

## **Delaware State Volunteer Firemen's Pension Plan**

**Actuarial Valuation  
as of June 30, 2015**

**Produced by Cheiron**

**January 2016**

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January 26, 2016

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 State Volunteer Firemen's Pension Plan (Plan) as of June 30, 2015. 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 Number 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 Number. 23.

The contribution results of this report are only applicable to the Delaware State Volunteer Firemen contributions for Fiscal Year (FY) 2016 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 opinion 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 State Volunteer Firemen's 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

A handwritten signature in blue ink that reads "Fiona E. Liston".

Fiona E. Liston, FSA  
Principal Consulting Actuary

A handwritten signature in blue ink that reads "Elizabeth Wiley".

Elizabeth Wiley, FSA, EA  
Consulting Actuary

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**FOREWORD**

Cheiron has performed the annual actuarial valuation of the Delaware State Volunteer Firemen's Pension Plan (Plan) as of June 30, 2015. 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) 2016; 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 2016 actuarially determined contribution for participating employers.

**Section V** includes required disclosures under Governmental Accounting Standards Board (GASB) Statement Number 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.

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION I - BOARD SUMMARY**

**General Comments**

The actuarially determined contribution (ADC) amount decreased from \$2,074,600 for FY 2015 to \$2,010,300 for FY 2016.

During the year ended June 30, 2015, the Plan's assets earned 2.4% 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 6.7%. 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 \$83 thousand.

The Plan experienced an actuarial gain on plan liabilities resulting from members retiring, terminating, becoming disabled, and dying at rates different from the actuarial assumptions. This liability gain decreased the actuarial liability by \$505 thousand. This type of gain or loss is normal in the course of plan experience, as we cannot predict exactly how people will behave.

This valuation report also contains information to be reported in the June 30, 2015 Comprehensive Annual Financial Report (CAFR) of the Delaware Public Employees' Retirement System (Delaware PERS) under GASB Statement Number 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 2014 actuarial valuation liability results. The calculation of net pension liability in Section V is shown as disclosed for the plan year ending June 30, 2015, based on the 2014 actuarial valuation liability results. We also present a projection of the June 30, 2016 disclosure in Section V, assuming all actuarial assumptions are met over the coming year, which is based on the 2015 actuarial valuation liability results.

The decrease in the Plan's UAL was less than what would otherwise be expected due to employers contributing less than the ADC amount for the year. The anticipated ADC for the Fiscal Year ending June 30, 2015 was \$2,075 thousand. Employers actually made contributions totaling \$1,668 thousand. This will remain a source of future losses as long as the employer contributions are less than the ADC.

As of the June 30, 2015 Actuarial Valuation, the Plan's unfunded actuarial liability (UAL) was \$15.6 million. This is a decrease from the \$16.1 million UAL in the funding valuation for the prior year.

