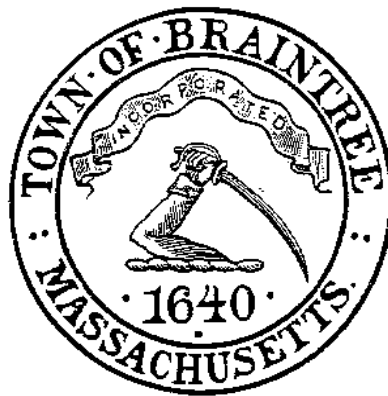


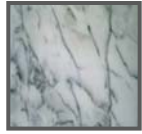
---

# Braintree Retirement System



Actuarial Valuation  
January 1, 2008





**STONE**  
**CONSULTING, INC.**

October 16, 2008

Braintree Retirement Board  
74 Pond St., 2<sup>nd</sup> Floor  
Braintree, MA 02184

Dear Braintree Retirement Board:

Stone Consulting, Inc. has performed a January 1, 2008 actuarial valuation of the Braintree 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 Braintree 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 is 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. This funding objective is being met.

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 maintain a stable contribution level for the upcoming fiscal year. The length of the funding schedule contained in this

actuarial valuation report is seventeen years (fully funded by 2026) and the amortization increase is 2.00%. The amortization increase cannot exceed 4.50% annually. The maximum length of the amortization is until Fiscal 2028. These limits are contained in Chapter 32 of the Massachusetts General Laws.

The contribution amount for Fiscal Year 2010 is \$6,747,969 that is \$221,415 more than the anticipated contribution amount from the prior funding schedule. PERAC and GASB guidelines indicate that actuarial valuations should be conducted at least every other year. The Braintree Retirement Board conducted their previous actuarial valuation effective January 1, 2006. 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





## BRAINTREE RETIREMENT SYSTEM

---

### TABLE OF CONTENTS

	<i>PAGE</i>
Certification Letter	
Introduction.....	2
January 1, 2008 Valuation Summary.....	2
January 1, 2008 Actuarial Valuation Results.....	4
Demographic Information.....	6
Distribution of Plan Members.....	8
Valuation Methodology .....	10
Normal Cost .....	10
Actuarial Accrued Liability and Funded Status.....	11
Development of Funding Schedule.....	13
Funding Schedule .....	14
Assumptions and Methodology Summary.....	15
Assets .....	16
Disclosure Information Under GASB Statement No. 25.....	17
PERAC Information Disclosure .....	18
Actuarial Methods and Assumptions.....	19
Summary of Principal Provisions .....	23
Glossary of Terms.....	27
Acknowledgement of Qualification.....	28





## BRAINTREE RETIREMENT SYSTEM

### INTRODUCTION

This report presents the results of the actuarial valuation of the Braintree Retirement System. The valuation was performed at the request of the Retirement Board as of January 1, 2008 for the purpose of determining the contribution requirements for Fiscal Year 2010 and beyond. The contribution requirements are based on:

- The financial condition of the system as of December 31, 2007
- 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, 2008);
- Economic assumptions regarding salary increases and investment earnings; and
- Other actuarial assumptions (i.e., withdrawals, retirement, death, etc.)

### JANUARY 1, 2008 VALUATION SUMMARY

	January 1, 2008	January 1, 2006	Change
<b>Contribution Fiscal 2010</b>	\$6,747,969	\$6,526,554	\$221,415
<b>Funding Schedule Length</b>	17 years	17 years	0 years
<b>Amortization Increase</b>	2.00%	2.00%	0.00%
<b>Funding Ratio</b>	75%	72%	3%
<b>Interest Rate Assumption</b>	7.875%	7.875%	0.00%
<b>Salary Increase Rate Assumption</b>	4.75%	4.75%	0.00%

- The Fiscal Year 2010 contribution is \$221,415 more than the planned 2010 contribution. This increase is due to accrued interest from July 1 to the expected payment dates of August 15 through November 15 and to changes in actuarial assumptions. The System experienced a \$5.4 million net actuarial asset gain from calendar year 2006. Stone Consulting, with agreement from the Retirement Board, values assets using market value of assets.





## BRAINTREE RETIREMENT SYSTEM

---

The System experienced a 10.1% annual return on the market value of assets versus our assumption of a 7.875% return. The System's asset portfolio, effective December 31, 2007 is primarily 61% equities and 39% fixed income and short-term investments. The interest rate assumption was maintained at 7.875% to reflect anticipated market performance.

- We have kept the salary increase rate at 4.75%, consistent with the 2006 actuarial valuation. Total compensation changed by 9.8% over the prior valuation; however average annual compensation (compensation divided by number of active members) changed by 6.1% (3.0% per year). This assumption is based on expected future experience.
- The funding level of the Braintree Retirement System is 75% compared to 72% for the January 1, 2006 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”. If you are considered an “under performing system” the system assets are required to be transferred to PRIT. The funding level is estimated to be in the second quartile of Massachusetts' Contributory Retirement Systems.

