Prince George's County Supplemental Pension Plan for Employees Represented by AFSCME Local 241 (Crossing Guards)

Actuarial Valuation as of July 1, 2018

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June 14, 2019

Board of Trustees
Prince George's County
1400 McCormick Drive
Largo, Maryland 20774

Subject: Actuarial Valuation Report for the Year Beginning July 1, 2018

Dear Trustees:

The results of the annual actuarial valuation of the Supplemental Pension Plan for Employees Represented by AFSCME Local 241 (Crossing Guards) (the "Plan") as of July 1, 2018, are presented in this report.

This report was prepared at the request of the Board and is intended for use by the County and the Board and those designated or approved by the Board. This report may be provided to parties other than the County only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report.

The purposes of the actuarial valuation are to measure the Plan's funding progress, to determine the contribution rates for the fiscal year ending June 30, 2020, and to analyze plan experience during the prior year. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results associated with the benefits described in this report, for purposes other than those identified above, may be significantly different.

The contribution rate in this report is determined using the actuarial assumptions and methods disclosed in Section C of this report. This report includes risk metrics beginning on page A-11 but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment.

The computed County contribution rate shown on page A-1 is best viewed as the minimum contribution rate that complies with the Board's funding policy. Users of this report should be aware that contributions made at that rate do not guarantee benefit security. Until the plan is fully funded, we encourage the plan sponsor to contribute in excess of the computed contribution rate.

This actuarial valuation assumes the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

This actuarial valuation is based upon:

Data relative to the members of the Plan – Data for active members and persons receiving benefits from the Plan was provided by the Plan's staff. We have tested this data for reasonableness.

Asset Values – The asset amounts of the Plan were provided by the Plan's auditors and the Plan's staff. The results for the funding actuarial valuation use an actuarial value of assets.

Actuarial Method – The actuarial method utilized for the Plan is the Individual Entry Age Normal Actuarial Cost Method. The objective of this method is to amortize the cost of Plan benefits over the entire career of each member as a level percentage of compensation. Any Unfunded Actuarial Accrued Liability (UAAL) under this method is separately financed. All actuarial gains and losses under this method are reflected in the UAAL.

Actuarial Assumptions – The actuarial assumptions including the investment return assumption, mortality rates, retirement rates, termination rates, and salary increase rates were updated based on the recommendations from the experience study for the period July 1, 2013 through July 1, 2017. It is our opinion that the actuarial assumptions used for the actuarial valuation are reasonable. Additional information about the actuarial assumptions is included in Section C of this report.

Benefit Provisions – There have been no changes in benefit provisions since the previous valuation.

The funding objective is to provide the benefits of the Plan when due, with employee and employer contributions which, over time, will remain level as a percent of payroll.

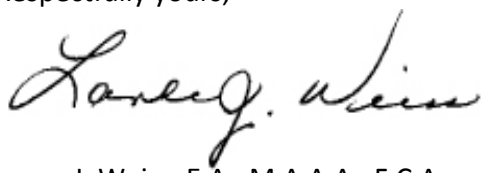
The findings in this report are based on data and other information through July 1, 2018. The actuarial valuation was based upon information furnished by Prince George's County staff, concerning Plan benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by Prince George's County staff.

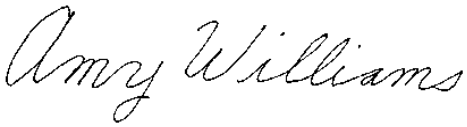
This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of the Plan as of the actuarial valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices and with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

Lance J. Weiss and Amy Williams are Members of the American Academy of Actuaries (M.A.A.A.), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

The signing actuaries are independent of the plan sponsor.

Respectfully yours,





Lance J. Weiss, E.A., M.A.A.A., F.C.A.
Senior Consultant and Team Leader

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AW:kb

SECTION A.

