Classic Values, Innovative Advice

Delaware County & Municipal Police/ Firefighters Pension Plan

Actuarial Valuation as of June 30, 2016

Produced by Cheiron

March 2017

TABLE OF CONTENTS

March 10, 2017

Board of Pension Trustees
State of Delaware
McArdle Building
860 Silver Lake Boulevard, Suite 1
Dover, Delaware 19904

Dear Members of the Board:

At your request, we have conducted the annual actuarial valuation of the Delaware County & Municipal Police/Firefighters Pension Plan (Plan) as of June 30, 2016. The results of this valuation are contained in this report. The purpose of the valuation is discussed in the Foreword.

This report contains information on Plan assets and liabilities, as well as analyses combining asset and liability performance and projections. It also discloses employer contribution levels and required disclosures under the Governmental Accounting Standards Board (GASB) Statement No. 67.

In completing the valuation and preparing our report, we relied on information, some oral and some written, supplied by staff of the Office of Pensions. This information includes, but is not limited to, the Plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

The contribution results of this report are only applicable to the employer contributions for Fiscal Year (FY) 2018 and rely on future Plan experience conforming to the underlying assumptions. To the extent that actual Plan experience deviates from the underlying assumptions, the results would vary accordingly.

To the best of our knowledge, this report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices that are consistent with the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinions contained in this report. This report does not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

This report was prepared for the Delaware County & Municipal Police/Firefighters Pension Plan for the purposes described herein and for the use by the Plan auditor in completing an audit related to the matters herein. Other users of this valuation report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Sincerely,
Cheiron

Fiona E. Liston

Fiona E. Liston, FSA
Principal Consulting Actuary

Elizabeth Wiley, FSA, EA
Consulting Actuary

FOREWORD

Cheiron has performed the annual actuarial valuation of the Delaware County & Municipal Police/Firefighters Pension Plan (Plan) as of June 30, 2016. The purpose of this report is to:

1) **Measure and disclose**, as of the valuation date, the financial condition of the Plan,

2) **Indicate trends** in the financial condition of the Plan,

3) **Determine the contribution rate** to be paid by the participating employers for Fiscal Year (FY) 2018, and

4) **Provide** accounting statement information.

An actuarial valuation establishes and analyzes plan assets and liabilities on a consistent basis and traces the progress of both from one year to the next. It includes measurement of the plan's investment performance as well as an analysis of liability gains and losses.

Section I presents a summary containing our findings and disclosing important trends experienced by the Plan in recent years.

Section II contains details on various asset measures, together with pertinent performance measurements.

Section III shows similar information on liabilities, measured for actuarial, accounting, and governmental reporting purposes.

Section IV presents the FY 2018 actuarially determined contribution for participating employers.

Section V includes required disclosures under Governmental Accounting Standards Board (GASB) Statement No. 67 and items recommended by the Government Finance Officers Association (GFOA).

The appendices to this report contain a summary of the Plan's membership at the valuation date, a summary of the major provisions of the Plan, and a summary of the actuarial methods and assumptions used in the valuation.

The actuarial assumptions reflect our understanding of the likely future experience of the Plan, and the assumptions individually and as a whole represent our best estimate for the future experience of the Plan. The results of this report rely on future Plan experience conforming to the underlying assumptions and methods outlined in this report. To the extent that the actual Plan experience deviates from the underlying assumptions and methods, or there are any changes in Plan provisions, the true cost of the Plan would vary from our results.

SECTION I - BOARD SUMMARY

General Comments

The actuarially determined contribution (ADC) rate decreased from 13.77% for FY 2017 to 11.42% for FY 2018.

During the year ended June 30, 2016, the Plan's assets earned negative 1.4% on a market value basis. However, due to the Plan's asset smoothing method, which recognizes only a portion of the investment gains and losses, the return on an actuarial value basis was 5.7%. This return was less than the assumed investment rate of return of 7.2% for last year, resulting in an actuarial loss on investments of $4.2 million.

The Plan experienced an actuarial loss on Plan liabilities resulting from salary increases different from those assumed and members retiring, terminating, becoming disabled, and dying at rates different from the actuarial assumptions. The liability loss increased the actuarial liability by $4.2 million. This type of gain or loss is normal in the course of plan experience, as we cannot predict exactly how people will behave. In addition to the actuarial loss, the Plan's liabilities also decreased by $4.6 million due to changes in assumptions as recommended in an experience study performed in 2016.

Liabilities also increased by $4.4 million due to the participation of a new employer. Since they paid for past service of their new employees, the net impact on the Plan's funding was zero.

This valuation report also contains information to be reported in the June 30, 2016 Comprehensive Annual Financial Report (CAFR) of the Delaware Public Employees' Retirement System (Delaware PERS) under GASB Statement No. 67, as well as additional disclosure information recommended by the Government Finance Officers Association (GFOA). The GASB disclosures are based on the use of updated procedures to roll forward the 2015 actuarial valuation liability results. The calculation of net pension liability in Section V is shown as disclosed for the plan year ending June 30, 2016, based on the 2015 funding actuarial valuation liability results, updated to reflect the assumption changes adopted by the Board of Trustees as recommended in the recent experience study. We also present a projection of the June 30, 2017 disclosure in Section V, assuming all actuarial assumptions are met over the coming year, which is based on the 2016 funding actuarial valuation liability results.

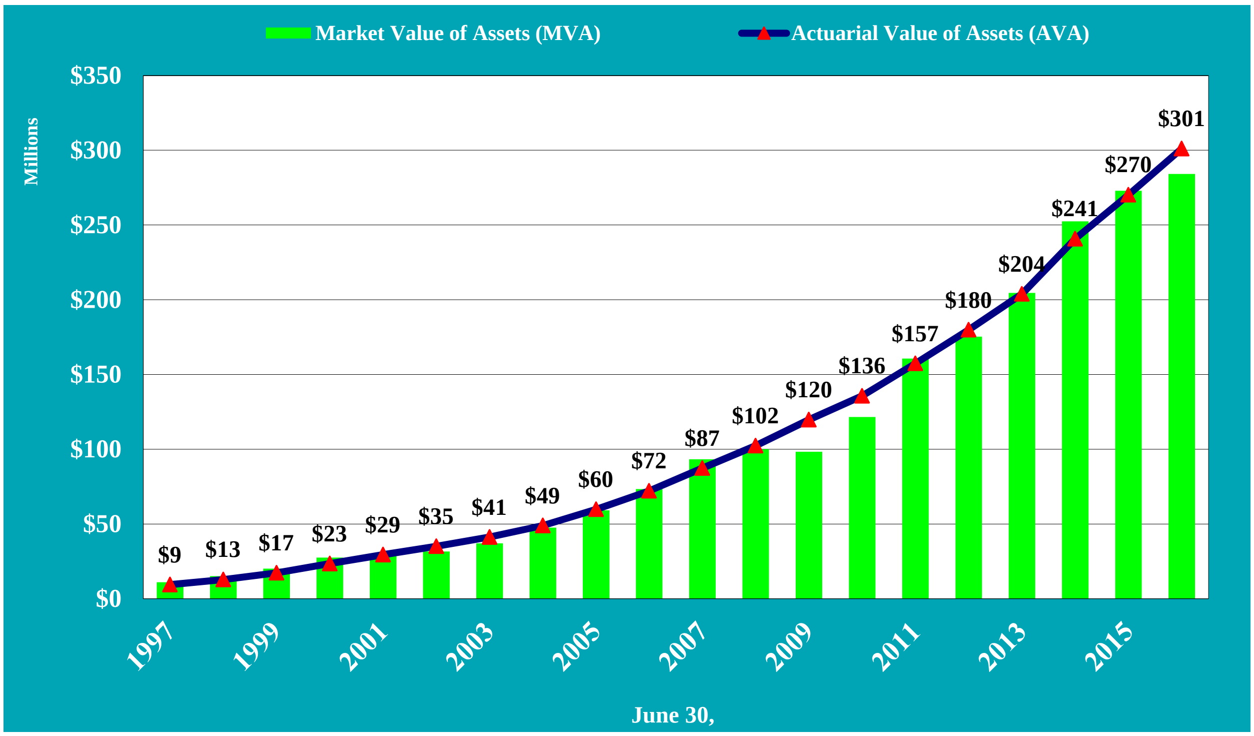
As of the June 30, 2016 funding actuarial valuation, the Plan reported a net surplus of $5.1 million. This is an increase from the $0.7 million net surplus for the prior year.

SECTION I - BOARD SUMMARY

Trends

Growth in Assets

The graph below shows measurements of the Plan's assets over the last 20 years based on both market values and actuarial values. The green bars represent the market value measurements, while the blue line shows the actuarial value measurements. The black numbers are the actuarial value of asset measurements as of the valuation date for each year in millions of dollars.



The market value of assets (MVA) returned negative 1.4% over the last year. The determination of the Plan's actuarial value of assets (AVA) for the current year reflects a portion of the return below the 7.2% assumed for the year, and continued recognition of prior years' gains and losses, and thus returned 5.7% over FY 2016.

Over the period July 1, 1997 to June 30, 2016, the Plan's assets have had an approximately 8.4% annual geometric return on an actuarial value basis, compared to the current valuation assumption of 7.2%.

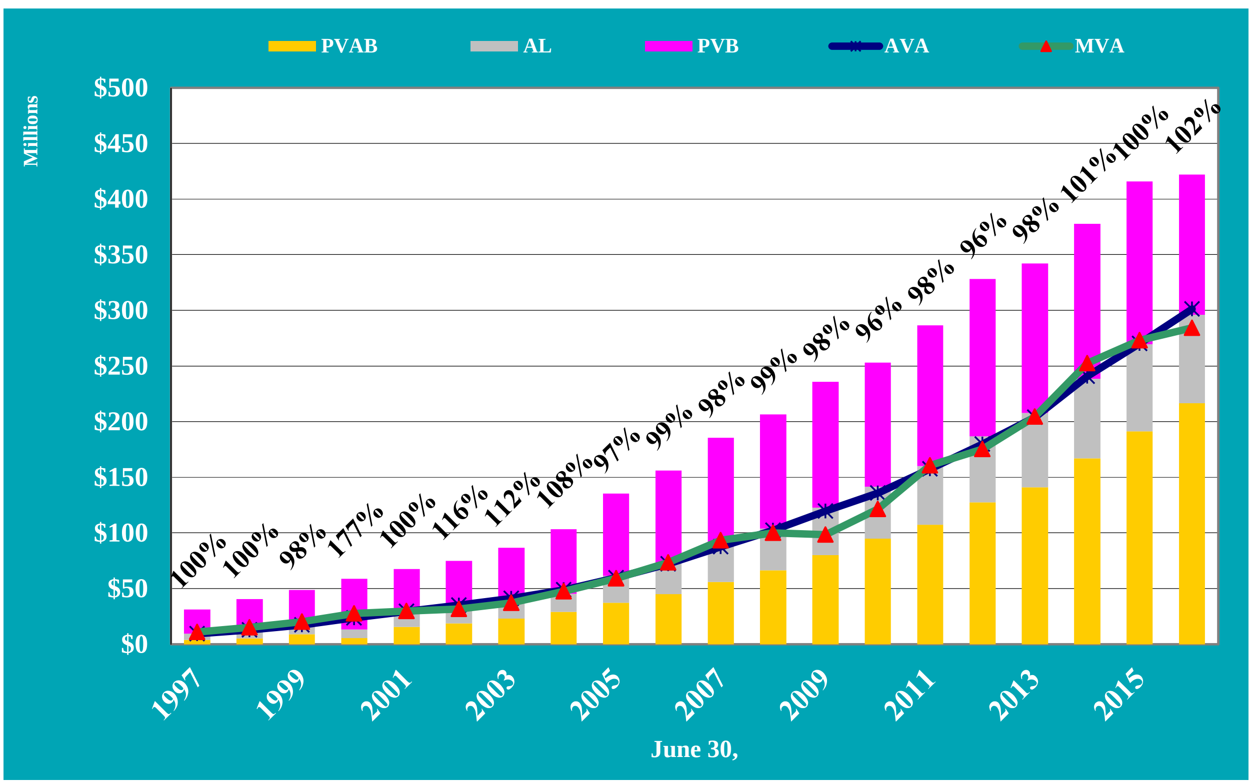
SECTION I - BOARD SUMMARY

Assets and Liabilities

The three colored bars below represent the three different measures of liability discussed in this report. The first measure is given by the yellow bars, the present value of accrued benefits (PVAB). The PVAB values represent the value of all benefits earned by current members through the valuation date. These values do not reflect any future additional service or salary increases for current members beyond the valuation date.

