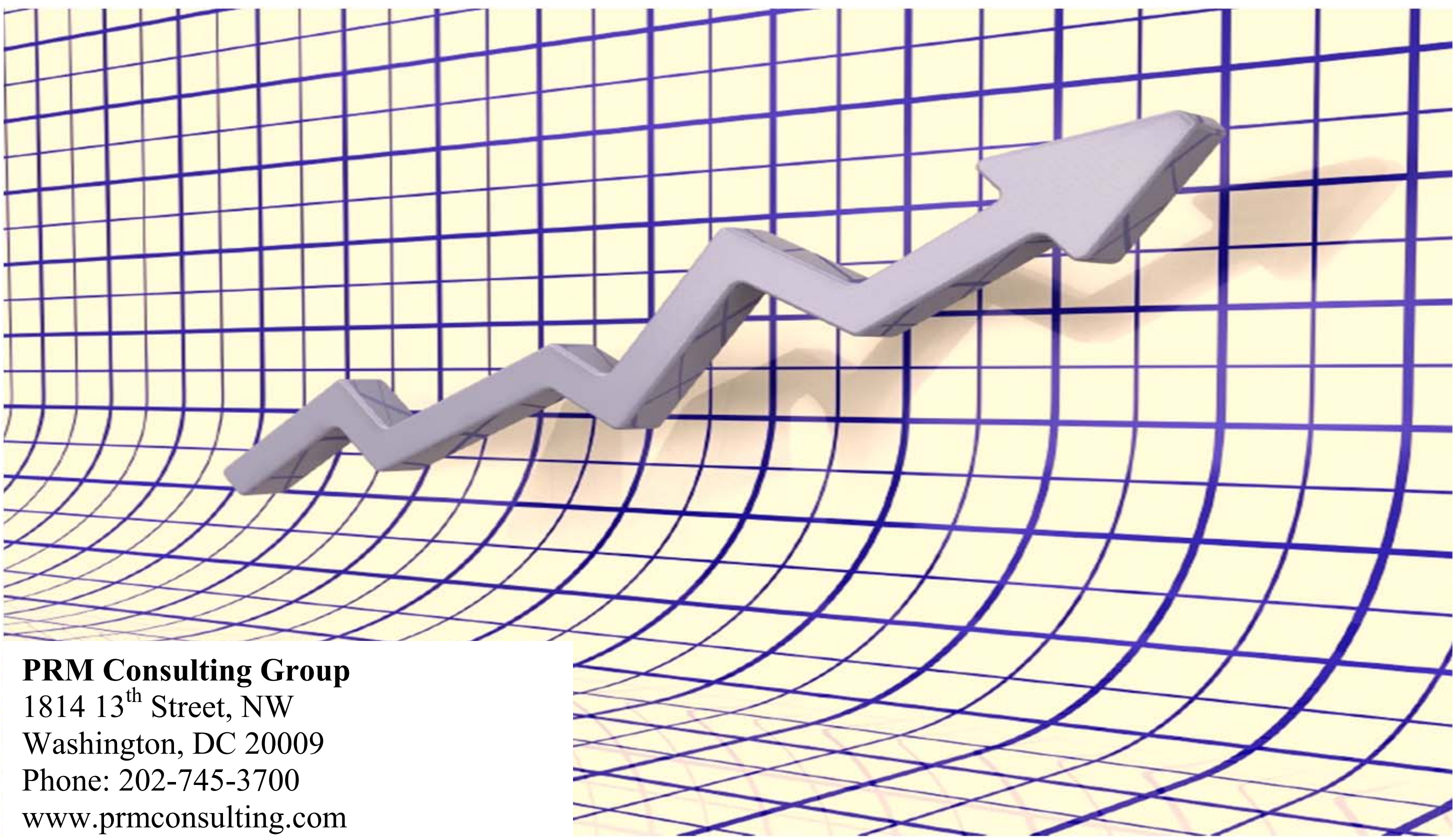
ACTUARIAL VALUATION OF POSTRETIREMENT LIFE & HEALTH PLANS

District of Columbia
Office of the Chief Financial Officer
Contract #: CFOPD-13-C-017

April 2017

prm CONSULTING GROUP



PRM Consulting Group
1814 13th Street, NW
Washington, DC 20009
Phone: 202-745-3700
www.prmconsulting.com

Contents Page

SECTION 1 - Executive Summary

PRM Consulting Group ("PRM") has been retained by the District of Columbia (the "District") to perform an actuarial valuation of the District of Columbia Annuitants' Health and Life Insurance Employer Contribution Plan (the "Plan") as of September 30, 2016. The purpose of the valuation is to provide an estimate of the actuarial accrued liabilities of the Plan and the recommended employer contributions in accordance with applicable Statements of the Governmental Accounting Standards Board (GASB). Use of the valuation results for other purposes may not be appropriate.

A summary of key valuation results for the current and prior year are shown as follows:

Valuation Date	September 30, 2016	September 30, 2015 *(based on roll-forward of 2014 valuation)*
Actuarial Accrued Liability ($000s)	$1,115,800	$1,001,200
Actuarial Value of Plan Assets ($000s)	$1,248,300	$1,202,400
Unfunded Actuarial Accrued Liability ($000s)	($132,500)	($201,200)

The Annual Required Contribution (ARC) for financial statement reporting for the current and prior fiscal years is shown as follows:

Fiscal Year Ending	September 30, 2016	September 30, 2015
Annual Required Contribution (ARC) ($000s)	$ 29,000	$ 91,400

- The recommended District contribution for the fiscal year ending September 30, 2017 is $31 million, as shown in Section 5, Table 5.2 of this report. This amount is developed based on a roll-forward of the prior (2014) valuation results.

Our valuation report provides further detail regarding the valuation results and describes the models and actuarial assumptions used to determine the valuation results. Specifically, the following information is provided:

- A description of the requirements of the applicable GASB Statements including a discussion of the components of Plan costs and liabilities that must be reflected in the District's Consolidated Annual Financial Report (CAFR);
- A reconciliation of plan asset activity over the fiscal year;
- A presentation of detailed valuation results, shown separately for the four component groups (Fire, Police, Teachers and General Employees), as well as in total for all groups.

- A summary of actuarial assumptions used in the valuation, including assumptions regarding general inflation, medical inflation, mortality, retirement, disability, termination of service, salary increase, plan participation, etc. PRM evaluated and reviewed this assumption set and received its approval by representatives of the District Office of the Chief Financial Officer (DC OCFO) as part of the valuation project;

- A presentation of Plan CAFR disclosure information, including the development of Annual Required/Actuarially Determined Contributions, Schedule of Funding Progress, Schedule of Employer Contributions and the development of the Annual OPEB Cost (AOC) and Net OPEB Obligation, and other disclosure items;

- A summary of the principal Plan Provisions that were valued as part of the valuation. Prior to completion of the valuation, this Summary was shared with and approved by the District Human Resources office to ensure that the Plan features had been identified correctly.

