January 1, 2017

Actuarial Valuation Report

Town of Medfield
Other Post-Employment Benefits

Lawrence B. Stone

stoneconsulting,inc
5 West Mill Street, Suite 4
Medfield, Massachusetts 02052
T: 508.359.9600 F: 508.359.0190
Lstone@stoneconsult.com

TABLE OF CONTENTS

SECTION I - MANAGEMENT SUMMARY

Introduction

This report presents the results of the actuarial valuation of the Town of Medfield Other Post-employment Benefits as of January 1, 2017. The valuation was performed for the purpose of measuring the actuarial accrued liabilities associated with these benefits and calculating a funding schedule. These results are used in satisfying the requirements under the Governmental Accounting Standards Board Statement No. 45.

The valuation was based on participant data as of January 1, 2017 supplied by Medfield. The provisions reflected in the valuation are based on Chapter 32B of the General Laws of the Commonwealth of Massachusetts and related statutes and the benefits provided by the Town.

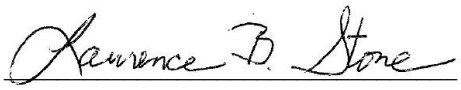
This actuarial valuation involves estimates about the probabilities of events as well as the projection of amounts far into the future. Our figures should be considered a "best estimate" of the future events and not a prediction. As such, actual results are unlikely to mirror our results. All amounts determined in this valuation will be subject to continual review as actual results are compared to past estimates and new estimates are made about future events.

We, Lawrence Stone and Kevin Gabriel, are consultants for Stone Consulting, Inc. and are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

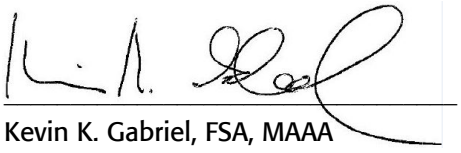
We are pleased to present the results of this valuation. We are available to respond to any questions on the content of this report. Please note that this report is meant to be used in its entirety. Use of excerpts of this report may result in inaccurate or misleading understanding of the results.

Respectfully submitted,

STONE CONSULTING, INC.
September 5, 2017



Lawrence B. Stone
Member, American Academy of Actuaries



Kevin K. Gabriel, FSA, MAAA
Member, American Academy of Actuaries

5 West Mill Street, Suite 4 • Medfield, MA 02052
Tel. (508) 359-9600 • Fax. (508) 359-0190 • E-mail: Lstone@stoneconsult.com

Summary of Actuarial Results

The actuarial values in this report were calculated consistent with the Governmental Accounting Standards Board (GASB) Statement No. 45, Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions, issued June 2004. Values at two discount rates are presented. The 7.50% discount rate represents the expected rate of return for a funded plan with a longer-term investment horizon. Medfield has stated that they have created an OPEB irrevocable trust or its equivalence. Additionally, Medfield has indicated its intent to fund the trust. Based on this information, we have assumed that Medfield's plan is a partially funded plan as described in the Governmental Accounting Standards Board's Statement Number 45. For a partially funded plan, such as that for Medfield, the GASB Statement No. 45 calls for the use of a discount rate in between the funded and the rate that would be used for an unfunded plan and that reflects the extent to which the plan is funded. The rate we used for Medfield is 4.75%. This rate was derived assuming that the discount for an unfunded plan would be 4.00%. The OPEB liability is extremely sensitive to the discount rate assumption. Use of the unfunded rate instead of the funded rate causes the Annual Required Contribution (ARC), Accrued Actuarial Liability (AAL), and the Normal Cost to increase dramatically.

The summary results are as follows:

- Actuarial Accrued Liability ("AAL") is the "price" attributable to benefits earned in past years. The total AAL as of January 1, 2017 (at the 4.75% discount rate) is $44,022,480. This is made up of approximately $21 million for current active Medfield employees and approximately $23 million for Medfield retirees, spouses and survivors.

- The Normal Cost is the "price" attributable to benefits earned in the current year. The Normal Cost as of January 1, 2017 (at the 4.75% discount rate) is approximately $1.8 million.

- Based on a 22-year funding schedule at a 4.75% discount rate, the Fiscal 2017 contribution would be $4,107,585. This figure is referred to as the Annual Required Contribution (ARC). These compare to the pay-as-you-go contribution of the existing costs for current retirees of $1,407,525. For an illustration of how payment of the ARC impacts the funding of the plan over time, please refer to the "Illustrative Funding Schedule" discussion beginning on page 12 and the accompanying table on page 27. The following table shows the breakdown of the Actuarial Accrued Liability between future retirees and current retirees, as well as the normal cost, at Medfield's different discount rates:

Actuarial Results as of January 1, 2017	7.50% Rate	4.75% Rate
Current Actives	$12,458,511	$21,030,861
Current Retirees, Beneficiaries, Vesteds and	$17,434,703	$22,991,619
Total AAL	$29,893,214	$44,022,480
Funding	$1,614,699	$1,614,699
Total Unfunded AAL (UAAL)	$28,278,515	$42,407,781
Normal Cost	$971,698	$1,820,031
ARC (Uses 30 yrs for Fully Funded; 22 Yrs for Partially Funded)	$2,609,529	$4,107,585

Change from Prior Valuation

Medfield's last valuation of its OPEB liability was done as of January 1, 2015. The following table provides a comparison of some of the key figures:

Category	1/1/2017 Figure (4.75%)	1/1/2015 Figure Projected to 1/1/2017 (4.50%)	% Change
AAL	$44.0 million	$50.7 million	-13.2%
Assets	$1.6 million	$1.6 million	+2.6%
UAAL	$42.4 million	$49.2 million	-13.7%
Normal Cost	$1.8 million	$1.6 million	+15.2%
Amortization Cost	$2.3 million	$2.5 million	-9.5%
ARC	$4.1 million	$4.1 million	0.0%
Pay-As-You-Go for Year 1	$1.4 million	$2.0 million	-27.9%

The following addresses the reasons behind these changes:

1) The change in the discount rate from 4.50% to 4.75% reduced the AAL by 3% and reduced the Normal cost by 6%.
2) Changes in claims and trends increased the normal cost by 9% and increased the AAL by 7%.
3) The shift toward Medicare plans also caused the expected claims to decrease significantly.
4) Changes in population, including a shift from commercial plans to Medicare plans for retirees, increased the Normal Cost by 2% and decreased the AAL by 25%.

The following table summarizes the changes in assumptions between the two valuations:

	Current Val (1/1/2017) (4.75%)	Prior Val (1/1/2015) (4.50%)
Mortality	Generational Projection	Generational Projection
Retiree Participation	67.5%	67.5%
Participating Spouse %	60%	60%
Plans Pre-65	100% MC/0% IND	100% MC/0% IND
Plans Post-65(Medicare Only)	95% IND/5% MC/<1%COM	94% IND/5% MC/<1%COM
Family % Pre-65/Post-65	52.5%/20%	40%/20%
Claims age 65 COMMC Blended (Pre-65/Post-65)	$29,255/$20,771	$21,919/$17,036
Claims age 65 COMIND Blended (Pre-65/Post-65)	NA/NA	NA/NA
Claims age 65 MEDMC/MEDIND (Pre-65/Post-65)	$2,571/$3,153	$2,146/$2,668
Cumulative Trend Years 1-10		
Commercial MC	78%	76%
Commercial IND	NA	NA
Medicare MC	76%	76%
Medicare IND	93%	93%
# Actives	507	473
# Retirees and Vested Terms	379	399
# Retirees and Spouses with Med	283	267

Table abbreviations:

- COM: Commercial
- MED: Medicare
- IN: Indemnity
- MC: Managed Care

Valuation Methodology and Assumptions

VALUATION METHOD

The valuation of the other post-employment benefits is based upon the projected unit credit actual cost method. Under this method, future health care benefit costs (including Medicare reimbursements) are projected using assumed rates of annual health care cost increases (health care cost trend rates). The cost of future expected life insurance death benefits is added to the projected medical cost. The actuarial value of the future expected benefits is allocated proportionately over a health plan member's working lifetime.

A normal cost (or service cost) is determined for each year of the member's creditable service and is equal to the value of the future expected benefits divided by the total expected number of years of service. This is similar to a normal cost in a retirement actuarial valuation. The Actuarial Accrued Liability is the accumulated value of prior normal costs, similar to the actuarial accrued liability in a retirement actuarial valuation, and represents the liability associated with prior service.

GASB Statement No. 45

The actuarial cost method used in this valuation is consistent with the Governmental Accounting Standards Board (GASB) Statement No. 45, Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions, issued June 2004. It is one of the allowable cost methods specified in that accounting standard, and is the cost method most similar to the prescribed method of accounting for these benefits in the private sector described in the Financial Accounting Standards Board Statement 106 (FAS 106).

Difference Between FAS 106 and GASB Statement No. 45

The GASB Statement No. 45 differs in one important regard from the actuarial cost method described in the private sector accounting standard. In the FAS 106 methodology, benefits are considered to be fully earned in the first 10 years of service, since members become vested in the retirement benefits in 10 years. Compared to the FAS 106 method, the GASB Statement No. 45 attribution method produces a lower accrued liability for future retirees. The cost of the benefit is spread over the expected working lifetime of the employee. This makes the cost of the benefit associated with the years of service the employee is providing. This is more appropriate for the public sector due to the relative permanence of public entities compared to private entities. There are other significant differences between the GASB Statement No. 45 and FAS 106, most noticeably in the choice of discount rate. The GASB Statement No. 45 discount rate assumption is discussed below.