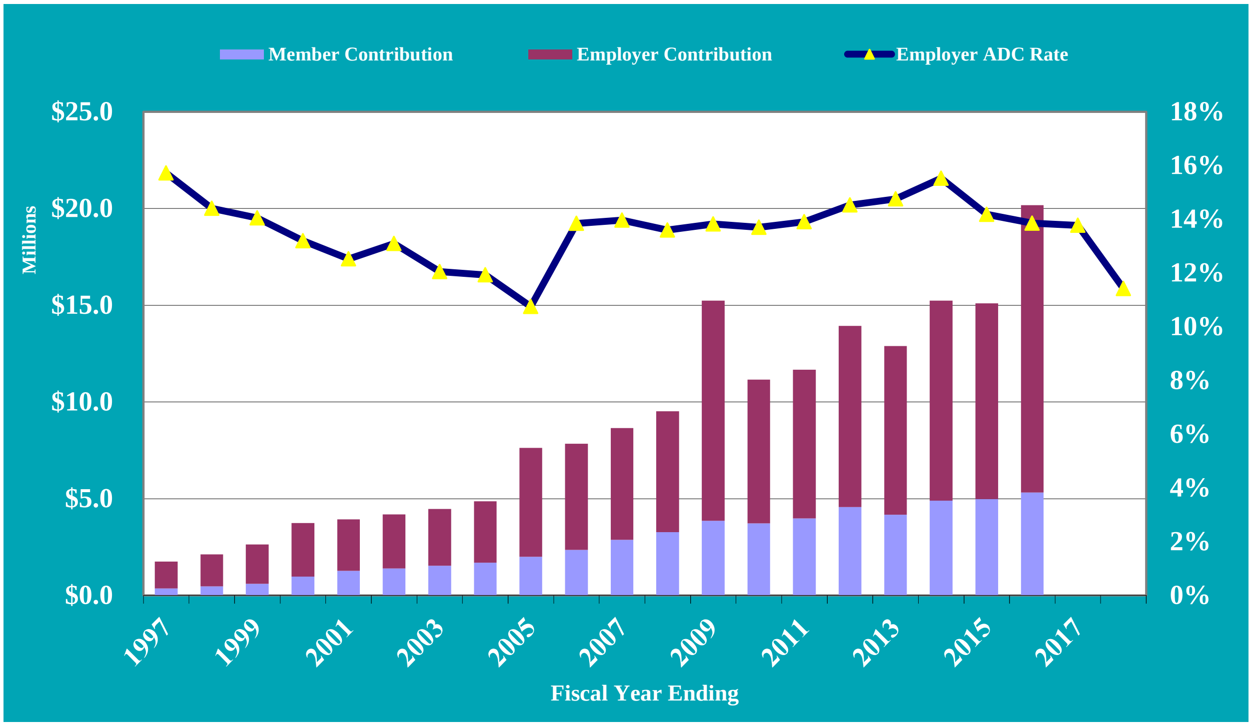
The second liability measure is the one currently used for the Plan's funding target, the actuarial liability (AL). These target amounts are represented by the top of the gray bars. This measurement is also the basis of the liability measure used in GASB 67. The funded ratios reported by the Plan are the percentages shown above the bars and are developed by comparing these target measurements of liability to the actuarial value of assets at each valuation date.

The amount represented by the top of the pink bars, the present value of future benefits (PVB), is the amount needed to provide all benefits for the current members and their beneficiaries, including reflection of assumed future service and pay increases. If the Plan had assets equal to the PVB as of a certain date, no additional contributions would, in theory, be needed to pay the benefits of the current members if all assumptions were exactly met from that point forward.



SECTION I - BOARD SUMMARY

Contribution Rates



The stacked bars in the graph above show the dollar amounts of the contributions made by the participating employers and the members for each fiscal year and are read using the left-hand scale. The contribution amounts shown in the bars represent what was actually paid. The blue line shows the employer ADC rate for each fiscal year as a percentage of payroll (right-hand scale).

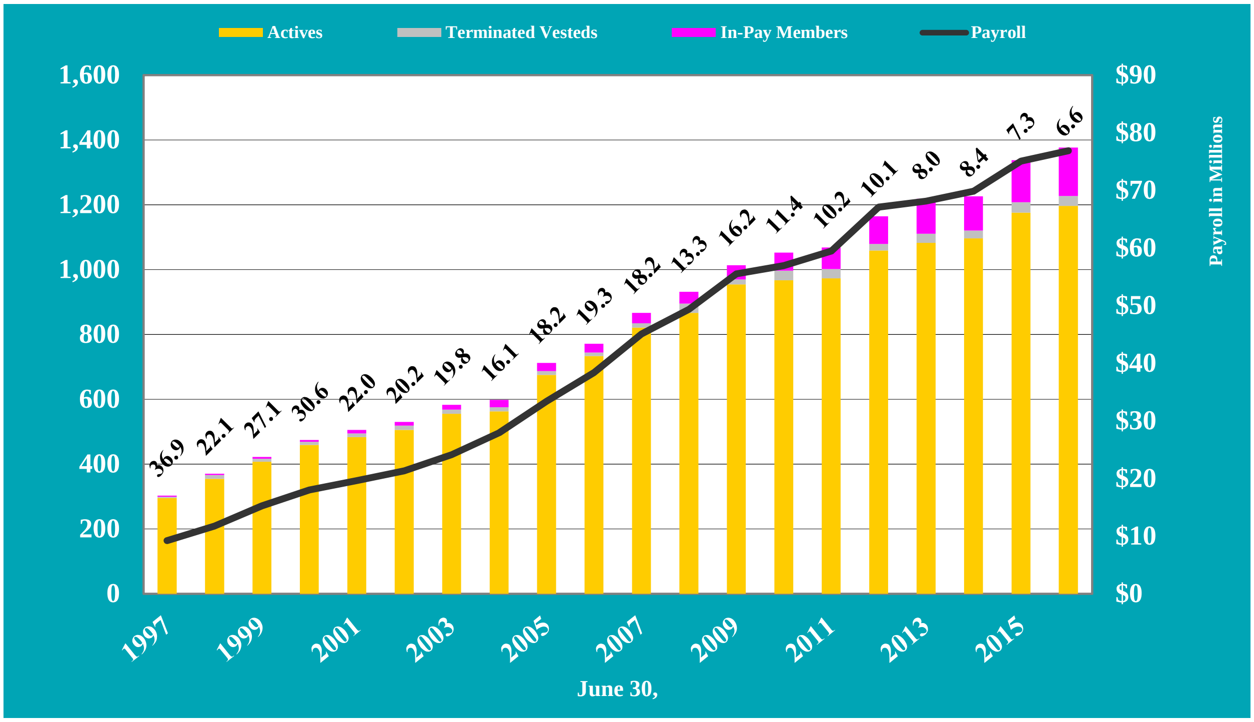
The member contribution rate is set by State law, based on the Plan in which the member participates. The participating employer contribution rate is set by the actuarial process. Please note that there is a lag in the participating employer contribution rates shown. For example, the value shown for the FY 2016 is the rate prepared by the June 30, 2014 valuation and implemented for the period July 1, 2015 to June 30, 2016.

SECTION I - BOARD SUMMARY

Participant Trends

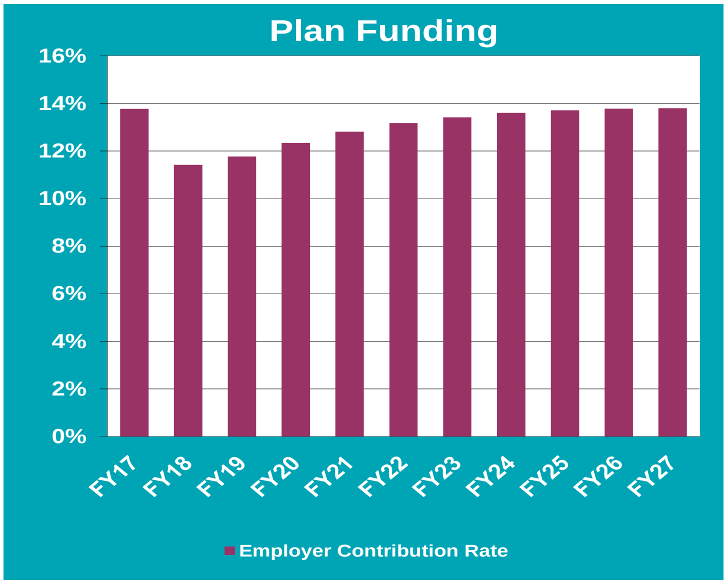
The bars below show the number of members as of each valuation date, divided between active members, terminated vested members, and retirees/beneficiaries. These bars are read using the left-hand scale. Since this is a relatively young plan, there are still many more actives than there are retirees. However, as this fund continues to mature, this plan will continue to show growth in the number of inactive members. The numbers that appear above each bar represent the ratio of active members to inactive members (retirees, beneficiaries, and terminated vested members) at each valuation date. The active-to-inactive ratio has decreased from 36.9 actives to each inactive in 1997 to 6.6 actives for each inactive in 2016.

The black line shows the covered payroll for the Plan as of each valuation date and is read using the right-hand scale.