- A summary of the participant data used in the valuation. Data was received from a number of sources, including the District Human Resources Department and the District of Columbia Retirement Board. We did not perform a detailed audit or reconciliation of participant data. We did, however, review the data to ensure that it was reasonable and appropriate for use in the valuation.

Timing of Valuation/Measurement versus Dates of Disclosure

In order to accommodate the needs of the District with respect to budgeting, the valuation results obtained from the September 30, 2016 valuation will first be used to compute employer contributions and other GASB disclosure items in the 2017-2018 fiscal year. The disclosure information for the 2015-2016 fiscal year is based on a roll-forward valuation of the results obtained from the valuation measurement performed as of the beginning of the 2014-2015 fiscal year. This time lag is used to better coordinate the District budget timing with the timing for publication of valuation results.

While the GASB disclosure items included in this report are based on a roll-forward of the prior valuation results, the key results of the 2016 valuation are included in this report also.

Comparison of Results to Prior Valuation

For the 2016 valuation, plan liabilities are quite comparable to those expected based on a roll-forward of the prior (2014) valuation. The Actuarial Accrued Liability (AAL) based on 2016 valuation results is approximately 1.5% higher than the expected AAL. The population of covered active plan participants increased over 10%, which is a primary driver of the modest AAL increase between the 2014 and 2016 valuations.

Effective with the 2016 valuation of the Plan, the use of a 5-year smoothing Actuarial Asset Method has been implemented. The smoothed Actuarial Asset Method will first affect recommended District contributions for the FYE September 30, 2018. The recommended District contribution for the FYE September 30, 2017 does not reflect the smoothed Actuarial Asset Value since it is based on a roll-forward of the 2014 valuation of the plan, and the 2014 valuation utilized current market value as the Actuarial Asset Value.

The 5-year smoothing Actuarial Asset Method is described in Section 6 of this report, and was adopted in order to reduce year-to-year volatility in the value of assets used in the valuation and used to compute District contributions. Other changes in actuarial assumptions were made as well, also as described in Section 6 of this report.

Excise Tax

The Patient Protection and Affordable Care Act (the ACA), which made sweeping reforms to health care coverage access, originally included a 40 percent per year Excise Tax on health coverage providers beginning in 2018 to the extent that the aggregate value of employer-sponsored health coverage for an employee exceeds a threshold amount. The Excise Tax applies to all employer-sponsored group health plans, including governmental plans. Legislation was passed in October 2015 which delayed the application of the Excise Tax until 2020. Final regulatory or other official guidance regarding the calculation and application of the Excise Tax has not yet been issued, and thus future guidance could significantly alter the conclusions discussed herein. The original threshold dollar limits, which were to be effective in 2018, are:

- $10,200 for an employee with self-only coverage, and
- $27,500 for all other coverages (e.g., employee and spouse, family)

Certain adjustments are allowed for these thresholds, including inflation adjustments that can occur if inflation exceeds expected levels prior to 2018, and adjustments are allowed for non-Medicare retirees as well as high-risk occupations such as fire and police. Based on IRS notice 2015-52, an additional demographic adjustment factor (which compares the age/gender composition of the employer with the national workforce) may further increase the thresholds. As part of the October, 2015 legislation that deferred application of the Excise Tax until 2020, a Government Accountability Office (GAO) study was commissioned to examine and make recommendations regarding the application of demographic adjustment factors.

As the District Plan is currently designed, retired employees and their spouse may continue to participate in the plans offered to actively-employed District employees. In order to continue coverage in retirement, retired employees must pay for coverage, based on a cost-sharing arrangement that varies with years of service and type of District employment. Under these cost-sharing arrangements, the District provides a subsidy to the monthly required premium, and the employee is responsible for paying the remainder of the monthly cost. Presumably if the District plan became subject of the Excise Tax, payment of the Excise Tax would be the responsibility of the retiree rather than the District since the District subsidy is a fixed percentage of the monthly premium rate.

Due to the lack of specific guidance as to how/if the Excise Tax is to be applied, and further due to the current legislative uncertainty surrounding the future of the ACA, no specific provision was made in our 2016 valuation regarding Plan liabilities for the Excise Tax. Obviously, if the Excise Tax were to apply, the costs associated with the Plan would be inefficient from the perspective of both the District and the retiree, and Plan participation rates may be affected. Thus, it is likely that the actuarial liability associated with any application of the Excise Tax would result in lower plan liabilities since the Excise Tax would be borne by retirees under the current District plan design and participation rates will decline.

As guidance or developments are forthcoming over the next months and years regarding the specifics of the Excise Tax application, the design of the Plan and future valuations of Plan liabilities will need to be adjusted. In the meantime, we have included this discussion of our current analysis regarding the Excise Tax in an effort to highlight the risk to the Plan and the District of this provision of the ACA.

Actuarial Certification

This valuation has been conducted in accordance with generally accepted actuarial principles and practices.

The results shown in this report are reasonable actuarial results. However, a different set of results could also be considered reasonable actuarial results. The reason for this is that the selection of the best estimate assumptions requires professional judgment from the actuary. Thus, reasonable results differing from those presented in this report could have been developed by another actuary.

The actuaries certifying to this valuation are members of the Society of Actuaries and other professional actuarial organizations, and meet the General Qualification Standards of the American Academy of Actuaries for purposes of issuing Statements of Actuarial Opinion. They are available to answer questions or to provide further information regarding the contents of this report.

Respectfully submitted,

Robert Sanford, FSA, MAAA, EA
PRM Consulting Group, Inc.
April 2017

Adam J. Reese, FSA, MAAA, EA
PRM Consulting Group, Inc.
April 2017

Mark Knecht, ASA, MAAA, EA
PRM Consulting Group, Inc.
April 2017

SECTION 2 - DESCRIPTION OF GASB STANDARDS

Governmental Accounting Standards Board (GASB)

In June, 2004, the Governmental Accounting Standards Board (GASB) issued its long-awaited standard on *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions* (OPEBs).

The standard covers both post-retirement and post-employment benefits. The types of benefits covered include:

- Medical
- Dental
- Vision
- Hearing
- Life insurance
- Long term disability
- Long term care

However, if any of these benefits are provided through a pension plan they would be accounted for under GASB 67 — otherwise they will be accounted for under GASB 45.

The effective date for the standard depended on the size of the employer. For entities with revenues in FY 2000 over $100 million, the effective date was the fiscal year beginning after December 15, 2006. The District adopted the standard with the FY 2008 financial reporting year beginning October 1, 2007.