ACTUARIAL VALUATION RESULTS

Table 1
Comparative Actuarial Valuation Results [1]
18-Year Closed Period Level Percent of Pay Amortization [3]

	Results as of July 1, 2017		Results as of July 1, 2018	
A. Basic Data				
1. Active Participants				
a. Number	93		85	
b. Total Base Payroll	$ 1,524,600		$ 1,461,800	
c. Average Annual Base Payroll	16,394		17,197	
d. Average Attained Age	63.0		62.9	
e. Average Years of Credited Service	14.9		15.4	
2. Retired Participants and Beneficiaries				
a. Number	70		78	
b. Total Annual Pension Being Paid	$ 152,200		$ 167,000	
3. Terminated Participants with Vested Benefits				
a. Number	8		8	
b. Total Annual Vested Pension	$ 10,600		$ 10,600	
B. Valuation Results				
1. Actuarial Accrued Liability				
a. Active Participants	$ 1,116,100		$ 1,223,900	
b. Retired Participants and Beneficiaries	1,231,900		1,553,300	
c. Terminated Participants with Vested Benefits	71,400		82,800	
d. Total	2,419,400		2,860,000	
2. Actuarial Value of Assets	1,606,200		1,659,700	
3. Unfunded Actuarial Accrued Liability (B.1.d. - B.2.)	813,200		1,200,300	
4. Funded Ratio (B.2. / B.1.d.)	66.4%		58.0%	
5. Annual Normal Cost [2]				
a. Retirement, Termination, and Death Benefits	$ 64,900	(4.26%)	$ 69,300	(4.74%)
b. Expenses of Administration	30,300	(1.99%)	27,500	(1.88%)
c. Total	95,200	(6.25%)	96,800	(6.62%)
6. Annual Contribution Requirement [2, 5]				
a. Normal Cost	95,200	(6.25%)	96,800	(6.62%)
b. Amortization of Unfunded Liability Over a Closed 18 Years [3]	71,900	(4.72%)	111,600	(7.63%)
c. Adjustment Due to Anticipated Contributions in Upcoming Year [4]	(1,500)	-(0.11%)	(900)	-(0.06%)
d. Total	165,600	(10.86%)	207,500	(14.19%)
7. Annual Contribution Requirement [2, 5]				
a. County Portion	92,700	(6.08%)	116,200	(7.95%)
b. Employee Portion	72,900	(4.78%)	91,300	(6.24%)
c. Total	165,600	(10.86%)	207,500	(14.19%)

[1] *Most amounts rounded to nearest $100.*

[2] *Figures in parentheses show contribution as a percentage of total base payroll.*

[3] *Unfunded liability is amortized over an 18-year closed period beginning July 1, 2014. 14 years are remaining in the amortization period as of July 1, 2018.*

[4] *Adjustment made to contribution rate to account for the one year lag between the actuarial valuation date at which the contribution rate is determined and the beginning of the fiscal year in which the contribution rate applies. Adjustment first effective with the actuarial valuation as of July 1, 2014, and the change to a closed period amortization policy.*

[5] *The Annual Contribution Requirement from the actuarial valuation as of July 1, 2017, applies to FY2019 and the Annual Contribution Requirement from the actuarial valuation as of July 1, 2018, applies to FY2020.*

Table 2
Reconciliation of Market Value of Assets

	As of June 30	
	2017	2018
Additions:		
Contributions:		
Employer	$ 77,415	$ 80,300
Employee	60,826	63,199
Total contributions	138,241	143,499
Transfers (to)/from other funds	-	-
Investment income:		
Net appreciation (depreciation) in fair value of assets	102,505	188,219
Interest and dividends	13,350	25,815
Total investment income	115,855	214,034
Less investment expense	5,967	6,708
Net investment income	109,888	207,326
Total additions	248,129	350,825
Deductions:		
Benefits	160,109	196,741
Refunds of contributions	4,698	-
General and administrative expenses	29,075	20,123
Transfers to/(from) other funds	-	-
Total deductions	193,882	216,864
Net increase (decrease)	54,247	133,961
Net assets held in trust for pension benefits, beginning of year	1,492,345	1,546,592
Net assets held in trust for pension benefits, end of year	$ 1,546,592	$ 1,680,553

