



Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve



**Report of the Actuary on the Annual Valuation
of the Consolidated Retirement Plan for the Employees of the City of
Marietta, Georgia**

Prepared as of July 1, 2017





Cavanaugh Macdonald

CONSULTING, LLC

The experience and dedication you deserve

February 1, 2018

Board of Trustees
Consolidated Retirement Plan for the
Employees of the City of Marietta, Georgia
205 Lawrence Street
Marietta, GA 30060

Dear Members of the Board:

We are pleased to submit herewith the results of the biennial actuarial valuation of the Consolidated Retirement Plan for the Employees of the City of Marietta ("Plan") prepared as of July 1, 2017. The purpose of this report is to provide a summary of the funded status of the Plan as of July 1, 2017 and to recommend actuarially determined employer contribution rate for the fiscal years ending June 30, 2019 and June 30, 2020. The information needed for this Fund under the new Governmental Accounting Standards Board Statements (GASB) No. 67 and 68 will be provided in separate reports. However, for informational purposes only, we have also provided accounting information under GASB 25 and 27 in Section VI of the report. While not verifying the data at source, the actuary performed tests for consistency and reasonability.

On the basis of the valuation the actuarially determined employer contribution rate is determined to be 18.16% of payroll for the fiscal years ending June 30, 2019 and June 30, 2020. The promised benefits of the Plan are included in the actuarially calculated contribution rates which are developed using the entry age normal cost method. A ten-year smoothed market value of plan assets was used for the actuarial value of assets. Gains and losses are reflected in the unfunded accrued liability that is being amortized by regular annual contributions as a level percentage of payroll within a 25-year period, on the assumption that payroll will increase by 3.50% annually.

There have been no changes to assumptions, methods, or plan provisions since the previous valuation. The valuation takes into account all plan provisions of the Plan through July 1, 2017.

We have prepared the Schedule of Active Member Valuation Data, Schedule of Retired Members and Beneficiaries Added to and Removed from Rolls, the Solvency Test and the Analysis of Financial Experience for the actuarial section of the Annual Report and the Schedule of Funding Progress and Trend Information for the financial section of the Annual Report.



Members of the Board
February 1, 2018
Page 2

This is to certify that the independent consulting actuary is a Member of the American Academy of Actuaries and has experience in performing valuations for public retirement Plans, that the valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board, and that the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the Plan and on actuarial assumptions that are internally consistent and reasonably based on the actual experience of the Plan.

In our opinion, in order for the Plan to operate in an actuarially sound manner, contributions equal to the actuarially determined contributions are necessary. Assuming that the actuarially determined employer contributions to the Plan are made by the City from year to year in the future at the rates recommended on the basis of the successive actuarial valuations, the continued sufficiency of the retirement fund to provide the benefits called for under the Plan may be safely anticipated.

Future actuarial results may differ significantly from the current results 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. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

The actuarial calculations were performed by qualified actuaries according to generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the system, and on actuarial assumptions that are, in the aggregate, internally consistent and reasonably based on the actual experience of the system.

We trust that the report will meet the approval of the Board and will furnish the desired information concerning the financial condition of the Plan.

Respectfully submitted,

A handwritten signature in blue ink that reads 'Edward J. Koebel'.

Edward J. Koebel, FCA, MAAA, EA
Principal and Consulting Actuary

A handwritten signature in blue ink that reads 'John J. Garrett'.

John J. Garrett, ASA, FCA, MAAA
Principal and Consulting Actuary

EJK/JJG:tj



TABLE OF CONTENTS

<u>Section</u>	<u>Item</u>	<u>Page No.</u>
I	Summary of Principal Results	1
II	Membership Data	2
III	Assets	3
IV	Comments on Valuation	3
V	Contributions Payable	4
VI	Accounting Information	6
VII	Experience	8
<u>Schedule</u>		
A	Development of the Unfunded Actuarial Accrued Liability	9
B	Valuation Balance Sheet and Solvency Test	10
C	Development of the Actuarial Value of Assets	12
D	Reconciliation of Market Value of Assets	13
E	Outline of Actuarial Assumptions and Methods	14
F	Actuarial Cost Method	17
G	Summary of Main Plan Provisions as Interpreted for Valuation Purposes	18
H	Tables of Membership Data	21



**CONSOLIDATED RETIREMENT PLAN FOR THE
EMPLOYEES OF THE CITY OF MARIETTA
REPORT OF THE ACTUARY
ON THE ANNUAL VALUATION
PREPARED AS OF JULY 1, 2017**

