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February 27, 2017

PERSONAL & CONFIDENTIAL

Mr. Kevin McNabola
Finance Director
City of West Haven
355 Main Street
West Haven, CT 06516

Re: City of West Haven Fire Department Allingtown Other Post-Retirement Benefits Program

Dear Kevin:

We are pleased to provide this actuarial report for the City of West Haven Fire Department Allingtown Other Post-Employment Benefits Program. The report shows the financial status of the plan as of July 1, 2015 and presents cost figures for the 2016-2017 fiscal year.

We have included 10 bound copies of the report and one unbound copy in case you need to make additional copies.

Please let us know if you have any questions.

Sincerely,

Becky

Rebecca A. Sielman, FSA
Consulting Actuary

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CITY OF WEST HAVEN FIRE DEPARTMENT ALLINGTOWN OTHER POST-EMPLOYMENT BENEFITS PROGRAM

July 1, 2015 Actuarial Valuation

Prepared by
Milliman, Inc.

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February 27, 2017

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Certification

We have performed an actuarial valuation of the City of West Haven Fire Department Allingtown Other Post-Employment Benefits Program as of July 1, 2015. The results of this valuation, along with supporting data, are set forth in the following report.

Milliman has prepared this report in compliance with Government Accounting Standard No. 45. No attempt is being made to offer any accounting opinion or advice. The calculations reported herein have been made on a basis consistent with our understanding of the plan provisions. Additional determinations may be needed for purposes other than meeting accounting requirements.

In preparing this report, we relied on employee census data, claims and premium information as of the valuation date, furnished by the City of West Haven. We performed a limited review of the information used directly in our analysis for reasonableness and consistency and have found them to be reasonably consistent and comparable with data used for other purposes. If the financial information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete and our calculations may need to be revised. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge, this report is complete and accurate, all costs and liabilities were determined in conformance with generally accepted actuarial principles and practices, and the methods and assumptions produced results which are reasonable. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements.

The actuarial method and assumptions used in this valuation are discussed on pages 18-19 of this report. A summary of the plan provisions starts on page 20 of this report.

Milliman's work is prepared solely for the internal business use of the City of West Haven. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception(s): (a) The City of West Haven may provide a copy of Milliman's work, in its entirety, to the City of West Haven's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the City of West Haven; and (b) The City of West Haven may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

Certification

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The undersigned 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.

February 27, 2017

Rebecca A. Sielman, FSA
Consulting Actuary

Jennifer M. Castelhano, FSA
Consulting Actuary

Discussion of Experience

This valuation reflects a number of changes relative to the July 1, 2013 valuation:

Demographic Changes from 2013 to 2015

From July 1, 2013 to July 1, 2015, the overall membership increased from 70 to 71. The total number of active members stayed the same at 22 and the total number of retirees and spouses of retirees increased from 48 to 49.

The average age of active members increased slightly from 45.9 to 46.0 and the average age of retired members .

Assumption Changes

Medical claims costs: We updated the expected claims costs based on our analysis of the claims experience and preimum information provided to us for this valuation.

To better align this plan with the pension plan, we decreased the amortization growth rate from 4.00% to 3.50%. We also updated the healthy mortality assumption to incorporate a blue collar adjustment. The net impact of these changes measured as of July 1, 2015 decreased the Unfunded Accrued Liability by about $569,000 and decreased the Actuarially Determined Contribution by about $4,000.

Changes in Plan Provisions

Members from Plan 1, Plan 2, Plan 3, and Plan 4 will pay a fixed premium cost-share for pre-65 coverage determined as the amount paid on the retiree's last active date of service (10% effective July 1, 2014 and 11% effective July 1, 2016), with an annual premium cost-share cap of $3,000 until June 30, 2016 and no annual premium cost-share cap effective July 1, 2016. For post-65 coverage, members will pay an annual cost share of $1,500 for single coverage and $2,500 for two-person coverage, with the City picking up any excess amount. The effect of the above changes increased the Accrued Liability by about $347,000 and increased the Annual Required Contribution by about $185,000.