The schedule length is seventeen (17) years. The maximum period permitted under Chapter 32 of the Massachusetts General Laws is 19 years (2028). The amortization percentage stayed the same as the prior valuation, while maintaining a FY2010 contribution level consistent with the prior valuation. The maximum amortization permitted under Chapter 32 is 4.5%.

- Non-economic assumptions were changed from the January 1, 2006 actuarial valuation. The disability mortality assumption uses a 2 year set forward instead of 5 years. This implies that disabled participants will live an additional 3 years on average. This change increased the accrued liability by \$1.2 million.





## BRAINTREE RETIREMENT SYSTEM

### JANUARY 1, 2008 ACTUARIAL VALUATION RESULTS

	January 1, 2008	January 1, 2006	Percentage Change
<b>Funding</b>			
• Contribution for Fiscal 2010	\$6,747,969		
• Contribution for Fiscal 2010 based on current schedule		\$6,526,554	3%
<b>Members *</b>			
• <i>Actives</i>			
a. Number	744	719	3.5%
b. Annual Compensation	\$33,893,980	\$30,860,696	9.8%
c. Average Annual Compensation	\$45,556	\$42,922	6.1%
d. Average Attained Age	48.2	47.8	0.8%
e. Average Past Service	11.7	11.5	1.7%
• <i>Retired, Disabled and Beneficiaries</i>			
a. Number	509	501	1.6%
b. Total Benefits*	\$10,961,755	\$9,611,006	14.1%
c. Average Benefits*	\$ 21,536	\$19,184	12.3%
c. Average Age	73.9	73.6	0.4%
• <i>Inactives</i>			
a. Number	61	19	221.1%
<b>Normal Cost</b>			
a. Total Normal Cost as of January 1, 2008	\$4,691,467	\$4,240,143	10.6%
b. Less Expected Members' Contributions	<u>2,990,382</u>	<u>2,636,137</u>	13.4%
c. Normal Cost to be funded by the Municipality	\$1,701,085	\$1,604,006	6.1%
d. Adjustment to July 1, 2009	122,630	115,632	6.1%
e. Administrative Expense Assumption	<u>357,000</u>	<u>289,000</u>	23.5%
f. Normal Cost Adjusted to July 1, 2009	\$2,180,715	\$2,008,638	8.6%

\*Excluding State reimbursed COLA





## BRAINTREE RETIREMENT SYSTEM

### SUMMARY OF JANUARY 1, 2008 VALUATION (Continued)

	<u>January 1, 2008</u>	<u>January 1, 2006</u>	<u>Percentage Change</u>
<b>Actuarial Accrued Liability as of January 1, 2008</b>			
a. Active Members	\$86,927,118	\$77,306,354	12.4%
b. Inactive Members	920,978	396,212	132.4%
c. Retired Members and Beneficiaries	<u>101,417,874</u>	<u>89,610,805</u>	13.2%
d. Total	\$189,265,970	\$167,313,371	13.1%
<b>Unfunded Actuarial Accrued Liability</b>			
a. Actuarial Accrued Liability as of January 1, 2008	\$189,265,970	\$167,313,371	13.1%
b. Less Actuarial Value of Assets as of January 1, 2008	<u>141,345,518</u>	<u>119,721,733</u>	18.1%
c. Unfunded Actuarial Accrued Liability as of January 1, 2008	\$47,920,452	\$47,591,638	0.7%
d. Adjustment to July 1, 2009	<u>\$ 2,086,669</u>	<u>\$2,319,874</u>	
e. Unfunded Actuarial Accrued Liability as of July 1, 2009	\$50,007,121	\$49,911,512	





## BRAINTREE RETIREMENT SYSTEM

### DEMOGRAPHIC INFORMATION

<b>Members</b>	<b>January 1, 2008</b>	<b>Percentage Change</b>
• <b>Actives</b>		
a. Number	744	3.5%
b. Annual Compensation	\$33,893,980	9.8%
c. Average Annual Compensation	\$45,556	6.1%
d. Average Attained Age	48.2	0.8%
e. Average Past Service	11.7	1.7%
• <b>Retired, Disabled and Beneficiaries</b>		
a. Number	509	1.6%
b. Total Annual Retirement Allowance excluding State-reimbursed COLA	\$10,961,755	14.1%
• <b>Inactives</b>		
a. Number	61	221.1%

- The data was supplied by the Braintree Retirement Board. The data was checked under broad parameters for reasonableness. With the assistance of the staff of the Braintree Retirement Board, we were able to develop a database sufficient for valuation purposes.
- Payroll changed by 9.8% over the course of the past two years. Average annual compensation changed by 6.1% over the same time period, which is the equivalent of an annual rate of increase of 3.0%.
- The salary increase assumption includes general wage adjustments, step increases, and promotional increases. It is used to project individual pay and not the entire payroll.





