ACTUARIAL VALUATION

City of Waukegan
Waukegan Fire Pension Fund

As of May 1, 2015
For the Year Ending April 30, 2016

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SECTION 1: SUMMARY OF PRINCIPAL VALUATION RESULTS

MWM Consulting Group was retained to prepare an actuarial valuation as of May 1, 2015 for the City of Waukegan Fire Pension Fund. The purpose of the actuarial valuation was to determine the financial position and the annual actuarial requirements of the pension fund under Illinois statute 40 ILCS 5/3, Section 125, and to develop a recommended minimum contribution amount.

For quick reference, some of the key results of the valuation, along with selected financial and demographic information for the year ending April 30, 2016 are summarized in this overview section along with (for comparison) the results from the prior year.

CONTRIBUTIONS

The plan sponsor must contribute at least the statutorily required minimum contribution under Illinois statutes equal to the normal cost plus the amount necessary to amortize the unfunded accrued liability such that by 2040, the liabilities will be 90% funded.

Item	Current Valuation as of 5/1/2015	Prior Year Valuation as of 5/1/2014
Recommended Minimum Contribution	$5,156,731 (50.9%)	$5,267,576(50.0%)
Statutory Minimum Contribution per 40 ILCS 5/3 Section 125	$4,069,485 (40.2%)	$4,086,442 (38.8)

() amounts expressed as a percentage of payroll

STATUTORY MINIMUM FUNDING COST ELEMENTS

Illinois statues require employers to contribute at least the amount necessary such that assets will equal at least 90% of the accrued liability by 2040. The minimum amount is determined under the Projected Unit Credit funding method, with smoothed assets, and is equal to the normal cost plus the amortization amount.

Item	Current Valuation as of 5/1/2015	Prior Year Valuation as of 5/1/2014
Accrued Liability	$ 109,172,712	$ 100,354,724
Market Value of Assets	$ 61,038,821	$ 56,356,029
Actuarial (Smoothed) Value of Assets	$ 59,728,533	$ 55,118,829
Normal Cost	$ 1,617,646	$ 1,867,979
Amortization Amount	$ 2,122,931	$ 2,020,645
Statutory Minimum Contribution	$ 4,069,485	$ 4,086,442

RECOMMENDED MINIMUM FUNDING CONTRIBUTION COST ELEMENTS

Illinois statues require employers to contribute at least the amount necessary such that assets will equal at least 90% of the accrued liability by 2040. The minimum amount is determined under the Projected Unit Credit funding method, with smoothed assets, and is equal to the normal cost plus the amortization amount.

Item	Current Valuation as of 5/1/2015	Prior Year Valuation as of 5/1/2014
Accrued Liability	$ 110,513,071	$ 107,152,586
Market Value of Assets	$ 61,038,821	$ 56,356,029
Actuarial (Smoothed) Value of Assets	$ 59,728,533	$ 55,118,829
Normal Cost	$ 1,570,219	$ 1,594,999
Amortization Amount	$ 3,186,476	$ 3,493,868
Recommended Minimum Contribution	$ 5,156,731	$ 5,267,576

FINANCIAL THUMBNAIL RATIOS

This chart summarizes traditional financial ratios as applied to the pension plan. This liquidity ratio relates the cash flow position of the Fund by comparing the investment income plus employer and employee contributions to the annual benefit payments. Maintaining a ratio well above 100% prevents the liquidation of assets to cover benefit payments. The increase in benefits paid over the years is generally a result of the maturing of the pension plan.

Coverage of the Accrued Liabilities by the Assets is the Coverage Ratio and is one indication of the long term funding progress of the plan.

Tests	2015 Valuation	2014 Valuation
Liquidity Ratio (based upon year ended)	185%	197%
Coverage Ratio (Market Value Assets)	55.2%	52.6%
Annual Benefit Payments (expected)	$5,611,166	$5,764,275
Annual Contributions (expected)		
Members	$958,112	$957,987
City	$5,156,731	$5,267,576

PARTICIPANT DATA SUMMARY

The Actuarial Valuation takes into account demographic and benefit information for active employees, vested former employees, and retired pensioners and beneficiaries. The statistics for the past two years are compared in the chart.

