,695,849		70,943
40-44	10	15	14	6	2	-	-	-	-	47		3,811,152		81,088
45-49	11	19	11	13	9	2	-	-	-	65		5,437,377		83,652
50-54	6	13	14	12	5	8	-	-	-	58		5,297,353		91,334
55-59	3	7	16	6	10	10	1	-	-	53		5,109,848		96,412
60-64	5	8	8	9	7	4	2	1	-	44		4,217,604		95,855
65-69	-	2	-	1	2	1	1	-	-	7		738,757		105,537
70-74	-	-	1	1	1	-	-	-	-	3		236,259		78,753
75-79	-	-	-	1	-	-	-	-	-	1		103,006		103,006
80-84	-	-	-	-	-	-	-	-	-	-		-		-
85+	-	-	-	-	-	-	-	-	-	-		-		-
TOTAL	78	87	72	51	36	25	4	1	-	354	\$	29,743,985	\$	84,023



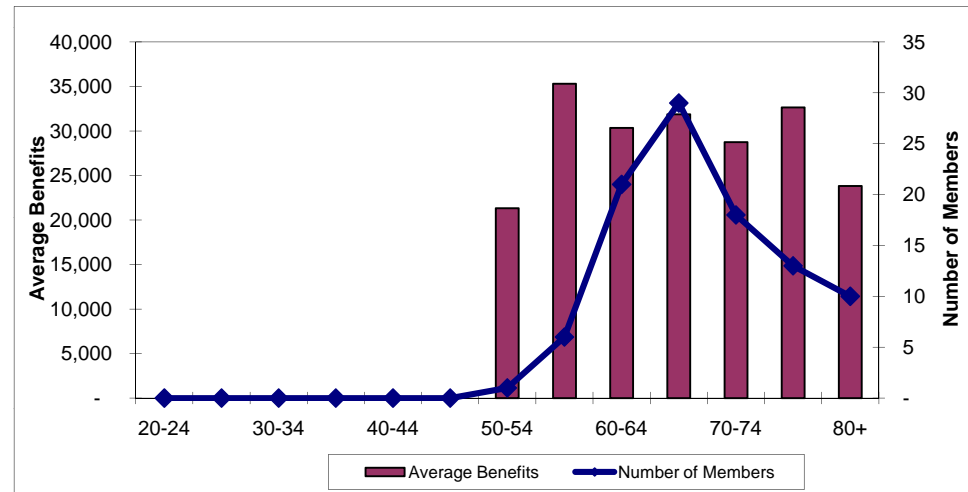


MHFA CONTRIBUTORY RETIREMENT SYSTEM
Distribution of Plan Members as of January 1, 2011
Retired Members

<u>Disabled Member</u>			
Age	Number	Average Benefit	Total Benefit
20-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	-	-	-
45-49	-	-	-
50-54	-	-	-
55-59	-	-	-
60-64	-	-	-
65-69	-	-	-
70-74	2	38,797	77,595
75-79	-	-	-
80+	-	-	-
TOTAL	2	\$ 38,797	\$ 77,595

<u>Retired Members and Beneficiaries</u>			
Age	Number	Average Benefit	Total Benefit
20-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	-	-	-
45-49	-	-	-
50-54	1	21,324	21,324
55-59	6	35,308	211,848
60-64	21	30,349	637,338
65-69	29	31,876	924,398
70-74	16	27,497	439,947
75-79	13	32,648	424,422
80+	10	23,830	238,297
TOTAL	96	\$ 30,183	\$ 2,897,574

<u>Total</u>			
Age	Number	Average Benefit	Total Benefit
20-24	-	-	-
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	-	-	-
45-49	-	-	-
50-54	1	21,324	21,324
55-59	6	35,308	211,848
60-64	21	30,349	637,338
65-69	29	31,876	924,398
70-74	18	28,752	517,542
75-79	13	32,648	424,422
80+	10	23,830	238,297
TOTAL	98	\$ 30,359	\$ 2,975,169



Benefits shown are net of State reimbursed COLA.

VALUATION METHODOLOGY

Stone Consulting, Inc. used the Entry Age Normal actuarial funding method in this actuarial valuation. The use of the Entry Age Normal actuarial funding method is consistent with the requirements of Chapter 32 of the Massachusetts General Laws.