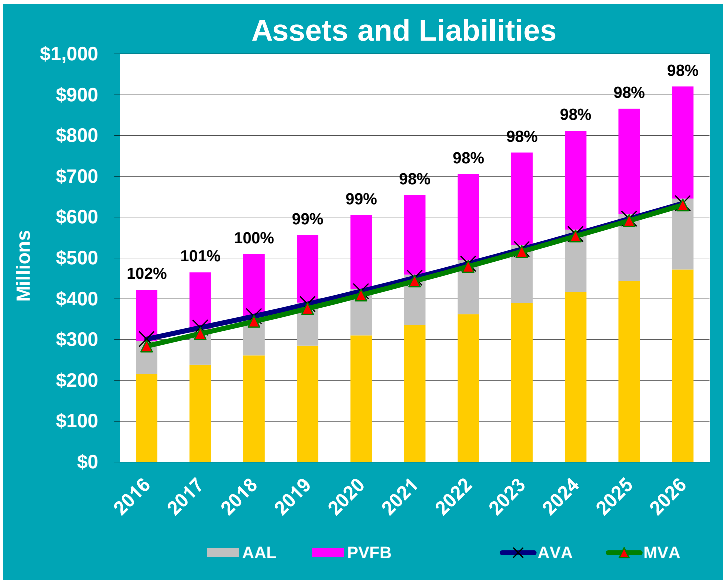
Future Outlook

Base Line Projections



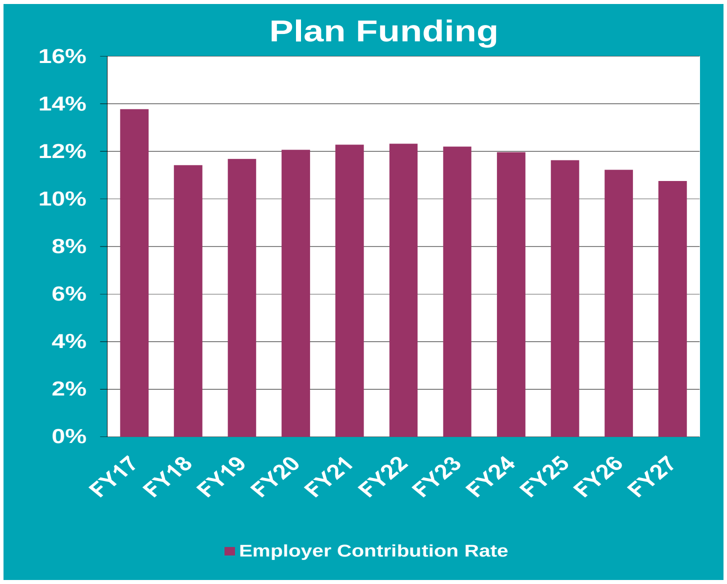
These graphs show the expected progress of the Plan over the next 10 years, assuming the Plan's assets earn 7.2% on a *market value* basis and assuming all assumptions are exactly met, including that the actuarially determined contribution (ADC) amounts are made in full. The chart entitled "Plan Funding" shows a gradual increase in the employer ADC rate from 11.42% in FY 2018, determined by the current valuation, to 13.80% as existing investment losses are recognized by the asset smoothing method.

The "Assets and Liabilities" graph shows the projected funded ratios of the Plan over the next 10 years. The Plan's funded status is projected to decline to 98% at the end of the 10-year period, assuming all assumptions are met exactly.



SECTION I - BOARD SUMMARY

Projections with Asset Returns of 8.2%

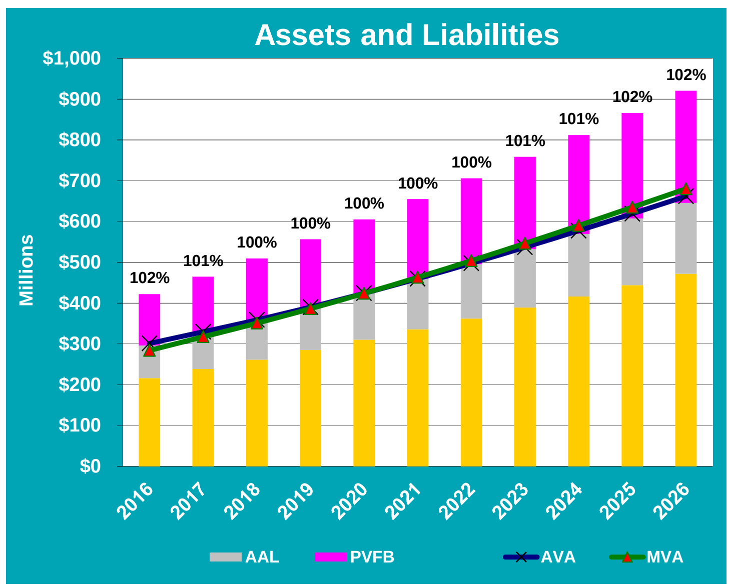


The Plan's investment earnings will affect the future funding status of the Plan. The two graphs on this page show what the next 10 years would be expected to look like if the Plan's investment performance is 8.2% each year, 1.0% higher than the valuation investment rate of return assumption.

These two graphs assume all other assumptions are exactly met, including participating employer contributions equal to the full actuarially determined amounts.

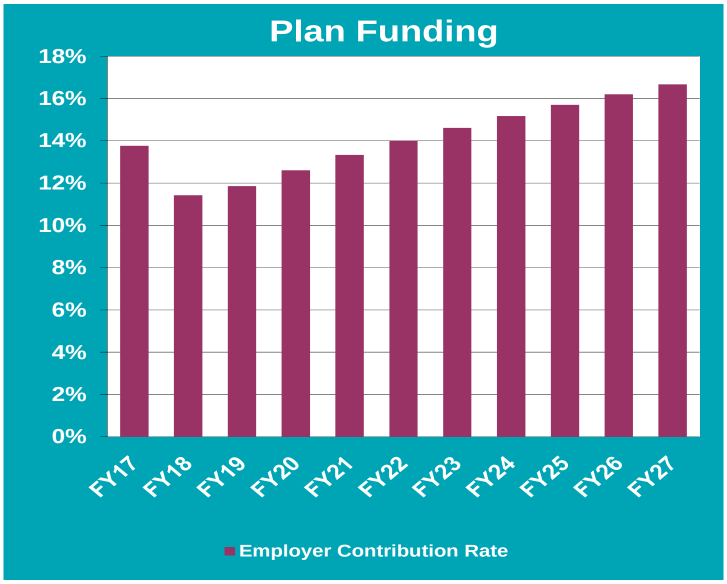
The "Plan Funding" graph shows that under this scenario the employer ADC rate would continue to increase for a couple of years beyond the FY 2018 rate determined in this valuation, as the stored investment losses are recognized by the asset smoothing method. Then the rate stabilizes and begins to slowly decline, dropping to approximately 10.75% of payroll at the end of the projected period.

The "Assets and Liabilities" graph shows that under this scenario the Plan would reach a 102% funded ratio by 2026, an improvement over the baseline scenario's ultimate level of 98%.



SECTION I - BOARD SUMMARY

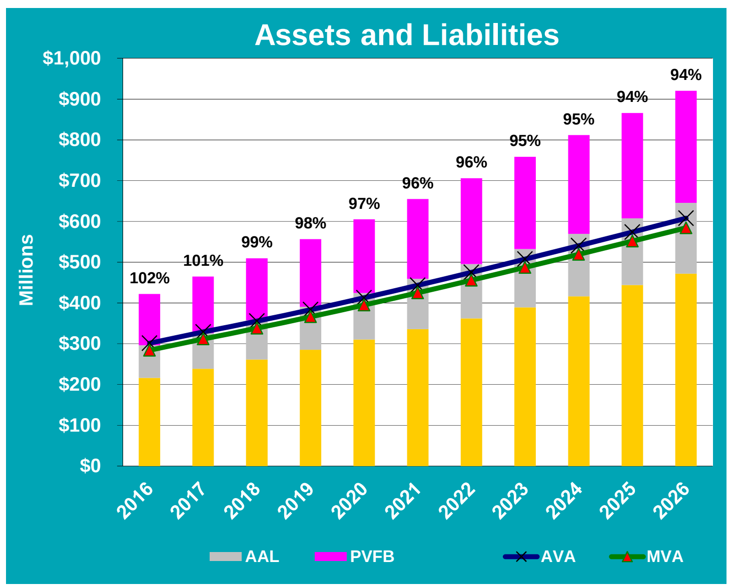
Projections with Asset Returns of 6.2%



The graphs on this page show projections of the Plan's funding status and contributions assuming that the Plan's investment performance is 6.2% each year of the projection, 1.0% lower than the valuation investment rate of return assumption.

Note that these projections assume all other assumptions are exactly met, including payment of participating employer contributions equal to the full actuarially determined contribution.

Under this scenario, the employer's ADC rate quickly increases to approximately 16.67% of payroll by the end of the 10-year period, significantly greater than the 13.80% ultimate rate in the baseline projection. Additionally, the funded ratio is projected to decline, reaching 94% at the end of the 10-year period, lower than the 98% ultimate funded ratio in the baseline projection.



SECTION I - BOARD SUMMARY

Table I-1
Summary of Principal Plan Results

Valuation as of:	**June 30, 2015**	**June 30, 2016**	**% Change**
Member Counts			
Active Members	1,175	1,196	1.79%
Disabled Members	23	24	4.35%
Retirees and Beneficiaries	102	125	22.55%
Terminated Vested Members	32	31	(3.13%)
Terminated Non-Vested Members	5	15	200.00%
Total Member Counts	**1,337**	**1,391**	4.04%
Covered Payroll of Active Members*	$ 75,057,500	$ 76,872,700	2.42%
Annual Benefit Payments for Retirees, Disabled Members, and Beneficiaries	$ 4,074,500	$ 5,213,400	27.95%
Assets and Liabilities			
Actuarial Liability (AL)	$ 269,569,100	$ 296,036,600	9.82%
Actuarial Value of Assets (AVA)	270,256,000	301,143,600	11.43%
Unfunded AL (UAL)	$ (686,900)	$ (5,107,000)	(643.49%)
Funded Ratio on AVA Basis (AVA/AL)	100.3%	101.7%	
Funded Ratio on MVA Basis (MVA/AL)	101.3%	96.0%	
Present Value of Accrued Benefits (PVAB)	$ 191,217,200	$ 216,374,800	13.16%
Market Value of Assets (MVA)	272,955,600	284,196,200	4.12%
Unfunded PVAB	$ (81,738,400)	$ (67,821,400)	17.03%
Accrued Benefit Funded Ratio (PVAB/MVA)	142.7%	131.3%	
Employer Contribution Rate	**Fiscal Year 2017**	**Fiscal Year 2018**	
Entry Age Normal Cost	13.71%	12.02%	
UAL Amortization Payment	(0.19%)	(0.85%)	
Administrative Expense	0.25%	0.25%	
Actuarially Determined Contribution (ADC)	13.77%	11.42%	

* Assumes one year of payroll increase projection, representing payroll beginning on each valuation date.

SECTION II - ASSETS

Pension plan assets play a key role in the financial operation of the Plan and in the decisions that the Board of Trustees may make with respect to future deployment of those assets. The level of assets, the allocation of assets among asset classes, and the methodology used to measure assets will likely affect benefit levels, employer actuarially determined contributions, and the ultimate security of members' benefits.

In this section, we present detailed information on the Plan's assets including:

- **Disclosure** of the Plan's assets at June 30, 2015 and June 30, 2016,
- Statement of the **changes** in market values during FY 2016,
- Development of the **actuarial value of assets**,
- An assessment of **investment performance**, and
- A projection of the Plan's expected **cash flows** for the next 10 years.

Market Value of Assets Disclosure

The market values of assets represent "snap-shot" or "cash-out" values that provide the principal basis for measuring financial performance from one year to the next. However, market values can fluctuate widely with swings in the marketplace, and as such, are usually not suitable for budgeting and long-range planning.

Table II-1 below shows the market values as of June 30, 2015 and June 30, 2016, along with the changes between the two.