Item	Current Year Valuation as of 5/1/2015	Prior Year Valuation as of 5/1/2014
Active Members	115	117
Terminated Members entitled to future benefits	5	5
Retired Members (including beneficiaries and disabled participants receiving benefits)	118	123
Total	238	245

SECTION 2: VALUATION RESULTS

Significant Events and Issues Influencing Valuation Results

Actuarial valuations are snapshot calculations which incorporate and reflect the experience and events of the past year such as changes in the demographics of the plan participants, gains and losses in the plan assets, changes in actuarial assumptions about future experience and outside influences such as legislation. Some of the more significant issues affecting the Plan's contribution level are described here.

Change in Actuarial Assumptions

With respect to demographic assumptions, modifications were made to the disability and duty disability assumptions. Mortality was changed to RP2000 with mortality improvements to the 2015 valuation year projected by Scale AA with Blue Collar adjustment and a 50% load. Retirement rates were not changed for this valuation, however, a review of the retirement rates is recommended before the next valuation.

Asset Performance for yearend 4/30/2015

The approximate 7.61% return (not time weighted) on net assets was above the actuarial assumption of 7.00%.

Employer Contributions

The employer contribution is expected to exceed the required statutory minimum amount.

ACTUARIAL CERTIFICATION

This is to certify that MWM Consulting Group has prepared an Actuarial Valuation of the Plan as of May 1, 2015 for the purposes of determining statutory contribution requirements for the Fund in accordance with the requirements of 40 ILCS 5/3, Section 125, of determining a recommended minimum contribution, and of determining the Annual Required Contribution in accordance with Statement No. 25 of the Governmental Accounting Standards Board (GASB). The contributions determined are net of contributions made by active member Firefighters during the year.

The results shown in this report have been calculated under the supervisions of a qualified Actuary as defined in appropriate State statutes. All results are based upon demographic data submitted by the Fund /City, financial data submitted by the Fund, applications of actuarial assumptions, and generally accepted actuarial methods.

This valuation report has been prepared at the request of City of Waukegan Incorporated to assist in administering the Plan and meeting specified financial and accounting requirements. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Fund sponsor and may only be provided to other parties in its entirety. The information and valuation results shown in this report are prepared with reliance upon information and data provided to us, which we believe to the best of our knowledge to be complete and accurate and include:

- Employee census data submitted by the City of Waukegan Incorporated. This data was not audited by us but appears to be consistent with prior information, and sufficient and reliable for purposes of this report.
- Financial data submitted by the Fire Fund/City of Waukegan Incorporated.

The measurements shown in this actuarial valuation may not be applicable for other purposes. Actuarial valuations involve calculations that require assumptions about future events. Certain of the assumptions or methods are mandated for specific purposes. Future actuarial measurements may differ significantly from the current measurements presented in the report due to such factors as experience that deviates from the assumptions, changes in 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 contributions based on the Plan's funded status) and changes in plan provisions or applicable law. This report does not include an analysis of the potential range of such future measurements.

We believe the assumptions and methods used are within the range of possible assumptions that are reasonable and appropriate for the purposes for which they have been used. In our opinion, all methods, assumptions and calculations are in accordance with requirements and the procedures followed and presentation of results are in conformity with generally accepted actuarial principles and practices. The undersigned actuary meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. There is no relationship between the City of Waukegan Incorporated and MWM Consulting Group that impacts our objectivity. I certify that the results presented in this report are accurate and correct to the best of my knowledge.

MWM CONSULTING GROUP

		10/26/2015
Kathleen E Manning, FSA Managing Principal & Consulting Actuary MWM Consulting Group	Daniel W. Colby, FSA Consulting Actuary MWM Consulting Group	Date

SECTION 3 - FINANCIAL AND ACTUARIAL EXHIBITS

Exhibit 1 - Statement of Market Value of Assets

Item	Plan Year Ending	
	4/30/2015	4/30/2014
1. **Investments at Fair Value**:		
a. Cash and Cash equivalents	$ 0	$ 0
b. Money Market Mutual Funds	3,683,245	13,117,780
c. Municipal Bonds	7,868,144	3,479,061
d. Corporate Bonds	0	0
e. US Government and Agency Bonds	8,776,183	3,084,872
f. Common and Preferred Stocks	0	0
g. Insurance Contracts (at contract value):	6,752,323	5,945,957
h. Mutual Funds	33,859,687	30,642,380
i. Accrued Interest and receivables	122,668	122,219
j. Other	516	0
Total Assets (a + b + c +d + e + f + g+ h+ i +j)	$ 61,062,766	$ 56,392,269
2. Liabilities:		
a. Expenses Payable	$ 23,945	$ 16,035
b. Liability for benefits due and unpaid	0	0
c. Total Liabilities	$ 23,945	$ 16,035
3. Net Market Value of Assets Available for Benefits: (1j – 2c)	$ 61,038,821	$ 56,376,234[1]
		$ 56,356,029[2]