NORMAL COST

		January 1, 2011	% of Payroll*
Gross Normal Cost (GNC)	\$	2,615,176	8.8%
Employees Contribution		<u>2,694,497</u>	<u>9.1%</u>
Net Normal Cost (NNC)	\$	(79,321)	-0.3%
Adjusted to Beginning of Fiscal Year 2012	\$	(1,474)	
Administrative Expense	\$	<u>428,000</u>	1.4%
Adjusted Net Normal Cost With Admin. Expense	\$	347,205	

*Payroll paid in 2010 for employees as of January 1, 2011 is \$29,743,985. Payroll for new hires in 2010 was annualized.

- The gross normal cost (GNC) is the “price” of benefits accruing in the current year if the assumptions underlying the normal cost were realized.
- An individual normal cost represents that part of the cost of a member’s future benefits that are assigned to the current year as if the costs are to remain level as a percentage of the member’s pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and withdrawals) are included in this calculation.
- Anticipated employee contributions to be made during the year are subtracted from the GNC to determine employer normal cost, or net normal cost (NNC).
- Administrative expenses are added to the NNC. The administrative expense does not include investment manager and custodial fees. These fees are considered part of the interest rate assumption that is net of fees.

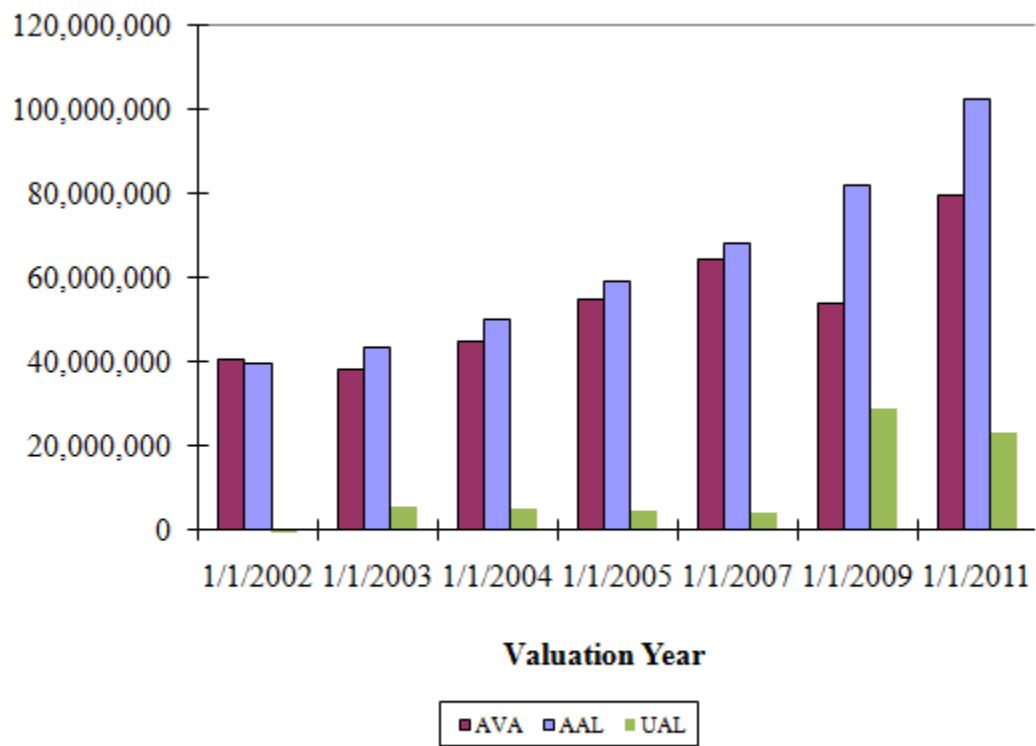
ACTUARIAL ACCRUED LIABILITY AND FUNDED STATUS