SECTION I – SUMMARY OF PRINCIPAL RESULTS

1. For convenience of reference, the principal results of the current and preceding valuations are summarized below.

Valuation Date	July 1, 2017	July 1, 2015
Active members:		
Number	696	689
Annualized compensation	\$ 34,093,042	\$ 32,480,676
Retired members and beneficiaries:		
Number	574	489
Annual allowances	\$ 11,265,377	\$ 10,081,236
Number of terminated vested members	308	352
Assets:		
Market Value	\$ 102,908,643	\$ 97,314,941
Actuarial Value	99,949,226	95,046,107
Unfunded actuarial accrued liability	\$ 76,184,220	\$ 66,735,701
Funded Ratio on Actuarial Value Basis	56.7%	58.7%
Amortization Period	25 years	27 years
Fiscal Years Ending	June 30, 2019 & 2020	June 30, 2017 & 2018
City actuarially determined contribution rate (ADC):		
Normal (including expenses)	4.06%	4.23%
Accrued liability	<u>14.10</u>	<u>12.39</u>
Total	18.16%	16.62%



2. The major benefit and contribution provisions of the Plan as reflected in the valuation are summarized in Schedule G. There have been no changes since the previous valuation.
3. Schedule E of this report outlines the full set of actuarial assumptions and methods used in the valuation. There have been no changes since the previous valuation.
4. The entry age normal actuarial cost method was used to prepare the valuation. Schedule F contains a brief description of the actuarial cost method.
5. Comments on the valuation results as of July 1, 2017 are given in Section IV and further discussion of the contributions is set out in Section V.

SECTION II – MEMBERSHIP DATA

1. Data regarding the membership of the Plan for use as a basis of the valuation were furnished by the City. The valuation included 696 active members with annualized compensation totaling \$34,093,042.
2. The following table shows the number of retired members and beneficiaries as of July 1, 2017 together with the amount of their annual retirement benefits payable under the Plan as of that date.

**THE NUMBER AND ANNUAL BENEFITS OF
RETIRED MEMBERS AND BENEFICIARIES
AS OF JULY 1, 2017**

GROUP	NUMBER*	ANNUAL RETIREMENT BENEFITS
Service Retirements	514	\$ 10,219,296
Disability Retirements	21	445,766
Beneficiaries of Deceased Members	<u>39</u>	<u>600,315</u>
Total	574**	\$ 11,265,377

* In addition, there are 308 terminated members entitled to deferred vested benefits.

** Of the 574 total retirees, 111 are eligible for an annual cost of living increase under the 4022 Plan.



3. Table 1 of Schedule H shows the distribution by age and years of membership service of the number of active members included in the valuation, while Tables 2-5 shows the number and annual benefits of retired members and beneficiaries included in the valuation, distributed by age. Table 6 shows the schedule of active member valuation data and Table 7 shows the schedule of retired members and beneficiaries added to and removed from the rolls.

SECTION III – ASSETS

1. As of July 1, 2017, the total market value of assets amounted to \$102,908,643. The estimated net investment returns for the 2016 and 2017 plan years were (2.51)% and 16.29%, respectively. Schedule D shows the allocation of the Plan's assets and the market value of assets for two years.
2. The actuarial value of assets used for the current valuation was \$99,949,226 on a 10-year smoothing basis. The estimated investment returns for the fiscal years ending June 30, 2016 and June 30, 2017 on an actuarial value of assets basis were 6.00% and 6.23%, respectively, which can be compared to the investment return assumed for the period of 7.50%. Schedule C shows the development of the actuarial value of assets as of July 1, 2017.

SECTION IV – COMMENTS ON VALUATION

1. Schedule B of this report contains the valuation balance sheet which shows the present and prospective assets and liabilities of the Plan as of July 1, 2017. The valuation was prepared in accordance with the actuarial assumptions set forth in Schedule E and the actuarial cost method which is described in Schedule F.
2. The valuation balance sheet shows that the Plan has total prospective liabilities of \$197,477,945 of which \$111,606,022 is for the prospective benefits payable on account of present retired members, beneficiaries of deceased members, and terminated members entitled to deferred benefits, and \$85,871,923 is for the prospective benefits payable on account of present active members. Against these liabilities, the Plan has a total present actuarial value of assets of \$99,949,226 as of July 1, 2017. The difference of \$97,528,719 between the total liabilities and the total present assets represents the present value of future contributions.