Table II-1
Changes in Market Values of Assets

Market Value of Assets – June 30, 2015		**$ 272,955,600**
Additions		
Member Contributions	$ 5,327,700	
Employer Contributions	14,840,500	
Investment Returns	(3,881,100)	
Total Additions	**$ 16,287,100**	
Deductions		
Benefit Payments	$ 4,911,400	
Administrative Expenses	135,100	
Total Deductions	**$ 5,046,500**	
Market Value of Assets – June 30, 2016		**$ 284,196,200**

SECTION II - ASSETS

Actuarial Value of Assets

The actuarial value of assets represents a "smoothed" value developed by the actuary to reduce, or eliminate, erratic results that could develop from short-term fluctuations in the market value of assets. The actuarial value for this plan equals the expected actuarial value of assets, developed from the immediately prior valuation, plus 20% of the difference between the actual market value of assets and that expected actuarial value of assets at the valuation date. The table below illustrates the calculation of the actuarial value of assets as of June 30, 2016.

Table II-2
Development of Actuarial Value of Assets

1.	Actuarial Value of Assets at June 30, 2015	$ 270,256,000
2.	Amount in (1) with interest to June 30, 2016 at 7.20% per year	$ 289,714,400
3.	Employer and member contributions for the Plan Year ended June 30, 2016	20,168,200
4.	Interest on contributions assuming payments made uniformly throughout the year to June 30, 2016 at 7.20% per year	726,100
5.	Disbursements from Trust except investment expenses, July 1, 2015 through June 30, 2016	5,046,500
6.	Interest on disbursements to June 30, 2016 at 7.20% per year	181,700
7.	Expected Actuarial Value of Assets at June 30, 2016 = (2) + (3) + (4) – (5) – (6)	$ 305,380,500
8.	Actual Market Value of Assets at June 30, 2016	$ 284,196,200
9.	Excess of (8) over (7)	$ (21,184,300)
10.	Actuarial Value of Assets at June 30, 2016 = (7) + 20% of (9)	$ 301,143,600

Investment Performance

The market value of assets (MVA) returned negative 1.4% during 2016, which is less than the assumed 7.2% investment rate of return. The actuarial value of assets (AVA) returned 5.7% over this same year, reflecting the asset smoothing method being utilized by the Plan for the measurement of the actuarial value of assets. Since only 20% of the gain or loss from the performance of the Plan is typically recognized in a given year under the asset smoothing method, in periods of very good performance, the AVA can lag significantly behind the MVA, and in a period of negative returns, the AVA does not decline as rapidly as the MVA.

Projection of Cash Flows

Table II-3
Cash Flow Projections

Year Beginning July 1,	Expected Benefit Payments	Expected Contributions*
2016	$ 6,150,000	$ 16,021,000
2017	7,273,000	14,569,000
2018	8,496,000	14,881,000
2019	10,059,000	15,253,000
2020	11,800,000	15,634,000
2021	13,698,000	16,025,000
2022	15,816,000	16,426,000
2023	18,156,000	16,836,000
2024	20,695,000	17,257,000
2025	23,662,000	17,689,000

* Expected contributions include participating employer contributions and member contributions. For illustration purposes, we have assumed the employer contribution rate will remain level from FYE 2018 and that payroll will increase at the actuarially assumed rate of 2.50% per year.

Expected benefit payments are projected for the closed group valued at June 30, 2016. Projecting any further than 10 years using a closed group would not yield reliable projections due to the omission of new hires in the benefit payments, compounded by their inclusion in the expected contributions.

SECTION III - LIABILITIES

In this section, we present detailed information on the Plan's liabilities for funding purposes, including:

- **Disclosure** of the Plan's liabilities at June 30, 2015 and June 30, 2016, and
- Statement of **changes** in these liabilities during the year.

Disclosure

Three liability measurements are calculated and presented in this report. Each type is distinguished by the purpose, or purposes, for which they are used.

- **Present Value of Benefits (PVB):** Used for analyzing the financial outlook of plans, this represents the amount of money needed today to fund all future benefits and expenses of a plan, assuming current members continue to accrue benefits and there are no new entrants, and that all actuarial assumptions are met.

- **Actuarial Liability (AL):** Used for funding calculations for a plan and GASB disclosures, this liability is calculated by taking the present value of benefits (PVB) and subtracting the present value of future member contributions (PVFEEC) and the present value of future employer normal costs (PVFNC) under an acceptable actuarial funding method. The Plan uses the **Entry Age Normal** funding method.

- **Present Value of Accrued Benefits (PVAB):** Used for communicating the current level of liabilities, this liability represents the total amount of money needed today to fund the current accrued obligations of a plan, assuming no future accruals of benefits or salary increases. These liabilities are also required for some accounting purposes of some plans (Topic No. 960) and are sometimes used as part of assessing whether a plan can meet its current benefit commitments. Note that the development of this amount also assumes that all actuarial assumptions are met, including the assets earning 7.2% per year.

Note that none of the liability amounts disclosed in this report is appropriate for measuring a settlement of the Plan's liabilities.

The following table discloses each of these liabilities for the current and immediately prior funding valuations. With respect to each disclosure, a subtraction of an appropriate value of Plan assets yields, for each respective type, either a net surplus or an unfunded amount.

SECTION III - LIABILITIES

Table III-1
Liabilities and Net (Surplus)/Unfunded Amount

	June 30, 2015	June 30, 2016
Present Value of Benefits		
Active Member Benefits	$ 364,844,200	$ 356,004,000
Retiree, Beneficiary, Disabled, and Terminated Members Benefits	51,056,200	65,942,600
Present Value of Benefits (PVB)	**$ 415,900,400**	**$ 421,946,600**
Market Value of Assets (MVA)	$ 272,955,600	$ 284,196,200
Future Member Contributions	49,550,600	46,452,800
Future Employer Contributions	93,394,200	91,297,600
Total Resources	**$ 415,900,400**	**$ 421,946,600**
Actuarial Liability		
Present Value of Benefits (PVB)	$ 415,900,400	$ 421,946,600
Present Value of Future Normal Costs (PVFNC)	96,780,700	79,457,200
Present Value of Future Member Contributions (PVFEEC)	49,550,600	46,452,800
Actuarial Liability (AL=PVB–PVFNC–PVFEEC)	**$ 269,569,100**	**$ 296,036,600**
Actuarial Value of Assets (AVA)	270,256,000	301,143,600
Net (Surplus)/Unfunded (AL – AVA)	**$ (686,900)**	**$ (5,107,000)**
Present Value of Accrued Benefits		
Present Value of Benefits (PVB)	$ 415,900,400	$ 421,946,600
Present Value of Future Benefit Accruals (PVFBA)	224,683,200	205,571,800
Present Value of Accrued Benefits (PVAB=PVB–PVFBA)	**$ 191,217,200**	**$ 216,374,800**
Market Value of Assets (MVA)	$ 272,955,600	$ 284,196,200
Net (Surplus)/Unfunded PVAB (PVAB – MVA)	**$ (81,738,400)**	**$ (67,821,400)**

SECTION III - LIABILITIES

Changes in Liabilities

Each of the liabilities disclosed in the prior table are expected to change at each valuation. The components of that change, depending upon which liability is analyzed, can include:

- New entrants since the last valuation
- Benefits accrued since the last valuation
- Plan amendments increasing benefits
- Passage of time which adds interest to the prior liability
- Benefits paid to retirees since the last valuation
- Participants retiring, terminating, or dying at rates different than expected
- A change in actuarial assumptions
- A change in actuarial methods

Unfunded liabilities (or surpluses), developed from subtraction of an appropriate value of Plan assets from these liability measures, will change because of all of the above as well as due to changes in Plan asset measures resulting from:

- Employer contributions different than expected
- Investment earnings different than expected
- A change in the method used to measure Plan assets

In each valuation, we report on those elements of change that are of particular significance, potentially affecting the long-term financial outlook of the Plan. Below, we present key changes in liabilities since the last valuation.

Table III-2
Liability Changes

	Present Value of Benefits	Actuarial Liability	Present Value of Accrued Benefits
Liabilities June 30, 2015	$ 415,900,400	$ 269,569,100	$ 191,217,200
Liabilities June 30, 2016	421,946,600	296,036,600	216,374,800
Liability Increase/(Decrease)	6,046,200	26,467,500	25,157,600
Change Due to:			
Benefit Changes	4,315,100	4,390,800	2,400,100
Assumption Changes	(23,759,400)	(4,643,400)	504,600
Actuarial (Gain)/Loss	NC*	(4,157,000)	NC*
Benefits Accumulated and Other Sources	25,490,500	30,877,100	22,252,900

* NC = not calculated

SECTION III - LIABILITIES

Table III-3 below provides additional information about the liability measurements for funding purposes as of both the current and the immediately prior valuations.

Table III-3
Actuarial Liabilities for Funding

		June 30, 2015	June 30, 2016
1.	Actuarial Liabilities		
	Retiree, Beneficiary, Disabled, and Terminated Members	$ 51,056,200	$ 65,942,600
	Active Members	218,512,900	230,094,000
	Total Actuarial Liability	**$ 269,569,100**	**$ 296,036,600**
2.	Actuarial Value of Assets	$ 270,256,000	$ 301,143,600
3.	Unfunded Actuarial Liability (UAL)	$ (686,900)	$ (5,107,000)
4.	Allocation of UAL		
	Unpaid UAL from Participating Municipalities	$ 153,000	$ 102,000
5.	**Net Base for 10-Year UAL Amortization (3-4)**	**$ (839,900)**	**$ (5,209,000)**

SECTION IV - CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level, if any, of contributions are needed to properly maintain the funding status of the plan. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both fairly stable and predictable.

For this plan, the funding method employed is the **Entry Age Normal** actuarial funding method. Under this method, there are three components to the total contribution: the **normal cost contribution**, the **unfunded actuarial liability contribution** (UAL contribution), and the **administrative expense contribution**.

The employer normal cost contribution rate is determined in the following steps. First, for each active member an individual total normal cost rate is determined by taking the value, as of entry age into the Plan, of that member's projected future benefits and dividing it by the value, also at entry age, of the member's expected future salary. Then, this individual total normal cost rate is reduced by the member's contribution rate to produce the employer normal cost rate for each member. The employer normal cost rate times payroll for each active member equals the employer normal cost. The sum of the employer normal cost amounts for all active members is then divided by the covered payroll for all active members to produce the employer normal cost contribution rate.

The actuarial liability is that portion of the present value of projected benefits that will not be paid by future employer normal cost contributions or future member contributions. The difference between this liability and the funds accumulated as of the same date is referred to as the unfunded actuarial liability (UAL).

The UAL amortization payment rate is calculated by amortizing this UAL, after subtracting payments due from municipalities paying for prior service, over an open 10-year period. All payments are determined assuming total pay increases by the current annual inflation assumption of 2.50%.

The current assumed administrative expense rate is 0.25% of payroll. This rate, when applied to payroll, is intended to provide an allowance above the cost of funding the benefits to pay for the expense of operating the Plan.

The table below presents and compares the employer contribution rates for the Plan based on this funding valuation and the immediately prior one.

Table IV-1
Employer Contribution Rate

Valuation Date	**June 30, 2015**	**June 30, 2016**
FY Contribution Rate Payable	**FY 2017**	**FY 2018**
Employer Entry Age Normal Cost Rate	13.71%	12.02%
UAL Amortization Payment Rate	(0.19%)	(0.85%)
Administrative Expense Rate	0.25%	0.25%
Actuarially Determined Contributions	13.77%	11.42%

SECTION IV - CONTRIBUTIONS

Table IV-2 below provides additional detail about the development of the contribution rate for participating employers as well as the expected dollar amounts these rates will result in for FY 2018.