ACTUARIAL ASSUMPTIONS

Details of the assumptions used in this valuation are shown in Section II. Here we present a brief discussion of the assumptions selected.

Demographic and Financial Assumptions

These include discount rates of 4.75% and 7.50% as well as mortality, disability, withdrawal and retirement rates. The 7.50% discount rate applies to the scenario of a fully funded program. A fully funded program is one in which the employer contributes 100% of the ARC each year. The 4.75% discount rate applies to the scenario of a partially funded program. A partially funded program is one where the employer pays more than the pay-as-you-go cost but less than the full funding amount. GASB Statement No. 45 indicates that the discount rate for a post-employment benefit plan should be based on the degree to which the plan is funded. Note that, for a completely unfunded plan, the rate of return on the employer's general assets should be used. This would typically be about 4.00% for an employer such as Medfield. For a partially funded plan, a rate between these two amounts that reflects the degree to which the plan is funded should be used. The rate we have used for this scenario is 4.75%. While, for a fully funded plan, GASB statement No. 45 allows one to use a long-term investment rate such as what would be used for a defined benefit pension fund. This latter rate is typically around 7.5% however the actual number used is a function of the investment strategy employed by the fund manager.

DERIVATION OF THE PARTIALLY FUNDED RATE

This rate is based on an analysis of the difference between the ARC and the amount paid for various interest rates. We developed actual figures at certain key interest rates first. This group of figures was then used to develop a cubic polynomial approximation to the entire curve relating the discount rate to the difference between the ARC and the amount funded. The following table shows the data we used along with the approximation developed by the polynomial:

Discount Rate	ARC	Paid	ARC-Paid	Difference	Polynomial
4.00%	$4,712,744	$1,407,524	$3,305,220	$0	$0
4.25%	$4,455,908	$1,407,524	$3,048,384	$1,181,026	$579,795
4.50%	$4,260,910	$1,407,524	$2,853,386	$2,200,106	$1,132,009
4.75%	$4,111,662	$1,407,524	$2,704,138	$3,084,497	$1,656,609
5.00%	$3,959,026	$1,407,524	$2,551,502	$3,856,311	$2,153,559
5.50%	$3,686,904	$1,407,524	$2,279,380	$4,205,770	$3,064,375
6.00%	$3,452,581	$1,407,524	$2,045,057	$4,533,573	$3,864,182
6.50%	$3,249,687	$1,407,524	$1,842,163	$4,841,470	$4,552,703
7.00%	$3,115,288	$1,407,524	$1,707,764	$5,112,299	$5,129,663
7.50%	$2,918,516	$1,407,524	$1,510,992	$5,403,755	$5,594,786

Based on a onetime payment of $1.5 million in Fiscal 2016 and then a plan to contribute $400 thousand thereafter, consideration of both the polynomial approximation and the actual figures gives a figure of approximately 4.75% that we are recommending. Medfield should keep in mind that, if future additional contributions are less than its planned amount, the discount rate used for future valuations will be lower. This will increase the liability and OPEB cost calculations.

It should be noted that all of these rates could change significantly in the future due to changes in the economic environment. The 7.50% rate used for calculation of the fully funded rate, as well as future investment returns on assets is based on future investment decisions. We have assumed an asset allocation similar to what is used for the retirement system assets will be used. If a significantly different type of asset allocation is decided upon by the OPEB trust, the amounts in this report should be recalculated.

We generally recommend that a public sector entity adopt a funding policy. This is particularly necessary for Medfield, which is funding its OPEB benefits. If Medfield has not already done so, we recommend that this policy be formalized. The GASB statement does not have a requirement for a formal funding policy document but indicates that a funding policy should be adopted. Thus, we recommend that the Town detail its intent with either a written document or in the minutes of a meeting. We recommend that Medfield continue to do so if it does not create a written document.

The discount rate would change if the Town were to alter the rate at which it is funding benefits. Such a change would lead to a lower discount rate should the funding level be reduced, or a higher discount rate, should the rate of funding be increased. Based on the current economic scenario and a reasonable funding plan, this would mean the valuation rate could fall to as low as 4.00% or as high as 7.50%.

- Current health care costs by age

Initial health care cost assumptions were derived from premium rates for the various health care plans in-force at January 1, 2017. Typically, we analyze the plans offered in terms of four different categories: whether the plan offered is Commercial (not integrated with Medicare) or supplemental to Medicare and whether the plan is Indemnity (where reimbursements are a function of billed charges) or Managed Care (where reimbursements are a function of negotiated contracts). Grouping the plans in this manner allows us to maintain a reasonable degree of granularity in our analysis. At the same time, it avoids the problem of a lack of credibility that often arises if one attempts to analyze every plan separately.

As of January 1, 2017, Medfield had medical plans in three of these four categories (meaning there were enrollees in these plans): two Commercial Managed Care plans, one Medicare Managed Care plan, and one Medicare Indemnity plan. Please refer to the "Plan Definition Table" on page 22 for more details. Note that other plans were offered but they did not have retiree enrollment.

For all of these plan categories, weighted-average costs for each plan grouping were calculated based on the actual Medfield active and retiree population enrollments. For plan categories with more than one plan, costs were based on an average weighted by enrollment. In order to capture the effect of aging on health care costs, an assumption is required for the increase in health care costs as a person ages. We based our aging assumption on a study sponsored by the Society of Actuaries Health Section in August 2003. The effect of this aging assumption is illustrated in the table of "Initial Claim Costs" in the Actuarial Methods and Assumptions section of this report. This method was applied only to the Commercial plans, since these plans incorporate both retirees and active employees. By age-grading the claim costs, we account for the subsidy of older employees by younger employees

implicit in a flat premium rate (also referred to as the "Attributed Cost" of each employee). That is, the cost of an active 20-year old employee, for example, is much less than the cost of a retired 80-year old employee. But, the premiums charged the Town are flat – the same for both of these people. Thus, the 20-year old in our example is overcharged and the 80-year old is undercharged by a flat rate premium. Age-grading makes this subsidy mismatch between expected claims and premium amounts explicit in the claim costs at each age. For the purposes of the GASB valuation, this subsidy needs to be taken into account in determining the retiree liability and normal cost.

Medicare plans were also age-graded. While there is no subsidy between actives and retirees in these plans, there is still an escalating cost by age that needs to be reflected. In particular, it should be noted that from one year to the next, the cost of a person in these plans (as well as commercial plans) increases due to two factors: (1) year-over-year medical trends and (2) the fact that the person ages one more year. Without age-grading the Medicare costs, we would understate the rate of increase in costs and so end up with smaller liabilities and associated annual costs.

- Cost trends

The claim rates developed using the methodology described above must be projected over the life of each retiree. For this purpose we use trend rates calculated to reflect the general rate of increase in Health Care costs. We developed different trends for each of the categories of plans for which we also developed claim costs. These factors were applied to the premium-based claim rates.

It should be noted that premium rate increases typically include factors other than health care cost increases, such as aging of the covered population, that are reflected elsewhere in our valuation methodology. Therefore, premium rate increases are not themselves a proxy for health care trends. However, they do give some indication of the level of expected cost increases.

As is the standard in post-retirement medical valuations, initially higher rates of health care cost trend are assumed to decrease over time to an ultimate rate consistent with long-term economic assumptions. Our general set of trend assumptions has Commercial Managed Care trends that begin at 9% and scale down to 5% by year eight. For Medicare, the Managed Care trends begin 8% at and scale down to 5% at year 6 while the Indemnity trends begin at 9% and grade down to 5% by year 28. These patterns are a change in our former assumptions, which had indemnity trends at an ultimate level of 6%. These different sets of trend rate reflect our belief that (1) Managed Care plans, with their negotiated pay levels and tighter controls, will exhibit lower trends than unmanaged Indemnity plans; and (2) Commercial plans will be subject to modestly higher trends than Medicare plans due to cost shifting induced by cutbacks in the federal government's payment of Medicare costs. These were the trends we used for our work except for the first year of the commercial managed care, where we used the actual premium changes for 2017.

These trend rates should be thought of not as a forecast but as a reasonable progression of rates based on historic patterns. Our new assumptions reflect the belief that ultimate trends for all plans must converge but that indemnity trends will be less reactive to prices. For many years, health care cost increases have been particularly volatile, and this actuarial assumption should be reviewed and,

most likely, reset every year or two. Implicit in our health care cost trend assumptions is that the general rate of medical inflation will moderate due to economic pressure on insurers, employers, employees, retirees, government entities, and health care providers. As expectations of future health care cost increases change, they will be reflected in future valuations, resulting in actuarial gains/losses. These will be incorporated in the future costs and funding schedules. In this manner, there is a systematic means of adjusting to changes in the health care environment.

- Sensitivity analysis

The effect of increasing health care costs is extremely significant in an actuarial valuation of post-employment health benefits. As experience emerges the trend assumptions we have used are unlikely to be realized exactly. To illustrate the effect of different trend rates on the actuarial valuation results, we have included a sensitivity analysis of the effect on the actuarial accrued liability, normal cost and annual required contribution of a 1% increase or decrease in the health care cost trend assumption to the base (4.75%) discount scenario. We have also included a sensitivity analysis of the effect on the actuarial accrued liability, normal cost and annual required contribution of a 0.50% increase or decrease in the base (4.75%) discount rate assumption.