3. The contributions to the Plan consist of normal contributions and accrued liability contributions. The valuation indicates that normal contributions at the rate of 7.59% of payroll are required under the entry age method. Of this amount, 3.90% is paid by the members and the remaining 3.69% is required by the City.
4. Prospective normal contributions at the rate of 7.59% have a present value of \$21,344,499. When this amount is subtracted from \$97,528,719, which is the present value of the total future contributions to be made, there remains \$76,184,220 as the amount of unfunded accrued liability contributions. The development of the unfunded accrued liability is shown in Schedule A.
5. Overall, the unfunded accrued liability increased from \$66.7 million to \$76.2 million for the two year period ending June 30, 2017. Losses were primarily due to investment loss over the two year period, as well as the result of turnover and retirement. These losses were partially offset by gains mainly due to salary increases and COLA increases being less than expected. See Section VII for a complete breakdown of the experience of the Plan.

SECTION V – CONTRIBUTIONS PAYABLE

1. The contributions consist of a normal contribution and an accrued liability contribution as determined by actuarial valuation.
2. The normal contribution rate is calculated as the level percentage of payroll which, if applied for the average new member during the entire period of his anticipated covered service, would be required to meet the cost of all benefits payable on his behalf. On the basis of the valuation, the normal contribution rate was determined to be 7.59%.
3. Section 3 of Article IV of the City of Marietta Ordinance No. 4532 states that each member shall contribute an amount equal to the Member's Compensation multiplied by 4.00%. However, contributions are not required of active members still participating in the 4022 Plan. This year the weighted average contribution rate for all active members is 3.90%.
4. The City normal contribution rate is equal to the difference between the normal contribution rate of 7.59% and the member contribution rate of 3.90%, or 3.69% of payroll. An additional \$125,000 is



required for administrative expenses, or 0.37% of payroll, making the total City normal rate 4.06% of payroll.

5. The annual accrued liability contribution rate is determined to be 14.10% of payroll. This rate will be sufficient to amortize the unfunded actuarial accrued liability of \$76,184,220 within approximately 25 years following the valuation date, on the assumption that the payroll will increase by 3.50% each year.
6. Section 1 of Article IV of the City of Marietta Ordinance No. 4532 states that the City of Marietta shall contribute an amount necessary to fund the Plan. The actuarially determined contribution (ADC) rate for the fiscal year ending June 30, 2019 is 18.16% of payroll.
7. The following table summarizes the employer contribution rate and estimated dollars which were determined by the July 1, 2017 valuation and are recommended for use for the next two fiscal years following the valuation date. The results for the fiscal year ending June 30, 2020 assume a 3.50% annual growth in the compensation of active members.

**CITY ACTUARIALLY DETERMINED CONTRIBUTIONS (ADC)
FOR FISCAL YEARS ENDING JUNE 30, 2019 AND JUNE 30, 2020**

Contribution for	As % of Active Pay	JUNE 30, 2019 Estimated Amount	JUNE 30, 2020 Estimated Amount
Normal (including expenses)	4.06%	\$1,384,000	\$1,432,000
Accrued Liability	<u>14.10</u>	<u>4,807,000</u>	<u>4,975,000</u>
Total	18.16%	6,191,000	6,407,000



SECTION VI – ACCOUNTING INFORMATION

The information required under the Governmental Accounting Standards Board (GASB) Statements No. 67 and 68 will be issued in separate reports. The following information is provided for informational purposes only.

- The following is a distribution of the number of employees by type of membership, as follows:

**NUMBER OF ACTIVE AND RETIRED PARTICIPANTS
AS OF JULY 1, 2017**

GROUP	NUMBER
Retired participants and beneficiaries currently receiving benefits	574
Terminated participants and beneficiaries entitled to benefits but not yet receiving benefits	308
Active Participants	<u>696</u>
Total	1,578

- Another such item is the schedule of funding progress as shown below.

SCHEDULE OF FUNDING PROGRESS
(dollar amounts in thousands)

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability Entry Age (AAL) (b)	Unfunded AAL (UAAL) (b – a)	Funded Ratio (a / b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b – a) / c)
7/01/2010	\$73,974	\$139,661	\$65,687	53.0%	\$33,281	197.4%
7/01/2011	81,426	147,636	66,210	55.2	33,654	196.7
7/01/2012	84,502	152,019	67,517	55.6	32,890	205.3
7/01/2013	87,437	156,758	69,321	55.8	31,882	217.4
7/01/2015	95,046	161,782	66,736	58.7	32,481	205.5
7/01/2017	99,949	176,133	76,184	56.7	34,093	223.5

All figures prior to July 1, 2013 were reported by a prior actuarial firm.