## BRAINTREE RETIREMENT SYSTEM

---

### *HISTORY OF ACTIVE PARTICIPANTS*

<b>Valuation Year</b>	<b>Number</b>	<b>Average Age</b>	<b>Average Past Service</b>	<b>Average Ann'l Compensation</b>
2008	744	48.2	11.7	\$45,556
2006	719	47.8	11.5	\$42,922
2004	700	47.8	11.6	\$42,072
2002	742	47.2	11.2	\$38,781
2000	685	46.8	12.9	\$35,440

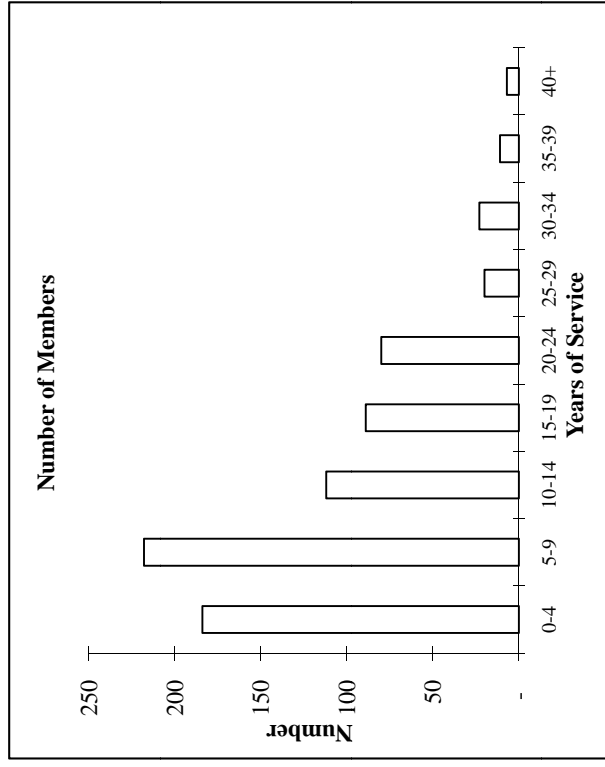
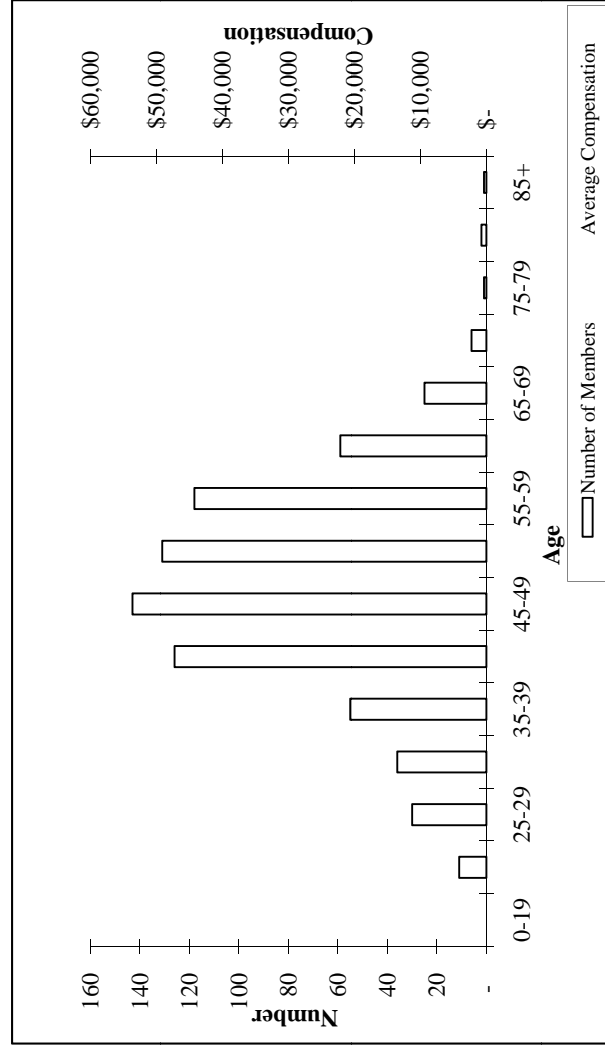
- Employee age has increased by 1.4 years and service has decreased by 1.2 years over the course of the past eight years. This is consistent with the trend in the Commonwealth towards an aging of the employee population. Average annual compensation has grown by 28.5% (3.2% annually) over the same time period.