- Timing

All values discussed in this report are based on a January 1, 2017 valuation. The first fiscal year of the valuation is used for FY 2017, that is July 1, 2016 to June 30, 2017. It is permissible, under GASB Statement No. 45, to use these values, without adjustment for interest or any other timing factor for a limited future time period. For an entity such as Medfield, which will be doing a valuation every two years, the standard allows use of data "not more than twenty-four months before the beginning of the first of two years for which the valuation provides the ARC." This means that it is acceptable for us to use the January 1, 2017 results without adjustment when discussing the 2017 and 2018 Fiscal years (for funding only). For this valuation, we have not adjusted the figures for timing. We believe this is acceptable if it is done consistently. We have shown projected costs for each fiscal year starting with 2015. If there are no significant plan changes or demographic changes or cash contributions that differ from those assumed, you will be able to use the results for both fiscal years.

- Medicare

Medicare eligibility is an important assumption with regard to future costs. For those entities that have adopted Section of 18 of Chapter 32B of the code (as has Medfield), we will assume that active employees who were hired after March 31, 1986 will be Medicare eligible due to their mandated participation in the Medicare program. Active employees prior to that employment date are assumed to be 85% Medicare eligible. Thus, we assume that 85% of those not Medicare eligible through the Town will obtain coverage through other employment or through their spouse. Such an assumption only applies to those hired by the Town prior to 4/1/1986. All employees hired after that date are automatically Medicare eligible. Eventually, this 85% assumption will no longer be necessary.

- Medicare Changes

The Medicare Prescription Drug, Improvement and Modernization Act of 2003 introduced significant changes to the Medicare program and its interaction with employer-sponsored post-retirement benefits. Medicare beneficiaries are able to participate in a voluntary, prescription drug coverage program. In order to encourage employers, including public-sector employers, to continue providing prescription drug coverage to retirees, the Act provides for a cash subsidy to employers whose prescription drug coverage is deemed to be actuarially equivalent to the new Medicare Part D drug coverage. This cash subsidy can be used to offset partially the cost of retiree medical benefits, including potentially reducing the accrued liability for a portion of the drug benefits provided by a retiree medical plan. The Act may have additional impact on retiree plan choices, as Medicare-eligible retirees may opt for the Part D coverage rather than an employer's plan options. Such changes, if they occur, may affect the selection of future actuarial assumptions.

GASB has indicated that the subsidy should not be included as part of the OPEB valuation. The reason being that the subsidy is considered general governmental revenue and as such in not earmarked towards the funding of OPEB benefits.

- Health plan coverage election

Assumptions must also be made regarding the participation in health plans when active members retire and when those already retired turn age 65. Using data supplied by Medfield, Stone Consulting modeled the behavior of employees as they moved from being active to being retired or moved from being an under age 65 retiree to being an age 65+ retiree. Such modeling involved an analysis of the distribution of the plans chosen by current retirees, the possible plans available to those who will retire in the future, and our opinions about the likely future course of retiree medical care. For this analysis, all departments were combined, since the plans available to all Medfield retirees are the same, regardless of department.

This model is applicable to actives and to retirees not yet age 65, since both of these groups will have the option to select plans at key ages. It should be kept in mind that these percentages are applicable even to actives not currently enrolled in a medical plan. The reason for this is that these people could change their behavior and enroll in a plan at retirement. The likelihood that they (or other actives) elect to do so is controlled by the participation assumption (see below). Some retiree groupings do not require any modeling. For example, retirees over age 65 are assumed to remain in the plans they have already selected. If they have opted out of Medfield coverage, we assume they will continue to do so. Similarly, those retirees under age 65 already in Medicare plans are assumed to remain in those plans for life. These are people who are disabled or have certain medical conditions that qualify them for Medicare early. Pre age 65 retirees in Commercial plans are assumed to stay in their current plan until age 65. At that point, they may migrate to a different plan. We have modeled their possible choices at age 65 and reflected them in our assumptions. Active employees over age 65, once they retire, are assumed to make the same sorts of selections as retirees at age 65.

The table on the following page shows the way we modeled the choices at each of the key ages.

Medfield Participant Behavior at Key Ages

Status	Age	Pre-65 Retirement	65+ Retirement
Active	Under 65	Commercial Managed Care: 100% Commercial Indemnity: 0%	Medicare Managed Care: 5% Medicare Indemnity: 95% Commercial Managed Care: <1%
Active	65+	NA	Medicare Managed Care: 5% Medicare Indemnity: 95% Commercial Managed Care: <1%
Retired	Under 65	Current Plan	Medicare Managed Care: 5% Medicare Indemnity: 95% Commercial Managed Care: <1% Or Actual Plan if already in Medicare
Retired	65+	NA	Current Plan

Participation

In addition to determining the choices that retirees will make among plans, there is also the issue of whether the retiree will elect coverage at all. The rate at which retirees elect coverage is called the "Participation" Rate. Stone Consulting reviewed Medfield retiree data to determine the historical frequency at which retirees elect to take medical coverage. Based on this review, we assumed that 67.5% of future eligible retirees and spouses of retirees will elect health plan coverage. For Life Insurance, we assumed that 60.0% of Medfield future retirees will elect coverage. These percentages reflect both actual Medfield participation to date as well as the likelihood that future participation rates will tend to drift up as alternative sources of coverage become less common.

It is also necessary to reflect the participation rate of spouses in the Medical plans. Spouses will not participate at the same rate as employees for various reasons. These can include the availability of coverage from their own employer and the cost of the spouse coverage on top of the employee's coverage. We examined the number of spouses covered both pre-65 and post-65 and determined the implied percentage of spouses participating. Such analysis took into account that spouses may "participate" by virtue of being covered under family plans. The participation rate we developed was 60%. We should also note that our expected frequency of spouses for an employee who is retiring typically is 80%. In other words, we typically expect 8 out of 10 retiring employees to have a spouse. However not all of these spouses will opt to participate. Thus, effectively 48% of active employees will have a spouse that participates in the retiree plan.

Data

The participant census data for the valuation study was supplied by Medfield. Participants include Medfield active employees including retirees, disability retirees, surviving spouses. We should note that, like many Massachusetts governmental entities, Medfield does allow Inactive former employees with 10 or more years of service to qualify for a vested post-retirement health benefit.

The participant census data was not audited by Stone Consulting, Inc. However, it was checked for reasonableness. Summaries of active participants and Medfield retiree census data are included in Section II.

Funding

There are alternative ways to plan for the payment of post-retirement health and life insurance benefits: continue to fund on a pay-as-you go method, contribute on an ad-hoc basis to a fund for this purpose, or develop a funding schedule in which the unfunded amount is amortized over some number of years. With the funding schedule, the normal cost must continue to be paid each year to keep current.

There is no legal requirement to prefund these other post-employment benefit liabilities. Nor does GASB Statement No. 45 require actual prefunding; however, its accounting requirements will serve to highlight the substantial unfunded accrued liabilities associated with these benefits.

ILLUSTRATIVE FUNDING SCHEDULE

The GASB Statement No. 45 is designed to account for non-pension post-employment benefits using an approach similar to the accounting for retirement benefits. It develops an Annual Required Contribution ("ARC") that is based on the Normal Cost plus an amortization of the Unfunded Actuarial Accrued Liability ("UAAL"). To the extent that actual contributions equal to the ARC are made by the employer to the post-employment health benefit plan, no additional liability will be required to be shown on Medfield's statement of assets. Employer contributions may be in the form of benefit or premium payments or contributions to a fund set aside for future benefit payments. Such a fund must meet the requirements set out in the accounting standard.

We have calculated an illustrative funding schedule for the other post-employment benefits, consistent with the GASB Statement No. 45. This funding schedule is based on the assumption that Medfield funds 100% of the ARC and begins with Medfield's Fiscal Year 2017. Since this schedule assumes full funding, the "funded" rate of 7.50% is used. In line with MWRA's funding policy, the schedule assumes a 30-year closed amortization. This means that the UAAL for the first year is paid off over 30 years and that future UAAL's are paid off over a declining number of years. The full schedule is shown in Section II.

Development of Fully Funded Funding Schedule and Annual Required Contribution

The contribution amount under a fully funded scenario using the 7.50% discount rate for Fiscal 2017 is $2,609,529. Part of this comes from the amortization of the January 1, 2017 Unfunded Actuarial Accrued Liability of $28,278,515. This amount is equal to the base AAL of $29,893,214 less the funding to date of $1,614,699. The UAAL is amortized over thirty years at the rate of assumed payroll increase due to inflation (3.00%). The funding contribution is the amortization payment plus the projected normal cost. As noted earlier, under the GASB Statement No. 45, thirty years is the maximum amortization period allowed. Shorter periods of time and/or other amortization patterns could be considered. The thirty-year funding schedule shown produces the lowest possible initial fiscal year contribution under the GASB parameters. It should be noted that the contribution is

assumed to be made at the beginning of the fiscal year, so the first contribution is assumed to be made July 1, 2016. The amount of the amortization payment in the first year is $1,637,831. This figure also uses a 3.00% increasing amortization. For the purposes of this schedule, we have not adjusted the January 1, 2017 liability for timing by applying interest to bring it to any future date. Yearly contributions will increase, as both normal cost and amortization payments increase each year. The remaining part of the ARC is the cost of the current year's benefit accrual, the normal cost, of $971,698.