3. Additional information as of July 1, 2017 follows:

Valuation date	7/01/2017
Actuarial cost method	Entry age
Amortization period	Level Percent of Pay, Closed
Remaining amortization period	25 years
Asset valuation method	Ten-year smoothed market value
Actuarial assumptions:	
Investment rate of return (includes inflation)	7.50%
Projected salary increases (includes inflation)	3.50% - 12.62%
Inflation	3.50%
Cost-of-living adjustments	3.00% for Plan 4022 Level 1



SECTION VII – EXPERIENCE

1. Actual experience will never (except by coincidence) coincide exactly with assumed experience. It is assumed that gains and losses will be in balance over a period of years, but sizable year to year fluctuations are common.
2. The following table shows the estimated change in the unfunded accrued liability from various factors that resulted in an increase of \$9,448,519 in the unfunded accrued liability from \$66,735,701 to \$76,184,220 during the two year period ending June 30, 2017.

ANALYSIS OF FINANCIAL EXPERIENCE – CHANGE IN UNFUNDED ACCRUED LIABILITY (dollar amounts in thousands)

ITEM	AMOUNT OF INCREASE/(DECREASE)
Interest (7.50%) added to previous unfunded accrued liability for 2016	\$ 5,005
Accrued Liability Contribution in 2016	(4,590)
Interest (7.50%) added to previous unfunded accrued liability for 2017	5,036
Accrued Liability Contribution in 2017	(5,989)
Recognized Asset (Gain)/Loss	2,717
Liability (Gain)/Loss	8,372
Salary Increases	(1,102)
Amendments	0
Assumption and Method Changes	<u>0</u>
Increase/(Decrease) in Unfunded Accrued Liability	\$9,449



SCHEDULE A

**DEVELOPMENT OF THE UNFUNDED ACTUARIAL ACCRUED LIABILITY
AS OF JULY 1, 2017**

(1)	Present value of prospective benefits:	
(a)	Present active members	\$ 85,871,923
(b)	Present retired members, beneficiaries and former members entitled to deferred vested benefits and refunds	<u>111,606,022</u>
(c)	Total	\$ 197,477,945
(2)	Present value of future Plan and member normal contributions before expenses	<u>21,344,499</u>
(3)	Actuarial accrued liabilities 1(c) – (2)	\$ 176,133,446
(4)	Actuarial value of assets	<u>99,949,226</u>
(5)	Unfunded actuarial accrued liability (3) – (4)	\$ 76,184,220



SCHEDULE B
VALUATION BALANCE SHEET

The present and prospective assets and liabilities of the Plan as of July 1, 2017:

<u>ACTUARIAL LIABILITIES</u>	
Present value of prospective benefits payable on account of present retired members, beneficiaries of deceased members, and terminated members entitled to deferred benefits and refunds	\$ 111,606,022
Present value of prospective benefits payable on account of present active members	<u>85,871,923</u>
Total liabilities	<u>\$ 197,477,945</u>
<u>PRESENT AND PROSPECTIVE ASSETS</u>	
Actuarial value of assets	\$ 99,949,226
Present value of future contributions	
City and member normal contributions	\$ 21,344,499
Unfunded accrued liability contributions	<u>76,184,220</u>
Total prospective contributions	<u>97,528,719</u>
Total assets	<u>\$ 197,477,945</u>



SOLVENCY TEST
(dollar amounts in thousands)

Valuation Date	Aggregate Accrued Liabilities For				Portion of Accrued Liabilities Covered by Reported Assets		
	(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Members (Employer Financed Portion)	Reported Assets	(1)	(2)	(3)
7/1/17	\$7,649.3	\$111,606.0	\$56,878.2	\$99,949.2	100%	82.7%	0%
7/1/15	6,413.5	100,579.3	54,789.0	95,046.1	100	88.1	0
7/1/13	5,389.9	94,635.8	56,731.9	87,436.9	100	86.7	0
7/1/12	4,219.2	85,394.7	62,405.0	84,501.4	100	94.0	0
7/1/11	3,006.1	83,062.7	61,567.4	81,425.8	100	94.4	0
7/1/10 ¹	1,760.7	81,196.3	56,703.8	73,973.7	100	88.9	0

All figures prior to July 1, 2013 were reported by a prior actuarial firm.

¹Economic and demographic assumptions were changed as of July 1, 2010 due to an experience review.