(1) Per 5/1/2014 Tepfer Actuarial Report
(2) Per DOI asset report 4/30/2015

Exhibit 2 - Statement of Change in Net Assets

Item	Plan Year Ending	
	4/30/2015	4/30/2014
Additions		
Contributions		
Employer	$ 4,900,036	
Plan Member	962,482	
Other	0	
Total Contributions	$ 5,862,518	
Investment Income		
Net appreciation in fair value of investments	$ 3,151,604	
Interest	530,017	
Dividends	619,753	
Other Income	2,389	
Investment Expenses	0	
Net Investment Income	4,303,763	
Total additions	$ 10,166,281	
Deductions		
Benefits	$ 5,317,565	
Refunds	0	
Administrative and Investment Expenses	165,924	
Total deductions	$ 5,483,489	
Total increase (decrease)	$ 4,682,792	
Net Fiduciary Position		
Beginning of year	$ 56,356,029 (1)	
End of year	$ 61,038,821	

(1) Per DOI asset report 4/30/2015

Exhibit 3 – Actuarial Value of Assets

Under 40 ILCS 5/3, the statutory minimum required contribution is to be determined based upon **Actuarial Value of Assets**, which are asset values which have been smoothed over a five-year period, beginning with the year 2011. The **Actuarial Value of Assets** has been calculated below based upon the market value of assets at May 1, 2015 with adjustments for the preceding year's gains/losses, which are reflected at the rate of 20% per year.

1. Expected Return on Assets	
a. Market Value of Assets as of Beginning of Year	$ 56,356,029
b. Income and Disbursements During the year	
i. Contributions Received (weighted 50%)	$ 2,931,259
ii. Benefit Payments and Expenses (weighted 50%)	2,741,745
iii. Weighted net income (other than investment income) (i) – (ii)	189,514
c. Market Value adjusted for income and disbursements	$ 56,545,543
d. Expected Return on Assets at assumed rate of 7.00%	**$ 3,958,188**
2. Actual Return on Assets for year	
a. Market Value of Assets (Beginning of Year)	$ 56,356,029
b. Income (less investment income)	5,862,518
c. Disbursements	5,483,489
d. Market Value of Assets (End of Year)	61,038,821
e. Actual Return on Assets (d) – (a) – (b) + (c)	4,303,763
f. Investment Gain/(Loss) for year 2(e) - 1(d)	**$ 345,575**
3. **Actuarial Value of Assets**	
a. Market Value of Assets as of End of Year	$ 61,038,821
b. Deferred Investment gains/(losses)	
i. 80% of 2015 gain of $345,575	(276,460)
ii. 60% of 2014 gain of $1,578,592	(947,155)
iii. 40% of 2013 gain of $894,076	(357,630)
iv. 20% of 2012 loss of $(1,354,786)	270,957
v. Total	(1,310,288)
c. Actuarial Value of Assets for statutory funding 3(a) + 3(b)(iv)	**$ 59,728,533**

Exhibit 4- Determination of the Statutory Minimum Required Contribution

Under 40 ILCS 5/3, the statutory minimum required contribution is to be determined based upon the Projected Unit Credit actuarial funding method, where the unfunded liability is amortized such that 90% of the liability will be funded as of 2040. Under the statute, 90% of the unfunded liability is to be amortized as a level percentage of payroll over the period through 2040. The mandated funding method, the Projected **Unit Credit funding method, requires** the annual cost of the plan to be developed in two parts: that attributable to benefits allocated to the current year (the normal cost); and that allocated to benefits attributable to prior service (the accrued liability).