In June of 2015, the GASB issued Statement No. 75, which is a revision/update to GASB 45, and which is effective for fiscal years beginning after June 15, 2017. Thus, the revised standard will first be effective for the District's fiscal year ending September 30, 2018, unless earlier adoption is chosen. For financial reporting for the fiscal year ending September 30, 2016, the District reported using the requirements of GASB 45.

The purpose of these standards is to treat post-retirement benefits in a manner similar to pensions. Governmental employers should recognize that OPEBs constitute compensation for employee service and they should recognize the cost of benefits during the periods when employee service is rendered. GASB believes that appropriate accrual accounting for OPEBs will improve the relevance and usefulness of financial reporting, provide information about the size of the liabilities and the extent to which they are funded, and ensure systematic accrual-basis measurement over employee service.

The most common and most expensive of the OPEBs are retiree medical benefits, which provide a valuable component in employees' retirement benefits program. Most governmental employers fund their retiree medical plans on a pay-as-you-go (PAYG) basis. The GASB standard does not require employers to advance fund these benefits. However, certain aspects of the measurement do provide benefits for employers that choose to advance fund the OPEB liability.

Actuarial Cost Method

A fundamental principle in financing the liabilities of any retirement program is that the cost of the benefits should be related to the period during which benefits are earned, rather than to the period of benefit distribution. There are several acceptable actuarial methods prescribed by the GASB 45 standard as acceptable. Under GASB 75, the Entry Age Normal (EAN) Cost method must be used. The District has selected and used the EAN method.

The Entry Age Normal actuarial cost method was used to value the plan's actuarial liability and to set the normal cost. Under this method, the normal cost rate is the level percentage of pay contribution which would be sufficient to fund the plan benefit if it were paid from each member's date of hire until termination or retirement.

Actuarial Accrued Liability

The actuarial accrued liability is that portion of the present value of projected benefits which has been accrued during the employee's working life from the date of hire to the valuation date. Another way of viewing this liability is as the portion of the present value of projected benefits that will not be funded by future normal costs. Therefore, as long as participants have no past service credit (as is assumed in this case), there is no actuarial liability for a new entrant. Furthermore, the full present value of benefits is accrued by the end of each employee's working life.

The difference between the actuarial accrued liability and the actuarial value of assets accumulated as of the valuation date is referred to as the unfunded actuarial accrued liability. Unfunded actuarial accrued liabilities generally exist when (1) the liabilities are not funded, (2) benefits have been earned for periods in which no normal cost has been paid or (3) the amounts that have been funded were inadequate because of losses, changes in assumptions, changes in the funding method, or benefit improvements. The unfunded actuarial accrued liability equals the actuarial accrued liability less the actuarial asset value of the fund.

Development of the Normal Cost

The normal cost represents the benefits earned during the current reporting period. As stated in the previous section, the Entry Age Normal actuarial cost method is used in determining the normal cost.

Funding Policy

With adoption of GASB 45, the District established a restricted trust and began making payments to the trust. Since adoption of GASB 45 the District has contributed 100% of the Annual Required Contribution, including the contribution made for FYE 2016. Under the newer GASB 75 Statement, the "Annual Required Contribution" will no longer apply, and the target or recommended contribution is referred to as the "Actuarially Determined Contribution." It is the intent of the District government to fully fund the Actuarially Determined Contribution with annual appropriations.

Discount Rate

The valuation results are dependent on the discount rate. GASB 45 specifies that the assumed discount rate should be based on the rate of return expected to be earned by the assets used to pay the benefits. The District has established a trust, where current annual funding to the trust far exceeds benefit payments made from the trust. With assets of approximately $1.2 billion invested in a diversified portfolio, the District expects the trust assets to be used to pay all benefits in the future. For the liability measurement as of September 30, 2016, which will first be used to establish expense and disclosure information for the 2017-2018 fiscal year, the discount rate used is 6.5%, which is unchanged from the discount rate used in the prior (2014) valuation.

SECTION 3 – PLAN ASSETS

Table 3.1 shows the development of the market value of plan assets since the prior (09/30/2014) valuation.

Table 3.1 Reconciliation of Plan Assets (000s)			
		FYE 9/30/2015	FYE 9/30/2016
1.	Beginning Market Value, 10/1/2015	$1,051,359	$1,076,550
2.	Employer Contributions	$91,400	$29,000
3.	Participant Contributions	$411	$431
4.	Interest, Dividends and other investment income	$22,736	$21,147
5.	Net appreciation on plan assets	($76,847)	$86,369
6.	Investment Expense	($5,404)	($5,720)
7.	Benefit Payments	($6,740)	($10,044)
8.	Administrative Expense	($365)	($292)
9.	Ending Market Value, 09/30/2016	$1,076,550	$1,197,441
10.	Estimated Rate of Return, net of Investment Expense*	(5.7%)	9.5%

*Assumes Employer contributions paid at end of fiscal year, with employee contributions, benefit payments and administrative expense paid uniformly throughout the year

Table 3.2 shows the development of the Actuarial Asset Value (AAV) for the September 30, 2016 valuation.

Table 3.2 Development of Actuarial Asset Value		
	FYE 9/30/2015	FYE 9/30/2016
1. AAV, beginning of fiscal year	$1,051,359,059	$1,178,658,752
2. Market Value of Assets, End of Fiscal Year	$1,076,550,114	$1,197,441,214
3. Market Value of Assets, Beginning of Fiscal Year	$1,051,359,059	$1,076,550,114
4. Fiscal Year Cash Flow		
a. Employer Contributions	91,400,000	29,000,000
b. Participant Contributions	410,780	430,587
c. Benefit Payments	(6,739,591)	(10,043,719)
d. Administrative Expense	(365,123)	(292,482)
e. Net Cash Flow	84,706,066	19,094,386
5. Investment Performance		
a. Actual Performance (2.-3.-4e)	(59,515,011)	101,796,714
b. Assumed Rate of Return	6.50%	6.50%
c. Expected Performance	68,120,786	69,653,825
d. Gain/(Loss) (5a. – 5b.)	(127,635,797)	32,142,889
6. Recognition of Investment in AAV over five years		
a. Current Year (1/5 x 5d.)	($25,527,159)	6,428,578
b. First Prior Year	N/A	($25,527,159)
c. Second Prior Year	N/A	N/A
d. Third Prior Year	N/A	N/A
e. Fourth Prior Year	N/A	N/A
f. Total	($25,527,159)	($19,098,581)
7. Preliminary AAV, end of fiscal year	$1,178,658,752	$1,248,308,382
8. AAV with 80%-120% corridor applied	$1,178,658,752	$1,248,308,382

SECTION 4 - Financial Accounting Information

In addition to establishing the recommended employer contributions, this report shows the progress toward funding of the plan benefits. This section includes a schedule of the funding progress, which is a statement of disclosure to report the Required Supplementary Information in compliance with Governmental Accounting Standards Board (GASB) Statement No. 43.