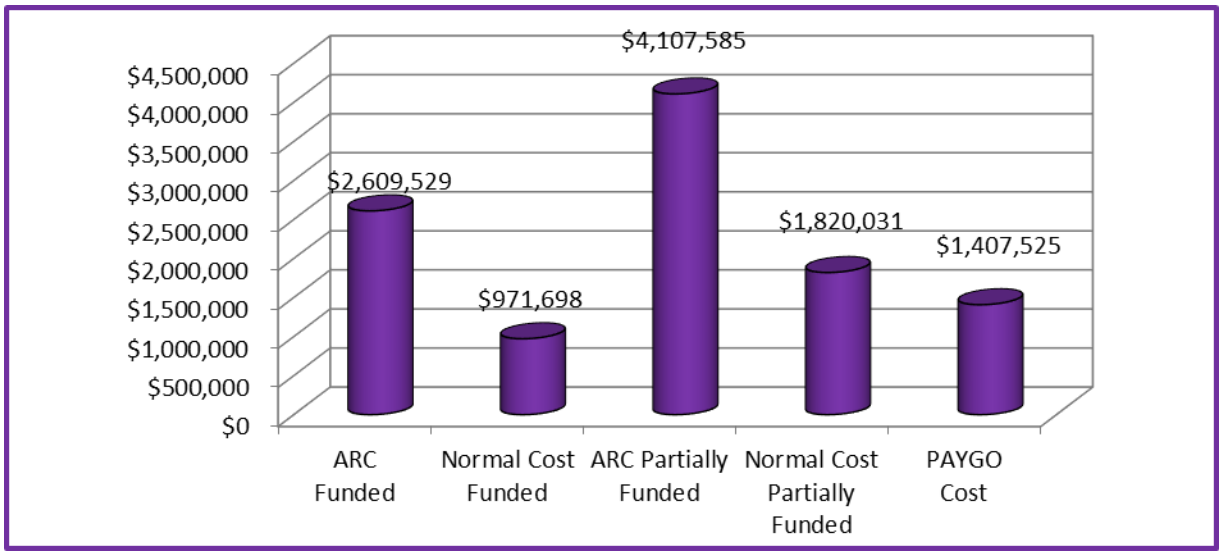
Cash Flow Consideration

We have analyzed the cash flow of a funded other post-employment medical trust by comparing the expected payouts of claims over the thirty-year period to expected contribution levels. If the actuarial assumptions are met, the funded amounts will be sufficient to cover annual benefit payments each year. Prior to adopting a funding schedule we recommend additional analysis be conducted to examine the effects of potential actuarial gains and losses on the cash flow.

FUNDING VERSUS PAY-AS-YOU-GO VERSUS PARTIAL FUNDING

Currently, most Massachusetts governmental entities are paying for their post-employment medical benefits on a pay-as-you-go basis. This means that no amount in excess of the actual cost for the year is paid. All such entities must report figures for GASB Statement No. 45 based on the unfunded discount rate. Up until Fiscal 2015 Medfield elected to follow this course of action. However, starting in Fiscal Year 2016, Medfield began funding its OPEB liability. It made a contribution of $1,539,127 in FY 2016 and one of $445,651 in FY 2017. Thereafter, Medfield's additional contribution will be $400,000. Thus, Medfield will be a partially funded system.

In order to understand the impact of partially funding versus funding completely, a comparison of the ARCs and normal costs (the contribution amount if the UAAL was $0) under both scenarios, and the pay-as-you-go amount is illustrated in the following chart:



The chart depicts the advantage to Medfield of fully funding, since the ARC and Normal Cost are significantly higher under the partially funded scenario. Currently, few Massachusetts entities are fully funding due to the financial demands of this expense.

As can be seen in the funding schedule, the retiree medical plan's normal cost will increase each year, so that by the time the initial unfunded liability is fully amortized, the required annual contribution will be substantially higher than is illustrated here for the first year. The pay-as-you-go costs will also increase dramatically as more and more employees retire. A projection of annual expected retiree pay-as-you-go costs is included with the funding schedule.

It is very important to understand that, in order to utilize the higher discount rate that goes with the fully funded or partially funded scenarios, there must be a "Funding Policy." That is, the Town must intend to continue to make payments and, in the future, must actually make them. Thus, it will be necessary for Medfield to establish a long-term policy in order to reduce the interest rate. As the figures above illustrate clearly, there is an iterative relationship between the degree of funding and the amounts that must be shown as liabilities, amortization payments, and normal cost figures. Lower funding levels lead to higher amounts for these key figures.

The partial subsidy of prescription drug benefit costs that is available under the Medicare Prescription Drug, Improvement and Modernization Act of 2003 is a potential source of funds for a portion of the retiree medical costs. To the extent that this subsidy reimburses Medfield for drug benefits it would already be paying for, the additional cash from the subsidy could be used to help pre-fund future benefits. The magnitude of any future subsidy is only a small portion of the additional cost to fund. Other plan design changes, such as a carve-out of prescription drug coverage or an Employer Group Waiver Plan (EGWP), may yield greater opportunities for savings.

DETERMINATION OF THE NET OPEB OBLIGATION (NOO)

The Statement does not require Medfield to put its entire Actuarial Accrued Liability on its books immediately as a liability. Rather, a cost is applied to its net assets each year. Over time this cost, which is called the OPEB Cost, will add up to the total liability. The total liability at any point in time is called the Net OPEB Obligation (NOO). For the first year of funding, the OPEB Cost and ARC are identical. Amounts contributed toward the cost of other post-employment benefits must then be deducted. These amounts include:

1) actual premiums paid;

2) the extra implied costs or "implicit subsidy" associated with covering retirees;

3) any additional amounts paid during the year.

The Net OPEB Cost is the OPEB Cost less these amounts. For year one, where there was no prior NOO on the financial statement, the Net OPEB Cost was the same as the Net OPEB Obligation. Starting with year two, the OPEB Cost must recognize not only the Normal Cost and Amortization Cost for the year but also add interest on the prior year's NOO as well as subtract the Annual Required Contribution (ARC) adjustment to prevent double counting the amortization of the prior year's NOO. The interest and the ARC adjustments somewhat offset each other so the net impact is not large. The total contributions are then subtracted from the OPEB Cost and the result is added to the prior year's NOO. In this manner, the difference between each year's ARC and the contributions are accumulated.

The unfunded actuarial accrued liability as of January 1, 2017 under the assumption of partial funding, would be $42,407,781. This is the case as of this date, since Medfield had not yet made any payments above the pay-as-you-go level. The following chart illustrates the ARC, Pay-As-You-Go Cost, Annual OPEB Cost, and Net OPEB Obligation for the years 2009 through 2017 under the partially funded scenario. It reflects a $445,651 cash contribution for Fiscal 2017. The Annual OPEB cost is the ARC plus an adjustment for interest not included in the ARC calculation. The Net OPEB Obligation is the accumulation of the Annual OPEB Cost minus any contributions. This is the amount that is subtracted from the Net Assets on Medfield's balance sheet. The rate used for interest is the 4.75% partially rate.

Calculation of Net OPEB Obligation

"Funding" Schedule at 4.75%

Fiscal Year	UAAL	Normal Cost	Amort.	ARC	Interest on NOO	ARC Adjust.	OPEB Cost	Total Contribs.[2]	Change in NOO	NOO[3]
2009[1]	$43,819,459	$2,150,904	$1,618,698	$3,769,602	NA	NA	$3,769,602	$1,148,598	$2,621,004	$2,621,004
2010[1]	$46,751,352	$2,242,317	$1,675,353	$3,917,670	$111,393	$99,811	$3,929,252	$1,373,194	$2,556,058	$5,177,062
2011[1]	$39,775,805	$1,889,948	$1,613,082	$3,503,030	$220,025	$209,952	$3,513,103	$1,234,867	$2,278,236	$7,455,298
2012[1]	$42,175,713	$1,970,271	$1,765,605	$3,735,876	$316,850	$312,102	$3,740,624	$1,412,261	$2,328,363	$9,783,661
2013[1]	$42,861,723	$1,697,110	$1,801,970	$3,499,080	$391,346	$411,320	$3,479,107	$1,450,184	$2,028,923	$11,812,584
2014[1]	$44,862,283	$1,764,994	$1,954,652	$3,719,646	$472,503	$514,675	$3,677,475	$1,511,192	$2,166,283	$13,978,867
2015[1]	$46,844,445	$1,447,206	$2,233,792	$3,680,998	$629,049	$666,587	$3,643,461	$1,648,744	$1,994,717	$15,973,583
2016	$48,779,343	$1,512,330	$2,413,314	$3,925,645	$718,811	$790,279	$3,854,177	$3,327,418	$526,759	$16,500,342
2017	$42,407,781	$1,820,031	$2,287,554	$4,107,585	$783,766	$890,059	$4,001,292	$1,853,176	$2,148,116	$18,648,459

[1] Figures for 2009-2016 (boxed area) from Medfield's Financial statement.
[2] For all years, Total Contributions are equal to the attributed premiums paid including the implicit subsidy plus additional contributions made by Medfield. The schedule we used for these additional amounts was as follows:

2016: $1,539,127
2017: $445,651

Note that amounts will need to be recalculated if cash contributions are different from these expected amounts.