Table 3
Development of Actuarial Value of Assets

Year Ending June 30	2017	2018	2019	2020	2021	2022
Beginning of Year:						
(1) Market Value of Assets	$ 1,492,345	$ 1,546,592				
(2) Actuarial Value of Assets (Excluding Asset Transfer)	1,546,590	1,606,236				
(2a) Actuarial Value of Assets (Including Asset Transfer)	1,546,590	1,606,236				
End of Year:						
(3) Market Value of Assets	1,546,592	1,680,553				
(4) Net of Contributions and Disbursements	(55,641)	(73,365)				
(5) Total Investment Income						
=(3)-(1)-(4)	109,888	207,326				
(6) Projected Rate of Return	7.50%	7.50%				
(7) Projected Investment Income						
=(1)x(6)+([1+(6)]^.5-1)x(4)	109,877	113,293				
(8) Investment Income in Excess of Projected Income						
=(5)-(7)	11	94,033				
(9) Excess Investment Income Recognized						
This Year (5-year recognition)						
(9a) From This Year	2	18,807				
(9b) From One Year Ago	(25,145)	2	$ 18,807			
(9c) From Two Years Ago	(4,115)	(25,145)	2	$ 18,807		
(9d) From Three Years Ago	24,014	(4,115)	(25,145)	2	$ 18,807	
(9e) From Four Years Ago	10,654	24,013	(4,114)	(25,147)	3	$ 18,805
(9f) Total Recognized Investment Gain/(Loss)	5,410	13,562	(10,450)	(6,338)	18,810	18,805
(10) Change in Actuarial Value of Assets						
=(4)+(7)+(9f)	59,646	53,490				
End of Year:						
(3) Market Value of Assets	**1,546,592**	**1,680,553**				
(11) Preliminary Actuarial Value of Assets =(2)+(10)	1,606,236	1,659,726				
(11a) Upper Corridor Limit 120% x (3)	1,855,910	2,016,664				
(11b) Lower Corridor Limit 80% x (3)	1,237,274	1,344,442				
(12) Adjustment to Remain within 20% Corridor	0	0				
(13) Actuarial Value of Assets =(11)+(12)	**1,606,236**	**1,659,726**				
(14) Pending Asset Transfer	0	0				
(15) Final Actuarial Value of Assets =(13)+(14)	**1,606,236**	**1,659,726**				

Table 4
Historical Comparison of Results

Year Ending June 30	2014	2015	2016	2017	2018
(1) Market Value of Assets	$ 1,492,821	$ 1,541,433	$ 1,492,345	$ 1,546,592	$ 1,680,553
(2) Actuarial Value of Assets	$ 1,368,535	$ 1,481,807	$ 1,546,590	$ 1,606,236	$ 1,659,726
(3) Difference Between Market & Actuarial Values	$ 124,286	$ 59,626	$ (54,245)	$ (59,644)	$ 20,827
(4) Estimated Market Value Rate of Return	16.81 %	6.10 %	(0.76)%	7.50 %	13.73 %
(5) Estimated Actuarial Value Rate of Return	12.16 %	11.46 %	7.00 %	7.59 %	8.08 %
(6) Ratio of Actuarial Value to Market Value	92 %	96 %	104 %	104 %	99 %
(7) Funded Ratio (Market Value of Assets)	73.4%	75.8%	72.6%	63.9%	58.8%
(8) Funded Ratio (Actuarial Value of Assets)	67.3%	72.9%	75.2%	66.4%	58.0%

Table 5
Reconciliation of Total Annual Contribution Rate and Employee/County Contribution Rates

Valuation as of July 1	2014	2015	2016	2017	2018
Total contribution rate at previous valuation	9.96%	9.48%	9.00%	9.65%	10.86%
Expected total contribution rate at current valuation	9.69%	9.44%	9.31%	9.75%	11.59%
Change due to:					
Recognition of asset (gains)/losses	-0.33%	-0.35%	0.05%	-0.01%	-0.07%
Salary increases	0.01%	-0.06%	0.06%	-0.09%	-0.06%
Other plan experience	0.15%	-0.03%	0.23%	1.21%	0.87%
Net transfers	0.00%	0.00%	0.00%	0.00%	0.00%
Change in actuarial assumptions	-0.04%	0.00%	0.00%	0.00%	1.86%
Plan improvements	0.00%	0.00%	0.00%	0.00%	0.00%
Measurement improvements	0.00%	0.00%	0.00%	0.00%	0.00%
Total change	-0.21%	-0.44%	0.34%	1.11%	2.60%
Actual total contribution rate at current valuation	9.48%	9.00%	9.65%	10.86%	14.19%