SCHEDULE C

DEVELOPMENT OF THE ACTUARIAL VALUE OF ASSETS

	7/01/2016 to 6/30/2017	7/01/2015 to 6/30/2016
(1) Actuarial Value of Assets Beginning of Year	\$ 97,057,084	\$ 95,046,107
(2) Market Value of Assets as of End of Year	\$ 102,908,643	\$ 91,337,879
(3) Market Value of Assets as of Beginning of Year	\$ 91,337,879	\$ 97,314,941
(4) Net Cash Flow During Plan Year		
(a) Contributions	\$ 8,201,712	\$ 6,900,814
(b) Benefit Payments	<u>11,263,482</u>	<u>10,482,817</u>
(c) Net Cash Flow (a) – (b)	\$ (3,061,770)	\$ (3,582,003)
(5) Investment Return (2) – (3) – (4c)	\$ 14,632,534	\$ (2,395,059)
(6) Expected Investment Return [(3) x 7.50%] + [(4)c x 7.50% x 0.5]	\$ 6,735,525	\$ 7,164,295
(7) Investment Gain/(Loss) for Phased-In Recognition (5) – (6)	\$ 7,897,009	\$ (9,559,354)
(8) Recognized Amounts for Plan Year		
(a) Current Year 0.10 x (7)	\$ 789,701	\$ (955,935)
(b) First Prior Year	(955,935)	(444,982)
(c) Second Prior Year	(444,982)	837,555
(d) Third Prior Year	837,555	454,979
(e) Fourth Prior Year	454,979	(545,748)
(f) Fifth Prior Year	(545,748)	755,159
(g) Sixth Prior Year	755,159	138,271
(h) Seventh Prior Year	138,271	(1,044,787)
(i) Eighth Prior Year	(1,044,787)	(765,827)
(j) Ninth Prior Year	<u>(765,827)</u>	<u>0</u>
(k) Total Recognized Investment Gain/(Loss)	\$ (781,614)	\$ (1,571,315)
(9) Actuarial Value of Assets End of Year (1) + (4)(c) + (6) + (8)(k)	\$ 99,949,226	\$ 97,057,084
(10) Rate of Return on Actuarial Value	6.23%	6.00%



SCHEDULE D

RECONCILIATION OF MARKET VALUE OF ASSETS

	Years Ended June 30	
	2017	2016
Market Value of Assets - Beginning of Year	91,337,879	97,314,941
ADDITIONS:		
Contributions:		
Member	\$ 1,343,343	\$ 1,317,814
Employer	6,858,369	5,583,000
Total Contributions	8,201,712	6,900,814
Investment Income/(loss):		
Net Appreciation (depreciation) in fair value of investments	13,105,760	(3,861,791)
Interest & Dividends	2,102,077	1,999,450
	15,207,837	(1,862,341)
Investment Fees	(575,303)	(532,718)
Net Investment Income/(loss)	14,632,534	(2,395,059)
Total Additions/(loss)	22,834,246	4,505,755
DEDUCTIONS:		
Benefits & Refunds	(10,869,955)	(10,320,689)
Administration	(393,527)	(162,128)
Total Deductions	(11,263,482)	(10,482,817)
Change in Net Assets	11,570,764	(5,977,062)
Market Value of Assets - End of Year	\$ 102,908,643	\$ 91,337,879
Rate of Return on Market Value of Assets	16.29%	-2.51%



SCHEDULE E

OUTLINE OF ACTUARIAL ASSUMPTIONS AND METHODS

The assumptions and methods used in the valuation were selected by the Actuary and adopted by the Board following the most recent Experience Study from July 1, 2004 to July 1, 2009.

INVESTMENT RATE OF RETURN: 7.5% per year, compounded annually, net of investment expenses.

WAGE BASE GROWTH: The National Wage Base used to calculate Covered Compensation is expected to grow 3.5% per year.

SALARY INCREASES: Representative values of the assumed annual rates of salary increases are as follows:

Age	General Employees*	Uniformed Officers*
20	12.62%	6.50%
25	8.62	5.25
30	7.27	4.75
35	6.44	4.50
40	5.83	4.27
45	5.35	4.10
50	4.96	4.00
55	4.63	3.50
60	4.34	3.50

*Includes inflation of 3.00%

SEPARATIONS FROM ACTIVE SERVICE: For death rates, the RP 2000 Combined Healthy Mortality Table set forward 4 years was used. Representative values of the assumed annual rates of separation from active service are as follows:

Annual Rates of			
Age	Disability	Death - Males	Death - Females
20	0.05%	0.04%	0.02%
25	0.05	0.04	0.02
30	0.05	0.07	0.04
35	0.07	0.10	0.06
40	0.14	0.14	0.10
45	0.23	0.20	0.16
50	0.37	0.32	0.24
55	0.60	0.59	0.44
60	0.90	1.13	0.86



Annual Rates of Withdrawal						
Service	General Employees With Less Than Seven Years Service			General Employees With Seven or More Years Service		Uniformed Officers
	Male	Female	Age	Male	Female	Male/Female
0	21.00%	18.00%	20	8.00%	1.00%	16.67%
1	19.00	15.50	25	7.12	1.00	13.31
2	17.00	13.00	30	6.24	1.00	9.95
3	15.00	10.50	35	5.35	1.00	7.51
4	13.00	8.00	40	4.47	1.00	5.36
5	11.00	5.50	45	3.59	1.00	3.00
6	9.00	3.00	50	2.70	1.00	0.00
			55	0.00	0.00	0.00
			60	0.00	0.00	0.00