Also included is a schedule of employer contributions. This schedule compares the employer contribution to the plan with the Annual Required Contribution.

GASB 45 accounting standard sets out the requirements for governmental employers to determine the Annual Required Contribution for the postretirement benefit plan costs. GASB 43 sets out the required disclosures for the plans.

The following tables have been prepared as of the measurement date and include historical information from the District's financial reports.

GASB 43 Disclosures

Table 4.1 shows the schedule of funding progress for the District. The District has made substantial progress in funding the obligation with the funded ratio increasing to 120.1% as of September 30, 2015.

Table 4.1
Schedule of Funding Progress for Fiscal Year Ending September 30, 2015
(dollars in millions)

Actuarial Valuation Date	Actuarial Asset Value	Actuarial Accrued Liability	Unfunded Actuarial Liability	Funded Ratio	Covered Payroll	UAAL as a Percentage of Covered Payroll
	(a)	*(b)*	*(c) = (b-a)*	*(d) = (a)/(b)*	*(e)*	*(f) = (c) / (e)*
2007	$164.2	$600.1	$435.9	27.4%	$1,090.9	39.96%
2008	$219.7	$745.2	$525.5	29.5%	$1,107.1	47.47%
2009	$309.1	$625.9	$316.8	49.4%	$1,579.9	20.05%
2010	$424.3	$784.9	$360.6	54.1%	$1,544.5	23.35%
2011	$511.5	$866.6	$355.1	59.0%	$1,559.8	22.77%
2012	$693.3	$919.7	$226.4	75.4%	$1,399.1	16.18%
2013	$897.8	$1,048.0	$150.2	85.7%	$1,441.1*	10.42%
2014	$1,036.6	$1,188.3	$151.7	87.2%	$1,484.3*	10.22%
2015	$1,202.4	$1,001.2	($201.2)	120.1%	$1,608.0	-12.51%

*Estimated to be 3% larger than prior valuation year

Table 4.2 shows the calculation of the Annual Required Contribution (ARC) for the FYE 2015 and FYE 2016.

Table 4.2 Development of the ARC ($000s)		
	FYE 2015	**FYE 2016**
Normal Cost	$82,100	$43,700
Amortization of Unfunded Actuarial Accrued Liability	$ 9,300	($14,700)
Total	$91,400	$29,000

Table 4.3 shows the Schedule of Employer Contributions, which compares the annual ARC with the actual District contributions to the Plan.

Table 4.3 Schedule of Employer Contributions (dollars in millions)			
Fiscal Year Ending Sep 30	**Annual Required Contribution**	**Employer Contribution**	**Percentage Contributed**
	(a)	**(b)**	**(c) = (b) / (a)**
2008	$103.40	$110.80	107.2%
2009	130.90	81.10	62.0%
2010	92.19	90.70	98.4%
2011	94.17	94.20	100.0%
2012	95.50	109.84	115.0%
2013	85.20	107.80	126.5%
2014	86.60	86.60	100.0%
2015	91.40	91.40	100.0%
2016	29.00	29.00	100.0%

Table 4.4 provides the development of the Net OPEB Obligation that has occurred since the adoption of the GASB standards for FYE 2008. Table 4.4 provides the actuarial information that will be included in the District's CAFR.

Table 4.4
Development of Net OPEB Obligation (Asset)
(dollars in millions)

Actuarial Valuation Date	ARC	Interest on Unfunded ARC	Adjustment of the ARC	Annual OPEB Cost	Actual Contribution	Increase (decrease) in OPEB obligation	Net OPEB obligation (asset) at end of year
	(a)	(b)	(c)	(d) = (a) + (b) + (c)	(e)	(f) = (d) – (e)	(g) = prior year (g) + (f)
9/30/2007	$103.4	$0.0	$0.0	$103.4	$110.8	($7.4)	($7.4)
9/30/2008	$130.9	($0.5)	$0.2	$130.6	$81.1	$49.5	$42.1
9/30/2009	$92.2	$3.1	($1.9)	$93.3	$90.7	$2.6	$44.7
9/30/2010	$94.2	$3.1	($2.2)	$95.1	$94.2	$0.9	$45.6
9/30/2011	$95.5	$3.2	($2.3)	$96.4	$109.8	($13.4)	$32.2
9/30/2012	$85.2	$2.2	($1.9)	$85.5	$107.8	($22.3)	$9.9
9/30/2013	$86.6	$.7	($.6)	$86.7	$86.6	$0.1	$10.0
9/30/2014	$91.4	$.7	($.7)	$91.4	$91.4	$0.0	$10.0
9/30/2015	$29.0	$.7	($.7)	$29.0	$29.0	$0.0	$10.0

Finally, the following Table 4.5 includes a description of the primary assumptions and methods that were used in the valuation, to be included as part of the Required Supplementary Information in the District's CAFR:

Table 4.5 Summary of Principal Assumptions	
Valuation Date:	September 30, 2015
Actuarial Cost Method:	Entry Age Normal, Level Percentage of Pay
Amortization Method:	Level percentage of pay, closed
Amortization Period:	20 years beginning with FYE2016
Asset Valuation Method:	Market Value
Actuarial Assumptions:	
Investment Return/Discount Rate:	6.50% per annum
Rate of Salary Increase:	3.50% (plus merit scale)
Rate of Medical Inflation:	7.2%, grading down to 3.9% This assumption utilizes the Society of Actuaries Getzen Medical Trend Model, and reaches the ultimate medical inflation rate in 2040.

SECTION 5 - 2016 Valuation Results and Projections for Future Fiscal Years

Table 5.1 shows the AAL for actives and retirees, the normal cost, the assets and the resulting unfunded actuarial accrued liability (UAAL) as of September 30, 2016 (valuation date) at a 6.5% discount rate. Note that this development of the AAL and UAAL are based on the actual measurement at September 30, 2016, and will first be used for GASB disclosure for the 2017-2018 fiscal year.

The table shows the liability results for four separate populations:

- Firefighters
- Police
- Teachers, and
- General Employees

Table 5.1
Actuarial Accrued Liabilities & Actuarial Asset Value as of September 30, 2016
(in dollars)

AAL	Fire	Police	Teachers	General	Total
Active Employees	$117,570,109	$261,098,539	$99,220,155	$466,427,515	$944,316,318
Retired Employees	10,573,198	123,097,537	22,011,063	15,777,971	171,459,769
Total AAL	128,143,307	384,196,076	121,231,218	482,205,486	1,115,776,087
Actuarial Asset Value					1,248,308,382
UAAL					(132,532,295)
Normal Cost	$7,059,821	$13,388,062	$5,758,119	$20,376,132	$46,582,134

Some changes were made in actuarial assumptions since the prior valuation, as described in Section 6 of this report. Included in these changes were changes to the mortality and retirement rates assumed for plan participants, changes in assumed healthcare trend rates, and changes in assumed claims costs.

