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GASB STATEMENT NO. 68 REPORT

FOR THE

CONSOLIDATED RETIREMENT PLAN FOR THE

EMPLOYEES OF THE CITY OF MARIETTA

PREPARED AS OF JUNE 30, 2019

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November 11, 2019

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:

Presented in this report is information to assist the City of Marietta in meeting the requirements of the Governmental Accounting Standards Board (GASB) Statement No. 68 relating to the Consolidated Retirement Plan for the Employees of the City of Marietta. The information is presented for the period ending June 30, 2019 (the Measurement Date) to assist the City in better understanding the requirements of GASB 68 and to identify the information to be provided by the Plan's actuary, Cavanaugh Macdonald Consulting (CMC).

GASB 68 established accounting and financial reporting requirements for governmental employers that provide pension benefits to their employees through a trust.

The annual actuarial valuation used as a basis for much of the information presented in this report was performed as of June 30, 2019. The valuation was based upon data, furnished by the Human Resource Office, concerning active, inactive and retired members along with pertinent financial information. While not verifying data at the source, the actuary performed tests for consistency and reasonableness.

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 Plan, and on actuarial assumptions that are, individually and in the aggregate, internally consistent and reasonably based on the actual experience of the Plan. In addition, the calculations were completed in compliance with the laws governing the Plan. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

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These results are only for financial reporting and may not be appropriate for funding purposes or other types of analysis. Calculations for purposes other than satisfying the requirements of GASB 67 and GASB 68 may produce significantly different results. Future actuarial results may differ significantly from the current results presented in this report due to such factors as changes in plan experience or changes in economic or demographic assumptions.

Respectfully submitted,

Edward J. Koebel, EA, FCA, MAAA
Chief Executive Officer

Jennifer Johnson
Senior Consultant

EJK/JJ

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REPORT OF THE ANNUAL GASB STATEMENT NO. 68
REQUIRED INFORMATION FOR THE
CONSOLIDATED RETIREMENT PLAN FOR THE EMPLOYEES
OF THE CITY OF MARIETTA
PREPARED AS OF JUNE 30, 2019

SECTION I – INTRODUCTION

The Governmental Accounting Standards Board issued Statement No. 68 (GASB 68), "Accounting and Financial Reporting For Pensions", in June 2012. The Consolidated Retirement Plan is a single-employer defined benefit pension plan for general City employees. This report has been prepared as of June 30, 2019. Much of the material provided in this report is based on the data, assumptions and results of the annual actuarial valuation of the Plan as of June 30, 2019.

The NPL shown in the GASB Statement Number 67 Report for the Consolidated Retirement Plan for the Employees of the City of Marietta as of June 30, 2019 is the NPL used for purposes of GASB 68. Please refer to that report for the derivation of the NPL.

Pension Expense includes amounts for service cost (the Normal Cost under Entry Age Normal actuarial cost method for the year), interest on the Total Pension Liability (TPL), changes in benefit structure, amortization of increases/decreases in liability due to actuarial experience and actuarial assumption changes, and amortization of investment gains/losses. The actuarial experience and assumption change impacts are amortized over the average expected remaining service life of the Plan membership as of the Measurement Date, and investment gains/losses are amortized over five years. The development of the PE is shown in Section IV.

The unamortized portions of each year's experience, assumption changes and investment gains/losses are used to develop deferred inflows and outflows, which also must be included on the employer's balance sheet. The development of the collective deferred inflows and outflows is shown in Section III.

Section II of this report is a summary of the principal results of the amounts under GASB 68. The sections that follow provide the results of all the necessary calculations, presented in the order laid out in GASB 68 for note disclosure and Required Supplementary Information (RSI).