Overview of GASB 43 and GASB 45

GASB 43 requires OPEB plans to disclose information about asset and liability levels and show historical contribution information. GASB 43 only applies in situations where a separate trust is established to prefund these benefits. GASB 45 requires employers to perform periodic actuarial valuations to determine annual accounting costs, and to keep a running tally of the extent to which these amounts are over or under funded. GASB 43 was effective starting in FY 2006-07 for a Phase I government, FY 2007-08 for a Phase II government, and FY 2008-09 for a Phase III government. GASB 45 was effective for the fiscal year following implementation of GASB 43.

GASB 43 and 45 apply to just about any benefit that is provided after retirement except for pension benefits: medical insurance, dental, vision, and hearing benefits plus life insurance and long term care insurance. The benefits provided by the City to retirees include medical and dental insurance. The philosophy driving the accounting standard is that these post-employment benefits are part of the compensation that is paid to employees in return for their services, and the cost of these benefits should be recognized while the employees are providing those services, rather than after they have retired. This philosophy has already been applied for years to defined benefit pensions; GASB 43 and 45 extend the same thinking to all other post-employment benefits.

The Valuation Process

The process of determining the liability for OPEB benefits is based on many assumptions about future events. The key actuarial assumptions are:

Turnover and retirement rates: How likely is it that an employee will qualify for post-employment benefits and when will they start?

Medical inflation and claims costs assumptions: When an employee starts receiving post-employment benefits many years from now, how much will be paid each year for the benefits and how rapidly will the costs grow?

Mortality assumption: How long is a retiree likely to receive the benefits?

Discount rate assumption: What is the present value of those future benefit payments in terms of today's dollars?

Since the liability is being recognized over the employee's whole career with the City, the present value is divided into three pieces: the part that is attributed to past years (the "Accrued Liability" or "Past Service Liability"), the part that is being earned this year (the "Normal Cost"), and the part that will be earned in future years (the "Future Service Liability").

Once the Accrued Liability and the Normal Cost have been calculated, the next step is to determine an annual contribution. This consists of two pieces:

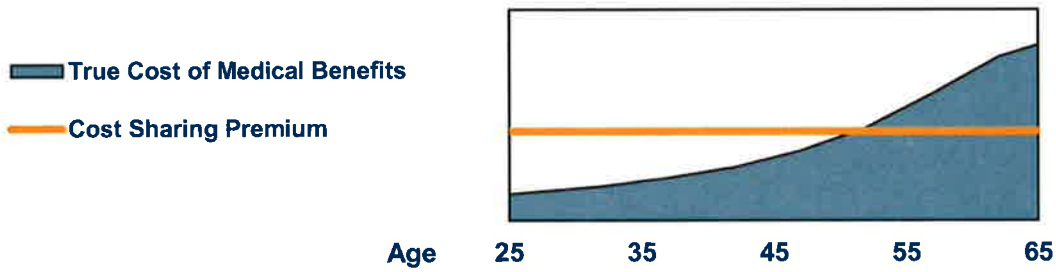
- Normal Cost – because the benefits earned each year should be paid for each year
- Past Service Cost – a catch-up payment to fund the Accrued Liability over time.

The final step is to keep track going forward of how much of the contribution is actually paid. There is no requirement to actually fund these benefits, but the cumulative deficiency must be disclosed on the City's financial statements. In addition, the Discount Rate used to calculate the liabilities must reflect the expected investment income of whatever funds are set aside to prefund the benefits; if there is no prefunding then the Discount Rate will be much lower and the liabilities significantly higher than if the benefits are prefunded.

Implicit Rate Subsidies

As part of the Other Post-Employment Benefits Program, there are situations where the cost is borne partly or entirely by retirees. In most cases, the premium that is used to split the cost is lower than the true cost of providing the medical benefits, for two reasons:

- The cost sharing premium is usually a fixed amount such as a COBRA premium that does not take into account the age of the retiree and his/her dependents. Since medical costs generally increase with age, the cost sharing premium is often lower than the true cost of the medical benefits:



- The cost sharing premium is usually a blended rate that takes into account the cost of medical benefits for active employees as well as retirees. Medical costs are generally higher for retirees than for active employees of the same age. This means that, again, the cost sharing premium is often lower than the true cost of the medical benefits.