Funding Elements for 40 ILCS 5/3

	Present Value of Benefits as of 5/1/2015	Projected Unit Credit (PUC) Normal Cost 5/1/2015	PUC Actuarial Accrued Liability as of 5/1/2015
1. Active Officers			
a) Normal & Early Retirement	$ 55,466,246	$ 1,863,989	$ 34,235,561
b) Vested Withdrawal	628,739	33,958	420,385
c) Pre-Retirement Death	2,271,760	95,764	1,465,990
d) Disability	13,502,138	582,047	8,401,278
e) Total Active Firefighters	$ 71,868,883	$ 2,575,758	$ 44,523,214
2. Inactive Firefighters and Survivors:			
a) Normal Retirees	$ 41,760,057		$ 41,760,057
b) Widows (survivors)	6,070,157		6,070,157
c) Deferred Vested	81,109		81,109
d) Disabled	16,738,175		16,738,175
e) Total - Nonactive	$ 64,649,498		$ 64,649,498
3. Total – All	$ 136,518,381		$ 109,172,712

Minimum Statutory Contribution under 40 ILCS 5/3

Item	Amount
1. Annual Payroll	$ 10,133,393
2. Normal Cost (net of employee/member contributions)	1,617,646
3. Employee Contributions (expected)	958,112
4. Funding Actuarial Liability	109,172,712
5. 90% of Funding Actuarial Liability	98,255,441
6. Actuarial Value of Assets (Exhibit 3)	59,728,533
7. Unfunded Actuarial Balance	38,526,908
8. Amortization of Unfunded Balance over 25 years as a level percentage of payroll	2,122,931
9. Interest on (2), (3) and (8)	328,908
10. Minimum statutory tax levy contribution per 40 ILCS 5/3 – (2) + (8) + (9)	**$4,069,485 (40.2%)**

*() amount as a percent of payroll

Exhibit 5- Determination of the Recommended Contribution

The Tax Levy has been based upon the actuary's recommended contribution, rather than the amount determined as the minimum under 40 ILCS 5/3. The recommended contribution is developed below, based upon the Entry Age Normal Funding Method, with the unfunded accrued liability amortized as a level dollar amount over the 25 years through 2040. The contribution is then the sum of the Normal Cost (developed under the entry age method, but where the total normal cost is not less than 17.5%) plus the amortization payment.

Funding Elements for Recommended Contribution

	Present Value of Benefits as of 5/1/2015	Entry Age Normal Cost 5/1/2015	Entry Age Accrued Liability as of 5/1/2015
1. Active Officers			
a) Normal & Early Retirement	$ 55,466,246	$ 1,696,504	$ 38,135,810
b) Vested Withdrawal	628,739	51,392	75,346
c) Pre-Retirement Death	2,271,760	107,942	1,150,843
d) Disability	13,502,138	672,493	6,501,574
e) Total Active Firefighters	$ 71,868,883	$ 2,528,331	$ 45,863,573
2. . Inactive Firefighters and Survivors:			
f) Normal Retirees	$ 41,760,057		$ 41,760,057
g) Widows (survivors)	6,070,157		6,070,157
h) Deferred Vested	81,109		81,109
i) Disabled	16,738,175		16,738,175
j) Total - Nonactive	$ 64,649,498		$ 64,649,498
3. Total – All	$ 136,518,381		$ 110,513,071

Recommended Contribution for Tax Levy

Item	Amount
1. Normal Cost (net of employee/member contributions)	$ 1,570,219
2. Employee Contributions (expected)	958,112
3. Funding Actuarial Liability	110,513,071
4. 90% of Funding Actuarial Liability	99,461,764
5. Actuarial Value of Assets (Exhibit 3)	59,728,533
6. Unfunded Actuarial Balance	39,733,231
7. Amortization of Unfunded Balance over 25 years as a level dollar amount	3,186,476
8. Interest on (1), (2) and (7)	400,036
9. Recommended tax levy contribution (1) + (7) + (8)	**$5,156,731 (50.9%)**

Exhibit 6 – Summary of Participant Data as of May 1, 2015

Participant Data

Item	As of 5/1/2015
Active Members	115
Terminated Members entitled to future benefits	5
Retired Members (including beneficiaries and disabled participants receiving benefits)	118
Total	238