SECTION II – SUMMARY OF PRINCIPAL RESULTS

($ IN THOUSANDS)

Valuation Date (VD):	June 30, 2019
Measurement Date (MD):	June 30, 2019
Reporting Date (RD):	June 30, 2019
Membership Data as of Valuation Date:	
Retirees and Survivors	631
Terminated Employees Not Yet Receiving Benefits	281
Active Members	730
Total	1,642
Single Equivalent Interest Rate (SEIR):	
Long-Term Expected Rate of Return	7.50%
Municipal Bond Index Rate at Measurement Date	3.50%
Fiscal Year in which Plan's Fiduciary Net Position is projected to be depleted from the future benefit payments for current members	N/A
Single Equivalent Interest Rate	7.50%
Net Pension Liability:	
Total Pension Liability (TPL)	$196,162
Fiduciary Net Position (FNP)	110,837
Net Pension Liability (NPL = TPL – FNP)	$85,325
FNP as a percentage of TPL	56.50%
Pension Expense:	$12,529
Deferred Outflows of Resources:	$9,380
Deferred Inflows of Resources	$2,209

SECTION III – FINANCIAL STATEMENT NOTES

The material presented herein will follow the order presented in GASB 68. Paragraph numbers are provided for ease of reference.

Paragraphs 40(a) and (b): The information required is to be supplied by the Employer.

Paragraph 40(c): The data required regarding the membership of the Consolidated Retirement Plan for the Employees of the City of Marietta were furnished by the Plan. The following table summarizes the membership of the Plan as of June 30, 2019, the Valuation Date.

Membership

	Number
Inactive Members Or Their Beneficiaries Currently Receiving Benefits	631
Inactive Members Entitled To But Not Yet Receiving Benefits	281
Active Members	730
Total	1,642

Paragraphs 40(d) and (e): The information required is to be supplied by the Employer.

Paragraphs 41 and 42: These paragraphs require information regarding the actuarial assumptions used to measure the TPL. The actuarial assumptions utilized in developing the TPL are outlined in Schedule C. The total pension liability was determined by an actuarial valuation as of June 30, 2019, using the following actuarial assumptions, applied to all periods included in the measurement date of June 30, 2019:

Inflation	3.50 percent
Salary increases	3.50 to 6.50 percent
Investment rate of return	7.50 percent, net of pension plan investment expense, including inflation

Mortality	Pre-retirement and post-retirement mortality rates were based on the PubS.H-2010(B) Mortality Table projected to 2025 with projection scale MP-2018, set forward 3 years for males and 4 year for females.

The actuarial assumptions used in the June 30, 2019 valuation were based on the results of the last actuarial experience study, dated July 1, 2013 to July 1, 2018.

The long-term expected rate of return on pension plan investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

Discount rate. The discount rate used to measure the Total Pension Liability was 7.50 percent. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate of 4.00% and that Employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Projected future benefit payments for all current plan members were projected through the year 2115. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability and a municipal bond rate was not used in determining the discount.

Paragraph 42(g): This paragraph requires disclosure of the sensitivity of the NPL to changes in the discount rate. The following presents the NPL of the Plan, calculated using the discount rate of 7.50 percent, as well as what the Plan's NPL calculated using a discount rate that is 1-percentage-point lower (6.50 percent) or 1-percentage-point higher (8.50 percent) than the current rate ($in thousands):

	1% Decrease (6.50%)	Current Discount Rate (7.50%)	1% Increase (8.50%)
Plan's Net Pension Liability	$105,930	$85,325	$67,785

Paragraph 44: This paragraph requires a schedule of changes in Net Pension Liability. The needed information is provided in the table below.

CHANGES IN THE NET PENSION LIABILITY
($ IN THOUSANDS)

	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) – (b)
Balances at June 30, 2018	$180,033	$107,612	$72,421
Changes for the year:			
Service cost	3,029		3,029
Interest	13,035		13,035
Changes of assumptions	7,295		7,295
Difference between expected and actual experience	5,232		5,232
Contributions – employer		6,840	(6,840)
Contributions – employee		1,446	(1,446)
Net investment income		7,797	(7,797)
Benefit payments, including refunds of employee contributions	(12,462)	(12,462)	0
Administrative expense		(446)	446
Other changes*	0	50	(50)
Net changes	16,129	3,225	12,904
Balances at June 30, 2019	$196,162	$110,837	$85,325

*Beginning of Year Audit Adjustment.