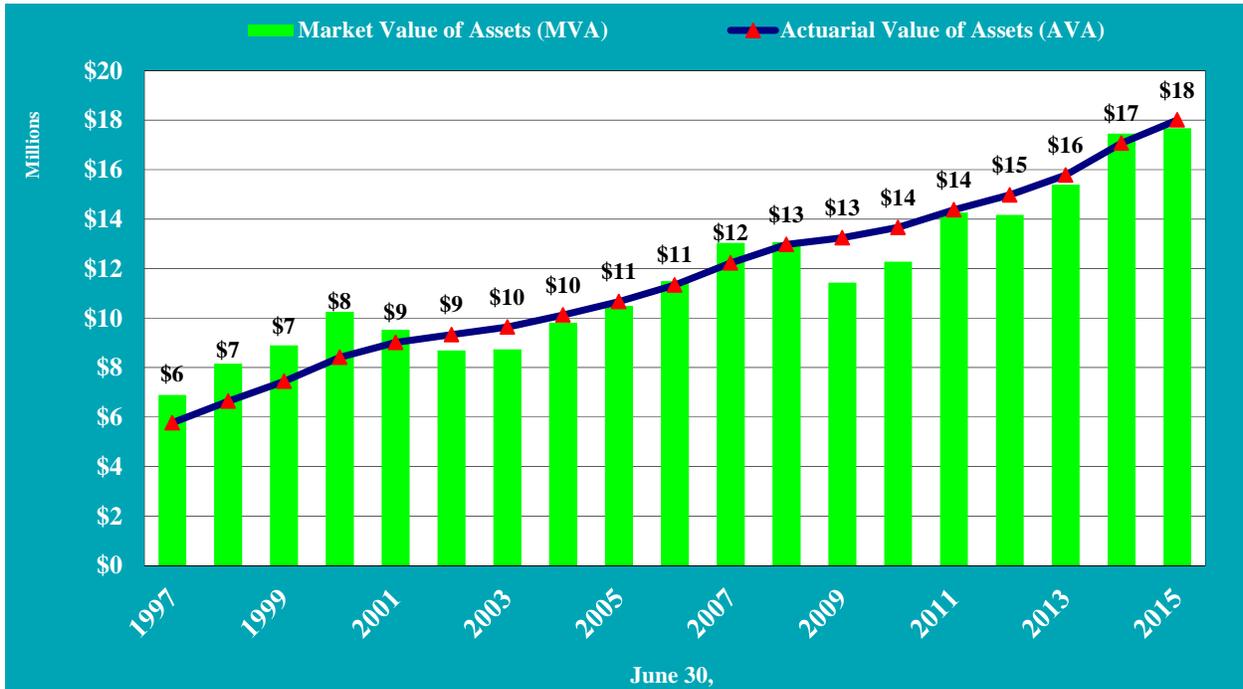
DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015

SECTION I - BOARD SUMMARY

Trends

Growth in Assets

The graph below shows measurements of the Plan's assets over the last 19 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 2.4% 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.

Over the period July 1, 1997 to June 30, 2015, the Plan's assets returned approximately 8.6% per year measured on an actuarial value basis, compared to the current valuation assumption of 7.2%.