[3] NOO = Net OPEB Obligation

Calculation of Net OPEB Obligation (Alternative Presentation)

	Fiscal 2017	Fiscal 2016	Fiscal 2015	Fiscal 2014[1]	Fiscal 2013[1]	Fiscal 2012[1]	Fiscal 2011[1]
AAL	$44,022,480	$48,779,343	$46,844,445	$44,862,283	$42,861,723	$42,175,713	$39,775,805
Assets	$1,614,699	$0	$0	$0	$0	$0	$0
UAL	$42,407,781	$48,779,343	$46,844,445	$44,862,283	$42,861,723	NA	NA
Service Cost	$1,820,031	$1,512,330	$1,447,206	$1,764,994	$1,697,110	$1,970,271	$1,889,948
Amortization of unfunded accrued liability	$2,287,554	$2,413,314	$2,233,792	$1,954,652	$1,801,970	$1,765,605	$1,613,082
ARC	$4,107,585	$3,925,645	$3,680,998	$3,719,646	$3,499,080	$3,735,876	$3,503,030
Interest on NOO (+)	$783,766	$718,811	$629,049	$472,503	$391,346	$316,850	$220,025
ARC Adjustment (-)	$890,059	$790,279	$666,587	$514,675	$411,320	$312,102	$209,952
OPEB Cost	$4,001,292	$3,854,177	$3,643,461	$3,677,475	$3,479,107	$3,740,624	$3,513,103
Premiums and Implicit Subsidy Paid	$1,407,525	$1,788,291	$1,648,744	$1,511,192	$1,450,184	$1,412,261	$1,234,867
Cash contributions	$445,651	$1,539,127	$0	$0	$0	$0	$0
Total Contributions	$1,853,176	$3,327,418	$1,648,744	$1,511,192	$1,450,184	$1,412,261	$1,234,867
Change in NOO	$2,148,116	$526,759	$1,994,717	$2,166,283	$2,028,923	$2,328,363	$2,278,236
NOO Beginning of Fiscal Year	$16,500,342	$15,973,583	$13,978,867	$11,812,584	$9,783,661	$7,455,298	$5,177,062
NOO End of Fiscal Year	$18,648,459	$16,500,342	$15,973,583	$13,978,867	$11,812,584	$9,783,661	$7,455,298

[1] Boxed area for Fiscal Years 2011 through 2016 based on Medfield financial statements

[2] See footnote (2) on prior page.

Implementation

According to the GASB Statement No. 45, its provisions are effective for Medfield fiscal years beginning after December 15, 2007. The timing is due to Medfield being a "Tier 2" government under GASB 45. In the first fiscal year of adoption, Fiscal 2009, Medfield recorded a liability of $2,621,004 on its balance sheet. Medfield's contributions (including benefit payments) for other post-employment benefits were less than the Annual Required Contribution ("ARC") determined in accordance with the GASB standard and described above. By the end of Fiscal 2016, Medfield had recorded a figure of $16,500,342 for its NOO.

This report provides similar information for FY 2017. For future years, a new accounting standard, GASB 75 will apply to Medfield's report for OPEB. This liability, called the "Net OPEB Liability" will be the ENTIRE liability for OPEB benefits, with such libiality being computed in a somewhat different manner than under the current GASB 45. Thus, Medfield will no longer build up and NOO incrementally but will put the entire liability, as estimated at the time, on it's books. Such liability will, of course, be net of any funding.

Under the current Statement, to be considered a funded system, the plan assets must be "segregated and restricted in a trust, or equivalent arrangement, in which (a) employer contributions to the plan are irrevocable, (b) assets are dedicated to providing benefits to retirees and their beneficiaries, and (c) assets are legally protected from creditors of the employers or plan administrator, for the payment of benefits in accordance with the terms of the plan." (GASB 45, p. 47, "Plan Assets"). Medfield has informed us that its trust fund satisfies the GASB Statement Number 45 requirements for such funds.

Recommendations and Comments

Post-employment medical benefits are a significant long-term liability that is only now starting to be addressed by Massachusetts governmental employers. In managing this liability, any governmental entity needs to consider the parameters that can significantly influence the level of the liability. To facilitate such a review, we recommend that Medfield maintain a continuing group that is cognizant of the relevant financial and employee benefits issues raised by GASB Statement No. 45 that will provide leadership to the Town. We would recommend that the group review the following:

FUNDING POLICY

As previously discussed, the funding policy is critical to the valuation not only because it impacts the funds backing the liability but also because it impacts the discount rate that is used to calculate all of the relevant figures. Medfield needs to bear in mind that it is the formulation of a funding policy that is essential, not simply the contribution of funds. Of course, if a funding policy is developed, it needs to be implemented, not just formulated. We recommend that the Town review its funding policy each year, especially now that it is funding.

PLAN DESIGN

One of the major factors influencing costs is the design of the plans that Medfield offers to retirees. To the extent that any part of these plans changes materially, costs may either increase or decrease.

In order to keep costs under control, the Town should review the design of all its medical plans annually. Changes in plan characteristics such as deductibles, coinsurance levels, out-of-pocket maximums, and covered services can help mitigate the impacts of ever-increasing medical costs or amplify these costs. In addition, the Town should review the networks it is using to be sure that it is getting the most competitive reimbursement levels available.

CONTRIBUTION LEVELS

The extent to which the Town subsidizes the cost of retiree benefits is one of the most significant factors in the ultimate costs. Currently, retired Medfield employees and their spouses pay 50% of the premium cost for their retiree medical insurance. This contribution level is the highest that can be required Massachusetts governmental entities. The lower end of employee contribution rates is in the 10%-15% range. The average contribution rate is around 25%. Contribution levels (like benefit levels) have a double impact on costs. First off, there is a direct relationship between contributions and costs in that higher contribution levels mean that more of the cost of the plan is borne by the Town. Secondly, higher contribution levels lead to higher participation rates because the plan becomes less costly to the retiree. In the case of governmental entities where a substantial portion of the medical costs are paid by the employer, participation rates tend to be very high. Medfield's participation level of 67.5% is in line with its contribution requirements.

In general, a well subsidized plan will have many participants enrolled at a high cost. Also, to the extent that other employers are cutting back or eliminating their programs, there is increased likelihood that a favorably subsidized plan will be elected by retirees, since no coverage or only more expensive coverage may be available from other sources such as their spouse's employer. There was a definite move toward reducing the subsidies paid by Massachusetts public entities that seems to have slowed recently.

EILIGIBILITY

The extent to which retirees are eligible for benefits is another variable that directly impacts costs. Medfield should review its eligibility criteria each year to be sure that they are in accord with Town goals for controlling costs and for providing well-deserved benefits for those who have worked for the Town. Retirement system policies can also affect the eligibility for benefits. In the case of Medfield, the Town does pay for medical benefits for those who reach ten years of service even if such people do not retire from the Town immediately upon separation from service. This will produce a higher liability and ARC for Medfield than if only those actually retiring from the Town were covered.

In addition to reviewing the above items regularly, we recommend that the Town continue working toward an organized method of keeping its data. This is an issue faced by virtually all public entities with respect to GASB Statement No. 45. Some of the typical issues are:

- Be sure that it has a record of those eligible for coverage who do not take coverage. This should cover not only actives who are not enrolled but retired employees who opted out.

- To the extent possible, make sure that all databases can be tied together by a single identifier, such as social security number or employee number. Some entities keep certain data by, for example, social security number, but organize other data on some other basis. This greatly increases the time and effort to tie all the relevant pieces of data together. This need is particularly acute when the records for those in the Authority are not kept by Medfield directly. It is helpful when consistent names are used in the databases, as well as full social security numbers, so that duplicates from the various databases can be checked against each other.

SECTION II - ACTUARIAL VALUATION DETAILS

Population Data

A. DISTRIBUTION BY AGE: RETIREES, BENEFICIARIES, AND SURVIVORS
(Includes retirees with life only or no coverage)

Age	Total
0-19	0
20-24	0
25-29	0
30-34	0
35-39	0
40-44	0
45-49	1
50-54	3
55-59	7
60-64	38
65-69	107
70-74	92
75-79	52
80-84	34
85-89	30
90-94	12
95-99	3
100+	0
TOTAL	379

Includes retirees who are eligible for medical or with life coverage in addition to terminated vesteds, beneficiaries, and survivors with medical coverage.

B. ACTIVE PARTICIPANTS

OF PARTICIPANTS*

Current Plan	Mandatory Medicare Eligible	Pre-Mandatory Medicare Eligible	Total
No Medical/ Unknown	247	0	247
Indemnity	0	0	0
Managed Care	250	10	260
TOTAL	497	10	507

* "Pre-Mandatory Medicare eligible" means hired March 31, 1986 or before. "Mandatory Medicare eligible" means hired after March 31, 1986. Employees hired March 31, 1986 or before do not contribute to Medicare.

C. PLAN DEFINITION TABLE[1]

Name of Plan	Type of Plan	Ind Rate	Retirees Enrolled	Fam Rate	Retirees Enrolled	EE Cont % [2]
HMO	Commercial Managed Care	$830.10	17	$2,159.38	7	50.00%
PPO	Commercial Managed Care	$838.60	12	$2,182.32	5	50.00%
Tufts (1/1)	Medicare Managed Care	$296.00	9	$296.00	NA	50.00%
Medex (1/1)	Medicare Indemnity	$329.83	233	$329.83	NA	50.00%
Life ($5,000)	Life	$6.30	156	N/A	N/A	50.00%

(1) Rates at 1/1/2017. Only plans with retiree enrollment shown.