Paragraph 45(a): The date of the actuarial valuation upon which the TPL is based is June 30, 2019. The TPL was determined as of June 30, 2019. The procedure used to determine the TPL for the year is shown on page 7 of the GASB 67 report for the City.

Paragraph 45(c): Since the prior measurement date, the following changes in actuarial assumptions and methods used in the measurement of the total pension liability have been made:

Withdrawal	Split the rates of withdrawal for those with less than 10 years of service, and those with 10 or more years of service for all employees. We also increased the rates for General Employees and decreased the rates for Uniformed Officers to better match the experience of the Plan.
Retirement	For General Employees, we made minor adjustments in the rates of both standard retirement and Rule of 80 retirement to better match experience of the Plan.
Mortality	Changed mortality table to Pub S.H-2010(B) tables with adjustments to better match experience of Plan.
Disability	Lowered assumed rates at most ages.
Merit/Promotion Scale	Changed assumed rates to service-based rates rather than age-based and decreased the rates of salary increase at most levels of service.
Other Assumptions and Methods and Administrative Changes	
Asset Smoothing	Added a 10% corridor around the market value of assets to comply with actuarial standards.
Administrative Expenses	Changed from 0.37% of payroll to 0.50% of payroll.
Amortization Method	Changed to a layered amortization method where new bases composed of experience gains and losses are amortized over a closed 25-year period from the valuation date they are initially measured.
All others	No change to other actuarial methods.

Paragraph 45(d): There have been no changes in benefit terms used in the measurement of the total pension liability since the prior measurement date.

Paragraph 45(f): There have been no known changes between the measurement date of the net pension liability and reporting date that are expected to have a significant effect on the net pension liability.

Paragraph 45(g): See Section IV for the annual Pension Expense.

Paragraph 45(h): Since certain expense items are amortized over closed periods each year, the deferred portions of these items must be tracked annually. If the amounts serve to reduce Pension Expense they are labeled deferred inflows. If they will increase Pension Expense they are labeled deferred outflows. The amortization of these amounts is accomplished on a level dollar basis, with no interest included in the deferred amounts. Experience gains/losses and the impact of changes in actuarial assumptions, if any, are amortized over the average expected remaining service life of the active and inactive Plan members at the beginning of the fiscal year. Investment gains and losses are amortized over a fixed five year period.

The table below provides a summary of the deferred inflows and outflows as of June 30, 2019 ($ in thousands).

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	$3,918	$0
Changes of assumptions	5,462	0
Net difference between projected and actual earnings on plan investments	0	2,209
Employer contributions subsequent to the Measurement Date	0	0
Total	$9,380	$2,209

Paragraph 45(i): Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in Pension Expense as follows:

Deferred Outflows and Inflows for Differences between Expected and Actual Experience					
				Balances as of June 30, 2019	
Year	**Experience Losses (a)**	**Experience Gains (b)**	**Amounts Recognized in Pension Expense through 2019 (c)**	**Deferred Outflows (a) – (c)**	**Deferred Inflows (b) – (c)**
2015	$0	$4,887	$4,887	$0	$0
2016	$0	$0	$0	$0	$0
2017	$6,282	$0	$6,282	$0	$0
2018	$0	$0	$0	$0	$0
2019	$5,232	$0	$1,314	$3,918	$0
Total				$3,918	$0

Deferred Outflows and Inflows for Assumption Changes					
				Balances as of June 30, 2019	
Year	**Investment Losses (a)**	**Investment Gains (b)**	**Amounts Recognized in Pension Expense through 2019 (c)**	**Deferred Outflows (a) – (c)**	**Deferred Inflows (b) – (c)**
2015	$0	$0	$0	$0	$0
2016	$0	$0	$0	$0	$0
2017	$0	$0	$0	$0	$0
2018	$0	$0	$0	$0	$0
2019	$7,295	$0	$1,833	$5,462	$0
Total				$5,462	$0