EMPLOYEE/COUNTY CONTRIBUTION RATES

Valuation as of July 1	2014	2015	2016	2017	2018
Employee Contribution Rates					
Employee Portion	4.17%	3.96%	4.25%	4.78%	6.24%
County Contribution Rates					
County Portion	5.31%	5.04%	5.40%	6.08%	7.95%

Table 6
Reconciliation of Unfunded Actuarial Accrued Liability and Funded Ratio

Valuation as of July 1	2014	2015	2016	2017	2018
Unfunded liability at previous valuation	$ 667,100	$ 666,300	$ 551,100	$ 509,700	$ 813,200
Expected unfunded liability at current valuation					
Normal cost for plan year	86,300	83,200	85,000	82,200	95,200
Interest on unfunded liability and normal cost	53,200	53,000	44,500	41,200	64,400
Contributions with interest to current valuation date	151,600	161,900	157,900	143,300	148,800
Total expected change in unfunded liability at current valuation	(12,100)	(25,700)	(28,400)	(19,900)	10,800
Total expected unfunded liability at current valuation	655,000	640,600	522,700	489,800	824,000
Change due to:					
Recognition of asset (gains)/losses	(57,300)	(59,300)	7,300	(1,300)	(9,100)
Salary increases	(15,800)	(8,000)	(20,100)	196,200	25,500
Other plan experience	2,000	(22,200)	(200)	128,500	140,500
Net transfers	200	0	0	0	0
Change in actuarial assumptions	82,200	0	0	0	219,400
Plan improvements	0	0	0	0	0
Measurement improvements	0	0	0	0	0
Total change	11,300	(89,500)	(13,000)	323,400	376,300
Unfunded liability at current valuation	666,300	551,100	509,700	813,200	1,200,300

RECONCILIATION OF FUNDED RATIO (BASED ON ACTUARIAL VALUE OF ASSETS)

Valuation as of July 1	2014	2015	2016	2017	2018
Funded ratio at previous valuation	65.2%	67.3%	72.9%	75.2%	66.4%
Expected funded ratio at current valuation	66.7%	68.9%	74.8%	76.6%	66.7%
Change due to:					
Recognition of asset gains/(losses)	2.9%	2.9%	-0.4%	0.1%	0.3%
Salary increases	0.5%	0.2%	0.8%	-5.9%	-0.6%
Other plan experience	0.0%	0.9%	0.0%	-4.4%	-3.6%
Net transfers	0.0%	0.0%	0.0%	0.0%	0.0%
Change in actuarial assumptions	-2.8%	0.0%	0.0%	0.0%	-4.8%
Plan improvements	0.0%	0.0%	0.0%	0.0%	0.0%
Measurement improvements	0.0%	0.0%	0.0%	0.0%	0.0%
Total change	0.6%	4.0%	0.4%	-10.2%	-8.7%
Funded ratio at current valuation	67.3%	72.9%	75.2%	66.4%	58.0%
Market value of assets funded ratio at current valuation	73.4%	75.8%	72.6%	63.9%	58.8%

Table 7
Actuarial Participant Data – Active Members

Age Group	Years of Service at Valuation Date							Total	Percentage of Total
	0-4	5-9	10-14	15-19	20-24	25-29	30&Up		
Under 35		1						1	1%
35-39		1						1	1%
40-44	1	1	1	1	1			5	6%
45-49		3		1				4	5%
50-54		1	1	3		1	2	8	9%
55-59	1	2	2	3	1	1		10	12%
60-64	1	6	1	2	4			14	16%
65-59	2	8	3	2	3		2	20	24%
70-74	1	2	5	2	1	2		13	15%
75 & Over		1	3	2	1		2	9	11%
Total	**6**	**26**	**16**	**16**	**11**	**4**	**6**	**85**	**100%**
Percentage of Total	**6%**	**31%**	**19%**	**19%**	**13%**	**5%**	**7%**	**100%**	