		January 1, 2011	Percentage Change
Active Actuarial Accrued Liability		\$ 72,982,793	38.2%
Superannuation	\$ 69,868,147		
Death	\$ 1,404,886		
Disability	\$ 535,007		
Termination	\$ 1,174,753		
Retiree, Inactive, Survivor and Beneficiary Actuarial Accrued Liability		<u>29,635,662</u>	1.2%
Retirees and Beneficiaries	\$ 27,569,432		
Disabled	\$ 670,120		
Inactive	\$ 1,396,110		
Total Actuarial Accrued Liability (AAL)		\$ <u>102,618,455</u>	25.0%
Actuarial Value of Assets (AVA)		\$ <u>79,405,677</u>	48.3%
Unfunded Actuarial Accrued Liability		\$ 23,212,778	-18.7%
Funded Ratio (AVA / AAL)			
2011 (8.00% interest rate):	77%		
2009 (8.00% interest rate):	65%		

- Actuarial Accrued Liability (AAL) is the “price” of benefits attributable to benefits earned in past years, or in other words, represents today’s value of all benefits earned by active and inactive members.
- The total AAL is \$102,618,455. This along with an actuarial value of assets of \$79,405,677 produces a funded status of 77%. This compares to a funded status of 65% for the 2009 valuation.

The chart on the following page is a history of the actuarial accrued liability (AAL), unfunded actuarial accrued liability (UAL) and the valuation assets (AVA) over the course of the past seven actuarial valuations.

HISTORY OF ACTUARIAL VALUATION OF ASSETS (AVA), ACCRUED LIABILITY (AAL) AND UNFUNDED ACTUARIAL ACCRUED LIABILITY (UAL)



DEVELOPMENT OF FUNDING SCHEDULE

Net Employer Normal Cost and expenses for Fiscal 2012	\$	347,205
Net 3(8)(c) payments	\$	(326,060)
Amortization	\$	<u>3,135,213</u>
Total Appropriation required for Fiscal 2012	\$	3,156,358

- The funding schedule is composed of the normal cost adjusted by the administrative expense assumption and the amortization of the actuarial accrued unfunded liability. The contribution is assumed to be made in the beginning of the Fiscal Year (July 1st).
- The contribution amount for Fiscal 2012 is \$3,156,358. The funding schedule is presented on page 15. The schedule's length is eleven (11) years (for the fresh start base) which is six years shorter than the remainder of the January 1, 2009 valuation schedule's length. The maximum funding schedule length allowed by Chapter 32 of the Massachusetts General Laws is nineteen years to 2030.
- In developing the funding schedule, we used a fresh start approach in which the unfunded actuarial accrued liability, other than the liability associated with the various early retirement incentives, is reamortized instead of maintaining the existing amortization amount and separately amortizing the actuarial gain or loss. The use of a fresh-start approach results in a funding schedule in which the changes in contribution amounts from year to year are more consistent. The amortization percentage stayed the same as the prior valuation, 0.00%. The maximum amortization increase allowed under Chapter 32 is 4.50%.



**MHFA RETIREMENT SYSTEM
ACTUARIAL VALUATION AS OF JANUARY 1, 2011
FUNDING SCHEDULE**

Fiscal Year	Normal Cost	Unfunded Liability	Funding Amortization of UAL	Net 3(8)(c) Payments	Schedule Contribution
2012	347,205	24,082,210	3,135,213	(326,060)	3,156,358
2013	360,225	22,622,757	3,135,213	(326,060)	3,169,378
2014	373,734	21,046,547	3,135,213	(326,060)	3,182,887
2015	387,749	19,344,241	3,135,213	(326,060)	3,196,902
2016	402,289	17,505,750	3,135,213	(326,060)	3,211,442
2017	417,375	15,520,180	3,135,213	(326,060)	3,226,528
2018	433,027	13,375,765	3,135,213	(326,060)	3,242,180
2019	449,265	11,059,796	3,135,213	(326,060)	3,258,418
2020	466,113	8,558,549	3,135,213	(326,060)	3,275,266
2021	483,592	5,857,203	3,135,213	(326,060)	3,292,745
2022	501,726	2,939,749	2,939,749	(326,060)	3,115,416
2023	520,541	-	-	(326,060)	194,481
2024	540,062	-	-	(326,060)	214,002
2025	560,314	-	-	(326,060)	234,254
2026	581,326	-	-	(326,060)	255,266
2027	603,125	-	-	(326,060)	277,065
2028	625,743	-	-	(326,060)	299,683
2029	649,208	-	-	(326,060)	323,148
2030	673,553	-	-	(326,060)	347,493

Amortization of Unfunded Liability as of July 1, 2011

Year	Type	Original Amort. Amount	Percentage Increasing	Original # of Years	Current Amort. Amount	Years Remaining
2012	Fresh Start	3,135,213	0.00%	11	3,135,213	11

*First year amortization is set so that the Fiscal 2012 contribution is equal to 95% of the Fiscal 2011 contribution. Eleventh year is set to make the UAL equal to zero.