Effective with the 2016 valuation of the Plan, the use of a 5-year smoothing Actuarial Asset Method has been implemented. The method is described in Section 6 of this report, and was adopted in order to eliminate year-to-year volatility in the value of assets used in the valuation and used to compute District contributions.

Table 5.2 shows a projection of future years' Actuarial Accrued Liability (AAL), Actuarial Asset Value, Unfunded AAL (UAAL), Funded Ratio and Actuarially Determined Contribution for FYEs 2018 through 2022, based on a projection of the September 30, 2016 valuation results. These projections are based on the adoption of a closed 20-year amortization of the UAAL effective for FYE 2016.

Table 5.2
Projections of Actuarial Results ($ in 000s)

	Fiscal Year Ending September 30,					
	2017	**2018**	**2019**	**2020**	**2021**	**2022**
AAL	$1,098,500	$1,224,600	$1,338,900	$1,459,200	$1,585,500	$1,718,000
Actuarial Asset Value	1,298,100	1,324,400	1,415,800	1,514,600	1,646,100	1,776,800
UAAL	(199,600)	(99,800)	(76,900)	(55,400)	(60,600)	(58,800)
Funded Ratio	118.2%	108.1%	105.7%	103.8%	103.8%	103.4%
Actuarially Determined Contribution	$31,000*	$44,500	$49,100	$53,800	$56,500	$59,900
Amortization Period for UAAL (Years)	19	18	17	16	15	14

*Based on a roll-forward of the September 30, 2014 valuation for the Plan.

Sensitivity

Table 5.3 illustrates the impact on the AAL of a 1.00% change in investment assumption and a 1.00% change in medical trend:

Table 5.3 Estimated Change in AAL due to Changes in Actuarial Assumptions (000s)					
		Impact of Change in Investment Return Assumption Only		Impact of Change in Medical Trend Only	
	Actual 2016 Valuation Results	1.00% Increase	1.00% Decrease	1.00% Increase	1.00% Decrease
AAL	$1,115,776	($167,642)	$212,009	$244,547	($187,236)

Projected Cash Flow

The following table presents a 30-year payout projection of employer payments for the District OPEB plan:

Table 5.4 Projected Cash Flow	
Fiscal Year Ending September 30,	**Employer Payment**
2017	$12,900,000
2018	17,100,000
2019	21,400,000
2020	26,300,000
2021	31,500,000
2022	37,500,000
2023	44,100,000
2024	50,900,000
2025	58,400,000
2026	66,600,000
2027	75,000,000
2028	83,000,000
2029	90,800,000
2030	98,800,000
2031	106,700,000
2032	114,200,000
2033	122,100,000
2034	131,000,000
2035	138,800,000
2036	145,900,000
2037	153,700,000
2038	161,800,000
2039	170,500,000
2040	179,700,000
2041	189,200,000
2042	199,100,000
2043	207,900,000
2044	216,200,000
2045	223,700,000
2046	$229,800,000

SECTION 6 - Actuarial Assumptions & Methods

The selection of all actuarial assumptions used in valuing a post-retirement health care plan, including the health care cost trend rate, should be guided by Actuarial Standard of Practice No. 6, Measuring Retiree Group Benefit Obligations (as revised from time to time by the Actuarial Standards Board). Accordingly, actuarial assumptions should be based on the actual experience of the covered group, to the extent that credible experience data are available, but should emphasize expected long-term future trends rather than give undue weight to recent past experience. The reasonableness of each actuarial assumption should be considered independently based on its own merits, its consistency with each other assumption, and the combined impact of all the assumptions.

The actuarial assumptions used to value the post-retirement medical liabilities can be categorized into three groups: economic assumptions, healthcare cost assumptions, and demographic assumptions.

Economic Assumptions

The two economic assumptions used in the valuation are the discount rate and the health care cost trend rates. The economic assumptions are used to account for changes in the cost of benefits over time and to discount future benefit payments for the time value of money.

Discount Rate

The investment return assumption (discount rate) should be the estimated long-term investment yield on the investments that are expected to be used to finance the payments of benefits. These investments would be plan assets for funded plans, assets of the employer for pay-as-you-go plans, or a proportionate combination of the two for plans that are being partially funded.

The discount rate chosen for the September 30, 2016 valuation is 6.5%

Health Care Cost Trend Rates

The medical trend assumptions used in the valuation were developed using the Society of Actuaries (SOA) Long-Run Medical Cost Trend Model. The SOA model was released in December 2007, and version 2016_a was used for the 2016 valuation.

The following assumptions were used as input variables into this model:

Actuarial Assumptions	
Variable	**Rate**
Rate of Inflation	2.75%
Rate of Growth in Real Income / GDP per capita 2027+	1.1%
Extra Trend due to Taste/Technology 2027+	1.0%
Expected Health Share of GDP 2021	18.7%
Health Share of GDP Resistance Point	20.0%
Year for Limiting Cost Growth to GDP Growth	2040

The SOA Long-Run Medical Cost Trend Model and its baseline projection are based on an econometric analysis of historical U.S. medical expenditures and the judgments of experts in the field. The long-run baseline projection and input variables have been developed under the guidance of the SOA Project Oversight Group.

Table 6.1 shows the medical cost trends used in the valuation and are an output of the SOA Long-Run Medical Cost Trend Model, version 2016_a. The set of health care trend rates has an initial health care cost trend rate of 5.9 percent and declines gradually to an ultimate rate of 3.9 percent starting in 2040.

Table 6.1	
FYE	**Annual Trend**
2017	5.9%
2018	5.8%
2019	5.7%
2020	5.6%
2021	5.5%
2025	5.1%
2030	4.8%
2035	4.2%
2040	3.9%

Salary Increases and Inflation

The base inflation rate used in the valuation was 2.75%, plus a productivity increase of .75%. Merit and seniority increases are additional and are shown in Table 6.2 below.

Table 6.2 % Salary Increase			
Service	**Teachers**	**Police**	**Fire**
5	4.00	3.56	2.50
10	3.00	2.58	2.50
15	0.50	2.31	2.50
20	0.20	2.50	2.50
30	0.20	0.50	2.50

Healthcare Cost Assumptions

Table 6.3 shows the valuation assumptions used in the September 30, 2016 valuation. The table shows the total monthly health care cost by age, before taking into account any retiree premiums paid by the participants. The rates shown are used for both males and females, and represent a blended cost rate that reflects the distribution of the actual health care plans (i.e. Aetna PPO, Aetna CDHP, Aetna HMO, Kaiser and UHC) where the covered population is enrolled.