Annual Rates of Retirement*			
Age	4022 Plan Uniformed Officers	General Employees	Uniformed Officers
45-49	5%	0%	0%
50	12	0	0
51-53	20	0	0
54	60	0	0
55	60	10	20
56-59	60	3	10
60	100	3	100
61		12	
62-66		22	
67-69		10	
70		100	

*For Employees not yet eligible for Rule of 80

Annual Rate of Retirement for Rule of 80		
Age Plus Service	General Employees	Uniformed Officers
80	50%	40%
81	50	30
82-90	20	30



DEATHS AFTER RETIREMENT: The RP-2000 Combined Healthy Retiree Mortality Table set forward four years is used for the period after retirement and for dependent beneficiaries. The RP-2000 Disabled Retiree Mortality Table multiplied by 75% is used for the period after disability retirement.

ADMINISTRATIVE EXPENSES: \$125,000 payable monthly.

PERCENT MARRIED: 100% of active members are assumed to be married with the male three years older than his spouse.

COST OF LIVING: An automatic 3.00% cost of living adjustment is assumed for all Plan 4022 Level 1 members. No increases are assumed for the Consolidated Plan members.

ASSETS: Actuarial value, as developed in Schedule B. The actuarial value of assets recognizes a portion of the difference between the market value of assets and the expected actuarial value of assets, based on the assumed valuation rate of return. The amount recognized each year is 10% of the difference between market value and expected actuarial value.

VALUATION METHOD: Entry age actuarial cost method. See Schedule F for a brief description of this method.



SCHEDULE F

ACTUARIAL COST METHOD

1. The valuation is prepared on the projected benefit basis, under which the present value, at the interest rate assumed to be earned in the future (currently 7.50%), of each member's expected benefits at retirement or death is determined, based on age, service and sex. The calculations take into account the probability of a member's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his terminating with a service, disability or survivor's benefit. The present value of the expected benefits payable on account of the active members is added to the present value of the expected future payments to retired members and beneficiaries to obtain the present value of all expected benefits payable from the Plan on account of the present group of members and beneficiaries.
2. The employer contributions required to support the benefits of the Plan are determined following a level funding approach, and consist of a normal contribution and an accrued liability contribution.
3. The normal contribution is determined using the entry age actuarial cost method. Under this method, a calculation is made to determine the level percentage of payroll which, if applied for the average new member during the entire period of his anticipated covered service, would be required in addition to the contributions of the member to meet the cost of all benefits payable on his behalf.
4. The unfunded accrued liability is determined by subtracting the present value of prospective employer normal contributions and member contributions, together with the current actuarial value of assets held, from the present value of expected benefits to be paid from the Plan.



SCHEDULE G

SUMMARY OF MAIN PLAN PROVISIONS AS INTERPRETED FOR VALUATION PURPOSES

Member	An employee of the City of Marietta.
Membership Service Credit	Full-time service for all periods of employment with the City of Marietta subject to the break in service rules of the plan.
Final Average Earnings	A member's average monthly compensation for the highest 3 consecutive years if hired before January 1, 2009, and highest 5 consecutive years if hired on or after January 1, 2009. For elected officials, amount is based on the average salary for all participants in the Consolidated Plan.
Accrued Benefit	The monthly amount of retirement benefits earned by a member as of any date computed from his Final Average Earnings and Membership Service Credit at that date.
Service Retirement Benefit	
Eligibility	If hired prior to March 18, 2008, age 65 with at least 5 years of service. If hired between March 18, 2008 and December 31, 2008, age 65 with at least 7 years of service. If hired on or after January 1, 2009, age 65 with at least 10 years of service.
Benefit	Monthly benefit is 2.1% of final average earnings multiplied by years of membership service credit. Maximum benefit amount limited to 35 years of service.
Early Retirement Benefit	
Eligibility	If hired prior to March 18, 2008, age 55 with at least 5 years of service. If hired between March 18, 2008 and December 31, 2008, age 55 with at least 7 years of service. If hired on or after January 1, 2009, age 55 with at least 10 years of service.
Benefit	Accrued benefit reduced by 3% per year before age 65 for members hired before January 1, 2009. Accrued benefit reduced by 5.004% per year before age 65 for members hired on or after January 1, 2009.



Unreduced early retirement is granted to members whose age plus service is at least 80. Members hired after March 18, 2008 must also be at least age 55.

Plan 4022 Level 1
Retirement Benefit

Eligibility

Normal Retirement at age 55 with 5 years of service.