AGE AND SERVICE DISTRIBUTION AS OF MAY 1, 2015

Active Employee Participants

Age Group	Service									Total
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	
Under 20										0
20 - 24										0
25 - 29	10	1								11
30 - 34	4	8	2							14
35 - 39	2	6	12	7						27
40 - 44		4	8	14	3					29
45 - 49			2	6	9					17
50 - 54				4	4	2	1			11
55 - 59					1	2	1	1		5
60 - 64						1				1
75 & Over										0
Total	**16**	**19**	**24**	**31**	**17**	**5**	**2**	**1**	**0**	**115**

Average Age: 41.3 years
Average Length of Service: 14.4 years

SECTION 4 - SUMMARY OF PRINCIPAL PLAN PROVISIONS

This summary provides a general description of the major eligibility and benefit provisions of the pension fund upon which this valuation has been based. It is not intended to be, nor should it be interpreted as, a complete statement of all provisions

Definitions

Tier 1 – For Firefighters first entering Article 4 prior to January 1, 2011

Tier 2 – For Firefighters first entering Article 4 after December 31, 2010

Firefighter (4-106): Any person employed in the municipality's fire service as a firefighter, fire engineer, marine engineer, fire pilot, bomb technician or scuba diver.

Creditable Service (4-108): Time served by a firefighter, excluding furloughs and leaves of absence in excess of 30 days, but including leaves of absence for illness or accident and periods of disability where no disability pension payments are received and also including up to 3 years during which disability payments have been received provided contributions are made.

Creditable Service from other specified agencies is also included. Combined service credit option is available on a voluntary basis.

Pension (4-109)

Normal Pension Age

Tier 1 - Age 50 with 20 or more years of creditable service.

Tier 2 - Age 55 with 10 or more years of creditable service.

Normal Pension Amount

Tier 1 - 50% of the greater of the annual salary held in the year preceding retirement or the annual salary held on the last day of service, plus 2½% of such annual salary for service from 20 to 30 year (maximum 25%)].

Tier 2 - 2½% of Final Average salary for each year of service. Final Average Salary is the highest salary based on the highest consecutive 96 months of the final 120 months of service

> Early Retirement at age 50 with 10 or more years of service but with a penalty of ½% for each month prior to age 55.

Annual Salary capped at $106,800 increased yearly by the lesser of ½ of the Consumer Price Index- Urban (CPI-U) or 3%. Salary for valuations beginning in 2013 is $109,971.43.

Minimum Monthly Benefit: $1,000

Maximum Benefit Percentage: 75% of salary except line of duty

Termination Pension Amount

Any firefighter who retires or is separated from service with at least 10, but less than 20 years of credited service, shall be entitled to a monthly pension commencing at age 60 equal to the monthly rate of compensation based on rank at separation multiplied by the applicable percentage below:

Years of Credited Service	Applicable Percentage
10	15.0%
11	17.6
12	20.4
13	23.4
14	26.6
15	30.0
16	33.6
17	37.4
18	41.4
19	45.6

Pension Increase Non-Disabled

Tier 1 - 3% increase of the original pension amount after attainment of age 55 for each year elapsed since retirement, followed by an additional 3% of the original pension amount on each January 1 thereafter. Effective July 1, 1993, 3% of the amount of pension payable at the time of the increase including increases previously granted, rather than 3% of the originally granted pension amount.

Tier 2 - The lesser of ½ of the Consumer Price Index- Urban (CPI-U) or 3% increase of the original pension amount after attainment of age 60, followed by an additional 3% of the original pension amount on each January 1 thereafter.

Disabled

3% increase of the original pension amount after attainment of age 60 for each year he or she received pension payments, followed by an additional 3% of the original pension amount in each January 1 thereafter.

Pension to Survivors (4-114)

Death Benefit

Tier 1 - 54% of annual salary based on attained rank at date of separation of service to surviving spouse, plus 12% of such salary to dependent children under 18.

100% of annual salary if death occurs in the line of duty.

Greater of 100% of monthly retirement benefit or 54% of annual salary if completed 20 years of service or on disability retirement.

Tier 2 – 66 2/3% of pension amount to surviving spouse (or dependent children), subject to the following increase: the lesser of ½ of the Consumer Price Index- Urban (CPI-U) or 3%.increase of the original pension amount after attainment of age 60, followed by an additional 3% of the original pension amount on each January 1 thereafter.