Table IV-2
Expected FY 2018
Employer Contributions

	In Dollars	As % of Payroll
1. Present Value of Projected Benefits Attributable to:		
a. Total Normal Cost	$ 14,621,200	19.02%
b. Expected Member Contributions	5,381,100	7.00%
c. Employer-Paid Normal Cost (a) – (b)	$ 9,240,100	12.02%
2. Amortization of Unfunded Liability	(654,400)	(0.85%)
3. Allowance for Administrative Expense	192,200	0.25%
4. Total Employer Actuarially Determined Contributions (1) + (2) + (3)	$ 8,777,900	11.42%

SECTION V - ACCOUNTING STATEMENT INFORMATION

ASC Topic No. 960 of the Financial Accounting Standards Board (FASB) requires plans subject to it to disclose certain information regarding their funded status. This plan is not subject to this requirement, but this information is provided for informational purposes. Statement No. 67 of the Governmental Accounting Standards Board (GASB) establishes standards for disclosure of pension information by public employee retirement systems (PERS) and governmental employers in notes to financial statements and supplementary information.

Disclosures based on FASB ASC Topic No. 960 provide a quasi “snap shot” view of how the Plan’s assets compare to its liabilities if contributions stopped and accrued benefit claims had to be satisfied. However, due to potential legal requirements and the possibility that alternative interest rates would have to be used to determine the liabilities, these values may not be a good indication of the amount of money it would take to buy the benefits for all members if the Plan were to terminate and should not be considered a settlement value.

FASB ASC Topic No. 960 specifies that a comparison of the present value of accrued (accumulated) benefits, with the market value of the assets as of the valuation date, must be provided. Again, this plan is not subject to this requirement, but the relevant amounts as of June 30, 2015 and June 30, 2016 are provided for informational purposes and are exhibited in Table V-1, which also includes a reconciliation of liabilities determined as of the prior valuation, July 1, 2015, to the liabilities as of June 30, 2016. These values are based on the June 30, 2016 funding liability results.

This valuation contains information reported in the June 30, 2016 Comprehensive Annual Financial Report (CAFR) of Delaware PERS under GASB Statement No. 67. Disclosures are based on the use of updated procedures to roll forward the 2015 funding valuation results. The calculation of Net Pension Liability in Table V-2 shows the amounts to be disclosed for FY 2016, based on the liabilities of the roll forward of the 2015 funding valuation, as well as a projection of the anticipated FY 2017 disclosures, based on liabilities from the 2016 funding valuation, assuming all actuarial assumptions are met over the coming year. The actual disclosures for FY 2017 will be developed once the asset measure for GASB as of June 30, 2017 is known.

Tables V-3 through V-5 are exhibits to be used for the State’s CAFR. Table V-3 is the Note to Required Supplementary Information, Table V-4 is a history of gains and losses in accrued liability, and Table V-5 is the Solvency Test, which shows the portion of accrued liability covered by the actuarial value of assets. The Government Finance Officers Association (GFOA) has named this exhibit the Solvency Test. None of the liabilities or assets shown are appropriate for settlement purposes. Furthermore, the Solvency Test does not accurately depict a plan’s future financial condition but rather is a test developed by the GFOA to assess the level of funding that relies on the payroll for future hires to pay for the benefits that have already been accrued by the current population. This valuation does not contain the additional disclosures required by GASB Statement No. 68 for the plan sponsors and the State’s CAFR.

SECTION V - ACCOUNTING STATEMENT INFORMATION

Table V-1
Accounting Statement Disclosure and
Reconciliation of Present Value of Accrued Benefits

	June 30, 2015	June 30, 2016
FASB ASC Topic No. 960 Basis		
1. Present Value of Accrued Benefits		
a. Members Currently Receiving Payments	$ 49,404,700	$ 63,652,500
b. Former Vested Members	1,651,500	2,290,100
c. Active Members	140,161,000	150,432,200
2. Total Present Value of Accrued Benefits (1 (a) + 1(b) + 1(c))	$ 191,217,200	$ 216,374,800
3. Market Value of Assets	272,955,600	284,196,200
4. Unfunded Present Value of Accrued Benefits (2 – 3)	$ (81,738,400)	$ (67,821,400)
5. Ratio of Market Value of Assets to Present Value of Benefits (3 / 2)	142.7%	131.3%
Reconciliation of Present Value of Accrued Benefits		
Actuarial Present Value of Accrued Benefits at June 30, 2015		$ 191,217,200
Increase/(Decrease) During Years Attributable to:		
Passage of Time		13,590,800
Benefits Paid – FY 2016		(4,911,400)
Benefit Changes		2,400,100
Assumption Changes		504,600
Benefits Accrued, Other Gains/Losses		13,573,500
Net Increase/(Decrease)		25,157,600
Actuarial Present Value of Accrued Benefits at June 30, 2016		$ 216,374,800

SECTION V - ACCOUNTING STATEMENT INFORMATION

Table V-2
GASB No. 67 Disclosures

	June 30, 2016	Estimated June 30, 2017
Total Pension Liability		
Service cost	**$ 14,174,000**	**$ 14,621,000**
Interest	20,330,000	22,150,000
Changes in benefit terms	4,391,000	0
Differences between expected and actual experience	3,016,000	(4,157,000)
Changes in assumptions	(4,643,000)	0
Benefit payments, including refunds of member contributions	(4,911,000)	(6,150,000)
Net change in Total Pension Liability	**$ 32,356,000**	**$ 26,464,000**
Total Pension Liability - beginning	**$ 267,838,000**	**$ 300,194,000**
Total Pension Liability - ending (a)	**$ 300,194,000**	**$ 326,658,000**
Plan Fiduciary Net Position [1]		
Contributions - Employer	$ 14,790,000	$ 10,585,000
Contributions - Non-employer	0	0
Contributions - Member	5,328,000	5,385,000
Net investment income	(3,881,000)	20,810,000
Benefit payments, including refunds of member contributions	(4,911,000)	(6,150,000)
Administrative expenses	(135,000)	(192,000)
Net change in Plan Fiduciary Net Position	**$ 11,190,000**	**$ 30,438,000**
Plan Fiduciary Net Position - beginning	**$ 273,108,000**	**$ 284,298,000**
Plan Fiduciary Net Position - ending (b)	**$ 284,298,000**	**$ 314,736,000**
Plan Net Pension Liability (Asset) - ending [(a)-(b)]	**$ 15,896,000**	**$ 11,921,000**

[1] Does not agree with the market value of assets disclosed elsewhere in this report due to the treatment of receivable employer contribution.

Items printed in red will be replaced with actual amounts once known at the end of FY 2017.

SECTION V - ACCOUNTING STATEMENT INFORMATION

Table V-3
Note to Required Supplementary Information

The information presented in the required supplementary schedules was determined as part of the measurement at the date indicated. Additional information as of the latest measurement date follows:

Measurement date	July 1, 2016
Actuarial cost method	Entry age normal
Amortization method	Percentage of pay - open
Amortization period	Ten years
Asset valuation method	Smoothed market, 20% annual market weight
Actuarial assumptions:	
Investment rate of return*	7.2%
Projected salary increases*	2.5% plus merit component based on service
Cost-of-living adjustments	ad hoc
*Includes inflation at	2.50%

The actuarial assumptions used have been recommended by the actuary and adopted by the Plan's Board of Trustees based on the most recent review of the Plan's experience completed in 2016.

The total rate of employer contributions to the Plan is composed of the employer normal cost rate, the unfunded actuarial liability amortization payment rate, and the administrative expense rate. The employer normal cost rate is a level percent of payroll cost which, along with member contributions, will pay for projected benefits at retirement for each active member. The actuarial liability is that portion of the present value of projected benefits that will not be paid by future employer normal costs or future member contributions. The difference between this liability and the funds accumulated as of the same date is the unfunded actuarial liability. The allowance for administrative expenses is based upon the Plan's actual administrative expenses.

SECTION V - ACCOUNTING STATEMENT INFORMATION

Table V-4
Analysis of Financial Experience
Gain and Loss in Accrued Liability During Years Ended June 30
Resulting from Differences Between Assumed Experience and Actual Experience

Gain (or Loss) for Year ending June 30,
(expressed in thousands)

Type of Activity	2011	2012	2013	2014	2015	2016
Investment Income on Actuarial Assets	$ 846	$ (1,150)	$ 163	$ 4,184	$ 675	$ (4,237)
Combined Liability Experience	420	(3,898)	10,625	3,309	(1,731)	4,157
(Loss)/Gain During Year from Financial Experience	$ 1,276	$ (5,048)	$ 10,788	$ 7,493	$ (1,056)	$ (80)
Non-Recurring Items	2,502	0	(5,179)	(2,595)	(319)	252
Composite Gain (or Loss) During Year	$ 3,778	$ (5,048)	$ 5,609	$ 4,898	$ (1,375)	$ 172

Table V-5
Solvency Test
Aggregate Accrued Liabilities for

(expressed in thousands)

Valuation Date June 30,	Active Member Contributions (1)	Retirees & Beneficiaries (2)	Active Member State-Financed Contributions (3)	Actuarial Value of Reported Assets	Portion of Accrued Liabilities Covered by Reported Assets (1)	(2)	(3)
2016	$ 58,179	$ 63,653	$ 174,205	$ 301,144	100%	100%	103%
2015	53,346	49,405	166,818	270,256	100	100	100
2014	48,597	39,168	150,771	240,744	100	100	101
2013	42,945	31,217	133,578	203,832	100	100	97
2012	38,013	28,007	120,881	179,816	100	100	94
2011	33,031	22,870	104,249	157,394	100	100	97

APPENDIX A - MEMBERSHIP INFORMATION

Delaware County & Municipal Police/Firefighters Pension Plan
Data Reconciliation

	A	P-TDV	P-RET	P-DIS	P-NSR	P-SR	P-SRSU	P-SURV	Total
1. June 30, 2015 valuation	**1,175**	**32**	**94**	**2**	**10**	**11**	**2**	**6**	**1,332**
2. Additions									
(a) New entrants	82								82
(b) New Beneficiary/QDRO									
(c) Total	82								82
3. Reductions									
(a) Terminated - not vested	(35)								(35)
(b) Paid Out/Expired/Death		(3)							(3)
(c) Total	(35)	(3)							(38)
4. Changes in status									
(a) P-TDV	(5)	5							
(b) Returned to work	1	(1)							
(c) P-RET	(21)	(2)	23						
(d) P-DIS	(1)				1				
(e) P-LTD									
(f) P-SURV									
(g) Data corrections				(2)	1	1			
(h) Total	(26)	2	23	(2)	2	1			
5. June 30, 2016 valuation	**1,196**	**31**	**117**	**0**	**12**	**12**	**2**	**6**	**1,376**

A=Active, P-TDV=Terminated Deferred Vested, P-RET=Retired, P-DIS=Disabled, P-NSR=Disabled, P-SR=Disabled, P-SRSU=Surviving Beneficiary, P-SURV=Surviving Beneficiary