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



**BRAINTREE CONTRIBUTORY RETIREMENT SYSTEM**  
**Distribution of Plan Members as of January 1, 2008**  
**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 Compensation	Average Compensation
0-19	-	-	-	-	-	-	-	-	-	-	-	-
20-24	-	11	-	-	-	-	-	-	-	11	390,232	35,476
25-29	22	8	-	-	-	-	-	-	-	30	1,283,132	42,771
30-34	15	20	1	-	-	-	-	-	-	36	1,926,471	53,513
35-39	17	13	20	5	-	-	-	-	-	55	2,902,602	52,775
40-44	38	36	17	26	9	-	-	-	-	126	6,214,417	49,321
45-49	36	37	25	18	20	6	1	-	-	143	6,017,954	42,084
50-54	17	44	23	11	27	4	5	-	-	131	6,017,413	45,934
55-59	19	36	16	15	11	6	8	5	2	118	5,279,326	44,740
60-64	8	17	5	8	8	2	4	4	3	59	2,396,350	40,616
65-69	1	5	3	5	4	2	3	1	1	25	1,118,330	44,733
70-74	-	2	2	1	-	-	1	-	-	6	213,797	35,633
75-79	-	-	-	-	1	-	-	-	-	1	33,923	33,923
80-84	-	-	-	-	-	-	1	-	1	2	50,079	25,040
85+	-	-	-	-	-	-	-	1	-	1	49,953	49,953
<b>TOTAL</b>	<b>184</b>	<b>218</b>	<b>112</b>	<b>89</b>	<b>80</b>	<b>20</b>	<b>23</b>	<b>11</b>	<b>7</b>	<b>744</b>	<b>\$ 33,893,980</b>	<b>\$ 45,556</b>

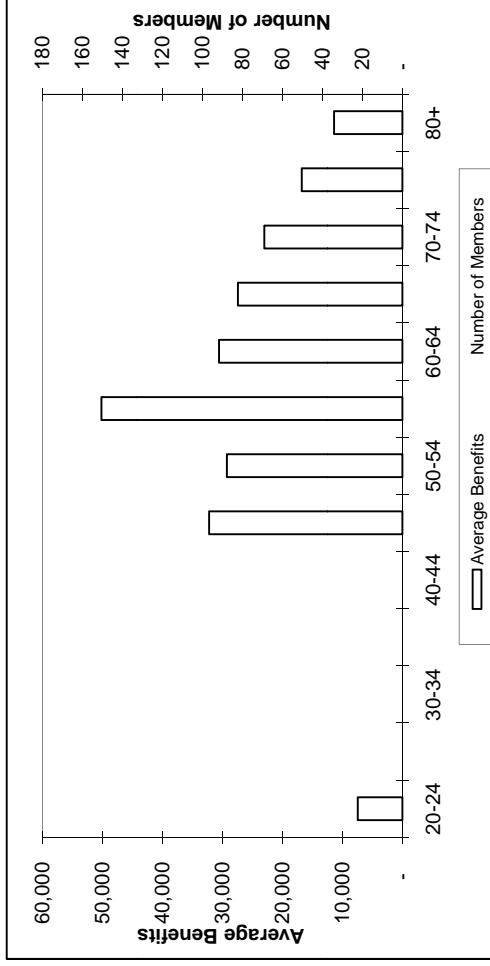




**BRAINTREE CONTRIBUTORY RETIREMENT SYSTEM**  
**Distribution of Plan Members as of January 1, 2008**  
**Retired Members**

Age	Disabled Member			Retired Members and Beneficiaries			
	Number	Average Benefit	Total Benefit	Age	Number	Average Benefit	Total Benefit
20-24	-	-	-	20-24	1	7,446	7,446
25-29	-	-	-	25-29	-	-	-
30-34	-	-	-	30-34	-	-	-
35-39	-	-	-	35-39	-	-	-
40-44	-	-	-	40-44	-	-	-
45-49	2	32,225	64,450	45-49	-	-	-
50-54	5	31,805	159,027	50-54	9	27,844	250,592
55-59	13	41,515	539,696	55-59	19	56,134	1,066,537
60-64	15	27,213	408,201	60-64	41	31,809	1,304,154
65-69	13	31,526	409,839	65-69	63	26,568	1,673,770
70-74	7	25,464	178,251	70-74	66	22,766	1,502,557
75-79	5	31,445	157,223	75-79	86	15,927	1,369,746
80+	9	14,183	127,647	80+	155	11,243	1,742,617
<b>TOTAL</b>	<b>69</b>	<b>\$ 29,628</b>	<b>\$ 2,044,334</b>	<b>TOTAL</b>	<b>440</b>	<b>\$ 20,267</b>	<b>\$ 8,917,421</b>

Age	Total		Total Benefit
	Number	Average Benefit	
20-24	1	7,446	7,446
25-29	-	-	-
30-34	-	-	-
35-39	-	-	-
40-44	-	-	-
45-49	2	32,225	64,450
50-54	14	29,259	409,620
55-59	32	50,195	1,606,233
60-64	56	30,578	1,712,355
65-69	76	27,416	2,083,609
70-74	73	23,025	1,680,809
75-79	91	16,780	1,526,969
80+	164	11,404	1,870,265
<b>TOTAL</b>	<b>509</b>	<b>\$ 21,536</b>	<b>\$ 10,961,755</b>



Benefits shown are net of State reimbursed COLA.