Benefit

1.33% of final average earnings times years of service, not less than 1.1% of the highest consecutive 36 months of average earnings, up to the Covered Compensation Limit plus 2.1% of the highest consecutive 36 months of average earnings greater than this limit times years of service. Covered Compensation is determined as if the participant were 10 years older.

Early retirement available starting at age 45. Accrued benefit is reduced by 2.004% per year before age 55.

Plan 4022 members can choose an unreduced early retirement benefit under the Consolidated Plan when the sum of their age plus service is at least 80. Under this alternate retirement option, members will have their benefit calculated using the 2.1% multiplier for all years of service, up to the maximum 35 years, but will forfeit their cost of living increase and their beneficiary's death benefit under the 4022 Plan. Members can purchase the death benefit, by choosing one of the optional forms of payment.

Disability Retirement Benefit

Eligibility

1 year of service for a non-work related injury or 1 day of service for a work related injury.

Benefit

The larger of the normal pension accrued, no less than 50% of average monthly earnings in the year preceding disability. This amount is offset by the benefits received from Workers' Compensation.

Deferred Vested
Retirement Benefit

Eligibility

If hired prior to March 18, 2008, 5 years of service.

If hired between March 18, 2008 and December 31, 2008, 7 years of service.

If hired on or after January 1, 2009, 10 years of service.

Benefit

Accrued benefit payable at earliest retirement age, with the appropriate reduction for early retirement. The assumption is made that members will defer payment until age 65.



Death Benefit

If a member dies in service, his beneficiary is entitled to receive a lump sum equal to the return of the member's accumulated contributions with zero interest.

Plan 4022 Death Benefit

If member dies while in active service, his beneficiary is entitled to the monthly benefit accrued at member's death.

Upon the death of a retiree, a monthly benefit shall be paid to his beneficiary in accordance with tables set forth in Plan 4022.

Optional Forms of Benefit

- (1) 100%, 75%, or 50% joint and survivor annuity.
- (2) Joint and survivor annuity with a pop-up provision.
- (3) Social Security option.

Contributions

Each member of the Consolidated Plan contributes 4.00% of pay. Upon termination, these contributions may be refunded to member with no interest. Plan 4022 members do not contribute.



SCHEDULE H

TABLE 1

**DISTRIBUTION OF ACTIVE MEMBERS BY AGE AND SERVICE GROUPS
AS OF JULY 1, 2017**

Attained Age	Completed Years of Service									Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 & Over	
Under 25	15	28								43
Average Pay	\$30,684	\$38,366								\$35,686
25 to 29	13	52	8	1						74
Average Pay	\$33,885	\$39,332	\$47,347	\$28,371						\$39,094
30 to 34	2	45	29	22						98
Average Pay	\$43,237	\$44,435	\$47,027	\$55,028						\$47,555
35 to 39	8	24	18	33	10					93
Average Pay	\$31,535	\$41,890	\$48,182	\$53,686	\$48,975					\$47,165
40 to 44	10	11	13	19	14	9				76
Average Pay	\$36,417	\$43,377	\$45,254	\$45,684	\$60,864	\$66,856				\$49,361
45 to 49	5	14	8	19	27	14	10	1		98
Average Pay	\$34,262	\$41,324	\$47,192	\$55,795	\$55,834	\$57,593	\$65,169	\$78,021		\$53,378
50 to 54	2	6	6	13	17	10	17	9	1	81
Average Pay	\$27,206	\$32,836	\$44,973	\$42,329	\$59,899	\$58,687	\$72,999	\$75,823	\$77,147	\$57,744
55 to 59	8	11	8	10	24	6	10	3	4	84
Average Pay	\$33,875	\$37,712	\$53,261	\$45,993	\$52,868	\$66,390	\$62,271	\$73,424	\$87,563	\$52,765
60 to 64	1	2	8	7	5	4	3	4	1	35
Average Pay	\$71,899	\$40,279	\$35,503	\$45,534	\$47,757	\$63,570	\$51,730	\$71,108	\$52,790	\$49,734
65 to 69			1	3		3		1		8
Average Pay			\$104,021	\$81,328		\$48,228		\$70,066		\$70,344
70 & up			4	1				1		6
Average Pay			\$36,610	\$13,000				\$64,043		\$37,247
Total Count	64	193	103	128	97	46	40	19	6	696
Average Pay	\$33,942	\$40,790	\$46,661	\$50,974	\$55,415	\$60,700	\$66,764	\$73,644	\$80,031	\$48,984