Average Attained Age	62.9
Average Years of Service to Date	15.4

Table 8
Actuarial Participant Data – Terminated Vested Members and Members in Pay Status

Retired Participants and Beneficiaries*		
Age Group	Number	Annual Pension Being Paid
Under 65	3	$ 8,217
65-69	8	20,018
70-74	19	48,263
75-79	19	34,922
80 & Over	29	55,585
Total	**78**	**$ 167,005**

Terminated Vested Participants		
Age Group	Number	Annual Deferred Pension
Under 45	0	$ -
45-49	1	514
50-54	1	209
55-59	2	7,610
60 & Over	4	2,230
Total	**8**	**$ 10,563**

**Number and benefits paid to alternate payees are classified based on the retiree's age.*

A. PURPOSES OF THE ACTUARIAL VALUATION

This report presents the results of an actuarial valuation of the Plan as of July 1, 2018. The purposes of the actuarial valuation are to determine the funding status of the Plan as of the valuation date, to develop contribution rates for fiscal year 2020, and to analyze the experience of the Plan during the past year. The required accounting information for pension plans, under GASB Statement No. 67, is provided in a separate report beginning for fiscal year ending June 30, 2014. The required accounting information for pension plan sponsors, under GASB Statement No. 68, is provided in a separate report beginning for fiscal year ending June 30, 2015. Historical accounting information can be found in the funding actuarial valuation report as of July 1, 2014.

B. EXPERIENCE DURING FY 2018

In summary, the results of the actuarial valuation indicate a total contribution rate for the fiscal year beginning July 1, 2019, of 14.19 percent of covered payroll, representing payment of the normal cost and amortization of the unfunded actuarial accrued liability over an 18-year closed level-percent-of-pay amortization period (14 years remaining as of July 1, 2018). Based on the current actuarial valuation, the employee contribution is 6.24 percent of pay, with the County contributing the remaining 7.95 percent of pay. The total contribution rate increased from 10.86 percent of pay at the last actuarial valuation to 14.19 percent of pay.

As of July 1, 2018, the actuarial accrued liability of $2,860,000 is 58.0 percent funded by the actuarial value of assets of $1,659,700, leaving an unfunded actuarial accrued liability of $1,200,300. The funded ratio decreased from 66.4 percent at the last actuarial valuation to 58.0 percent for the current actuarial valuation.

The estimated asset return during the year ended June 30, 2018, was 13.73 percent on a market value of assets basis and 8.08 percent on an actuarial value of assets basis. The estimated asset return on a market value basis was higher and on an actuarial value of assets basis was higher than the assumed asset return of 7.50 percent during fiscal year 2018. The asset gains in fiscal years 2014 and 2018, partially offset by the asset losses in fiscal years 2015 and 2016, resulted in a net decrease in the contribution rate and a net increase in the funded ratio attributable to investment performance. Table 4 has information on historical investment returns and asset values.

There was unfavorable salary increase experience and unfavorable demographic plan experience (retirements, terminations and deaths) compared to what was expected under the actuarial assumptions.

The change in actuarial assumptions decreased the funded ratio and increased the contribution rate.

Tables 5 and 6 have reconciliations of the contribution rates, unfunded actuarial accrued liability and funded ratio, including changes due to asset returns, plan experience, changes in actuarial assumptions and changes in plan provisions.

C. PLAN PROVISIONS

There have been no changes in benefit provisions since the previous actuarial valuation. The plan provisions are summarized in Section B.

D. ACTUARIAL ASSUMPTIONS AND METHODS

Section C contains a summary of the actuarial assumptions and methods used in the actuarial valuation. The Board adopted changes in the actuarial assumptions first effective with this actuarial valuation as of July 1, 2018, based on an experience study performed for the period July 1, 2013 to July 1, 2017.

The funding method is based on the Individual Entry Age Normal Actuarial Cost Method and 18-year closed-period level-percent-of-pay amortization of the unfunded liability beginning with the valuation as of July 1, 2014. (18-year open-period level-percent-of-pay amortization was used prior to the valuation as of July 1, 2014.) Funding under the 18-year closed-period policy is expected to gradually improve the funded status over time and increase the funded ratio to 100 percent at the end of the 18-year period.