C. DISTRIBUTION BY AGE AND SERVICE: ACTIVE PARTICIPANTS

Age Group	0-4	5-9	10-15	15-19	20-24	25-29	30-34	35-39	40+	Total
0-19	0	0	0	0	0	0	0	0	0	0
20-24	15	0	0	0	0	0	0	0	0	15
25-29	31	3	1	0	0	0	0	0	0	35
30-34	35	18	10	0	0	0	0	0	0	63
35-39	18	5	15	4	0	0	0	0	0	42
40-44	24	12	13	11	2	0	0	0	0	62
45-49	38	16	11	7	13	4	0	0	0	89
50-54	17	12	14	7	5	3	1	0	0	59
55-59	10	14	15	11	7	5	4	0	1	67
60-64	5	6	7	15	8	3	1	2	0	47
65-69	1	2	4	6	4	2	0	0	1	20
70-74	1	0	2	1	1	1	1	0	1	8
75-79	0	0	0	0	0	0	0	0	0	0
80-84	0	0	0	0	0	0	0	0	0	0
85-89	0	0	0	0	0	0	0	0	0	0
90-94	0	0	0	0	0	0	0	0	0	0
95-99	0	0	0	0	0	0	0	0	0	0
100+	0	0	0	0	0	0	0	0	0	0
TOTAL	195	88	92	62	40	18	7	2	3	507

Summary of Results

Grand Total Actives	
- Already in Medicare	0
- Pre-Mandatory Medicare Coverage	10
- Post-Mandatory Medicare Coverage	497
Total	507
Retired, Disabled, Survivors and Beneficiaries	379
Terminated Vesteds	

	At 4.75% discount
Active Employees	$21,030,861
Current Retirees	$22,991,619
TOTAL	$44,022,480
Funding to date as of January 1, 2017	$1,614,699
UAAL as of January 1, 2017	$42,407,781
Normal (Service) Cost as of January 1, 2017	$1,820,031
22-yr amortization of UAAL	$2,287,554
TOTAL	$4,107,585

Expected Claims

- Fiscal 2017 : $1,407,525

Schedule of Funding Progress Other Post-Employment Benefits (Dollars in Thousands)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) [Projected Unit Credit] (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll (b-a)/c)
7/1/2008	$0	$43,819	$43,819	0.00%	NA	NA
1/1/2011	$0	$39,776	$39,776	0.00%	$29,389	135%
1/1/2013	$0	$42,862	$42,862	0.00%	$30,199	141.9%
1/1/2015	$0	$46,844	$46,844	0.00%	$30,155	155.3%
1/1/2017	$1,615	$44,022	$42,408	3.67%	$31,717	133.7%

Results by Enterprise Fund

Water

Year	UAL	Normal Cost	Amort.	ARC	Interest on NOO[1]	ARC Adjust.[1]	OPEB Cost	Total Contribs.[1]	Change in NOO	NOO
2009	$344,319	$16,305	$12,719	$29,024	NA	NA	$29,024	$4,006	$25,018	$25,018
2010	$367,357	$16,998	$13,164	$30,163	$1,063	$953	$30,273	$4,789	$25,484	$50,502
2011	$312,546	$14,327	$12,675	$27,002	$2,146	$1,015	$28,134	$4,307	$23,827	$74,329
2012	$336,367	$14,936	$14,081	$29,017	$3,159	$2,114	$30,062	$4,926	$25,136	$99,465
2013	$139,216	$9,884	$5,853	$15,737	$3,979	$4,182	$15,534	$1,720	$13,815	$113,280
2014	$153,310	$10,280	$6,680	$16,960	$4,531	$4,936	$16,555	$1,792	$14,763	$128,043
2015	$118,250	$5,857	$5,639	$11,495	$5,762	$6,106	$11,152	$1,816	$9,336	$137,379
2016	$127,835	$6,120	$6,325	$12,445	$6,182	$6,797	$11,830	$1,969	$9,861	$147,240
2017	$297,539	$11,668	$16,050	$27,717	$6,994	$7,942	$26,769	$7,837	$18,932	$166,172

Sewer

Year	UAL	Normal Cost	Amort.	ARC	Interest on NOO[1]	ARC Adjust.[1]	OPEB Cost	Total Contribs.[1]	Change in NOO	NOO
2009	$249,623	$12,881	$9,221	$22,102	NA	NA	$22,102	$2,290	$19,811	$19,811
2010	$266,325	$13,428	$9,544	$22,972	$842	$754	$23,060	$2,738	$20,321	$40,133
2011	$226,588	$11,318	$9,189	$20,507	$1,706	$779	$21,433	$2,462	$18,971	$59,104
2012	$245,503	$11,799	$10,277	$22,077	$2,512	$2,397	$22,192	$2,816	$19,375	$78,479
2013	$584,910	$11,567	$24,590	$36,157	$3,139	$3,299	$35,997	$10,807	$25,190	$103,669
2014	$609,315	$12,030	$26,548	$38,577	$4,147	$4,517	$38,207	$11,262	$26,945	$130,615
2015	$598,351	$11,874	$28,533	$40,406	$5,878	$6,228	$40,055	$12,313	$27,743	$158,357
2016	$625,098	$12,408	$30,926	$43,334	$7,126	$7,835	$42,626	$13,355	$29,271	$187,628
2017	$479,904	$3,930	$25,887	$29,816	$8,912	$10,121	$28,608	$17,450	$11,158	$198,786

Results by Enterprise Fund (Continued)

All Other

Year	UAL	Normal Cost	Amort.	ARC	Interest on NOO[1]	ARC Adjust.[1]	OPEB Cost	Total Contribs.[1]	Change in NOO	NOO
2009	$43,225,517	$2,121,718	$1,596,758	$3,718,476	NA	NA	$3,718,476	$1,142,302	$2,576,174	$2,576,174
2010	$46,117,670	$2,211,891	$1,652,644	$3,864,535	$109,487	$98,104	$3,875,919	$1,365,666	$2,510,253	$5,086,427
2011	$39,236,672	$1,864,303	$1,591,218	$3,455,521	$216,173	$208,158	$3,463,535	$1,228,098	$2,235,438	$7,321,865
2012	$41,593,843	$1,943,536	$1,741,246	$3,684,782	$311,179	$307,591	$3,688,371	$1,404,519	$2,283,851	$9,605,716
2013	$42,137,597	$1,675,659	$1,771,527	$3,447,186	$384,229	$403,839	$3,427,576	$1,437,657	$1,989,919	$11,595,635
2014	$44,099,658	$1,742,685	$1,921,424	$3,664,109	$463,825	$505,222	$3,622,712	$1,498,138	$2,124,574	$13,720,209
2015	$46,127,844	$1,429,476	$2,199,621	$3,629,097	$617,409	$654,253	$3,592,254	$1,634,616	$1,957,638	$15,677,847
2016	$48,026,409	$1,493,802	$2,376,064	$3,869,866	$705,503	$775,647	$3,799,722	$3,312,094	$487,628	$16,165,475
2017	$41,630,338	$1,804,434	$2,245,617	$4,050,051	$767,860	$871,996	$3,945,916	$1,827,889	$2,118,026	$18,283,501

Funding Schedule

30 Years at 7.50% with a 30-Year closed amortization

Fiscal Year	Normal Cost[1]	Amortization[2]	Contribution	Year-End AAL	Projected Annual Benefit Cost[3]
2017	$971,698	$1,637,831	$2,609,529	$28,638,735	$1,407,525
2018	$1,044,575	$1,686,966	$2,731,542	$28,973,151	$1,465,907
2019	$1,122,919	$1,737,575	$2,860,494	$29,278,244	$1,613,077
2020	$1,207,137	$1,789,703	$2,996,840	$29,550,182	$1,757,082
2021	$1,297,673	$1,843,394	$3,141,066	$29,784,797	$1,886,560
2022	$1,394,998	$1,898,695	$3,293,694	$29,977,560	$1,984,794
2023	$1,499,623	$1,955,656	$3,455,279	$30,123,546	$2,048,866
2024	$1,612,095	$2,014,326	$3,626,421	$30,217,411	$2,131,696
2025	$1,733,002	$2,074,756	$3,807,758	$30,253,355	$2,251,366
2026	$1,862,977	$2,136,999	$3,999,975	$30,225,083	$2,298,407
2027	$2,002,700	$2,201,108	$4,203,809	$30,125,773	$2,384,806
2028	$2,152,903	$2,267,142	$4,420,044	$29,948,028	$2,473,368
2029	$2,314,370	$2,335,156	$4,649,526	$29,683,838	$2,480,089
2030	$2,487,948	$2,405,211	$4,893,159	$29,324,524	$2,553,353
2031	$2,674,544	$2,477,367	$5,151,911	$28,860,694	$2,681,236
2032	$2,875,135	$2,551,688	$5,426,823	$28,282,181	$2,730,504
2033	$3,090,770	$2,628,239	$5,719,009	$27,577,988	$2,728,498
2034	$3,322,578	$2,707,086	$6,029,664	$26,736,220	$2,826,134
2035	$3,571,771	$2,788,298	$6,360,070	$25,744,016	$2,750,895
2036	$3,839,654	$2,871,947	$6,711,602	$24,587,474	$2,681,866
2037	$4,127,628	$2,958,106	$7,085,734	$23,251,571	$2,717,798
2038	$4,437,201	$3,046,849	$7,484,049	$21,720,076	$2,764,951
2039	$4,769,991	$3,138,254	$7,908,245	$19,975,459	$2,717,951
2040	$5,127,740	$3,232,402	$8,360,142	$17,998,786	$2,738,912
2041	$5,512,320	$3,329,374	$8,841,694	$15,769,618	$2,669,605
2042	$5,925,744	$3,429,255	$9,355,000	$13,265,890	$2,608,702
2043	$6,370,175	$3,532,133	$9,902,308	$10,463,788	$2,511,436
2044	$6,847,938	$3,638,097	$10,486,035	$7,337,618	$2,516,064
2045	$7,361,534	$3,747,240	$11,108,774	$3,859,657	$2,439,891
2046	$7,913,649	$3,859,657	$11,773,306	($0)	$2,368,734

[1]Assumes 7.50% annual increase in normal cost and a static group of actives

[2]Asssumes 3.00% annual increase in the closed amortization payment

[3]The Pay-As-You-Go amount is for the current group of actives and retirees and is shown for the calendar year. It does not include any future hires. It is not directly comparable to the funding contribution but it included for illustrative purposes only. It does illustrate in the short-term, the estimated amount of claims costs for retirees. However, the retiree amount is expected to grow as new employees retire or become disabled.