Average Age: 42.8
Average Service: 10.8



TABLE 2

NUMBER OF RETIRED MEMBERS AND THEIR BENEFITS BY AGE

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 50	-	\$ -	\$ -
50 - 54	19	681,033	35,844
55 - 59	113	2,217,944	19,628
60 - 64	117	2,505,916	21,418
65 - 69	100	1,865,070	18,651
70 - 74	76	1,328,476	17,480
75 - 79	51	863,223	16,926
80 & Over	38	757,634	19,938
Total	514	\$ 10,219,296	\$ 19,882

TABLE 3

NUMBER OF DISABLED MEMBERS AND THEIR BENEFITS BY AGE

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 50	2	\$ 40,107	\$ 20,054
50 - 54	1	19,582	19,582
55 - 59	4	83,800	20,950
60 - 64	5	123,505	24,701
65 - 69	2	33,800	16,900
70 - 74	2	76,332	38,166
75 - 79	3	56,962	18,987
80 & Over	2	11,678	5,839
Total	21	\$ 445,766	\$ 21,227

TABLE 4

NUMBER OF BENEFICIARIES AND THEIR BENEFITS BY AGE

Attained Age	Number of Members	Total Annual Benefits	Average Annual Benefits
Under 50	4	\$ 52,131	13,033
50 - 54	1	24,625	24,625
55 - 59	4	68,518	17,129
60 - 64	7	69,822	9,975
65 - 69	2	21,745	10,873
70 - 74	8	134,739	16,842
75 - 79	9	109,726	12,192
80 & Over	4	119,009	29,752
Total	39	\$ 600,315	\$ 15,393



TABLE 5

NUMBER OF DEFERRED VESTEDS AND THEIR BENEFITS BY AGE

<u>Attained Age</u>	<u>Number of Members</u>	<u>Total Annual Benefits</u>	<u>Average Annual Benefits</u>
Under 40	49	\$ 336,710	\$ 6,872
40 - 44	45	360,672	8,015
45 - 49	72	637,329	8,852
50 - 54	81	556,764	6,874
55 - 59	36	228,538	6,348
60 - 64	18	80,227	4,457
65 - 69	7	36,493	5,213
70 & Over	-	-	-
Total	308	\$ 2,236,733	\$ 7,262

TABLE 6

SCHEDULE OF ACTIVE MEMBER VALUATION DATA

<u>Valuation Date</u>	<u>Number Prior Year</u>	<u>Exits</u>	<u>New Entrants & Rehires</u>	<u>Number Current Year</u>	<u>Annual Payroll</u>	<u>Annual Average Pay</u>	<u>% Increase in Average Pay</u>
7/1/2017	689	126	133	696	\$34,093,042	\$48,984	3.9%
7/1/2015	702	79	66	689	32,480,676	47,142	3.8%
7/1/2014	686	68	84	702	31,881,508	45,415	-2.3%
7/1/2013	708	65	43	686	31,881,509	46,475	0.0%
7/1/2012	729	47	26	708	32,890,116	46,455	0.6%
7/1/2011	722	30	37	729	33,653,835	46,164	0.1%
7/1/2010	720	38	40	722	33,280,906	46,095	0.3%

Results prior to the 7/1/2013 valuation were reported by a prior actuarial firm.



TABLE 7
SCHEDULE OF RETIRED MEMBERS AND BENEFICIARIES
ADDED TO AND REMOVED FROM ROLLS

<u>Year Ended</u>	<u>Rolls – Beginning of Year</u>		<u>Added to Rolls</u>		<u>Removed from</u>		<u>Cost of Living Adjustment</u>	<u>Rolls – End of Year</u>		<u>% Increase in Annual Allowances</u>	<u>Average Annual Allowances</u>
	<u>No.</u>	<u>Annual Allowances</u>	<u>No.</u>	<u>Annual Allowances</u>	<u>No.</u>	<u>Annual Allowances</u>		<u>No.</u>	<u>Annual Allowances</u>		
7/1/2017	489	\$10,081,236	114	\$1,756,556	29	\$597,105	\$24,690	574	\$11,265,377	11.7%	\$19,626
7/1/2015	465	9,370,822	38	959,484	14	286,014	36,943	489	10,081,236	7.6%	20,616
7/1/2014	443	8,858,707	31	679,947	9	201,577	33,745	465	9,370,822	5.8%	20,152
7/1/2013	420	8,076,216	35	\$960,814	12	218,379	\$40,056	443	8,858,707	9.7%	19,997
7/1/2012	407	7,735,164	29	*	16	*	*	420	8,076,216	4.4%	19,229
7/1/2011	402	7,664,736	20	*	15	*	*	407	7,735,164	0.9%	19,005
7/1/2010	397	7,465,104	21	*	16	*	*	402	7,664,736	2.7%	19,067

Results prior to the 7/1/13 valuation were reported by the prior actuarial firm.

*Amount not provided by prior actuary.