Minimum Survivor Pension

Annual step rate increases from $1,030 to $1,159.27 per month.

Disability Pension - Line of Duty (4-110)

Eligibility

Suspension or retirement from fire service due to sickness, accident or injury while on duty.

Pension

Greater of 65% of salary attached to rank at date of suspension or retirement and the retirement pension available. Minimum Benefit: Annual step rate increases from $1,030 to $1,159.27 per month.

Disability Pension - Not on Duty (4-111)

Eligibility

Suspension or retirement from fire service for any cause other than while on duty.

Pension

50% of salary attached to rank at date of suspension or retirement.

Disability Pension – Occupational Disease (4-110.1)

Eligibility

Suspension or retirement from service after 5 years of service from causes of heart disease, cancer, tuberculosis or other lung disease.

Pension

Greater of 65% of salary attached to rank at date of suspension or retirement and the retirement pension available. Minimum Benefit: Annual step rate increases from $1,030 to $1,159.27 per month.

Other Provisions

Refund (4-116)

At death with no survivors, contributions are returned to estate.

At termination with less than 20 years of service, contributions are refunded upon request.

Contributions by Firefighters 4-118.1)

9.455% of salary including longevity, but excluding overtime pay, holiday pay, bonus pay, merit pay or other cash benefit. Additional 1% of salary if combined service credit option is selected.

Actuarial Accrued Liability
See ***Entry Age Normal Cost*** *Method and* ***Projected Unit Credit Cost*** *Method.*

Actuarial Assumptions
The economic and demographic predictions used to estimate the present value of the plan's future obligations. They include estimates of investment earnings, salary increases, mortality, withdrawal and other related items. The *Actuarial Assumptions* are used in connection with the *Actuarial Cost Method* to allocate plan costs over the working lifetimes of plan participants.

Actuarial Cost Method
The method used to allocate the projected obligations of the plan over the working lifetimes of the plan participants. Also referred to as an *Actuarial Funding Method.*

Actuarial Funding Method
See *Actuarial Cost Method*

Actuarial Gain (Loss)
The excess of the actual *Unfunded Actuarial Accrued Liability* over the expected *Unfunded Actuarial Accrued Liability* represents an *Actuarial Loss.* If the expected *Unfunded Actuarial Accrued Liability* is greater, an *Actuarial Gain* has occurred.

Actuarial Present Value
The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of *Actuarial Assumptions*.

Actuarial Value of Assets
The asset value derived by using the plan's *Asset Valuation Method.*

Asset Valuation Method
A valuation method designed to smooth random fluctuations in asset values. The objective underlying the use of an asset valuation method is to provide for the long-term stability of employer contributions.

Employee Retirement Income Security Act of 1974 (ERISA)
The primary federal legislative act establishing funding, participation, vesting, benefit accrual, reporting, and disclosure standards for pension and welfare plans.

Entry Age Normal Cost Method
One of the standard actuarial funding methods in which the *Present Value of Projected Plan Benefits* of each individual included in the *Actuarial Valuation* is allocated on a level basis over the earnings of the individual between entry age and assumed exit age(s). The portion of this *Actuarial Present Value* allocated to a valuation year is called the *Normal Cost*. The portion of this *Actuarial Present Value* not provided for at a valuation date by the *Actuarial Present Value* of future *Normal Costs* is called the *Actuarial Accrued Liability*.

Normal Cost
The portion of the *Present Value of Projected Plan Benefits* that is allocated to a particular plan year by the *Actuarial Cost Method*. See *Entry Age Normal Cost Method* for a description of the Normal Cost under the *Entry Age Normal Cost Method.* See *Projected Unit Credit Cost Method* for a description of the Normal Cost under the *Projected Unit Credit Cost Method.*

Present Value of Future Normal Costs

The present value of future normal costs determined based on the *Actuarial Cost Method* for the plan. Under the *Entry Age Normal Cost Method*, this amount is equal to the excess of the *Present Value of Projected Plan Benefits* over the sum of the *Actuarial Value of Assets* and *Unfunded Actuarial Accrued Liability.*

Present Value of Projected Plan Benefits

The present value of future plan benefits reflecting projected credited service and salaries. The present value is determined based on the plan's actuarial assumptions.