Notes on Amortization of Unfunded Liability

Year is the year the amortization base was established.

Type is the reason for the creation of the base. Examples are Gain/(Loss) or Fresh Start.

Original Amortization Amount is the annual amortization amount when the base was established.

Percentage Increasing is the percentage that the Original Amortization Amount increases per year.

Original # of Years is the number of years over which the base is being amortized.

Current Amortization Amount is the amortization payment amount for this year.

Years Remaining is the number of years left to amortize the base.

ASSUMPTIONS AND METHODOLOGY SUMMARY

The principal actuarial assumptions used in this valuation are the same as the assumptions used in the previous valuation, except where noted, and are summarized in the following table:

<u>Assumption</u>	<u>January 1, 2011 Valuation</u>
Interest Rate	8.00% (same as prior valuation)
Salary Increase	5% grading down to 3.50% after 8 years of service (Previously 6% grading down to 3.75%)
COLA	3% of \$12,000
COLA Frequency	Granted every year
Mortality	RP-2000 table projected forward 11 years using Scale AA. For members retired under an Accidental Disability (job-related), 40% of deaths are assumed to be from the same cause as the disability. Disabled mortality RP-2000 table projected forward 11 years, ages set forward 2 years. (<i>Prior valuation used the RP-2000 Table projected 9 years.</i>)
Overall Disability	75% ordinary disability 25% accidental disability
Retirement Rates	Ages 55 – 70
Administrative Expense	\$428,000 budget estimated for FY 2012 provided by MHFA Retirement Board.
3(8)(c) payments	Net 3(8)(c) payments for prior calendar year were used to adjust the funding contribution going forward.

ASSETS

a. Cash	\$	334,964.87
b. Fixed Income		21,057,213.68
c. Equities		57,958,483.16
d. Sub-Total:	\$	<u>79,350,661.71</u>
e. Interest Due and Accrued	\$	111,459.47
f. Accounts Receivable		112,845.94
g. Accounts Payable		(169,290.11)
h. Sub-Total:	\$	<u>55,015.30</u>
i. Market Value of Assets [(d) + (h)]	\$	<u><u>79,405,677.01</u></u>

- We were furnished with the System's annual report by the Board. The market value of assets as of December 31, 2010 (adjusted for interest due and accrued, payables and receivables) is \$79,405,677.01.
- The asset allocation as of December 31, 2010 is approximately 73% equities, 27% fixed income, cash, receivables, payables and short-term investments.
- Historically, 10 to 11% has been the expected long-term rate of return for equities, and 6 to 7% has been the expected long-term rate of return for fixed income securities. Many economists and investment professionals are projecting lower returns of 6.25% to 9.00% for equities and 3.65% to 6.00% for fixed income securities. In light of these projections, as well as historical investment returns, the 8.00% interest rate assumption is within the reasonable assumption range. We encourage close monitoring for changes in investment performance against expectations.

DISCLOSURE INFORMATION UNDER GASB STATEMENT 25
Schedules of Funding Progress

(Dollars In Thousands)

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded AAL (UAAL)	Funded Ratio	Covered Payroll	UAAL as a % of Covered Payroll (B-A)/C
	A	B	B-A	A/B	C	
1/1/2011	\$79,406	\$102,618	\$23,212	77%	\$29,744	78%
1/1/2009	\$53,530	\$82,086	\$28,556	65%	\$28,475	100%
1/1/2007	\$64,121	\$67,890	\$3,769	94%	\$25,562	15%
1/1/2005	\$50,060	\$54,645	\$4,585	92%	\$23,905	19%
1/1/2004	\$44,748	\$49,755	\$5,007	90%	\$22,669	22%

Notes to Schedules

Additional information as of the latest actuarial valuation follows:

Valuation date	1/1/2011
Actuarial cost method	Entry Age Normal
Amortization method	Level payment Closed
Remaining amortization period	11 years for the fresh start retirement benefits schedule
Asset valuation method	Market value adjusted by accounts payable and receivables Market value of assets is \$79,405,677.
Actuarial assumptions:	
Investment Rate of Return	8.00% per year
Projected Salary Increases	5.00% per year grading down to 3.50% per year after 8 years of service.