Because of these two factors, a retiree who is paying 100% of the cost sharing premium is most likely not paying 100% of the true cost of the medical benefits. This situation is known as an "implicit rate subsidy". GASB 43 and 45 require the plan sponsor to measure the liability for this subsidy; that is, the difference between the true cost of the medical benefits and the cost sharing premiums paid by the retiree. To do this, our valuation consists of several steps:

First, we calculate the liability for the true cost of medical benefits expected to be received by retirees and their dependents. This liability is based on factors developed by Milliman's health actuaries that reflect how the cost of medical benefits varies by age and gender, as well as the other assumptions discussed on the prior page. We term this amount the "gross liability".

Next, we calculate the liability for the future premiums expected to be paid by the retiree for their own and their dependents' coverage. This liability is based on the current premium rates without adjustment for age or gender. It also is based on the terms of the retiree medical program – different retirees pay different percentages based on their union, date of retirement, age at retirement, and other factors. We term this amount the "offset liability".

Finally, the net liability for the City is calculated as the difference between the gross liability and the offset liability.

Summary of Liabilities

We have broken the accrued liability into several pieces: benefits that are expected to be paid prior to age 65 (i.e. prior to Medicare) and after age 65 (i.e. after Medicare) to current active members and their covered dependents after retirement, and the same figures for members who have already retired and are currently receiving benefits. In all cases, the Accrued Liability only reflects benefits that are paid for by the City, taking into account any implicit rate subsidies.

Current active members	
Employees under age 65	$1,640,677
Employees over age 65	2,808,965
Dependents under age 65	1,690,263
Dependents over age 65	2,293,968
Total	8,433,873
Current retired members	
Employees under age 65	1,758,710
Employees over age 65	4,290,284
Dependents under age 65	2,068,100
Dependents over age 65	4,386,315
Total	12,503,409
Total Accrued Liability	20,937,282

Annual Required Contribution

The Annual Required Contribution (ARC) for the OPEB program consists of two pieces: a **Normal Cost** (the cost of benefits earned each year should be accrued in that year) plus a **Past Service Cost** (a catch-up accrual to amortize the Unfunded Accrued Liability).

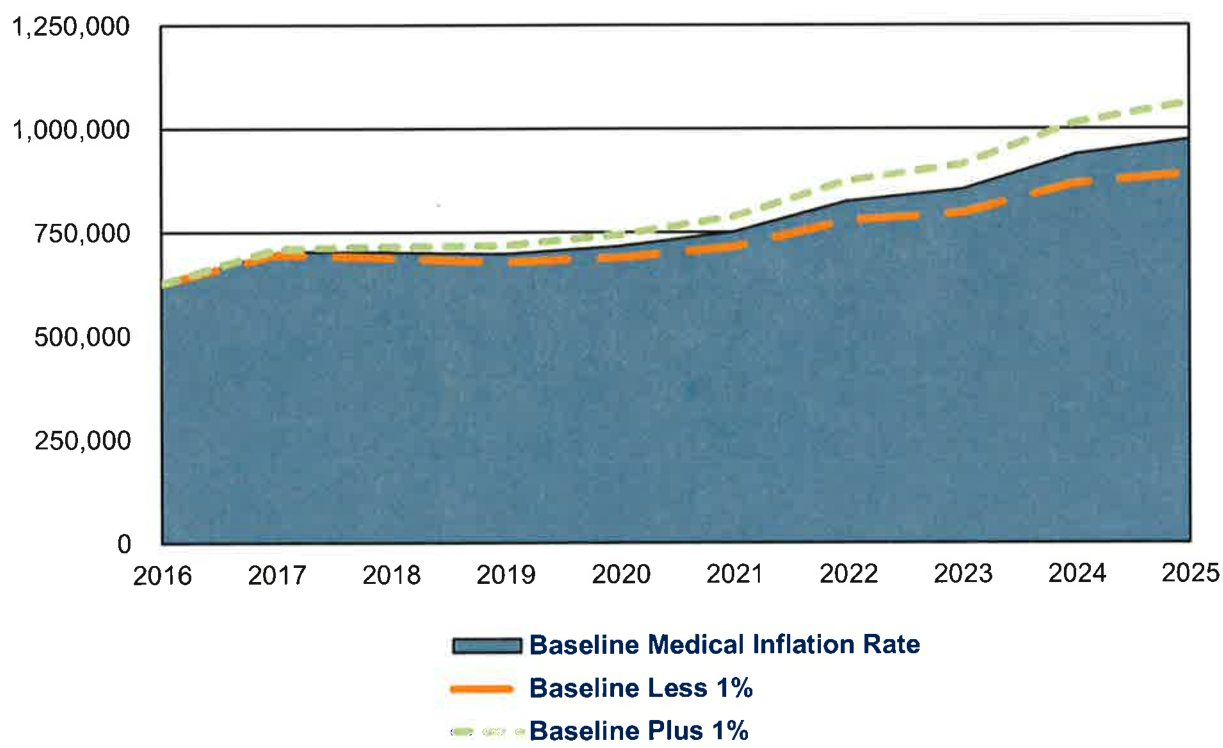
The amortization period is 25 years starting on July 1, 2010. The amortization method produces annual payments that will increase by 3.50% annually. On this basis, the ARC is determined as follows:

Accrued Liability	$20,937,282
Assets	0
Unfunded Accrued Liability	20,937,282
Amortization Period	20
Amortization Growth Rate	3.50%
Past Service Cost	1,095,484
Total Normal Cost	659,871
Employee Contributions	0
Net Normal Cost	659,871
ARC for FY 2017	1,755,355
Expected Benefit Payouts	703,461

Projected Payouts

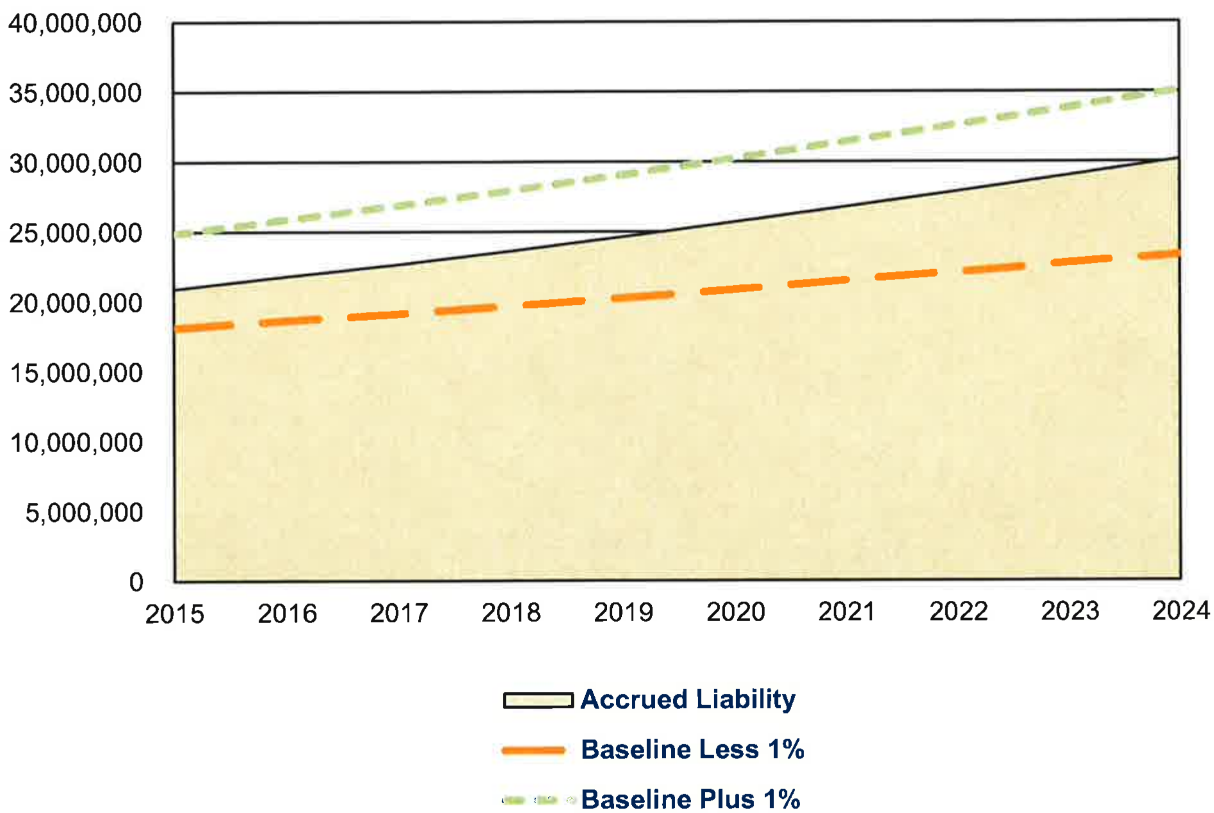
The table and graph below show the expected annual payments for OPEB benefits for the next 10 years.