The medical costs reduce substantially at age 65 when retirees become eligible for Medicare and Medicare is primary for their covered medical services.

Table 6.3 Age-Specific Healthcare Costs		
	Monthly Cost	
Retirees <65	***Male***	***Female***
<30	$ 459	$ 463
30-39	$ 494	$ 495
40-44	$ 560	$ 561
45-49	$ 651	$ 648
50-54	$ 774	$ 772
55-59	$ 937	$ 933
60-64	$ 1,175	$ 1,175
Retirees 65+		
65-69	$ 527	$ 531
70-74	$ 582	$ 641
75-79	$ 637	$ 659
80+	$ 655	$ 659

Demographic Assumptions

The demographic assumptions include the rate of mortality, the rate of withdrawal, the rate of retirement, and the rate of disability. Ancillary demographic assumptions include the age of spouses, coverage rates, and participation rates. The complete set of demographic assumptions is shown below.

Preretirement Mortality Rates

The RP-2014 Healthy Employee Mortality Table with the MP-2016 Improvement Scale, fully generational.

Postretirement Mortality Rates

The RP-2014 Healthy Annuitant Mortality Table with the MP-2016 Improvement Scale, fully generational. For disabled retirees, the RP-2014 Disabled Life Mortality Table was used.

Withdrawal Rates

The withdrawal rates for participants in each group vary by age and service with the District. Sample rates are shown in the tables below.

Table 6.4a
Teachers/General

Age	Years of Service		
	<4	4-9	10+
20	25.00%	20.00%	0.00%
25	23.50%	20.00%	0.00%
30	22.00%	16.00%	3.75%
35	20.50%	14.00%	3.75%
40	19.00%	12.00%	3.75%
45	17.50%	10.00%	3.75%
50	16.00%	10.00%	3.75%
55	14.50%	10.00%	3.75%
60	13.00%	10.00%	3.75%
62+	0.00%	0.00%	0.00%

Table 6.4b
Police

Age	Male		Female	
	<3 years of service	3+ years of service	<3 years of service	3+ years of service
20	10.00%	6.00%	10.00%	2.50%
25	10.00%	6.00%	10.00%	2.50%
30	10.00%	4.25%	10.00%	3.50%
35	10.00%	2.50%	10.00%	2.00%
40	10.00%	1.75%	10.00%	1.50%
45	10.00%	1.25%	10.00%	1.25%
50	10.00%	1.25%	10.00%	1.25%
55	10.00%	1.25%	10.00%	1.25%
60+	10.00%	0.00%	10.00%	0.00%

Table 6.4c Fire Fighters		
Age	**< 2 years of service**	**2+ years of service**
20	9.00%	3.50%
25	9.00%	3.50%
30	9.00%	2.00%
35	9.00%	1.00%
40	9.00%	1.00%
45	9.00%	1.50%
50	9.00%	1.50%
55	9.00%	0.00%

Disability Rates

The disability rates for each group vary by age. Sample rates are shown in the table below:

Table 6.5 Disability Rates				
	Teachers/ General	**Police**		**Fire Fighters**
Age	**Unisex**	**Male**	**Female**	**Unisex**
20	0.03%	0.02%	0.04%	0.01%
25	0.03%	0.05%	0.08%	0.02%
30	0.05%	0.10%	0.12%	0.15%
35	0.07%	0.22%	0.28%	0.20%
40	0.09%	0.25%	0.40%	0.35%
45	0.15%	0.30%	0.62%	0.45%
50	0.22%	0.40%	0.70%	0.52%
55	0.32%	0.60%	0.75%	0.60%
60	0.40%	0.80%	0.90%	0.70%
62+	0.00%	0.00%	0.00%	0.00%

Retirement Rates

The retirement rates for each group vary by age and service with the District. Sample rates are shown in the tables below.

Table 6.6a General	
Age	**Rate**
62-64	50.0%
65+	100.0%

Table 6.6b Teachers		
Age	**<30 years of service**	**30+ years of service**
50-54	2.50%	2.50%
55-59	6.00%	33.00%
60-61	27.00%	25.00%
62-64	25.00%	25.00%
65-69	20.00%	25.00%
70	30.00%	30.00%
71-74	25.00%	40.00%
75+	100.00%	100.00%

Table 6.6c Police	
Service	**Rate**
20-24	12.5%
25-29	22.0%
30-34	15.0%
35+	20.0%
Minimum Retirement Age = 50	
100% of Police are assumed to retire at Age 65	

Table 6.6d Fire Fighters	
Service	**Rate**
20-29	12.5%
30-34	20.0%
35+	40.0%
Minimum Retirement Age = 50	
100% of Fire Fighters are assumed to retire at Age 60	

Participation Rates for the Healthcare Benefit Plan--Participants

70 percent of participants, across all employee groups (i.e. Police, Fire, Teachers and General Employees) are assumed to elect the Healthcare Benefit Plan upon retirement.

Participation Rates for the Healthcare Benefit Plan--Spouses

70 percent of Police and Fire participant's spouses, 50 percent of male General participant's spouses, 25 percent of female General participant's spouses, 45 percent of male Teacher participant's spouses and 30 percent of female Teacher participant's spouses are assumed to elect the Healthcare Benefit Plan.

Spousal Age Assumption

Husbands are assumed to be 3 years older than wives.

Actuarial Cost Method

Entry-Age Normal, Level Percentage of Pay

Actuarial Asset Method

The Actuarial Asset Method provides for a smoothed value of Plan assets. Under the method used, the difference between the actual and expected return is recognized over a five-year period on a straight-line method. Expected return is computed using the assumed long-term rate of return on plan assets. The actuarial value of assets is constrained to an 80%-120% corridor around the market value of assets and is applied prospectively for years after September 30, 2014.

Changes since the prior valuation

Several changes were made in the actuarial assumptions since the prior (2014) valuation, in order to more closely reflect anticipated experience under the plan. The assumptions used in the prior valuation, that were changed effective with the 2016 valuation, are described as follows:

Prior Medical Trend

Table 6.7 shows the medical cost trends used in the 2014 valuation and are an output of the SOA Long-Run Medical Cost Trend Model, version 2014_b.

Table 6.7	
FYE	**Annual Trend**
2015	7.2%
2016	6.8%
2017	6.4%
2018	6.0%
2019	5.5%
2020	5.4%
2025	5.0%
2030	4.8%
2035	4.3%
2040	3.9%

Prior Mortality Rates

Preretirement

The RP-2014 Healthy Employee Mortality Table with the MP-2014 Improvement Scale, fully generational, was used for General Employees and Teachers. For Police & Fire Employees, a combination of 50% of the RP-2014 Health Employee White Collar and 50% of the RP-2014 Healthy Employee Blue Collar Mortality Tables, both with the MP-2014 Improvement Scale, fully generational, were used.