MHFA RETIREMENT SYSTEM

PERAC INFORMATION DISCLOSURE

The most recent actuarial valuation of the System was prepared by Stone Consulting, Inc. as of January 1, 2011

The normal cost for employees on that date was: \$2,694,497 9.1% of payroll

The normal cost for the employer was: \$(79,321) -0.3% of payroll

The actuarial liability for active members was: \$72,982,793

The actuarial liability for retired members was (includes inactives): \$29,635,662

Total actuarial accrued liability: \$102,618,455

System assets as of that date: 79,405,677

Unfunded actuarial accrued liability: \$23,212,778

The ratio of system's assets to total actuarial liability was: 77%

As of that date the total covered employee payroll was: \$29,743,985

The principal actuarial assumptions used in the valuation are as follows:

Investment Return: 8.00% per annum

Rate of Salary Increase: 3.75% per annum ultimate rate (5% graded down to 3.75% over 8 years)

SCHEDULE OF FUNDING PROGRESS (Dollars in \$000's)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
1/1/2011	\$79,406	\$102,618	\$23,212	77%	\$29,744	78%
1/1//2009	\$53,530	\$82,086	\$28,556	65%	\$28,475	100%
1/1/2007	\$64,121	\$67,890	\$3,769	94%	\$25,562	15%
1/1/2005	\$50,060	\$54,645	\$4,585	92%	\$23,905	19%
1/1/2004	\$44,748	\$49,755	\$5,077	90%	\$22,669	22%

ACTUARIAL METHODS AND ASSUMPTIONS

Actuarial Methods

- | | | |
|----|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Actuarial Cost Method | <p>The Entry Age Normal Actuarial Cost Method has been used in this valuation. Under this method, the normal cost is the amount calculated as the level percentage of compensation necessary to fully fund the prospective benefits from each member's entry age to retirement age.</p> <p>The actuarial accrued liability represents the theoretical accumulation of all prior years' normal costs for the plan members as if the program had always been in effect. The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over plan assets.</p> |
| 2. | Asset Valuation Method | Market value of assets (adjusted by payables and receivables) |
| 3. | Fiscal Year Adjustment | The actuarial results are adjusted by the valuation interest rate and salary scale to the beginning of Fiscal Year 2012. The unfunded actuarial accrued liability is rolled forward with normal cost and further adjusted by anticipated contributions and interest. |

Actuarial Assumptions

- | | | | | |
|----|-------------------|--------------------------------------------------------------------------|-------------------|-----------------|
| 1. | Investment Return | 8.00% per year net of investment expenses. (Same as the prior valuation) | | |
| 2. | Salary Increases | Yrs. Of Svc. | Current Valuation | Prior Valuation |
| | | Less than 1 | 5.00% | 6.00% |
| | | 1 | 4.75 | 5.50 |
| | | 2 | 4.75 | 5.50 |
| | | 3 | 4.50 | 5.00 |
| | | 4 | 4.50 | 5.00 |
| | | 5 | 4.25 | 4.50 |
| | | 6 | 4.25 | 4.50 |
| | | 7 | 4.00 | 4.00 |
| | | 8 | 4.00 | 4.00 |
| | | 9 or more | 3.50 | 3.75 |

**ACTUARIAL METHODS AND ASSUMPTIONS
(Continued)**

3. Withdrawal Prior to Retirement The rates shown at the following sample ages illustrate the withdrawal assumption.

<i>Service</i>	Rate of Withdrawal	
	<i>Current Valuation</i>	<i>Prior Valuation</i>
0	11.25%	11.25%
5	5.70%	5.70%
10	4.05%	4.05%
15	2.48%	2.48%
20	1.50%	1.50%
25	0.75%	0.75%
30	0.00%	0.00%

4. Disability Prior to Retirement The rates shown at the following sample ages illustrate the assumption regarding the incidence of disability:

<i>Age</i>	Rate of Disability	
	<i>Current Valuation</i>	<i>Prior Valuation</i>
25	0.01%	0.02%
30	0.01%	0.02%
35	0.02%	0.04%
40	0.04%	0.08%
45	0.06%	0.11%
50	0.07%	0.14%
55	0.09%	0.18%
60	0.11%	0.21%

Disability is assumed to be 75% ordinary and 25% accidental.