APPENDIX A - MEMBERSHIP INFORMATION

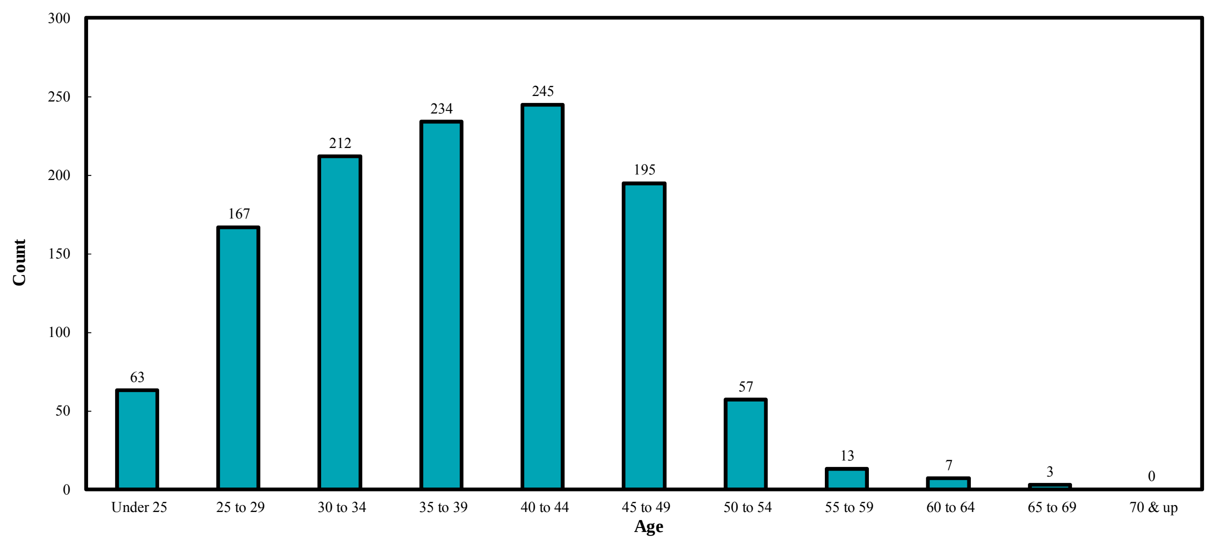
Delaware County and Municipal Police/Firefighters Pension Plan Distribution of Active Members by Age and Service as of June 30, 2016

Counts By Age/Service

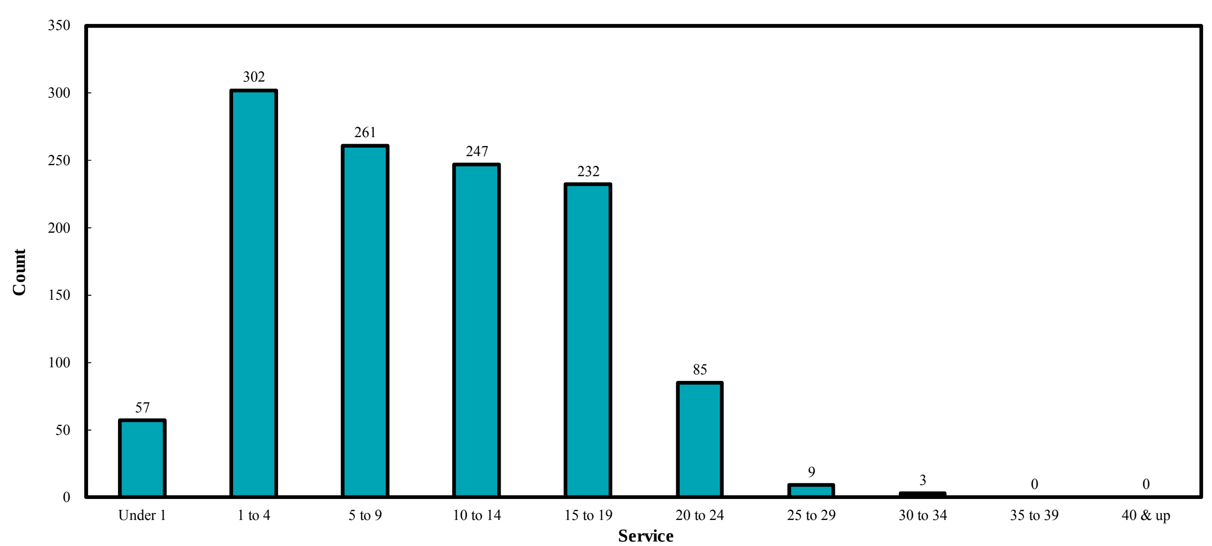
	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	**Total**
Under 25	26	37	0	0	0	0	0	0	0	0	63
25 to 29	12	129	26	0	0	0	0	0	0	0	167
30 to 34	7	72	99	34	0	0	0	0	0	0	212
35 to 39	3	39	77	97	18	0	0	0	0	0	234
40 to 44	2	16	33	66	113	15	0	0	0	0	245
45 to 49	2	6	20	37	81	47	2	0	0	0	195
50 to 54	3	2	3	7	17	20	5	0	0	0	57
55 to 59	2	0	2	2	2	2	2	1	0	0	13
60 to 64	0	1	1	3	1	1	0	0	0	0	7
65 to 69	0	0	0	1	0	0	0	2	0	0	3
70 & up	0	0	0	0	0	0	0	0	0	0	0
Total	57	302	261	247	232	85	9	3	0	0	1,196

APPENDIX A - MEMBERSHIP INFORMATION

Delaware County and Municipal Police/Firefighters Pension Plan Distribution of Active Members by Age as of June 30, 2016



Delaware County and Municipal Police/Firefighters Pension Plan Distribution of Active Members by Service as of June 30, 2016

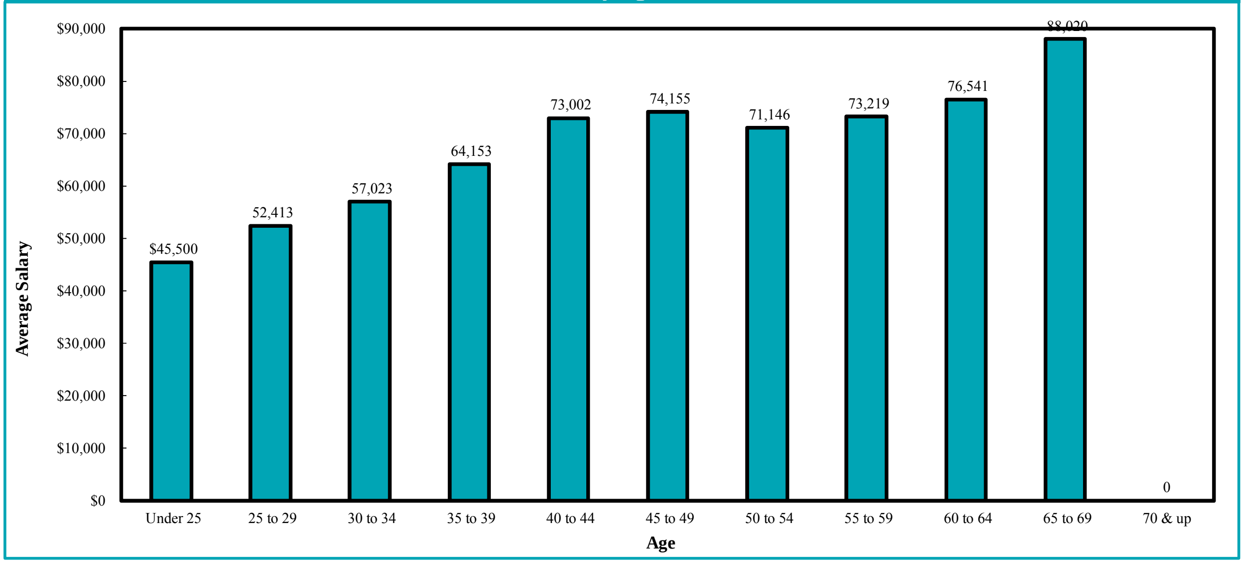


APPENDIX A - MEMBERSHIP INFORMATION

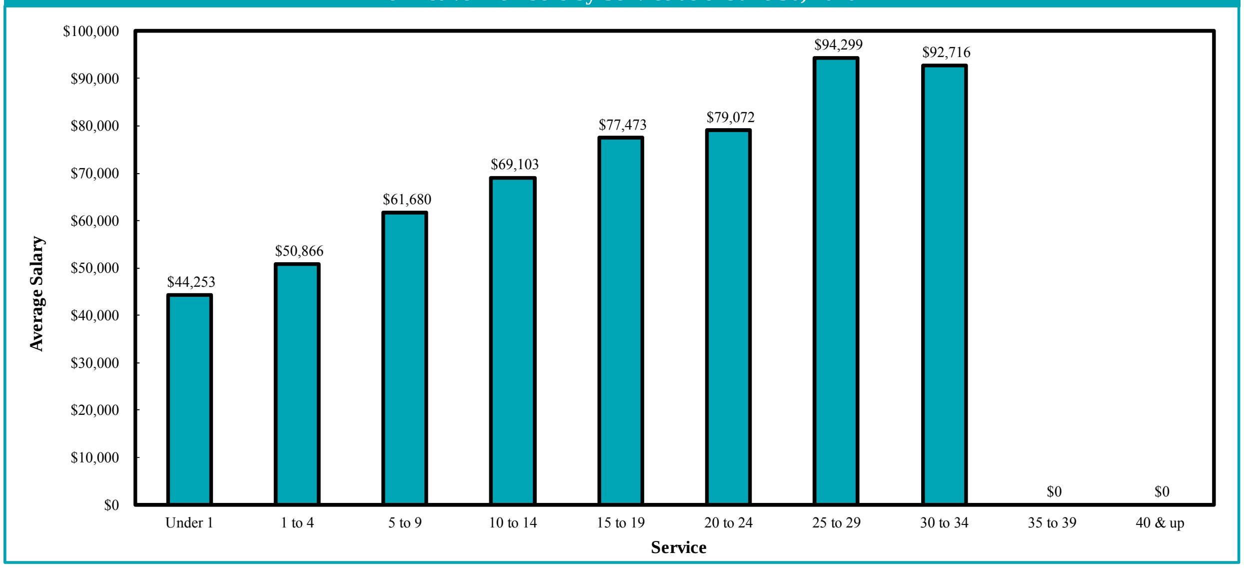
Delaware County and Municipal Police/Firefighters Pension Plan Salary Distribution of Active Members by Age and Service as of June 30, 2016											
Average Salary by Age/Service											
	Service										
Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up	**Total**
Under 25	$ 43,037	$ 47,231	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 45,500
25 to 29	44,986	51,581	59,967	0	0	0	0	0	0	0	52,413
30 to 34	41,831	50,156	61,094	62,837	0	0	0	0	0	0	57,023
35 to 39	47,984	49,625	61,639	69,852	78,364	0	0	0	0	0	64,153
40 to 44	48,627	54,150	65,492	71,174	78,476	79,690	0	0	0	0	73,002
45 to 49	40,949	54,024	60,059	69,917	77,538	80,775	94,584	0	0	0	74,155
50 to 54	48,804	65,573	43,251	64,223	69,623	76,124	98,472	0	0	0	71,146
55 to 59	50,645	0	77,941	62,784	80,041	74,322	83,583	93,211	0	0	73,219
60 to 64	0	91,800	96,874	72,598	71,090	58,226	0	0	0	0	76,541
65 to 69	0	0	0	79,123	0	0	0	92,469	0	0	88,020
70 & up	0	0	0	0	0	0	0	0	0	0	0
Total	$ 44,253	$ 50,866	$ 61,680	$ 69,103	$ 77,473	$ 79,072	$ 94,299	$ 92,716	$ 0	$ 0	$ 64,275