Deferred Outflows and Inflows for Differences between Projected and Actual Investment Earnings					
				Balances as of June 30, 2019	
Year	**Investment Losses (a)**	**Investment Gains (b)**	**Amounts Recognized in Pension Expense through 2019 (c)**	**Deferred Outflows (a) – (c)**	**Deferred Inflows (b) – (c)**
2015	$4,450	$0	$4,450	$0	$0
2016	$9,560	$0	$7,648	$1,912	$0
2017	$0	$7,898	$4,740	$0	$3,158
2018	$0	$1,743	$698	$0	$1,045
2019	$103	$0	$21	$82	$0
Total				$1,994	$4,203
Net Difference					$2,209

Deferred Amounts to be Recognized in Fiscal Years Following the Reporting Date

Year:	
2020	$3,151
2021	1,241
2022	2,760
2023	19
2024	0
Thereafter	0

SECTION IV – PENSION EXPENSE

As noted earlier, the Pension Expense (PE) consists of a number of different items. GASB 68 refers to the first as Service Cost which is the Normal Cost using the Entry Age Normal actuarial funding method. The second item is interest on the beginning of year TPL and the cash flows during the year at the 7.50% rate of return in effect as of the previous measurement date.

The next three items refer to any changes that occurred in the TPL due to:

- benefit changes,
- actual versus expected experience or
- changes in actuarial assumptions.

Benefit changes can be positive, if there is a benefit improvement for existing Plan members, or negative if there is a benefit reduction. For the year ended June 30, 2019, there were no changes to be recognized.

The next item to be recognized is the portion of current year changes in TPL due to actual vs. expected experience during the year. The portion to recognize in the current year is determined by spreading the total change over the average expected remaining service life of the entire Plan membership. The remaining service life of active members is the average number of years the active members are expected to remain active. For the year ended June 30, 2019, the figure is 3.98.

The last item under changes in TPL are changes in actuarial assumptions. The portion to recognize in the current year is determined by spreading the total change over the average remaining service life of the entire Plan membership, or 3.98.

Member contributions for the year and projected earnings on the TPL, again at the rate used to calculate the liabilities are subtracted from the amount determined thus far. The portion of current-period differences between actual and projected earnings on the FNP is included next. This portion is the total difference divided by five.

The current year portions of previously determined experience, assumption and earnings amounts, recognized as deferred inflows and outflows (see Section III) are included next. Finally, administrative expenses and other miscellaneous items are included.

Pension Expense
For the Year Ended June 30, 2019
($ in thousands)

Service Cost	$3,029
Interest on the total pension liability	13,035
Current-period benefit changes	0
Expensed portion of current-period difference between expected and actual experience in the total pension liability	1,314
Expensed portion of current-period changes of assumptions	1,833
Member contributions	(1,446)
Projected earnings on plan investments	(7,900)
Expensed portion of current-period differences between actual and projected earnings on plan investments	21
Administrative expense	446
Other	(50)
Recognition of beginning deferred outflows of resources as pension expense	2,247
Recognition of beginning deferred inflows of resources as pension expense	0
Pension Expense	$12,529

SECTION V – REQUIRED SUPPLEMENTARY INFORMATION

There are several tables of Required Supplementary Information (RSI) that need to be included in the Plan's financial statements:

Paragraphs 46(a) and (b): The required tables are provided in Schedule A and the information is as of the Measurement Dates.

Paragraph 46(c): The required table is provided in Schedule A and the information is as of the Employer's Fiscal Year Ends.