**ACTUARIAL METHODS AND ASSUMPTIONS
(Continued)**

5. Rates of Retirement

The rates shown at the following ages illustrate the assumption regarding the incidence of retirement, once the member has achieved eligibility to retire:

Rates of Retirement		
<i>Age</i>	Male	Female
50	1.0%	1.5%
51	1.0%	1.5%
52	1.0%	2.0%
53	1.0%	2.5%
54	2.0%	2.5%
55	12.0%	15.5%
56	12.5%	16.5%
57	12.5%	16.5%
58	15.0%	16.5%
59	16.5%	16.5%
60	22.0%	15.0%
61	20.0%	13.0%
62	30.0%	15.0%
63	25.0%	12.5%
64	22.0%	18.0%
65	40.0%	15.0%
66	25.0%	20.0%
67	25.0%	20.0%
68	30.0%	25.0%
69	30.0%	20.0%
70+	100.0%	100.0%

6. Mortality

The RP-2000 mortality table for healthy annuitants (sex-distinct) projected 11 years using Scale AA. *(Prior valuation used RP-2000 projected 9 years)*

7. Disabled Life Mortality

The RP-2000 mortality table for healthy annuitants (sex-distinct) projected forward 11 years using Scale AA set-forward by 2 years. Death is assumed to be due to the same cause as the disability 40% of the time. *(Prior valuation used RP-2000 projected 9 years)*

8. Regular Interest Rate Credited to Annuity Savings Account

2% per year.

ACTUARIAL METHODS AND ASSUMPTIONS
(Continued)

- | | |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 9. Family Composition | Members assumed married with 2 dependent children – one male and one female both age 15; age difference between member and spouse assumed to be 3 years (the male being the older). |
| 10. Cost-of-Living Increases | A 3% COLA on the first \$12,000 of a member's retirement allowance is assumed to be granted every year. |
| 11. Administrative Expenses | Estimated budgeted amount of \$428,000 for the Fiscal Year 2012 excluding investment management fees and custodial fee is added to the Normal Cost. |
| 12. Step Increases | Step increases are assumed to be part of the salary increase assumption. |
| 13. Credited Service | Service between date of hire and date of membership is assumed to be purchased by all members. |
| 14. Contribution Timing | Contributions are assumed to be made on July 1 st of each year. |
| 15. 3(8)(c) Payments | Net of prior calendar years 3(8)(c) payments are subtracted from funding amount. |
| 16. Valuation Date | January 1, 2011. |

SUMMARY OF PRINCIPAL PROVISIONS

1. Participant Participation is mandatory for all full-time employees whose employment commences before age 65.

2. Member Contributions Member contributions vary depending upon date hired as follows:

Date of Hire	Member Contribution Rate
Prior to 1975	5% of Pay
1975 – 1983	7% of Pay
1984 – June 30, 1996	8% of Pay
After June 30, 1996	9% of Pay

Members hired after 1978 contribute an additional 2% of pay over \$30,000.

3. Pay

a. Pay Gross regular compensation excluding bonuses, overtime, severance pay, unused sick pay, and other similar compensation.

b. Average Pay The average of pay during the 3 consecutive years that produce the highest average or, if greater, during the last three years (whether or not consecutive) preceding retirement.

4. Credited Service

Period during which an employee contributes to the retirement system plus certain periods of military service and “purchased” service.

**SUMMARY OF PRINCIPAL PROVISIONS
(Continued)**

5. Service Retirement

- a. Eligibility Completion of 20 years of credited service or attainment of age 55 and completion of 10 years of credited service. If hired prior to 1978, attainment of age 55.
- b. Retirement Allowance Determined as the product of the member's benefit percentage, average pay and credited service, where the benefit percentage is shown below (maximum allowance of 80% of average pay):

Benefit Percentage	Group 1
2.5%	65+
2.4	64
2.3	63
2.2	62
2.1	61
2.0	60
1.9	59
1.8	58
1.7	57
1.6	56
1.5	55

In addition, veterans receive an additional \$15 per year for each year of credited service up to 20 years.