## BRAINTREE RETIREMENT SYSTEM

### 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

		<b>January 1, 2008</b>	<b>% of Payroll*</b>
Gross Normal Cost (GNC)	\$	4,691,467	13.8%
Employees Contribution		<u>2,990,382</u>	<u>8.8%</u>
Net Normal Cost (NNC)	\$	1,701,085	5.0%
Adjusted to Beginning of Fiscal Year 2010	\$	122,630	
Administrative Expense	\$	<u>357,000</u>	1.1%
Adjusted Net Normal Cost With Admin. Expense	\$	2,180,715	

\*Payroll paid in 2007 for employees as of January 1, 2008 is \$33,893,980. Payroll for new hires in 2007 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 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.





## BRAINTREE RETIREMENT SYSTEM

### ACTUARIAL ACCRUED LIABILITY AND FUNDED STATUS

		January 1, 2008	Percentage Change
<b>Active Actuarial Accrued Liability</b>		\$ 86,927,118	12.4%
Superannuation	\$ 72,116,646		
Death	\$ 2,594,757		
Disability	\$ 10,091,517		
Termination	\$ 2,124,198		
<b>Retiree, Inactive, Survivor and Beneficiary Actuarial Accrued Liability</b>		<u>102,338,852</u>	13.7%
Retirees and Beneficiaries	\$ 79,551,173		
Disabled	\$ 21,866,701		
Inactive	\$ 920,978		
<b>Total Actuarial Accrued Liability (AAL)</b>		\$ <u>189,265,970</u>	13.1%
<b>Actuarial Value of Assets (AVA)</b>		\$ <u>141,345,518</u>	18.1%
<b>Unfunded Actuarial Accrued Liability</b>		\$ 47,920,452	0.7%
<b>Funded Ratio (AVA / AAL)</b>			
2008 (7.875% interest rate):	75%		
2006 (7.875% interest rate):	72%		

- 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 \$189,265,970. This along with an actuarial value of assets of \$141,345,518 produces a funded status of 75%. This compares to a funded status of 72% for the 2006 valuation.

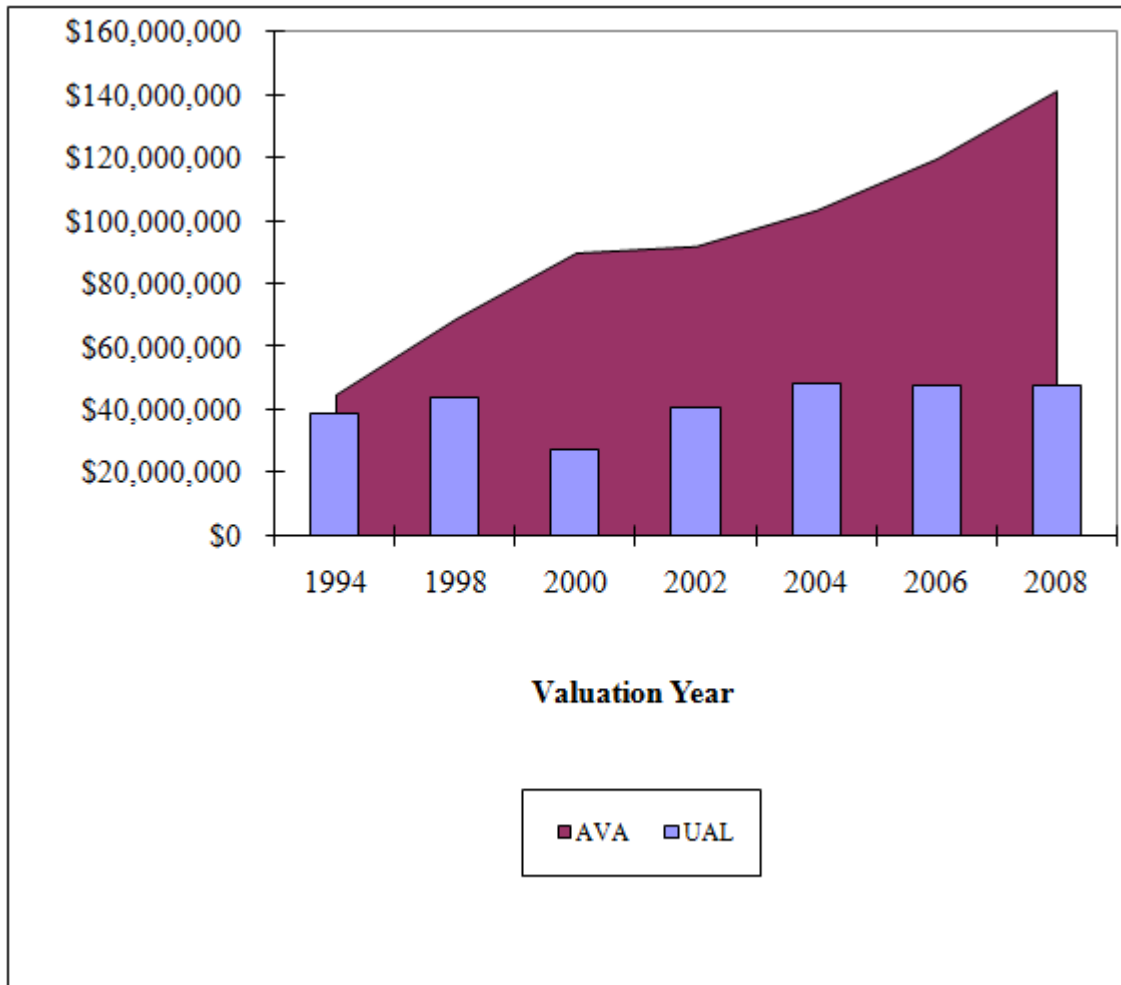
The chart on the following page is a history of the unfunded actuarial accrued liability (UAL) and the valuation assets (AVA) over the course of the past seven actuarial valuations.