Projected Unit Credit Cost Method

One of the standard actuarial funding methods in which the *Present Value of Projected Plan Benefits* of each individual included in the *Actuarial Valuation* is allocated by a consistent formula to valuation years. The *Actuarial Present Value* allocated to a valuation year is called the *Normal Cost*. The *Actuarial Present Value* of benefits allocated to all periods prior to a valuation year is called the *Actuarial Accrued Liability*.

Statement No. 25 of the Governmental Accounting Standards Board (GASB No. 25)

The accounting statement that established the standards of financial accounting and reporting for the financial statements of defined benefit pension plans.

Unfunded Actuarial Accrued Liability

The excess of the *Actuarial Accrued Liability* over the *Actuarial Value of Assets.*

SECTION 5 - SUMMARY OF ACTUARIAL ASSUMPTIONS AND COST METHODS

Nature of Actuarial Calculations

The results documented in this report are estimates based on data that may be imperfect and on assumptions about future events, some of which are mandated assumptions. Certain provisions may be approximated or deemed immaterial and therefore are not valued. Assumptions may be made about participant data or other factors. A range of results, different from those presented in this report could be considered reasonable. The numbers are not rounded, but this is for convenience and should not imply precisions, which is not inherent in actuarial calculations.

Actuarial Assumption Item	Annual Actuarial Valuation Statutory Minimum	Annual Actuarial Valuation Recommended Minimum
Interest	7.00% per annum	7.00% per annum
Mortality	RP2000 Mortality Table projected to 2015 with Blue Collar Adjustments, 50% Load	RP2000 Mortality Table projected to 2015 with Blue Collar Adjustments, 50% Load
Retirement	Rates of retirement for all ages are: Age / Age 50 19% 60 28% 51 12% 61 36% 52 4% 62 44% 53 6% 63 52% 54 9% 64 60% 55 12% 65 68% 56 15% 66 76% 57 19% 67 84% 58 22% 68 92% 59 25% 69 100%	Rates of retirement for all ages are: Age / Age 50 19% 60 28% 51 12% 61 36% 52 4% 62 44% 53 6% 63 52% 54 9% 64 60% 55 12% 65 68% 56 15% 66 76% 57 19% 67 84% 58 22% 68 92% 59 25% 69 100%
Withdrawal	Rates of termination are based upon age only. Sample rates for selected ages are: Age 25 2.50% 40 0.42% 50 0.00% 55 0.00%	Rates of termination are based upon age only. Sample rates for selected ages are: Age 25 2.50% 40 0.42% 50 0.00% 55 0.00%
Salary Increase	Rates of salary increases are based upon age only. An additional 2.5% reflecting inflationary increases, was added in addition to the rates illustrated below. Sample rates for selected ages are: Age 25 4.86% 40 1.52% 50 1.18% 55 1.12%	Rates of salary increases are based upon age only. An additional 2.5% reflecting inflationary increases, was added in addition to the rates illustrated below. Sample rates for selected ages are: Age 25 4.86% 40 1.52% 50 1.18% 55 1.12%

Actuarial Assumption Item	Annual Actuarial Valuation Statutory Minimum	Annual Actuarial Valuation Recommended Minimum
Payroll Growth	Total payroll is assumed to increase at 4.0% per year	Total payroll is assumed to increase at 4.0% per year
Percentage Married	85% are married, females are assumed to be 3 years younger	85% are married, females are assumed to be 3 years younger
Asset Valuation Method	Assets are valued at fair market value and smoothed over five years, reflecting gains and losses at 20% per year.	Assets are valued at fair market value and smoothed over five years, reflecting gains and losses at 20% per year.
Actuarial Cost Methods	Projected Unit Credit Cost Method This is the mandated actuarial method to be used in determining the statutory contribution requirements and under PA 096-1495. This method determines the present value of projected benefits and prorates the projected benefit by service to date to determine the accrued liability. Amounts attributable to past service are amortized as a level percentage of pay with the goal of reaching 90% of the accrued liability by 2040.	Entry Age Normal Cost Method This method projects benefits from entry age to retirement age and attributes costs over total service, as a level percentage of pay. Amounts attributable to past service have been amortized over 25 years as a level dollar amount.