APPENDIX A - MEMBERSHIP INFORMATION

Delaware County and Municipal Police/Firefighters Pension Plan Salary Distribution of Active Members by Age as of June 30, 2016



Delaware County and Municipal Police/Firefighters Pension Plan Salary Distribution of Active Members by Service as of June 30, 2016



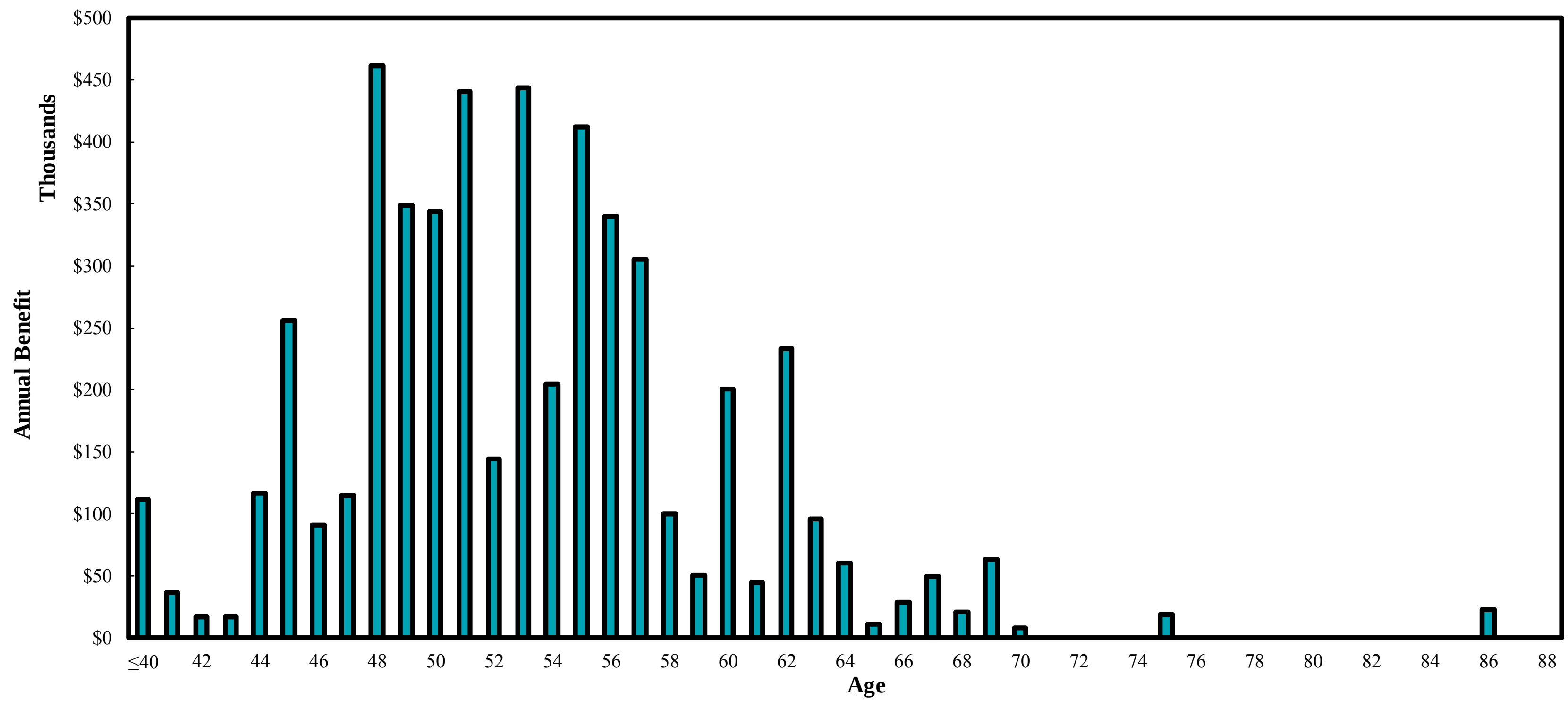
APPENDIX A - MEMBERSHIP INFORMATION

Delaware County and Municipal Police/Firefighters Pension Plan Annual Benefit Distribution of Retired Members, Survivors, and Disabled Members as of June 30, 2016

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	3	$40,276	73	0	$0
25	0	$0	74	0	$0
26	0	$0	75	2	$18,897
27	0	$0	76	0	$0
28	0	$0	77	0	$0
29	0	$0	78	0	$0
30	0	$0	79	0	$0
31	0	$0	80	0	$0
32	0	$0	81	0	$0
33	0	$0	82	0	$0
34	0	$0	83	0	$0
35	0	$0	84	0	$0
36	0	$0	85	0	$0
37	1	$26,010	86	1	$22,474
38	1	$29,527	87	0	$0
39	1	$15,855	88	0	$0
40	0	$0	89	0	$0
41	1	$37,045	90	0	$0
42	1	$17,359	91	0	$0
43	1	$16,917	92	0	$0
44	3	$116,797	93	0	$0
45	7	$255,784	94	0	$0
46	2	$91,177	95	0	$0
47	3	$114,406	96	0	$0
48	12	$461,409	97	0	$0
49	10	$348,781	98	0	$0
50	8	$344,181	99	0	$0
51	11	$440,765	100	0	$0
52	4	$144,589	101	0	$0
53	11	$443,944	102	0	$0
54	6	$204,588	103	0	$0
55	9	$411,994	104	0	$0
56	9	$339,645	105	0	$0
57	6	$305,489	106	0	$0
58	3	$100,329	107	0	$0
59	3	$50,244	108	0	$0
60	4	$200,386	109	0	$0
61	1	$44,094	110	0	$0
62	6	$233,683	111	0	$0
63	5	$95,517	112	0	$0
64	4	$60,204	113	0	$0
65	1	$10,483	114	0	$0
66	1	$28,756	115	0	$0
67	2	$49,527	116	0	$0
68	2	$21,148	117	0	$0
69	3	$63,505	118	0	$0
70	1	$7,641	119	0	$0
71	0	$0	120	0	$0
72	0	$0			
			Totals	149	$5,213,426

APPENDIX A - MEMBERSHIP INFORMATION

Delaware County and Municipal Police/Firefighters Pension Plan Annual Benefit Distribution of Retired Members, Survivors, and Disabled Members as of June 30, 2016



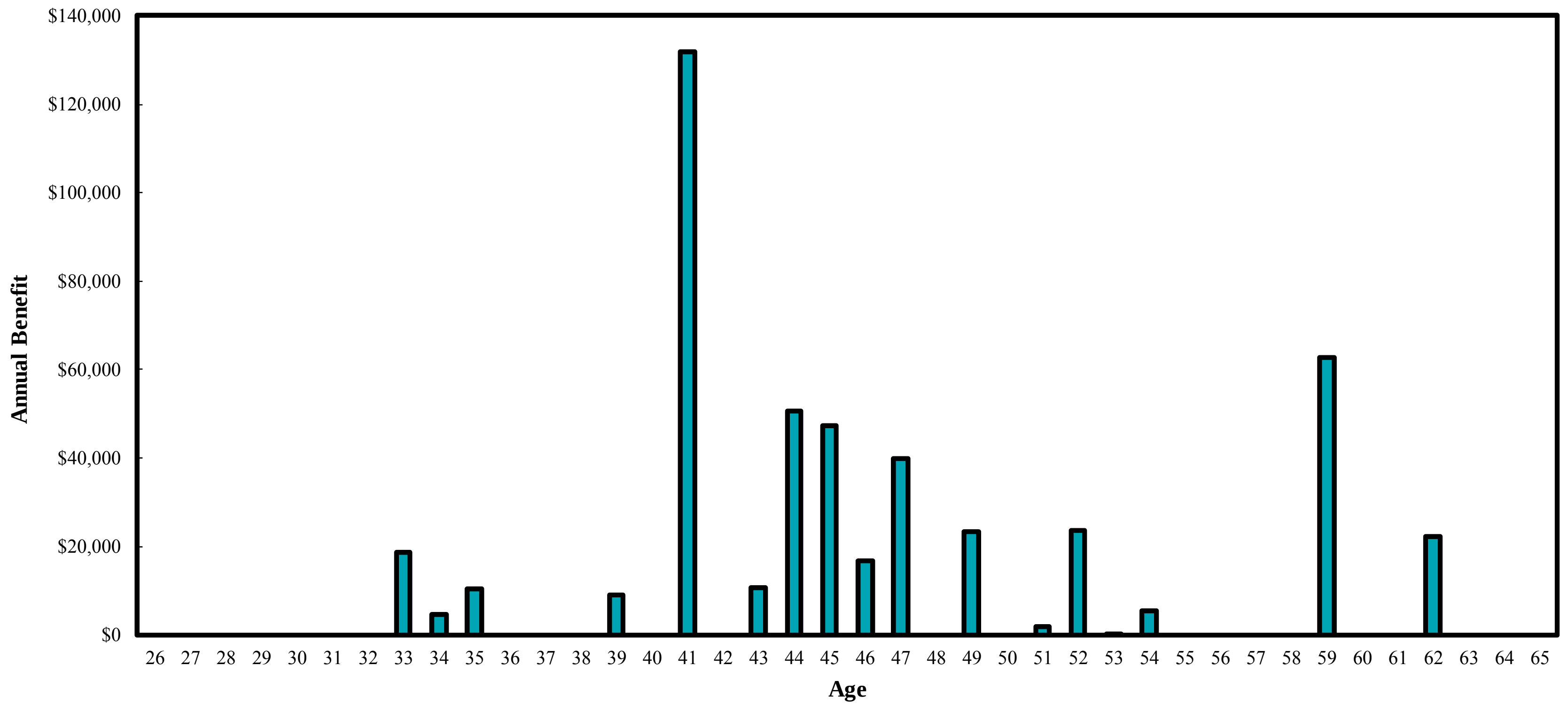
APPENDIX A - MEMBERSHIP INFORMATION

Delaware County and Municipal Police/Firefighters Pension Plan Annual Benefit Distribution of Vested Members as of June 30, 2016

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	0	$0	73	0	$0
25	0	$0	74	0	$0
26	0	$0	75	0	$0
27	0	$0	76	0	$0
28	0	$0	77	0	$0
29	0	$0	78	0	$0
30	0	$0	79	0	$0
31	0	$0	80	0	$0
32	0	$0	81	0	$0
33	2	$18,587	82	0	$0
34	1	$4,602	83	0	$0
35	1	$10,400	84	0	$0
36	0	$0	85	0	$0
37	0	$0	86	0	$0
38	0	$0	87	0	$0
39	1	$9,129	88	0	$0
40	0	$0	89	0	$0
41	5	$131,861	90	0	$0
42	0	$0	91	0	$0
43	2	$10,691	92	0	$0
44	2	$50,662	93	0	$0
45	5	$47,184	94	0	$0
46	2	$16,700	95	0	$0
47	1	$40,004	96	0	$0
48	0	$0	97	0	$0
49	2	$23,477	98	0	$0
50	0	$0	99	0	$0
51	1	$1,951	100	0	$0
52	1	$23,578	101	0	$0
53	1	$187	102	0	$0
54	1	$5,331	103	0	$0
55	0	$0	104	0	$0
56	0	$0	105	0	$0
57	0	$0	106	0	$0
58	0	$0	107	0	$0
59	1	$62,869	108	0	$0
60	0	$0	109	0	$0
61	0	$0	110	0	$0
62	2	$22,119	111	0	$0
63	0	$0	112	0	$0
64	0	$0	113	0	$0
65	0	$0	114	0	$0
66	0	$0	115	0	$0
67	0	$0	116	0	$0
68	0	$0	117	0	$0
69	0	$0	118	0	$0
70	0	$0	119	0	$0
71	0	$0	120	0	$0
72	0	$0			
			Totals	31	$479,331