## BRAINTREE RETIREMENT SYSTEM

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





## BRAINTREE RETIREMENT SYSTEM

---

### DEVELOPMENT OF FUNDING SCHEDULE

Net Employer Normal Cost for Fiscal 2010	\$	2,180,715
Amortization	\$	4,440,744
Interest Adjustment for Aug 15 – Nov 15 payments		<u>126,510</u>
Total Appropriation required for Fiscal 2010	\$	6,747,969

- The funding schedule is composed of the normal cost and the amortization of the actuarial accrued unfunded liability and is adjusted by the administrative expense assumption. The contribution is assumed to be made in four equal installments on the 15<sup>th</sup> of August, September, October and November.
- The contribution amount for Fiscal 2010 is \$6,747,969. The funding schedule is presented on page 14. The schedule's length is seventeen (17) years (for the fresh start base) which is the same as the January 1, 2006 valuation schedule's length. The maximum funding schedule length allowed by Chapter 32 of the Massachusetts General Laws is nineteen years to 2028.
- In developing the funding schedule, we used a fresh start approach in which the unfunded actuarial accrued liability (uaal), other than the uaal due to past 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, 2.00%. The maximum amortization increase allowed under Chapter 32 is 4.50%.





## BRAINTREE RETIREMENT SYSTEM FUNDING SCHEDULE

Fiscal Year	Normal Cost	Unfunded Liability	Funding Amortization of UAL	Schedule Contribution	Adjusted for Aug 15 - Nov 15 Monthly Payments
2010	2,180,715	50,007,121	4,440,744	6,621,459	6,747,969
2011	2,284,299	49,154,729	4,529,243	6,813,542	6,943,721
2012	2,392,803	48,139,744	4,619,512	7,012,315	7,146,292
2013	2,506,461	46,947,450	4,711,586	7,218,047	7,355,956
2014	2,625,518	45,561,939	4,805,502	7,431,020	7,572,997
2015	2,750,230	43,966,006	4,901,296	7,651,526	7,797,717
2016	2,880,866	42,141,056	4,999,006	7,879,872	8,030,426
2017	3,017,707	40,066,986	5,098,670	8,116,378	8,271,450
2018	3,161,049	37,722,071	5,200,328	8,361,376	8,521,129
2019	3,311,198	35,082,830	5,304,019	8,615,217	8,779,820
2020	3,468,480	32,123,893	5,398,543	8,867,023	9,036,437
2021	3,633,233	28,829,971	5,501,869	9,135,102	9,309,638
2022	3,805,812	25,165,189	5,611,907	9,417,718	9,597,653
2023	3,986,588	21,093,104	5,724,145	9,710,732	9,896,266
2024	4,175,951	16,579,265	5,838,628	10,014,578	10,205,917
2025	4,374,308	11,586,462	5,955,400	10,329,708	10,527,068
2026	4,582,088	6,074,508	6,074,508	10,656,596	10,860,201
2027	4,799,737	-	-	4,799,737	4,891,441
2028	5,027,725	-	-	5,027,725	5,123,784

### Amortization of Unfunded Liability as of July 1, 2009

Year	Type	Original Amort. Amount	Percentage Increasing	Original # of Years	Current Amort. Amount	Years Remaining
2005	ERI-BHA2002	11,240	0.00%	15	11,240	10
2006	ERI_BHA2003	4,554	0.00%	15	4,554	11
2010	Fresh Start	4,424,950	2.00%	17	4,424,950	17