E. ACCOUNTING INFORMATION UNDER GASB

A separate actuarial valuation report with calculations completed in accordance with the provisions of GASB Statement Nos. 67 and 68 has been issued.

F. OTHER OBSERVATIONS

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the Plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the Plan earning 7.25 percent on the actuarial value of assets), it is expected that:

1) The County normal cost will remain level as a percentage of pay. The unfunded liability contribution will remain level as a percentage of pay through the end of the closed amortization period;
2) The unfunded actuarial accrued liabilities will be fully amortized after 18 years from the fiscal year ending June 30, 2016 (June 30, 2033), which corresponds to the beginning of the closed amortization period established in the actuarial valuation as of July 1, 2014; and
3) The funded status of the plan will increase gradually towards a 100 percent funded ratio.

Limitations of Funded Status Measurements

Unless otherwise indicated, a funded status measurement presented in this report is based upon the actuarial accrued liability and the actuarial value of assets. Unless otherwise indicated, with regard to any funded status measurements presented in this report:

1) The measurement is inappropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations; for example, transferring the liability to an unrelated third party in a free market type transaction.
2) The measurement is dependent upon the actuarial cost method which, in combination with the Plan's amortization policy, affects the timing and amounts of future contributions. The amounts of future contributions will most certainly differ from those assumed in this report due to future actual experience differing from assumed experience based upon the actuarial assumptions. A funded status measurement in this report of 100 percent is not synonymous with no required future contributions. If the funded status were 100 percent, the Plan would still require future normal cost contributions (i.e., contributions to cover the cost of the active membership accruing an additional year of service credit).
3) The measurement would produce a different result if the market value of assets were used instead of the actuarial value of assets.

G. RISK MEASURES

Risks Associated With Measuring the Accrued Liability and Actuarially Determined Contribution

The determination of the accrued liability and the actuarially determined contribution requires the use of actuarial assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the actuarial assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability and the actuarially determined contribution that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; 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. The scope of this actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

1) Investment risk – actual investment returns may differ from the expected returns;
2) Asset/Liability mismatch – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
3) Contribution risk – actual contributions may differ from expected future contributions. For example, actual contributions may not be made in accordance with the plan's funding policy or material changes may occur in the anticipated number of covered employees, covered payroll or other relevant contribution base;

4) Salary and Payroll risk – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
5) Longevity risk – members may live longer or shorter than expected and receive pensions for a period of time other than assumed;
6) Other demographic risks – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

The County contribution rates shown in Table 5 may be considered as a minimum contribution rate that complies with the County's funding policy. The timely receipt of the actuarially determined contributions is critical to support the financial health of the plan. Users of this report should be aware that contributions made at the actuarially determined rate do not necessarily guarantee benefit security.

Plan Maturity Measures

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

	2017	2018
Ratio of the market value of assets to total payroll	1.01	1.15
Ratio of actuarial accrued liability to payroll	1.59	1.96
Ratio of actives to retirees and beneficiaries	1.33	1.09
Ratio of net cash flow to market value of assets	-4%	-4%

Ratio of Market Value of Assets to Payroll

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5 percent different than assumed would equal 10 percent of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

Ratio of Actuarial Accrued Liability to Payroll

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100 percent is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

The ratio of liability to payroll may also be used as a measure of sensitivity of the liability itself. For example, if the actuarial accrued liability is 2.5 times the payroll, a change in liability 2 percent

other than assumed would equal 5 percent of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in liability (and also plan sponsor contributions) as a percentage of payroll.

Ratio of Actives to Retirees and Beneficiaries

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

Ratio of Net Cash Flow to Market Value of Assets

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

Additional Risk Assessment

Additional risk assessment is outside the scope of the annual actuarial valuation. Additional assessment may include scenario tests, sensitivity tests, stochastic modeling, stress tests and a comparison of the present value of accrued benefits at low-risk discount rates with the actuarial accrued liability.

SECTION B.