APPENDIX A - MEMBERSHIP INFORMATION

Delaware County and Municipal Police/Firefighters Pension Plan Annual Benefit Distribution of Vested Members as of June 30, 2016



APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

A. Long-Term Assumptions Used to Determine Plan Costs and Liabilities

1. Demographic Assumptions

a. Rates of Mortality

Mortality rates are based on the sex-distinct employee, healthy annuitant, and disabled annuitant mortality tables described below, including adjustment factors applied to the published tables for each group. Future mortality improvements are reflected by applying a custom projection scale on a generational basis to adjusted base tables from the base year shown below.

i. Sample Rates of Mortality for Active Healthy Lives at Selected Ages (number of deaths per 10,000 members):

(2016 Values Shown)		
Age	Male	Female
25	5	2
30	5	2
35	5	3
40	7	4
45	10	6
50	18	11
55	30	17
60	51	25
65	90	37
70	153	64
75	261	110
80	441	190

Rates are based on 110% and 100% of the RP-2014 Total Dataset Employee Mortality Table, respectively, for males and females, using the RP-2014 Total Dataset Healthy Annuitant Mortality Table rates after the end of the Employee Mortality Table, both projected from the 2006 base rates using the RPEC-2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0% for ages 115-120, and convergence to the ultimate rate in the year 2020. The valuation uses fully generational projection of mortality improvements. Sample rates shown are those projected through the valuation date.

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

ii. Sample Rates of Mortality for Healthy Annuitant Lives at Selected Ages (number of deaths per 10,000 members):

(2016 Values Shown)		
Age	Male	Female
50	44	27
55	62	36
60	84	53
65	119	81
70	185	130
75	302	213
80	508	360
85	885	638
90	1,553	1,138
95	2,447	1,868
100	3,500	2,796

Rates are based on 110% and 100% of the RP-2014 Total Dataset Healthy Annuitant Mortality Table, respectively, for males and females, using the RP-2014 Total Dataset Employee Mortality Table for ages prior to start of the Healthy Annuitant Mortality Table, both projected from the 2006 base rates using the RPEC-2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0% for ages 115-120, and convergence to the ultimate rate in the year 2020. The valuation uses fully generational projection of mortality improvements. Sample rates shown are those projected through the valuation date.

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

iii. Sample Rates of Mortality for Disabled Annuitant Lives at Selected Ages (number of deaths per 10,000 members):

(2016 Values Shown)		
Age	Male	Female
25	93	28
30	89	35
35	105	49
40	126	67
45	196	105
50	240	138
55	276	174
60	313	207
65	375	252
70	486	342
75	666	502
80	949	757
85	1,411	1,145
90	2,157	1,690
95	3,019	2,453
100	3,973	3,446

Rates are based on 120% of the RP-2014 Total Dataset Disabled Annuitant Mortality Table, projected from the 2006 base rates using the RPEC-2015 model, with an ultimate rate of 0.85% for ages 20-85, grading down to an ultimate rate of 0% for ages 115-120, and convergence to the ultimate rate in the year 2020. The valuation uses fully generational projection of mortality improvements. Sample rates shown are those projected through the valuation date.

b. Rates of Active Disability

Rates of Active Disability	
Age	Rate
20	0.0179%
25	0.0179
30	0.0710
35	0.0997
40	0.3882
45	0.7807
50	1.0969
55	1.5000

1/3 of disabilities are partial and 2/3 are total.
1/3 of disabilities are duty-related and 2/3 are non-duty related.

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

c. Termination of Employment (Prior to Normal Retirement Eligibility)

Table applies until eligibility for retirement is reached.

Service Select	Rate
0	7.10%
1	6.70
2	5.40
3	4.70
4	5.90
5	4.20
6	2.80
7	2.50
8	2.30
9	1.90
Ultimate	1.20

d. Retirement

Normal Retirement: one-year Select & Ultimate (age-based) upon attaining the earlier of:

i. Completion of 20 years of credited service, or
ii. Attainment of age 62 with 10 years of credited service, or
iii. When age plus service equals or exceeds 75 with a minimum of 10 years of credited service.

	Normal Retirement	
Age	Select	Ultimate
<37	17.00%	0.00%
37-49	17.00	11.00
50-54	17.00	13.50
55-59	17.00	75.00
60+	17.00	100.00

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

e. Salary Increase

10-year service-based table includes an annual inflation rate of 2.50%.

Service	Increase
0	9.50%
1	8.00
2	7.00
3	6.25
4	5.50
5	5.00
6	4.50
7	4.30
8	4.00
9	3.75
10 or more	3.50

f. Family Composition

Female spouses are assumed to be three years younger than males.
80% are assumed married for both male and female employees.
Actual marital characteristics are used for pensioners.
Dependent children eligible for survivor benefits are assumed to have their benefits cease at age 20.

2. Economic Assumptions

a.	Investment Rate of Return:	7.20%
b.	General Wage Increase Rate:	2.50%
c.	Annual Assumed Cost-of-Living Increase Rate for Retirees:	0.00%
d.	Total Payroll Increase Rate (for Amortization):	2.50%
e.	Administrative Expenses as a Percentage of Covered Payroll:	0.25%

3. Rationale for Assumptions

The assumptions were adopted by the Board of Trustees upon the recommendation of the actuary, based on an experience study review performed in 2016 and covering the period July 1, 2010 through June 30, 2015.

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

4. Changes Since Last Valuation

As a result of an experience study completed in spring 2016, the following assumptions were changed:

Healthy Inactive, Active and Disabled Mortality
Termination Employment (Prior to Retirement Eligibility)
Salary Increase
Rate of General Wage Increase
Rate of Increase in Total Payroll

APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Methods

1. Funding Method

The Entry Age Normal funding method is used to determine costs. Under this funding method, a normal cost rate is determined as a level percent of pay for each active member. The normal cost rate times payroll equals the normal cost for each active member. The normal cost plus member contributions will pay for projected benefits at retirement for each active plan participant.

The actuarial liability is that portion of the present value of projected benefits that will not be paid by future employer normal costs or member contributions. The difference between this liability and funds accumulated as of the same date is referred to as the unfunded actuarial liability.

The portion of the actuarial liability in excess of Plan assets is amortized to develop an additional cost or savings that is added to each year's employer normal cost. Under this cost method, actuarial gains and losses are directly reflected in the size of the unfunded actuarial liability.

The portion of unfunded liability, after subtracting payments due from municipalities paying for prior service, is amortized over a rolling 10-year period as a percentage of payroll. All payments are determined assuming total payroll increases by the annual inflation rate. Use of a rolling amortization period means that the UAL amount is never anticipated to be fully paid off. This method was chosen to provide a more level contribution rate over time.

2. Actuarial Value of Assets

For purposes of determining the employer contribution rate to the Plan, we use an actuarial value of assets. The asset smoothing method dampens the volatility in asset values that could occur because of fluctuations in market conditions. Use of an asset smoothing method is consistent with the long-term nature of the actuarial valuation process.

The actuarial value of assets is a weighted average giving 20% weight to the current market value and 80% weight to the prior year's actuarial value increased by expected interest and contributions and decreased by benefit payments and expenses. This is mathematically equivalent to recognizing 100% of the actuarially assumed interest rate, plus contributions, less payment each year, and 20% of the portion of each year's returns that have not already been reflected in asset values.

3. Changes Since Last Valuation

None

APPENDIX C - SUMMARY OF PLAN PROVISIONS

This appendix provides a summary of the Plan provisions. Where the Plan, as determined by the State Code and the Plan Rules and Regulations, and this summary differ, the Plan governs.

1. Membership

The Plan covers an individual who is employed on a full-time basis as a police officer by a county or municipality in Delaware, an individual who is employed on a full-time basis as a uniformed firefighter by the City of Wilmington, or an individual employed on a full-time basis as a uniformed paramedic by a county in Delaware.

2. Member Contributions

7% of compensation

Interest is credited at the rate of 5% per year

Member contributions are made through an "employer pick-up" arrangement which results in deferral of taxes on the contributions.

3. Credited Service

All service as a member plus certain claimed and purchased service

4. Final Average Compensation

Final Average Compensation is the average over the highest 36 consecutive months (or shorter period of total service).

5. Normal Retirement

Eligibility: (i) age 62 with five years of credited service, or (ii) any age with 20 years of credited service, or (iii) 10 years of credited service when age plus service equals 75

Benefit: 2.5% of final average compensation for each year of credited service, up to 20 years, plus 3.5% of final average compensation for each year of credited service over 20 years

6. Duty-Connected Disability Benefit

Eligibility: Disabled in the performance of his or her duties

Benefit: If member is totally disabled: 75% of final average compensation at the time disability commenced plus 10% for each eligible dependent not to exceed 100%

APPENDIX C - SUMMARY OF PLAN PROVISIONS

If member is partially disabled: the normal retirement benefit based on credited service at date of disability that is not less than 50% of final average compensation at the time disability commences

7. Ordinary Disability

Eligibility: Five years of credited service

Benefit: If member is totally disabled: the normal retirement benefit based on credited service at date of disability that is not less than 50% of the final average compensation at the time of disability plus 5% for each eligible dependent to a maximum of 70%

If member is partially disabled: the normal retirement benefit based on credited service at the date of disability that is not less than 30% of final average compensation at the time of retirement

8. Survivor's Benefit

Eligibility: Death while active

Benefit: For eligible survivors of employees who die in active service: 50% of salary, payable to the primary survivor

Eligible survivors include: (1) widow or widower, or (2) child or children under 18, or between 18 and 22 and attending school on a full-time basis, or over 18 and permanently disabled before 18, or (3) dependent parent or parents

9. Vesting

Eligibility: Five years of credited service

Benefit: Normal retirement benefit payable at age 62 based on final average compensation and service at date of termination. In lieu of a pension, a member may receive a refund of accumulated contributions with interest. Upon application for a refund of contributions, a member's vested right to a monthly benefit shall be forfeited.

10. Withdrawal

Eligibility: Not eligible for other benefits
Benefit: Accumulated employee contributions with interest

APPENDIX C - SUMMARY OF PLAN PROVISIONS

11. Form of Payment

The normal form of payment is a 50% joint and survivor annuity.

As an alternative to the normal form, a member may elect one of the following optional forms of payment upon service retirement or disability:

- 66 2/3% joint and survivor form with a 2% reduction in benefits,
- 75% joint and survivor form with a 3% reduction in benefits, or
- 100% joint and survivor form with a 6% reduction in benefits.

The 66 2/3% and 100% options are only available for retirement on or after January 1, 2015.

12. Cost-of-Living Adjustments

Cost-of-living adjustments are made on an ad hoc basis.

13. Changes Since Last Valuation

Town of Smyrna Municipal Police Department joined the Plan with full pay and service and made a lump sum payment to cover the liability increase.

CHEIRON

Classic Values, Innovative Advice