#### 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.



## BRAINTREE RETIREMENT SYSTEM

---

### 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, 2008 Valuation</u>
Interest Rate	7.875% (same as prior valuation)
Salary Increase	4.75% (same as prior valuation)
COLA	3% of \$12,000
COLA Frequency	Granted every year
Mortality	RP-2000 table. For members retired under an Accidental Disability (job-related), 50% of deaths are assumed to be from the same cause as the disability. Disabled mortality RP-2000 table, ages set forward 2 years. (Prior valuation used a 5 year set forward.)
Overall Disability	<u>Groups 1 and 2</u> 33% ordinary disability 67% accidental disability  <u>Group 4</u> 10% ordinary disability 90% accidental disability
Retirement Rates	<u>Groups 1 and 2</u> Ages 55 – 65 (Prior valuation 55 – 65) <u>Group 4</u> Ages 50 – 65
Administrative Expense	\$357,000 budget estimated for FY 2010 provided by Braintree Retirement Board.





## BRAINTREE RETIREMENT SYSTEM

### ASSETS

a.	Cash	\$	3,650,473.38
b.	PRIT Fund		22,281,587.98
c.	Pooled Domestic Equity Funds		35,268,893.65
d.	Pooled International Equity Funds		19,295,677.06
e.	Pooled Domestic Fixed Income Funds		48,576,233.82
f.	Pooled Alternative Investments		5,101,609.53
g.	Pooled Real Estate Funds		7,118,148.94
			<hr/>
h.	Sub-Total:	\$	141,292,624.36
i.	Accounts Receivable		53,890.07
j.	Accounts Payable		(996.00)
k.	Sub-Total:	\$	52,894.07
			<hr/>
l.	Market Value of Assets [(h) + (k)]	\$	141,345,518.43

- We were furnished with the System's annual report by the Board. The market value of assets as of December 31, 2007 (adjusted for interest due and accrued, payables and receivables) is \$141,345,518.43.
- The asset allocation is approximately 39% cash, receivables, payables, short-term investments and fixed income, and 61% equities and other investments such as real estate and alternative 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 7.875% interest rate assumption is within the reasonable assumption range. We encourage close monitoring for changes in investment performance against expectations.





## BRAINTREE RETIREMENT SYSTEM

### DISCLOSURE INFORMATION UNDER GASB STATEMENT 25

#### *Schedules of Funding Progress*

(Dollars In Thousands)

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets</b>	<b>Actuarial Accrued Liability</b>	<b>Unfunded AAL (UAAL)</b>	<b>Funded Ratio</b>	<b>Covered Payroll</b>	<b>UAAL as a % of Covered Payroll (B-A)/C</b>
	<b>A</b>	<b>B</b>	<b>B-A</b>	<b>A/B</b>	<b>C</b>	
1/1/2008	\$141,346	\$189,266	\$47,920	75%	\$33,894	141%
1/1/2006	\$119,722	\$167,313	\$47,592	72%	\$30,861	154%
1/1/2004	\$103,345	\$151,324	\$47,979	68%	\$29,450	163%
1/1/2002	\$91,927	\$132,850	\$40,923	69%	\$28,775	142%
1/1/2000	\$89,822	\$117,318	\$27,496	77%	\$24,276	113%

#### *Notes to Schedules*

Additional information as of the latest actuarial valuation follows:

Valuation date	1/1/2008
Actuarial cost method	Entry Age Normal
Amortization method	Approximate level percent of payroll Closed
Remaining amortization period	17 years
Asset valuation method	Market value of assets (adjusted by accounts payable and receivable)
Actuarial assumptions:	
Investment Rate of Return	7.875% per year
Projected Salary Increases	4.75% per year





## BRAINTREE RETIREMENT SYSTEM

### PERAC INFORMATION DISCLOSURE

The most recent actuarial valuation of the System was prepared by Stone Consulting, Inc. as of January 1, 2008

The normal cost for employees on that date was:                     \$2,990,382                     8.8% of payroll

The normal cost for the employer was:                                     \$1,701,085                     5.0% of payroll

The actuarial liability for active members was:                     \$86,927,118

The actuarial liability for retired members was (includes inactive):     \$102,338,852

Total actuarial accrued liability:   \$189,265,970

System assets as of that date:   141,345,518

Unfunded actuarial accrued liability:                                     \$47,920,452

The ratio of system's assets to total actuarial liability was:                     75%

As of that date the total covered employee payroll was:                     \$33,893,980

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

Investment Return:                     7.875% per annum

Rate of Salary Increase:             4.75% per annum

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

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAAL as a % of Covered Payroll ((b-a)/c)
1/1/2008	\$141,346	\$189,266	\$47,920	75%	\$33,894	141%
1/1/2006	\$119,722	\$167,313	\$47,592	72%	\$30,861	154%
1/1/2004	\$103,345	\$151,324	\$47,979	68%	\$29,450	163%
1/1/2002	\$91,927	\$132,850	\$40,923	69%	\$28,775	142%
1/1/2000	\$89,822	\$117,318	\$27,496	77%	\$24,276	113%



## BRAINTREE RETIREMENT SYSTEM

---

### ACTUARIAL METHODS AND ASSUMPTIONS

#### Actuarial Methods

1. Actuarial Cost Method

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.