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

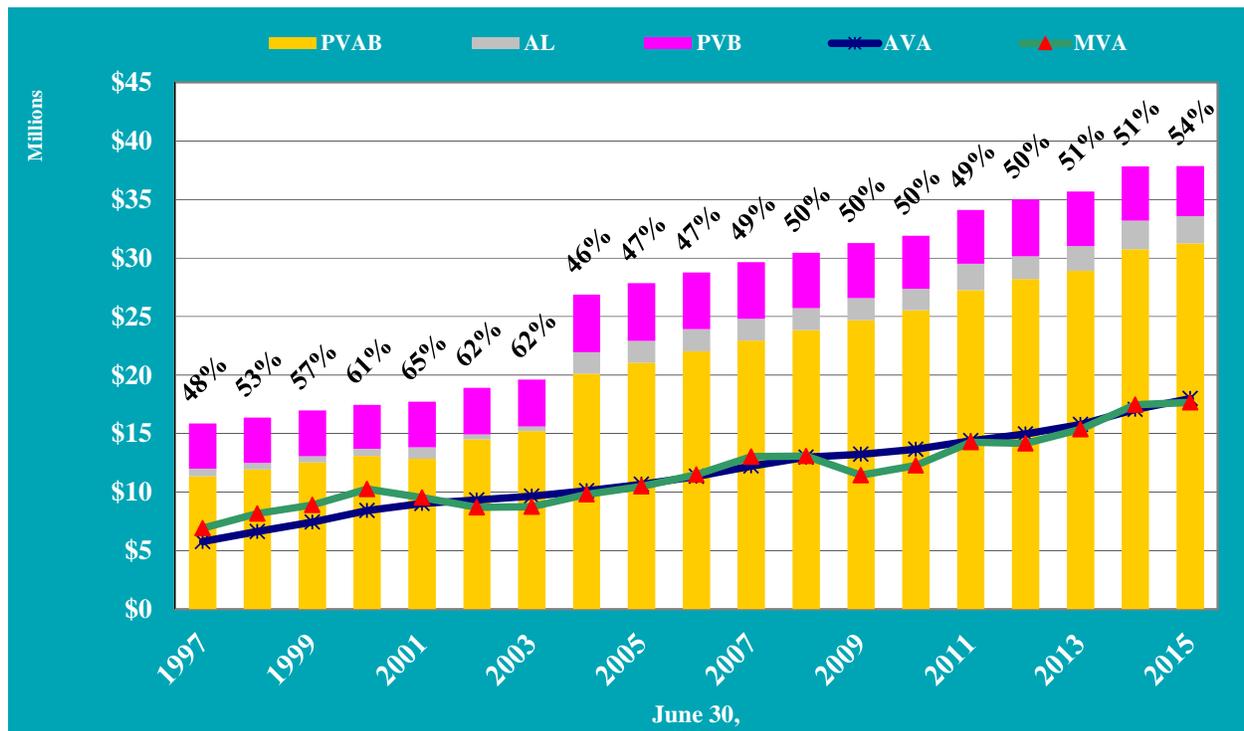
**SECTION I - BOARD SUMMARY**

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.

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. 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. This measurement is also the basis of the liability measure used in GASB 67.

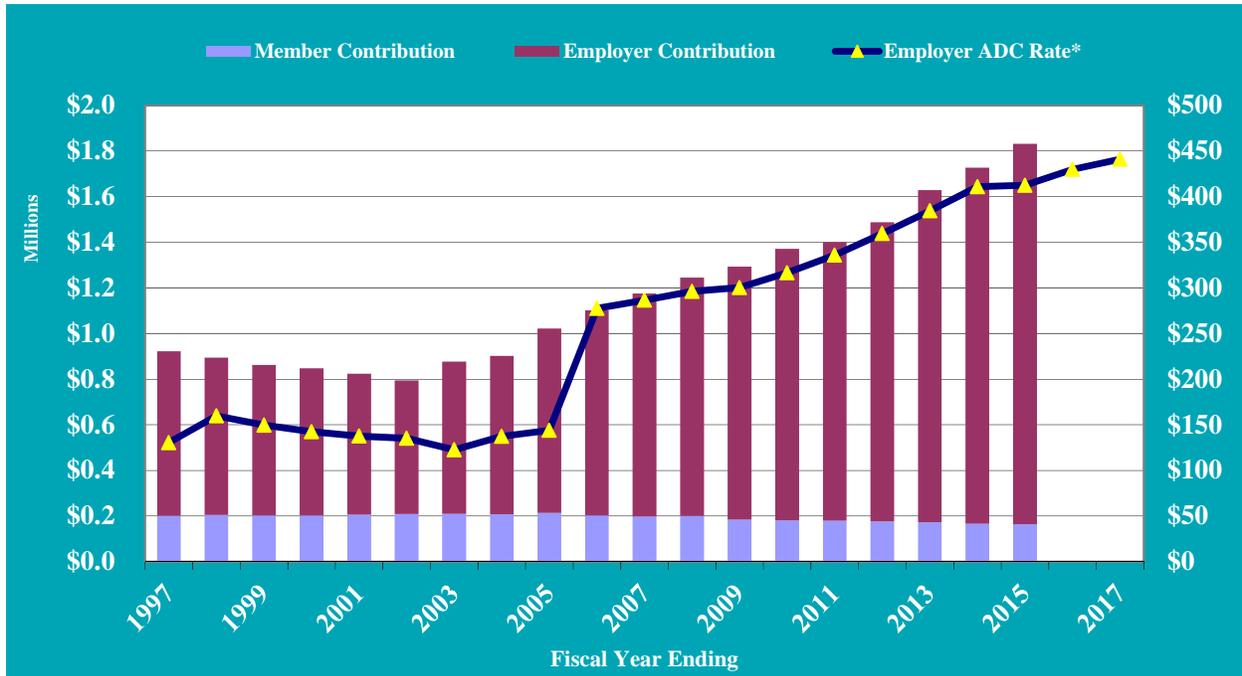
The amount represented by the top of the pink bars, the present value of future benefits (PVB), is the amount needed to provide all benefits for the current members and their beneficiaries, including reflection of assumed future service and pay increases. If the Plan had assets equal to the PVB as of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



DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015

SECTION I - BOARD SUMMARY

Contribution Rates



\* Formerly known as Actuarially Required Contribution (ARC), GASB No. 67/68 redefined the term for calculated contributions to Actuarially Determined Contribution (ADC).