6. Deferred Vested Retirement

- a. Eligibility Completion of 10 years of credited service (for elected and appointed members, 6 years in the event of involuntary termination).

**SUMMARY OF PRINCIPAL PROVISIONS
(Continued)**

6. Deferred Vested Retirement *(continued)*
- b. Retirement Allowance Determined in the same manner as 5b. with the benefit payable at age 55, unless deferred until later at the member's option.
- Member contributions with interest may be withdrawn after separation from service. If contributions are withdrawn, eligibility for retirement benefits is forfeited. Members hired before 1984 receive full interest on contributions that are withdrawn; otherwise, one half the credited interest is provided for members who withdraw after 5 but before 10 years of credited service and no interest is provided for withdrawals before 5 years of credited service.
7. Ordinary Disability Retirement
- a. Eligibility Non-job related disability after completion of 10 years of credited service.
- b. Retirement Allowance Determined in the same manner as 5b. with the benefit payable immediately. Veterans receive 50% of pay (during final year) plus an annuity based on accumulated member contributions with interest.
8. Accidental Disability Retirement
- a. Eligibility Disabled as a result of an accident in the performance of duties. No age or service requirement.
- b. Retirement Allowance 72% of pay plus an annuity based on accumulated member contributions with interest. Also, a dependent's allowance per year for each child. Total allowance not to exceed 100% of pay (75% for members hired after 1987).

**SUMMARY OF PRINCIPAL PROVISIONS
(Continued)**

9. Non-Occupational Death
- a. Eligibility Dies while in active service, but not due to occupational injury. 2 years of service.
 - b. Retirement Allowance Benefit as if Option C had been elected (see below). Minimum monthly benefits provided as follows: spouse - \$250, first child - \$120, each additional child - \$90.
10. Occupational Death
- a. Eligibility Dies as a result of an occupational injury.
 - b. Benefit Amount Same as 8b.
11. Cost-of-Living Increases An increase of up to 3% applied to the first \$12,000 of annual benefit. Percentage increase is voted on each year by the Retirement Board.
12. Optional Forms of Payment
- a. Option A Allowance payable monthly for the life of the member.
 - b. Option B Allowance payable monthly for the life of the member with a guarantee of remaining member contributions with interest.
 - c. Option C Allowance payable monthly for the life of the member with 66-2/3% continuing to the member's beneficiary upon the member's death. If the beneficiary predeceases the member, the allowance amount "pops up" to the non-reduced amount.

GLOSSARY OF TERMS

1. Present Value of Benefits Represents the dollar value today of all benefits expected to be earned by current members if all actuarial assumptions are exactly realized.
2. Actuarial Cost Method The procedure that is used to allocate the present value of benefits between the liability that is attributable to past service (Actuarial Accrued Liability) and that attributable to future service.
3. Actuarial Assumptions Estimates are made as to the occurrence of certain events that determine the level of benefits to be paid and how long they will be provided. The more important actuarial assumptions include the investment return on assets, salary increases and the rates of turnover, disability, retirement and mortality.
4. Actuarial Accrued Liability The portion of the Present Value of Benefits that is attributable to past service.
5. Normal Cost The portion of the Present Value of Benefits that is attributable to benefits to be earned in the coming year.
6. Actuarial Assets Market value of assets (adjusted by payables and receivables).
7. Unfunded Actuarial Accrued Liability That portion of the Actuarial Accrued Liability not covered by System Assets.
8. PERAC Public Employee Retirement Administration Commission, a division of the State government which has regulatory authority over the administration of the retirement system.
9. PRIT Pension Reserves Investment Trust Fund is the state controlled and administered fund for the investment of assets for members of the retirement system.
10. GASB Government Accounting Standards Board (issues guidance for disclosure of retirement system liabilities).

Acknowledgement of Qualification

Acknowledgement of Qualification for January 1, 2011 actuarial valuation of the MHFA Retirement System:

I, Lawrence Stone, am a consultant for Stone Consulting, Inc. I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Lawrence B. Stone
Member, American Academy of Actuaries