Postretirement

The RP-2014 Healthy Annuitant Mortality Table with the MP-2014 Improvement Scale, fully generational, was used for General Employees and Teachers. For Police & Fire Employees, a combination of 50% of the RP-2014 Healthy Annuitant White Collar and 50% of the RP-2014 Healthy Annuitant Blue Collar Mortality Tables, both with the MP-2014 Improvement Scale, fully generational, were used.

Prior Monthly Healthcare Cost Rates

Table 6.8 table shows the 2014 total monthly health care cost by age, before taking into account any retiree premiums paid by the participants.

Table 6.8 Age-Specific Healthcare Costs	
	Monthly Cost
Retirees <65	
<30	$ 426
30-39	$ 447
40-44	$ 505
45-49	$ 584
50-54	$ 695
55-59	$ 844
60-64	$ 1,055
Retirees 65+	
65-69	$ 469
70-74	$ 517
75-79	$ 566
80+	$ 582

Prior Retirement Rates

Tables 6.9 a-c show the 2014 valuation retirement rates for each group which vary by age and service with the District.

Table 6.9a Teachers		
Age	**<30 years of service**	**30+ years of service**
50-54	2.50%	2.50%
55-59	6.00%	33.00%
60-64	27.00%	25.00%
65-69	20.00%	25.00%
70-74	30.00%	30.00%
75+	100.00%	100.00%

Table 6.9b Police	
Service	**Rate**
20-24	0.0%
25-29	22.0%
30-34	15.0%
35+	20.0%
Minimum Retirement Age = 50	
100% of Police are assumed to retire at Age 65	

Table 6.9c Fire Fighters	
Service	**Rate**
25-29	12.5%
30	20.0%
31	30.0%
32+	40.0%
Minimum Retirement Age = 50	
100% of Fire Fighters are assumed to retire at Age 60	

SECTION 7 - Summary of Plan Provisions

Eligibility: Employees hired after September 30, 1987 are eligible for post-retirement health and life insurance coverage if they have been continuously enrolled in a District health benefit plan for at least 5 years and they:

1. Are classified as a General Employee, are at least age 60, have at least 10 years of creditable District service, are covered under the District defined contribution program and have obtained a Social Security award letter (including disability); or

2. Have at least 10 years of creditable District service and retire under the Teachers' Retirement System, the Judges' Retirement System or the Teachers' Insurance and Annuity Association program; or

3. Retire under the Police Officers' & Firefighters' Retirement Plan with at least 10 years of creditable District service (5 years if hired before 11/10/1996)

Teachers, Police Officers and Firefighters become eligible for retirement in accordance with the following:

Eligibility				
Plan	Criteria to qualify for retirement			
	Unreduced		Reduced	
	Age	Service	Age	Service
Teachers (note: service must include 5 years of school service)	55*	30	50	20
	60	20	Any	25
	62	5		
Police & Firefighters – hired before 11/10/1996**	50	25	NA	NA
	60	5	NA	NA
Police & Firefighters – hired on or after 11/10/1996	Any	25	NA	NA
	60	None	NA	NA

*If hired on or after 11/1/1996, there is no age requirement if have 30 years of service
**If hired prior to 2/15/1980, retirement available after 20 year of service, regardless of age

A surviving spouse may continue healthcare coverage upon the retiree's death.

Plan of Benefits: Medical coverage is provided through one of five Plans, offered by either Aetna, Kaiser Permanente or United Healthcare. The plans that are available for active employees are available to retirees. There is no change in the plans available once a retiree reaches Medicare eligibility, although Medicare becomes primary once Medicare eligibility is reached. The principal benefit provisions, for in-network providers unless otherwise stated, of the available plans are summarized as follows:

	Plan of Benefits				
	Aetna CDHP	**Aetna PPO**	**Aetna HMO**	**Kaiser Permanente HMO**	**United Healthcare Choice**
Copay – Office Visits	15% coinsurance after deductible	$15 Non-specialist; $30 Specialist (deductible waived)	$10 PCP; $20 Specialist	$10 PCP; $20 Specialist	$10 PCP; $20 Specialist
100% Coverage Preventive Care/Screening/Immunization?	Yes	Yes	Yes	Yes	Yes
Deductible	$1,300 individual/$2,600 family in-network	$750 individual/ $1,500 family in-network	None	None	None
Coinsurance	15%	15%	NA	NA	NA
Annual Maximum Out-of-Pocket	$3,425 individual/$6,850 family in-network	$1,500 individual/ $3,000 Family	$3,500 individual/ $9,400 Family	$3,500 individual/ $9,400 Family	$3,500 individual/ $9,400 Family
Out-of-Network Benefit	Deductibles & out-of-pocket limits are higher; 40% coinsurance	Deductibles, out-of-pockets are doubled; 25% coinsurance	None, other than ER	None, other than ER	None, other than ER
Hospital Inpatient Copay/Coinsurance	15% after deductible in network	0% after deductible in-network	$100 Copay	$100 Copay	$100 Copay
Outpatient Surgery Copay/Coinsurance	15% after deductible in network	0% after deductible in-network	$50 Copay	$50 Copay	$50 Copay
Emergency Room	15% after deductible in network	$100 Copay	$100 Copay	$50 Copay	$100 Copay
Outpatient Mental Health and Substance Abuse Copay	15% after deductible in network	$15/visit in-network	$10/visit	$10/visit $5/Group visit	$10/visit
Pharmacy copay (30-day supply)	Generic: $10; Preferred: $30 Non-preferred: $60 (in-network, after deductible) Out-of-network 20% of cost after in-network copay and after deductible	Generic: $10; Preferred: $20 Non-preferred: $40 No out-of-network pharmacy benefit is provided	Generic: $20; Preferred: $40 Non-preferred: $55	Generic: $10-$20; Preferred: $20-$40 Non-preferred: $35-$55	Tier 1: $20; Tier 2: $40 Tier 3: $55

Retiree Contributions:

General Employees

Retirees under the age of 62 pay the full aggregate active-life rate for coverage. Thus, prior to age 62, the retiree healthcare plan is an access-only plan. Once a retiree attains age 62, the retiree pays a portion of the aggregate, active-life rate, as determined under the following schedule:

General		
Annuitant's Years of Service	Percentage of Plan Aggregate Cost Rate Paid By Retiree for:	
	Retiree Coverage	Dependent/Survivor's Coverage
Less than 10	100%	100%
10-25	75% minus 2.5% for each year of service in excess of 10	80% minus 2.5% for each year of service in excess of 10
26-29	75% minus 2.5% for each year of service in excess of 10	40%
30 or more	25%	40%

Teachers

For annuitants who are injured in the line of duty, the retiree contributes 25% of the plan aggregate, active-life rate for both retiree and dependent coverage, regardless of years of service.