SUMMARY OF PLAN PROVISIONS

Brief Summary of Plan Provisions

1.	**Effective Date:**	July 1, 1990, as amended through July 1, 2018.
2.	**Eligibility:**	All full-time members of AFSCME Local 241 hired on or after July 1, 1990, are required to participate in the plan. Such employees hired before July 1, 1990, participate if they so elected.
3.	**Credited Service:**	Credited service includes all continuous service (up to a maximum of 30 years) and interruptions of continuous service due to military service.
4.	**Retirement Dates:**	
	a. Normal -	Earliest of age 62 with 5 years of eligibility service, age 55 with 15 years of eligibility service or any age with 30 years of eligibility service.
	b. Early -	None.
	c. Late -	An employee may work beyond normal retirement date.
	d. Disability -	No provision.
5.	**Annual Retirement Benefits:**	0.75 percent of Average Annual Compensation (high 36 months' base) times years of service (not to exceed 30).
6.	**Termination Benefits:**	(a) Under 5 years of continuous credited service: Return of employee contributions with interest. (b) 5 or more years of continuous credited service: If contributions are left in the fund, an employee is entitled to a vested benefit payable at normal retirement date equal to the benefit accrued to date of termination.
7.	**Death Benefits:**	Return of employee contributions with interest, less any benefits paid prior to death.
8.	**Payment of Retirement Benefits:**	The normal form of payment is for the life of the participant only. An actuarially reduced joint and 50 percent surviving spouse form of payment may be elected.

9. Employee Contributions:

The cost of funding the Plan will be shared on an equal basis by the employee and the County through regular contributions each pay period, except that the cost to increase the benefit accrual rate from 0.4 percent to 0.6 percent will be paid totally by the County, the cost to increase the benefit accrual rate from 0.6 percent to 0.7 percent will be paid totally by the employees, and the cost to increase the benefit accrual rate from 0.7 percent to 0.75 percent will be paid totally by the County.

SECTION C.

ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Assumptions and Methods

The actuarial assumptions and methods are first effective with the actuarial valuation as of July 1, 2018, and are based on the experience study for the period July 1, 2013 to July 1, 2017.

1. Interest: 7.25 percent compounded annually, net of investment expenses (based on assumed price inflation assumption of 2.50 percent).

2. Mortality: The mortality assumptions are based on the following Public Sector 2010 Mortality tables. The rates are projected from 2010 using projection scale MP-2018 (generational mortality) and therefore include a provision for future mortality improvement.

Type	Assumption
Post-retirement non-disabled	Pub-2010 Healthy Retiree Mortality Table (for General Employees), sex distinct
Pre-retirement	Pub-2010 Employee Mortality Table (for General Employees), sex distinct

3. Expenses: Non-investment expenses equivalent to 105 percent of the average administrative expenses incurred in the last three fiscal years as supplied by the County and incorporated in the Normal Cost.

Valuation Year	Actual Administrative Expenses 3 Years Prior	2 Years Prior	1 Year Prior	3-Year Average	Assumed Expenses Added to Normal Cost
2017	$ 28,122	$ 29,501	$ 29,075	$ 28,899	$ 30,300
2018	29,501	29,075	20,123	26,233	27,500

4. Salary Scale: The following illustrative annual rates of salary increase were used:

Service	Salary Increase
1	5.25%
2	5.00%
3	4.75%
4 - 10	4.50%
11 - 35	3.75%
36+	2.75%

5. Turnover:

The following illustrative annual rates of withdrawal, including disability, were used:

Service Beginning of Year	Percentage of Employees Terminating Employment Annually	
	Male	Female
0	15.00%	15.00%
1	13.00%	13.00%
2	11.00%	11.00%
3 - 4	10.00%	10.00%
5	9.00%	9.00%
6	8.00%	8.00%
7	7.00%	7.00%
8	6.00%	6.00%
9	5.00%	5.00%
10	4.00%	4.00%
11	3.75%	3.75%
12	3.50%	3.50%
13	3.25%	3.25%
14	3.00%	3.00%
15	2.75%	2.75%
16	2.50%	2.50%
17	2.25%	2.25%
18	2.00%	2.00%
19	1.75%	1.75%
20	1.50%	1.50%
21	1.25%	1.25%
22+	1.00%	1.00%