Paragraph 47: The following information should be noted regarding the RSI:

Changes of benefit terms: The following changes to the plan provisions were made as identified:

None

Changes in actuarial assumptions and methods: The following changes to the actuarial assumptions were made in 2019 as identified:

Withdrawal	Split the rates of withdrawal for those with less than 10 years of service, and those with 10 or more years of service for all employees. We also increased the rates for General Employees and decreased the rates for Uniformed Officers to better match the experience of the Plan.
Retirement	For General Employees, we made minor adjustments in the rates of both standard retirement and Rule of 80 retirement to better match experience of the Plan.
Mortality	Changed mortality table to Pub S.H-2010(B) tables with adjustments to better match experience of Plan.
Disability	Lowered assumed rates at most ages.
Merit/Promotion Scale	Changed assumed rates to service-based rates rather than age-based and decreased the rates of salary increase at most levels of service.
Other Assumptions and Methods and Administrative Changes	
Asset Smoothing	Added a 10% corridor around the market value of assets to comply with actuarial standards.
Administrative Expenses	Changed from 0.37% of payroll to 0.50% of payroll.
Amortization Method	Changed to a layered amortization method where new bases composed of experience gains and losses are amortized over a closed 25-year period from the valuation date they are initially measured.
All others	No change to other actuarial methods.

Method and assumptions used in calculations of actuarially determined contributions.

The actuarially determined contribution rates in the schedule of Non-Employer Contributing Entity contributions are calculated as of the June 30th, two or three years prior to the fiscal year end in which contributions are reported (as of June 30, 2017 for the fiscal year 2019 and 2020 contributions). The following actuarial methods and assumptions were used to determine the most recent actuarial contribution rates reported in that schedule:

Actuarial cost method	Entry age normal
Amortization method	Level Percent of Pay, closed
Remaining amortization period	25 years
Asset valuation method	10-year smoothed market
Inflation	3.50 percent
Salary increase	3.50 – 12.62 percent
Investment rate of return	7.50 percent, net of pension plan investment expense, and including inflation

SCHEDULE A

REQUIRED SUPPLEMENTARY INFORMATION

SCHEDULE OF CHANGES IN THE NET PENSION LIABILITY
($ in thousands)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability										
Service Cost	$2,652	$2,851	$2,696	$2,782	$2,879	$3,029				
Interest	11,415	11,766	11,747	12,035	12,769	13,035				
Benefit changes	0	0	0	0	0	0				
Difference between expected and actual experience	0	(4,887)	0	6,282	0	5,232				
Changes of assumptions	0	0	0	0	0	7,295				
Benefit payments	(9,118)	(9,655)	(10,321)	(10,870)	(11,748)	(12,462)				
Refunds of contributions	0	0	0	0	0	0				
Net change in total pension liability	$4,949	$75	$4,122	$10,229	$3,900	$16,129				
Total pension liability - beginning	$156,758	$161,707	$161,782	$165,904	176,133	$180,033				
Total pension liability - ending (a)	$161,707	$161,782	$165,904	$176,133	180,033	$196,162				
Plan net position										
Contributions - employer	$5,669	$5,731	$5,583	$6,858	$6,088	$6,840				
Contributions – member	1,260	1,280	1,318	1,343	1,353	1,446				
Net investment income	14,663	2,746	(2,395)	14,633	9,289	7,797				
Benefit payments	(9,118)	(9,655)	(10,321)	(10,870)	(11,748)	(12,462)				
Administrative expense	(144)	(111)	(162)	(393)	(279)	(446)				
Refunds of contributions	0	0	0	0	0	0				
Other	0	0	0	0	0	50*				
Net change in plan net position	$12,330	$(9)	$(5,977)	$11,571	$4,703	$3,225				
Plan net position – beginning	$84,994	$97,324	$97,315	$91,338	$102,909	$107,612				
Plan net position - ending (b)	$97,324	$97,315	$91,338	$102,909	107,612	$110,837				
Net pension liability - ending (a) - (b)	$64,383	$64,467	$74,566	$73,224	72,421	$85,325				

* Beginning of Year Audit Adjustment.