Teachers		
Annuitant's Years of Service	Percentage of Plan Aggregate Cost Rate Paid By Retiree for:	
	Retiree Coverage	Dependent/Survivor's Coverage
Less than 10	100%	100%
10-25	75% minus 2.5% for each year of service in excess of 10	80% minus 2.5% for each year of service in excess of 10
26-29	75% minus 2.5% for each year of service in excess of 10	40%
30 or more	25%	40%

Police & Fire

For annuitants who are injured in the line of duty, the retiree contributes 25% of the plan aggregate, active-life rate for both retiree and dependent coverage, regardless of years of service.

Police & Fire		
Annuitant's Years of Service	**Percentage of Plan Aggregate Cost Rate Paid By Retiree for:**	
	Retiree Coverage	**Dependent/Survivor's Coverage**
Hired before 11/10/1996		
Less than 5	100%	100%
5 or more	25%	40%
Hired on or after 11/10/1996		
Less than 10	100%	100%
10-21	70% minus 3.0% for each year of service in excess of 10	75% minus 3.0% for each year of service in excess of 10
22-24	70% minus 3.0% for each year of service in excess of 10	40%
25 or more	25%	40%

For all groups, there is no change in the cost of the plans once a retiree reaches Medicare eligibility, although Medicare becomes primary once Medicare eligibility is reached.

Total Plan Costs: The total, aggregate plan cost rates applicable to the medical plans for 2017 are set forth as follows:

Total Plan Costs		
Healthcare Plan	**Aggregate Cost Rate**	
	Employee Only	**Employee and Spouse**
Aetna Healthcare CDHP	$ 351.67	$ 691.27
Aetna PPO	733.95	1,442.73
Aetna HMO	703.41	1,382.69
Kaiser Permanente HMO	572.33	1,093.15
United Healthcare Choice Nationwide	649.44	1,240.42

Post-retirement Life Insurance Benefit: A post-retirement life insurance benefit is available for retirees. Participants may elect to continue the amount of the basic preretirement group life insurance amount in retirement, which is one times earnings, plus $2,000. Under the 75% reduction option, participant biweekly premiums of $0.065 per $1,000 of insurance are required until age 65, with no participant contributions thereafter. Under the 75% reduction option, coverage reduces 2% per month after age 65 until the coverage amount reaches 25% of the original insurance amount and then is level thereafter.

Retirees may also elect a 50% or a 0% reduction option, which require additional retiree contributions. Retirees may also purchase additional life insurance coverage beyond the basic coverage, on a retiree-pay-all basis.

SECTION 8 - Participant Data

The following tables show the current retired participants, and the potential participants who are currently active. These data represent the counts for the valuation/measurement undertaken as of September 30, 2016, which will first be used in GASB disclosures for the 2017-2018 fiscal year.

Table 8.1 Participant Data					
	Fire	Police	Teachers	General	Total
Active Employees	1,460	3,091	4,150	16,409	25,110
Average Age	39	40	39	45	43
Average Service	14	15	7	10	11
Average Salary	$76,304	$78,407	$81,557	$65,762	$70,543
Retirees	56	552	457	294	1,359

All current employees hired on or before September 30, 2016. Only retirees who are currently participating were included in this analysis.

Table 8.2 Age by Service											
	<1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
<25	166	268	13	0	0	0	0	0	0	0	447
25-29	583	1,671	453	23	0	0	0	0	0	0	2,730
30-34	478	1,642	1,330	437	26	0	0	0	0	0	3,913
35-39	300	1,067	999	872	331	10	1	0	0	0	3,580
40-44	188	669	709	746	752	227	62	0	0	0	3,353
45-49	141	486	646	677	712	503	671	36	0	0	3,872
50-54	108	328	500	478	489	362	530	107	5	0	2,907
55-59	65	225	342	392	436	256	335	80	32	2	2,165
60-64	30	130	239	253	240	197	209	50	17	19	1,384
65-69	7	43	82	137	120	100	85	19	6	9	608
70+	1	5	19	23	37	17	39	6	0	4	151
Total	2,067	6,534	5,332	4,038	3,143	1,672	1,932	298	60	34	25,110

SECTION 9 – Glossary of Actuarial Terms

Actuarial Accrued Liability: The portion of the Actuarial Present Value which is allocated to periods of service ending prior to the current valuation year. This also represents the portion of the Actuarial Present Value that will not be provided for by future Normal Costs.

Actuarial Assumptions: Assumptions used in the determination of the Actuarial Present Value regarding the occurrence of future events, such as mortality, withdrawal, retirement, inflation, investment earnings, etc.

Actuarial Cost Method: A method for allocating the Actuarial Present Value associated with a particular plan of benefits over the time period during which the benefits are earned by employees.

Actuarial Gain or Loss: The difference in the *actual* Actuarial Present Value measured as of a given date from that *expected* based on a set of Actuarial Assumptions.

Actuarial Present Value: The value of a payment or series of payments made at various points in time, each of which is adjusted for (1) the financial effect of intervening events (e.g. compensation changes or medical inflation), (2) the probability that such payment will be made based on the factors on which the payment is conditioned (e.g. continued employment until retirement age or becoming disabled), and (3) discounted to the current date to reflect the time value of money.

Actuarial Value of Assets or Valuation Assets: The value of plan investments that is dedicated to or "belongs" to a plan and is used as the value of assets in applying the Actuarial Cost Method.

Amortization Payment: The portion of the annual plan cost that consists of a principal and interest payment and is designed to pay down the Unfunded Actuarial Accrued Liability over a fixed number of years.

Level Dollar Amortization Method: A funding policy whereby the annual amortization payment is an equal dollar amount for a fixed number of years.

Level Percentage of Payroll Amortization Method: A funding policy whereby the annual amortization payments are computed to be a constant percentage of anticipated payroll for the group of employees covered under the plan. Since payroll amounts are expected to increase over time, the *dollar amount* of the amortization payment will also increase.

Normal Cost: The portion of the Actuarial Present Value that is allocated to the current valuation year under the Actuarial Cost Method being used.

Present Value of Total Projected Benefits: The Actuarial Present Value, measured at a specific date, of all benefits projected to be paid under the plan, based on the current population of active and retired employees.

Pay-As-You-Go: The practice of financing a benefit plan by making contributions to a plan only as and when benefits are due to plan participants.

Unfunded Actuarial Accrued Liability: The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.