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.
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 2010. The unfunded actuarial accrued liability is rolled forward with normal cost and further adjusted by anticipated contributions and interest.

#### Actuarial Assumptions

1. Investment Return

7.875% per year net of investment expenses. (Same as the prior valuation)
2. Salary Increases

4.75% per year. (Same as the prior valuation)





## BRAINTREE RETIREMENT SYSTEM

### ACTUARIAL METHODS AND ASSUMPTIONS (Continued)

3. Withdrawal Prior to Retirement

The rates shown at the following sample ages illustrate the withdrawal assumption. Withdrawal rates are set to zero if the retirement rate at that age is nonzero.

<i>Age</i>	<b>Rate of Withdrawal</b>	
	<i>Group 1 and 2</i>	<i>Group 4</i>
20	37.51%	2.63%
25	28.23%	2.38%
30	17.35%	2.06%
35	10.07%	1.56%
40	7.21%	0.70%
45	5.68%	0.05%
50	4.57%	0.00%
55	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>	<b>Rate of Disability</b>	
	<i>Group 1 and 2</i>	<i>Group 4</i>
20	0.03%	0.10%
25	0.04%	0.12%
30	0.06%	0.18%
35	0.08%	0.26%
40	0.12%	0.38%
45	0.18%	0.58%
50	0.31%	0.98%
55	0.50%	1.60%
60	0.61%	1.97%

Disability is assumed to be 33% ordinary and 67% accidental for Group 1 and 2 and 10% ordinary and 90% accidental for Group 4.





## BRAINTREE RETIREMENT SYSTEM

### 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 10 years of service:

Age	Rates of Retirement	
	Group 1 and 2	Group 4
50	N/A	2%
51	N/A	2%
52	N/A	2%
53	N/A	2%
54	N/A	2%
55	10%	5%
56	3%	5%
57	3%	5%
58	3%	5%
59	5%	5%
60	5%	10%
61	5%	10%
62	10%	20%
63	10%	20%
64	10%	20%
65	100%	100%

6. Mortality

The RP-2000 mortality table for healthy annuitants (sex-distinct).

7. Disabled Life Mortality

The RP-2000 mortality table for healthy annuitants (sex-distinct) set-forward by 2 years. Death is assumed to be due to the same cause as the disability 50% of the time. (Prior valuation used RP-2000 mortality table set-forward 5 years.)

8. Regular Interest Rate Credited to Annuity Savings Account

2% per year.





## BRAINTREE RETIREMENT SYSTEM

---

### 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 \$357,000 for the Fiscal Year 2010 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         | All service is assumed to be due to employment with the municipality.   |
| 14. Contribution Timing      | Contributions are assumed to be made in four equal payments on the 15 <sup>th</sup> of August, September, October and November of the fiscal year.                                  |
| 15. Valuation Date           | January 1, 2008.  |





## BRAINTREE RETIREMENT SYSTEM

---

### SUMMARY OF PRINCIPAL PROVISIONS

1. Participant Participation is mandatory for all full-time employees whose employment commences before age 65. There are three classes of members in the retirement system:

*Group 1:* general employees

*Group 2:* employees in specified hazardous occupations (e.g., electricians)

*Group 4:* police and firefighters

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

<b>Date of Hire</b>	<b>Member Contribution Rate</b>
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.





## BRAINTREE RETIREMENT SYSTEM

### 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 or a member of group 4, 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):

<b>Benefit Percentage</b>	<b>Group 1</b>	<b>Group 2</b>	<b>Group 4</b>
2.5%	65+	60+	55+
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	N/A	49
1.8	58	N/A	48
1.7	57	N/A	47
1.6	56	N/A	46
1.5	55	N/A	45

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).





## BRAINTREE RETIREMENT SYSTEM

---

### 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).





## BRAINTREE RETIREMENT SYSTEM

---

### 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. Funded by the Municipality from Fiscal Year 1999. Percentage increase is voted on each year by the Retirement Board. Cost-of-living increases granted during Fiscal Year 1982 through Fiscal 1998 are reimbursed by the Commonwealth.

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.





## BRAINTREE RETIREMENT SYSTEM

---

### 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).





## BRAINTREE RETIREMENT SYSTEM

---

### Acknowledgement of Qualification

Acknowledgement of Qualification for January 1, 2008 actuarial valuation of the Braintree 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