Sensitivity Analysis

The results of any actuarial valuation are sensitive to the assumptions used. That is, a change in an actuarial assumption will produce a change in the actuarial accrued liability and/or normal cost each year of the valuation. To illustrate this sensitivity, we performed valuations in which we changed two different inputs: the trend rate and the discount rate.

TREND RATE SENSITIVITY

For postretirement medical plans in particular, the calculated actuarial values are highly sensitive to the assumed rate of health care cost trend. This is due to the compounding effect of the annual trend rates assumed for medical costs, as opposed to pension valuations where benefit levels typically remain fixed.

The following table illustrates the effect on our valuation results of a 1% increase or decrease in the assumed rates of health care cost trend in each year. The base scenario uses the unfunded discount rate of 4.75%.

Health Care Cost Trend Rates

	As Reported (4.75%)	+1% Each Year	-1% Each Year
Liability for:			
▪ Current Actives(Future Retirees)	$21,030,861	$26,171,601	$17,175,719
▪ Current Retirees, Beneficiaries, and Survivors	$22,991,619	$25,551,149	$20,813,205
Total AAL	$44,022,480	$51,722,750	$37,988,924
Normal Cost	$1,820,031	$2,362,998	$1,427,734
Annual Required Contribution for Fiscal Year 2017:	$4,107,585	$5,065,919	$3,389,827

The cumulative effect of a 1% increase in health care cost trend increases the AAL by approximately 17%, the normal cost by 30%, and the ARC by 23%. A 1% decrease in trend would decrease the AAL by 14%, the normal cost by 22% and the ARC by 17%.

There is the likelihood – based on historical experience – of significant deviations from the smooth rates of health care cost increase typically projected in any actuarial valuation. Therefore, emerging experience under the plan is likely to differ from the assumptions made as of any valuation date. This will produce actuarial gains and losses each year, even if the underlying assumptions remain reasonable for the future. Amortization of gains and losses will affect the updated funding schedule calculated at any point in the future.

DISCOUNT RATE SENSITIVITY

We also examined the sensitivity of the various key numbers to changes in the discount rate. For this testing, we varied the discount rate by 0.50%, or in other words, we used rates of 4.25% and 5.25%. The following table shows the results we obtained:

		Discount Rates	
	As Reported (4.75%)	Minus 0.50% (4.25%)	Plus 0.50% (5.25%)
Liability for:			
▪ Current Actives(Future Retirees)	$21,030,861	$23,484,741	$18,928,549
▪ Current Retirees, Beneficiaries, and Survivors	$22,991,619	$24,323,503	$21,775,334
Total AAL	$44,022,480	$47,808,244	$40,703,883
Normal Cost	$1,820,031	$2,075,753	$1,604,996
Annual Required Contribution for Fiscal Year 2017:	$4,107,585	$4,452,021	$3,813,517

Thus, the cumulative effect of a 0.50% decrease in the discount rate is to increase the AAL by approximately 9%, the normal cost by 14%, and the ARC by 8%. A 0.50% increase in the discount rate would decrease the AAL by 8%, the normal cost by 12% and the ARC by 7%. It is prudent, and GASB Statement No. 45 requires, an updated actuarial valuation be performed periodically. For an entity of Medfield's size, a new valuation will be required at least every two years.

Actuarial Methods and Assumptions

ACTUARIAL METHODS

Actuarial Cost Method

Costs are attributed between past and future service using the Projected Unit Credit cost method. For attribution purposes, benefits are assumed to accrue over all employee service until decrement.

Interest Rate / Discount Rate

4.75% per year discount rate for the partially funded program. The assets are expected to return 7.50% annually net of investment expenses.

Amortization Method

Open 22-year amortization (remainder of initial thirty-year amortization). Uses level percentage of payroll (using a 3.00% annual rate of increase).

Asset Valuation Method

Not applicable, since there are no assets at the valuation date.

ACTUARIAL ASSUMPTIONS

Valuation Date

January 1, 2017

Mortality

- Actives: The RP-2000 Mortality Tables (Sex-distinct) for Employees projected using generational mortality and scale BB.
- Retirees: The RP-2000 Mortality Tables (Sex-distinct) for Healthy Annuitants projected using generational mortality and scale BB.
- Disabled: The RP-2000 Mortality Tables (Sex-distinct) for Healthy Annuitants projected using generational mortality and scale BB. Set forward 2 years

No additional mortality projection is assumed other than as described above.

Medicare Eligibility

- Employees: 100% if hired March 31, 1986 or after; 85% if hired pre-March 31, 1986
- Spouses: 100%

Actuarial Methods and Assumptions (Continued)

Withdrawal Prior to Retirement, Non-Teachers

Based on years of service. Same for both pre and post-April 1, 2012 hires.

Years of Service	Groups 1,2	Group 4
0	15.00%	1.50%
1	12.00%	1.50%
2	10.00%	1.50%
3	9.00%	1.50%
4	8.00%	1.50%
5	7.60%	1.50%
6	7.50%	1.50%
7	6.70%	1.50%
8	6.30%	1.50%
9	5.90%	1.50%
10	5.40%	1.50%
11	5.00%	0.00%
12	4.60%	0.00%
13	4.10%	0.00%
14	3.70%	0.00%
15	3.30%	0.00%
16	2.00%	0.00%
17	2.00%	0.00%
18	2.00%	0.00%
19	2.00%	0.00%
20	2.00%	0.00%
21	1.00%	0.00%
22	1.00%	0.00%
23	1.00%	0.00%
24	1.00%	0.00%
25	1.00%	0.00%
26	1.00%	0.00%
27	1.00%	0.00%
28	1.00%	0.00%
29	1.00%	0.00%
30+	0.00%	0.00%

Actuarial Methods and Assumptions (Continued)

Withdrawal Prior to Retirement, Teachers

Same for both pre and post-April 1, 2012 hires.

		Service		
	Age	0	5	10
Male Teachers	25	12.00%	4.50%	1.00%
	35	11.00	5.00	1.50
	45	9.50	5.00	2.00
	55	7.50	4.50	2.50
Female Teachers	25	10.00%	9.00%	5.00%
	35	12.00	8.40	4.10
	45	8.90	4.70	2.40
	55	8.00	3.20	2.00

Disability Prior to Retirement

The rates shown at the following sample ages illustrate the assumption regarding the incidence of disability. Disability is assumed to be 55% ordinary and 45% accidental for Group 1 and 10% ordinary and 90% accidental for Group 4 and 55% ordinary and 45% accidental for Teachers.

	Rate of Disability		
Age	Groups 1 and 2	Group 4	Teachers
20	0.01%	0.10%	0.004%
25	0.02%	0.20%	0.005%
30	0.03%	0.30%	0.006%
35	0.06%	0.30%	0.006%
40	0.10%	0.30%	0.010%
45	0.15%	1.00%	0.030%
50	0.19%	1.25%	0.050%
55	0.24%	1.20%	0.080%
60	0.28%	0.85%	0.100%

Eligibility for Vested Post-Retirement Medical Benefits upon Withdrawal

10 years of Service; assumed that individuals who withdraw prior to age 40 will elect a return of pension contributions and therefore be ineligible for retiree medical coverage

Actuarial Methods and Assumptions (Continued)

Rates of Retirement, Non-Teachers

Based on gender, group, and hire date.

	Hired Pre-April 2, 2012			Hired Post-April 1, 2012		
Age	Groups 1 and 2 Male	Groups 1 and 2 Female	Group 4	Groups 1 and 2 Male	Groups 1 and 2 Female	Group 4
50	1.00%	1.50%	2.00%	-	-	-
51	1.00%	1.50%	2.00%	-	-	-
52	1.00%	2.00%	2.00%	-	-	-
53	1.00%	2.50%	5.00%	-	-	-
54	2.00%	2.50%	7.50%	-	-	-
55	2.00%	5.50%	15.00%	-	-	25.00%
56	2.50%	6.50%	10.00%	-	-	15.00%
57	2.50%	6.50%	10.00%	-	-	20.00%
58	5.00%	6.50%	10.00%	-	-	10.00%
59	6.50%	6.50%	15.00%	-	-	15.00%
60	12.00%	5.00%	20.00%	30.00%	30.00%	20.00%
61	20.00%	13.00%	20.00%	20.00%	10.00%	20.00%
62	30.00%	15.00%	25.00%	15.00%	12.00%	25.00%
63	25.00%	12.50%	25.00%	25.00%	10.00%	25.00%
64	22.00%	18.00%	30.00%	20.00%	15.00%	30.00%
65	40.00%	15.00%	100.00%	25.00%	13.00%	100.00%
66	25.00%	20.00%	NA	20.00%	18.00%	NA
67	25.00%	20.00%	NA	50.00%	40.00%	NA
68	30.00%	25.00%	NA	30.00%	25.00%	NA
69	30.00%	20.00%	NA	30.00%	25.00%	NA
70	100.00%	100.00%	NA	100.00%	100.00%	NA

Actuarial Methods and Assumptions (Continued)

Rates of Retirement, Teachers

Based on gender, years of service, and hire date.