SCHEDULE OF THE NET PENSION LIABILITY
($ in thousands)

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Total pension liability	$161,707	$161,782	$165,904	$176,133	$180,033	$196,162				
Plan net position	97,324	97,315	91,338	102,909	107,612	110,837				
Net pension liability	$64,383	$64,467	$74,566	$73,224	$72,421	$85,325				
Ratio of plan net position to total pension liability	60.19%	60.15%	55.05%	58.43%	59.77%	56.50%				
Covered payroll	$32,997	$32,481	$32,996	$34,093	$35,286	$37,153				
Net pension liability as a percentage of covered payroll	195.12%	198.48%	225.98%	214.78%	205.24%	229.66%				

SCHEDULE OF EMPLOYER CONTRIBUTIONS
($ in thousands)

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Actuarially determined employer contribution	$6,191	$5,588	$5,398	$5,583	$5,394	$5,154	$5,560	$5,472	$5,364	$4,749
Actual employer contributions	6,840	6,088	6,858	5,583	5,731	5,669	5,585	5,447	5,269	5,243
Annual contribution deficiency (excess)	$(649)	$(500)	$(1,460)	$0	$(337)	$(515)	$(25)	$25	$95	$(494)
Covered payroll	$37,153	$35,286	$34,093	$32,996	$32,481	$32,997	$31,882	$32,890	$33,654	$33,281
Actual contributions as a percentage of covered payroll	18.41%	17.25%	20.12%	16.92%	17.64%	17.18%	17.52%	16.56%	15.66%	15.75%

Notes to Schedule:

Valuation Date: June 30, 2017
Methods and Assumptions used to determine contribution rates:

Actuarial cost method	Entry age
Amortization method	Level percent of pay, closed
Remaining amortization period	25 years
Asset valuation method	10-year smoothed market
Inflation	3.50 percent
Salary increases	3.50 – 12.62 percent
Investment rate of return	7.50 percent, net of pension plan investment expense, and including inflation

SCHEDULE B

SUMMARY OF MAIN PLAN PROVISIONS
AS INTERPRETED FOR VALUATION PURPOSES

Member	An employee of the City of Marietta, hired after March 1, 1987.
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 contributes 4.00% of pay. Upon termination, these contributions may be refunded to member with no interest.

SCHEDULE C

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 for the five-year period ending June 30, 2018

INVESTMENT RATE OF RETURN: 7.50% per year, compounded annually, net of investment expenses.

WAGE BASE GROWTH: The National Wage Base used to calculate Covered Compensation is expected to grow 3.50% per year.

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

Service	General Employees*	Uniformed Officers*
0	6.50%	5.00%
1-5	6.00	4.50
6-10	5.00	4.25
11-15	4.60	4.00
16-20	4.25	3.80
21-25	4.00	3.50
26+	4.00	3.50

*Includes inflation of 3.00%

SEPARATIONS FROM ACTIVE SERVICE: For death rates, the PubS.H-2010(B) Mortality Table projected to 2025 with projection scale MP-2018, set forward 3 years for males and 4 years for females 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	0.025%	0.05%	0.03%
25	0.025	0.06	0.04
30	0.025	0.08	0.06
35	0.035	0.10	0.08
40	0.070	0.12	0.10
45	0.115	0.14	0.12
50	0.185	0.19	0.16
55	0.300	0.29	0.24
60	0.450	0.50	0.33

Annual Rates of Withdrawal		
Service	General Employees	Uniformed Officers
0	24.00%	22.00%
1	21.00	10.00
2	16.50	10.00
3	13.50	9.00
4	12.50	8.00
5	11.00	8.00
6	9.00	5.00
7	9.00	5.00
8	9.00	5.00
9	9.00	5.00
10+	4.00	3.00

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	5	10
60	100	10	100
61		10	
62-66		25	
67-69		25	
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	35%	40%
81	35	30
82-90	20	30

DEATHS AFTER RETIREMENT: The mortality table, for post-retirement mortality, used in evaluating allowances to be paid is the PubS.H-2010(B) Retiree Table with the following adjustments:

- For males, set forward 3 years.
- For females, set forward 4 years.
- Projection scale MP-2018 will be used to project to 2025.

ADMINISTRATIVE EXPENSES: 0.50% of payroll.

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: Market value.

VALUATION METHOD: Entry age actuarial cost method.