Fiscal Year	Baseline Less 1%	Baseline Medical Inflation Rate	Baseline Plus 1%
2016	$627,551	$627,551	$627,551
2017	696,639	703,461	710,283
2018	688,662	702,254	715,975
2019	678,211	698,427	719,029
2020	689,480	716,965	745,239
2021	715,651	751,496	788,718
2022	778,129	825,257	874,659
2023	796,948	853,641	913,633
2024	868,326	939,407	1,015,338
2025	891,891	974,491	1,063,563



Projected Liabilities

The graph below shows how the City's accrued liability for OPEB benefits is expected to grow over the next 10 years.



GASB 45 Schedule of Funding Progress

The following information is required to be disclosed in the City's financial statement.

($ 000s)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Accrued Liability (b)	Unfunded Accrued Liability (UAL) (b - a)	Funded Ratio (a / b)	Covered Payroll (c)	UAL as a Percentage of Covered Payroll ((b - a) / c)
6/30/2010	$0	$16,717	$16,717	0.00%	N/A	N/A
7/1/2013	0	19,202	19,202	0.00%	N/A	N/A
7/1/2015	0	20,937	20,937	0.00%	N/A	N/A

GASB 45 Schedule of Employer Contributions

The following information is required to be disclosed in the City's financial statement.

($ 000s)

Year Ended June 30	Annual Required Contribution	Actual Contribution Made	Percentage Contributed
2010	$1,203	$490	40.7%
2011	1,203	542	45.1%
2012	1,282	570	44.5%
2013	1,367	635	46.5%
2014	1,342	585	43.6%
2015	1,434	639	44.6%
2016	1,533	692	45.1%
2017	1,755	N/A	N/A

Summary of Census Data

The following were included in our analysis based on information provided as of July 1, 2015 by the City.

Number of members	
Active	22
Retired members	24
Spouses of retirees	25
Total	71
Average age	
Active	46.0
Retired members	66.3
Average retirement age	
Active	56.6
Retired	49.8
Expected lifetime	
Active [to retirement]	10.6
Retired [lifetime]	18.9

Where complete census data was not available, we have made assumptions which we believe to be reasonable.

Current Premiums

Based on information provided by the City regarding current plan elections, the following actual premiums were used:

2015 - 2016 Monthly Premiums	Employee	Spouse
Medical Pre-65	$795.70	$864.12
Medical Post-65	550.57	550.57
Dental	36.77	58.11

Health Cost Adjustment Factors

Milliman's Health Cost Guidelines were used to develop the expected relationship of the true cost of health benefits across age and gender. Representative factors are shown below.

	Medical		Dental	
Age	Employee	Spouse	Employee	Spouse
40	4.32%	0.85%	1.74%	1.26%
45	5.20%	2.45%	1.63%	0.89%
50	5.55%	3.70%	0.85%	0.49%
55	5.97%	3.15%	0.40%	-0.05%
60	4.93%	3.64%	0.17%	0.11%
65	2.23%	1.84%	-0.24%	-0.05%
70	2.34%	1.99%	0.00%	0.00%
75	1.77%	1.13%	0.00%	0.00%
80	0.88%	1.53%	0.00%	0.00%

Glossary

The following is an explanation of many of the terms referenced by the Statement of the Governmental Accounting Standards Board, "Accounting and Financial Reporting by Employers for Postemployment Benefits Other than Pensions".