	Hired Pre-April 2, 2102						Hired Post-April 1, 2012					
	<20 years service		20-29 years service		>29 years service		<20 years service		20-29 years service		>29 years service	
Age	M	F	M	F	M	F	M	F	M	F	M	F
50	N/A	N/A	1%	1.5%	2%	2%	N/A	N/A	N/A	N/A	N/A	N/A
51	N/A	N/A	1	1.5	2	2	N/A	N/A	N/A	N/A	N/A	N/A
52	N/A	N/A	1	1.5	2	2	N/A	N/A	N/A	N/A	N/A	N/A
53	N/A	N/A	1	1.5	2	2	N/A	N/A	N/A	N/A	N/A	N/A
54	N/A	N/A	1	1.5	2	2	N/A	N/A	N/A	N/A	N/A	N/A
55	3%	2%	3	3	6	6	3%	0%	0%	0%	0%	0%
56	8	2	5	3	20	15	8	0	0	0	0	0
57	15	8	8	7	35	30	15	0	0	0	0	0
58	15	10	10	7	50	35	15	0	0	0	0	0
59	20	15	20	11	50	35	20	0	0	0	0	0
60	15	20	20	16	50	35	25	25	35	23	45	45
61	30	20	25	20	50	35	35	30	35	30	45	45
62	20	25	30	30	40	40	30	25	30	25	45	45
63	30	24	30	30	40	30	35	25	30	25	45	45
64	40	20	30	30	40	35	40	30	35	30	45	45
65	40	30	40	30	50	35	40	30	35	30	45	45
66	40	30	30	30	50	35	40	30	40	30	45	45
67	40	30	30	30	50	30	50	35	45	35	55	45
68	40	30	30	30	50	30	50	35	45	35	55	45
69	40	30	30	30	50	30	55	35	45	35	55	45
70	100	100	100	100	100	100	100	100	100	100	100	100

Selected Claim Costs by Age

Age	Commercial Managed Care Individual	Commercial Managed Care Blended[(1)]	Commercial Indemnity Individual	Commercial Indemnity Blended[(1)]	Medicare Managed Care	Medicare Indemnity
55	$10,606.65	$19,955.76	NA	NA	$1,754.01	$2,150.65
60	$12,658.34	$23,815.90	NA	NA	$2,093.30	$2,566.66
65	$15,549.47	$20,770.77	NA	NA	$2,571.41	$3,152.88
70	$18,026.09	$24,079.01	NA	NA	$2,980.96	$3,655.05
75	$20,394.87	$27,243.19	NA	NA	$3,372.69	$4,135.35
80	$22,517.59	$30,078.68	NA	NA	$3,723.72	$4,565.76
85	$23,666.21	$23,666.21	NA	NA	$3,913.67	$4,798.66

(1) Blended rates below 65 are 47.5% Family and 52.5% Individual. Blended rates 65 and higher are 20% Family and 80% Individual. Individual rates are used for all participants 81 and higher.

Participation Rates

Current retirees and spouses are assumed to continue the same coverage they have as of the valuation date. No future election of coverage is assumed for those retirees and spouses who currently have not elected coverage.

Medical All Retirees: 67.5% of the active employees eligible for post-employment medical benefits are assumed to elect Medical Coverage immediately upon retirement.

Life All Retirees: 60% of active employees eligible for post-employment medical benefits are assumed to elect Life Insurance coverage immediately upon retirement.

For all Retirees: For the Town plans 60% of spouses are assumed to participate.

Participants with no or unknown current coverage (e.g. active employees who do not currently participate in Medfield's medical plans) are assumed to elect retiree coverage at the same rates as currently covered active employees. Medicare-eligible retirees currently under age 65 are assumed to elect a Medicare plan option at age 65.

Expenses

Administrative expenses are included in the per capita medical cost assumption.

Section 9 ½ of Chapter 32B

No current or future payments or receipts are assumed due to past service or future service with other Chapter 32 entities.

Actuarial Methods and Assumptions (Continued)

Plan Enrollment Rates

These are the rates are which retirees select medical plans, given that they enroll in a medical plan. The selection patterns follow the table on page 11.

Trend Rates by Plan

Year	Commercial Managed Care	Medicare Managed Care	Medicare Indemnity
2017	4.00%	8.00%	9.00%
2018	8.00%	7.00%	8.00%
2019	7.50%	6.50%	7.50%
2020	7.00%	6.00%	7.00%
2021	6.50%	5.50%	6.50%
2022	6.00%	5.00%	6.00%
2023	5.50%	5.00%	6.00%
2024	5.00%	5.00%	6.00%
2025	5.00%	5.00%	6.00%
2026	5.00%	5.00%	6.00%
2027	5.00%	5.00%	6.00%
2028	5.00%	5.00%	6.00%
2029	5.00%	5.00%	5.75%
2030	5.00%	5.00%	5.75%
2031	5.00%	5.00%	5.75%
2032	5.00%	5.00%	5.75%
2033	5.00%	5.00%	5.75%
2034	5.00%	5.00%	5.50%
2035	5.00%	5.00%	5.50%
2036	5.00%	5.00%	5.50%
2037	5.00%	5.00%	5.50%
2038	5.00%	5.00%	5.50%
2039	5.00%	5.00%	5.25%
2040	5.00%	5.00%	5.25%
2041	5.00%	5.00%	5.25%
2042	5.00%	5.00%	5.25%
2043	5.00%	5.00%	5.25%
2044	5.00%	5.00%	5.00%

PPACA

This valuation does not include any potential impact from the Patient Protection and Affordable Care Act (PPACA) other than those already adopted as of the valuation date. This includes new plans or taxes including the so-called "Cadillac Tax" high-cost health plans. The Cadillac Tax on benefits plans whose richness exceeds set levels will not begin until 2018. Prior to this time, the law may be amended or changes may be made in the benefit plan such that the law will not be applicable. In view of these uncertainties, we have elected not to try to estimate the Act's impact on costs and trends.

Actuarial Methods and Assumptions (Continued)

Projections

The January 1, 2017 valuation was not adjusted for timing when determining the funding schedule.

Contribution Timing

Contributions are assumed to be made at the beginning of the year.

Principal Plan Provisions Recognized in Valuation

ELIGIBILITY FOR BENEFITS

Current retirees, beneficiaries and spouses of Medfield are eligible for medical benefits, as are current employees or spouses who retire with a benefit from the Medfield. Survivors of Medfield employees and retirees are also eligible for medical benefits.

MEDICAL BENEFITS

Various medical plans offered by Medfield to its own employees.

LIFE INSURANCE

Medfield retirees are eligible for a $5,000 life insurance benefit offered by Medfield. Retirees pay 50% of the $6.30 cost.

RETIREE CONTRIBUTIONS

Based on data provided by Medfield.

Glossary

- Actuarial Accrued Liability: The portion, as determined by a particular Actuarial Cost Method, of the present value of benefits which is not provided for by future Normal Costs.
- Actuarial Assumptions: Assumptions as to the occurrence of future events affecting Other Post-employment Benefits such as: mortality rates, disability rates, withdrawal rates, and retirement rates, the discount assumption, and the trend rates.
- Actuarial Cost Method: A procedure for determining the Actuarial Present Value of Total Projected benefits and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal and an Actuarial Accrued Liability.
- Amortization Payment: The portion of the OPEB contribution designed to pay interest and to amortize the Unfunded Actuarial Accrued Liability.
- Annual OPEB Cost: The accrual-basis measure of the periodic cost of an employer's participation in a defined-benefit OPEB plan.

- Annual Required Contribution (ARC): The employer's periodic contributions to a defined benefit OPEB plan, calculated in accordance with the parameters defined in GASB 45. This is defined as the sum of the Normal Cost and the Amortization payment.
- Commercial Plans: Plans designed to cover the medical expenses of those not otherwise covered by Medicare.
- GASB: The Governmental Accounting Standards Board is the organization that establishes financial reporting standards for state and local governments.
- Investment return Assumptions (Discount Rate): The rate used to adjust a series of future benefit payments to reflect the time value of money. Under GASB 45, this rate is related to the degree to which the OPEB program is funded.
- Healthcare Cost Trend Rate: The rate of change in per capita health claims costs over time as a result of factors such as medical inflation, utilization of healthcare services, the intensity of the delivery of services, technological developments, and cost-shifting.
- Medicare Plans: Medical plans sold to those over 65 who are also covered by Medicare. These plans are supplemental to the Medicare plan, which is considered primary.
- Net OPEB Obligation: The cumulative difference, since the effective date of GASB 45, between the annual OPEB cost and the employer's contributions to the plan.
- Normal Cost: The portion of the Actuarial Present value of plan benefits that is allocated to a valuation year by the Actuarial Cost Method.
- OPEB: Other Post-Employment Benefits, other than pensions. This does not include plans such as severance plans or sick-time buyouts.
- Pay-As-You-Go: The amount of benefits paid out to plan participants during the year.
- Per Capita Claims Cost: The current average annual cost of providing postretirement health care benefits per individual.
- Unfunded Actuarial Accrued Liability: The portion of the Actuarial Accrued Liability that is not covered by plan assets. For a plan that is completely unfunded, this amount is equivalent to the Actuarial Accrued Liability.
- Valuation Date: The point from which all future plan experience is projected and as of which all present values are calculated.