6. Retirement Age:

The following illustrative annual rates of retirement were used:

Age	Retirement Rate
Under 75	10%
75-79	15%
80-84	25%
85+	100%

7.	**Asset Valuation Method:**	The calculated value is determined by adjusting the market value of assets to reflect the investment gains and losses (the difference between the actual investment return and the expected investment return) during each of the last five years at the rate of 20 percent per year. A corridor is then applied to the calculated value such that it is not greater than 120 percent or less than 80 percent of the market value of assets.
8.	**Cost Method:**	Entry age normal cost method, under which the normal cost as a percentage of pay for each employee remains level from entry age to retirement, and the accrued liability represents the fund which would now be on hand if all past normal costs had actually been paid, and all current assumptions had been realized.
9.	**Amortization Method:**	18-Year Closed as of July 1, 2014, Level Percentage of Payroll.
10.	**Payroll Growth:**	Total payroll is assumed to increase by 2.75 percent per year.
11.	**Cost of Benefit Enhancements:**	It is assumed that 44 percent of the total contribution rate represents the bargained employee contribution and reflects the employees' share of the cost of the benefit enhancements.
12.	**Benefit Service:**	Exact fractional years of service are used to determine the amount of benefit payable.
13.	**Decrement Timing:**	All decrements are assumed to occur mid-year.
14.	**Decrement Relativity:**	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
15.	**Decrement Operation:**	Turnover decrement does not operate after member reaches retirement eligibility.
16.	**Eligibility Testing:**	Eligibility for benefits is determined based upon the age nearest birthday and service on the date the decrement is assumed to occur.
17.	**Pay Increase Timing:**	End of (fiscal) year.

18. Data Adjustments/Missing Data:

A minimum salary of $10,000 was used for active participants for valuation purposes.

The actuarial accrued liability for retired participants includes an amount of $172,283 for inactive/deferred members reported with a benefit of $0 as of July 1, 2018, who are expected to receive a future refund payout.

SECTION D.

GLOSSARY OF TERMS

Glossary of Terms

Actuarial Accrued Liability (AAL). The difference between (i) the actuarial present value of future plan benefits, and (ii) the actuarial present value of future normal cost. Sometimes referred to as "accrued liability" or "past service liability."

Actuarial Assumptions. Estimates of future plan experience such as investment return, expected lifetimes and the likelihood of receiving a pension from the Pension Plan. Demographic, or "people" assumptions, include rates of mortality, retirement and separation. Economic, or "money" assumptions, include expected investment return, inflation and salary increases.

Actuarial Cost Method. A mathematical budgeting procedure for allocating the dollar amount of the "actuarial present value of future plan benefits" between the actuarial present value of future normal cost and the actuarial accrued liability. Sometimes referred to as the "actuarial funding method."

Actuarial Present Value of Future Plan Benefits. The amount of funds presently required to provide a payment or series of payments in the future. It is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

Actuarial Value of Assets (AVA). Smoothed value of assets that recognizes the difference between the expected investment return using the valuation assumption and the actual investment return over a five-year period. Dampens volatility of asset value over time.

Amortization. Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Annual Required Contribution. The sum of the normal cost and amortization of the unfunded actuarial accrued liability.

Asset Return. The net investment return for the asset divided by the mean asset value. Example: if $1.00 is invested and yields $1.07 after a year, the asset return is 7.00 percent.

Funded Ratio. The actuarial value of assets divided by the actuarial accrued liability. Measures the portion of the actuarial accrued liability that is currently funded.

Market Value of Assets (MVA). The value of assets currently held in the trust available to pay for benefits of the Pension Plan. Each of the investments in the trust is valued at market price which is the price at which buyers and sellers trade similar items in the open market.

Normal Cost (NC). The annual cost assigned, under the actuarial funding method, to current and subsequent plan years. Sometimes referred to as "current service cost." Any payment toward the unfunded actuarial accrued liability is not part of the normal cost.

Unfunded Actuarial Accrued Liability (UAAL). The difference between the actuarial accrued liability and valuation assets. Sometimes referred to as "unfunded accrued liability."