Actuarial Cost Method - This is a procedure for determining the Actuarial Present Value of Benefits and allocating it to time periods to produce the Actuarial Accrued Liability and the Normal Cost. The Statement assumes a closed group of employees and other participants unless otherwise stated; that is, no new entrants are assumed. Six methods are permitted – Unit Credit, Entry Age Normal, Attained Age, Aggregate, Frozen Entry Age, and Frozen Attained Age.

Accrued Liability - This is the portion of the Actuarial Present Value of Benefits attributable to periods prior to the valuation date by the Actuarial Cost Method (i.e., that portion not provided by future Normal Costs).

Actuarial Assumptions - With any valuation of future benefits, assumptions of anticipated future events are required. If actual events differ from the assumptions made, the actual cost of the plan will vary as well. Some examples of key assumptions include the discount rate, medical cost inflation, and rates of mortality, turnover and retirement.

Actuarial Present Value of Benefits - This is the value, as of the applicable date, of future payments for benefits and expenses under the Plan, where each payment is: a) Multiplied by the probability of the event occurring on which the payment is conditioned, such as the probability of survival, death, disability, termination of employment, etc.; and b) Discounted at the assumed discount rate.

Actuarial Value of Assets - This is the value of cash, investments and other property belonging to the Plan, as used by the actuary for the purpose of an Actuarial Valuation.

Amortization Payment - This is the amount of the contribution required to pay interest on and to amortize over a given period the Unfunded Actuarial Accrued Liability or the Unfunded Frozen Actuarial Accrued Liability. A closed amortization period is a specific number of years counted from one date and reducing to zero with the passage of time; an open amortization period is one that begins again or is recalculated at each actuarial valuation date.

Annual Required Contribution ("ARC") - This is the employer's periodic required contribution to a defined benefit OPEB plan, calculated in accordance with the set of requirements for calculating actuarially determined OPEB information included in financial reports.

Attribution Period - The period of an employee's service to which the expected postretirement benefit obligation for that employee is assigned. The beginning of the attribution period is the employee's date of hire and costs are spread across all employment.

Benefit Payments - The monetary or in-kind benefits or benefit coverage to which participants may be entitled under a post employment benefit plan, including health care benefits and life insurance not provided through a pension plan.

Glossary

Discount Rate - GASB 45 requires that the interest rate used to discount future benefit payments back to the present day be based on the expected rate of return on any investments set aside to pay for these benefits. If no funds are set aside for this purpose, the discount rate would be based on the expected return of the employer's general funds.

Funding Excess - This is the excess of the Actuarial Value of Assets over the Actuarial Accrued Liability.

Health Cost Trend - This is the rate at which health costs are assumed to increase over time.

Implicit Rate Subsidy - This is the excess of the expected health care cost per retired member over the gross premium charged for that coverage. In most cases, the gross premium charged to a retiree is less than the expected health care cost, since the premium is a blended average rate that does not fully reflect the above-average, increasing costs by age that apply during retirement.

Normal Cost - This is the portion of the Actuarial Present Value of Benefits allocated to a valuation year by the Actuarial Cost Method.

Net OPEB Obligation - This is the cumulative difference since the effective date of this statement between the annual OPEB cost and the employer's contributions to the plan, including the OPEB liability (asset) at transition, if any, and excluding (a) short-term differences and (b) unpaid contributions that have been converted to OPEB-related debt.

Other Post-employment Benefits ("OPEB") - This refers to post-employment benefits other than pension benefits, including healthcare benefits regardless of the type of plan that provides them, and all other post-employment benefits provided separately from a pension plan, excluding benefits defined as termination benefits or offers.

Past Service Cost - This is a catch-up payment to fund the Unfunded Actuarial Accrued Liability over time (generally 10 to 30 years). Also known as the **Amortization Payment**.

Return on Plan Assets - This is the actual investment return on plan assets during the fiscal year.

Substantive Plan - The terms of the postretirement benefit plan as understood by an employer that provides postretirement benefits and the employees who render services in exchange for those benefits. The substantive plan is the basis for the accounting for the plan.

Unfunded Actuarial Accrued Liability - This is the excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.

Actuarial Method

The actuarial funding method used is the **Projected Unit Credit Cost Method**. Recommended annual contributions consist of two pieces: Normal Cost plus a payment towards the Unfunded Accrued Liability.

The **Accrued Liability** is determined directly as the present value of benefits accrued to date, where the accrued benefit for each Member is the pro-rata portion (based on service to date) of the **projected** benefit payable at death, disability, retirement or termination.

The **Normal Cost** is similarly determined as the present value of the portion of the **projected** benefit attributable to the current year.

The **Unfunded Accrued Liability** is the Accrued Liability less the value of any plan assets.

Actuarial Assumptions

Discount Rate	4.00%
Medical Inflation Rate	5.60% - 4.60% over 85 years (Prior: 6.60% - 4.60% over 87 years)
Dental Inflation Rate	3.00%
Amortization Growth Rate	3.50% (Prior: 4.00%)

Healthy Mortality

Current: RP-2000 Combined Healthy Mortality Table with Blue Collar Adjustments and generational projection per Scale AA. 25% of deaths assumed to be service related. This assumption includes a margin for mortality improvement beyond the valuation date.

Prior: RP-2000 Combined Healthy Mortality Table with generational projection per Scale AA, with separate tables for males and females. This assumption includes a margin for mortality improvement beyond the valuation date.

Disabled Mortality

RP-2000 Disabled Mortality Table. This assumption does not include a margin for mortality improvement beyond the valuation date.

Turnover

None.

Retirement

50% are assumed to retire after age 47 and 20 years of service; 100% are assumed to retire by age 65; 10% are assumed to retire at all ages on completion of 20 years of service.

Disability

Rates based on age:

Age	Service Connected Disability Rate	Non-Service Connected Disability Rate
30	0.12%	0.09%
40	0.36%	0.27%
50	0.98%	0.73%
60	2.40%	1.80%

Future Retiree Coverage

100% of active members are assumed to elect medical coverage at retirement

Future Dependent Coverage

75% of active members are assumed to elect dependent coverage at retirement. All female spouses are assumed to be 3 years younger than males.

Future Post-65 Coverage

All active members and pre-65 retirees are assumed to continue coverage past age 65.

Summary of Plan Provisions

This summary is intended only to describe our understanding of the essential features of the benefits that will be provided to future retirees based on copies of bargaining agreements, applicable personnel rules and the benefits being currently provided to retired members. All eligibility requirements and benefit amounts shall be determined in strict accordance with the relevant plan documents. To the extent that this summary does not accurately reflect the plan provisions, then the results of this valuation may not be accurate.

Eligibility

An employee retiring under the City of West Haven Fire Department Allingtown Pension Plan, shall be eligible to receive health benefits for self and spouse. Normal retirement, for pension purposes, is age 47 with 20 years of service, or Age 60 with less than 20 years of service.

Cost Sharing

Plan 1 Members (hired prior to July 1, 1998), **Plan 2 Members** (hired on or after July 1, 1998 but prior to January 1, 2002), **Plan 3 Members** (hired on or after January 1, 2002 but prior to July 1, 2008), and **Plan 4 Members** (hired on or after July 1, 2008):

`Pre-65: Retiree pays a fixed premium cost-share for pre-65 coverage determined as the amount paid on the retiree's last active date of service (10% effective July 1, 2014 and 11% effective July 1, 2016), with an annual premium cost-share cap of $3,000 until June 30, 2016 and no annual premium cost-share cap effective July 1, 2016.

Post-65: Retiree pays an annual cost share of $1,500 for single coverage and $2,500 for two-person coverage, with the City picking up any excess amount.

Grandfathered Retirees:

Plan 1 Members (hired prior to July 1, 1998) and **Plan 2 Members** (hired on or after July 1, 1998 but prior to January 1, 2002):

Pre-65: Retiree pays active cost share for medical and dental coverage for retiree and spouse.

Post-65: 100% city-paid medical and dental coverage.

Plan 3 Members (hired on or after January 1, 2002 but prior to July 1, 2008) and **Plan 4 Members** (hired on or after July 1, 2008):

Pre-65: Retiree pays active cost share for medical coverage for retiree and spouse. Dental coverage is 100% retiree-paid.

Post-65: 100% retiree-paid for medical and dental coverage.

Service-Connected Disability

Same benefits and cost sharing provisions as active employees. Eligibility is completion of 10 years of service.