The stacked bars in the graph above show the contributions made by the participating employers and the members for each fiscal year, and are read using the left-hand scale. The employer contributions amount shown in purple represent what was actually paid. The blue line shows the employers' per-head actuarially determined contribution (ADC) amount for each fiscal year (right-hand scale).

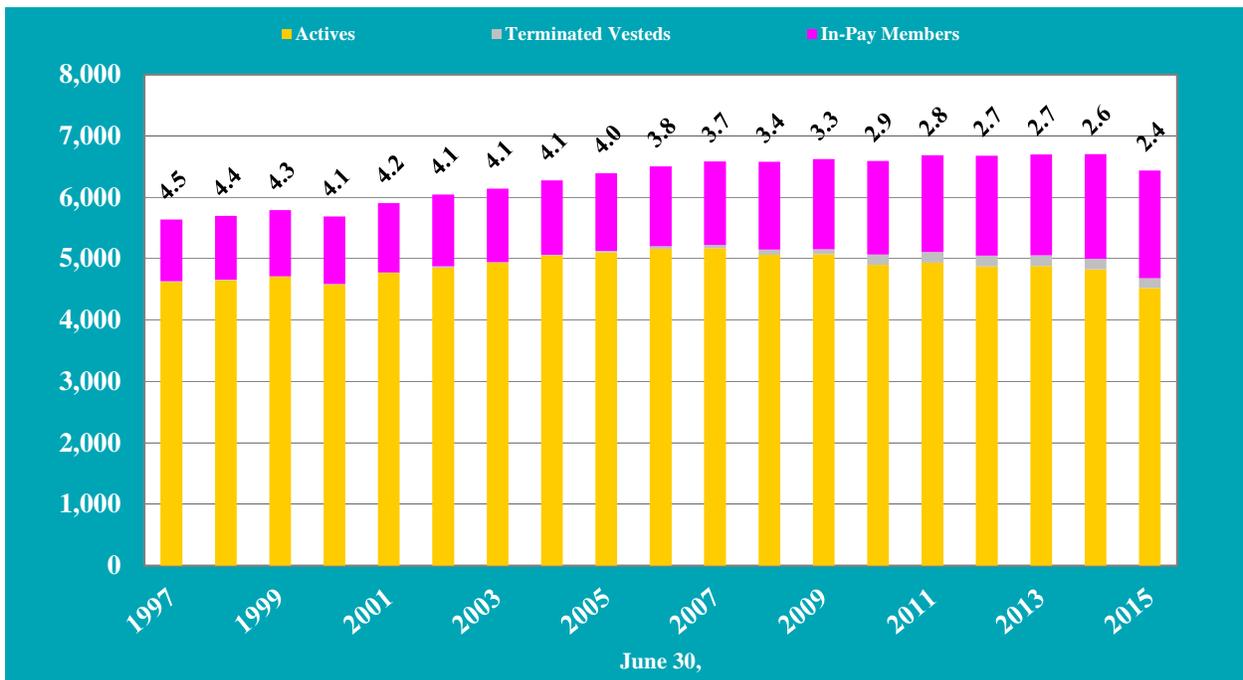
The member contribution rate is set by State law, based on the Plan in which the member participates. The participating employer ADC amount is set by the actuarial process.

DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015

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. The graph below shows that the number of active members has been dropping in recent years, while there has been a slight increase in the number of inactives over recent years. 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 4.5 actives to each inactive in 1997 to 2.4 actives for each inactive in 2015.

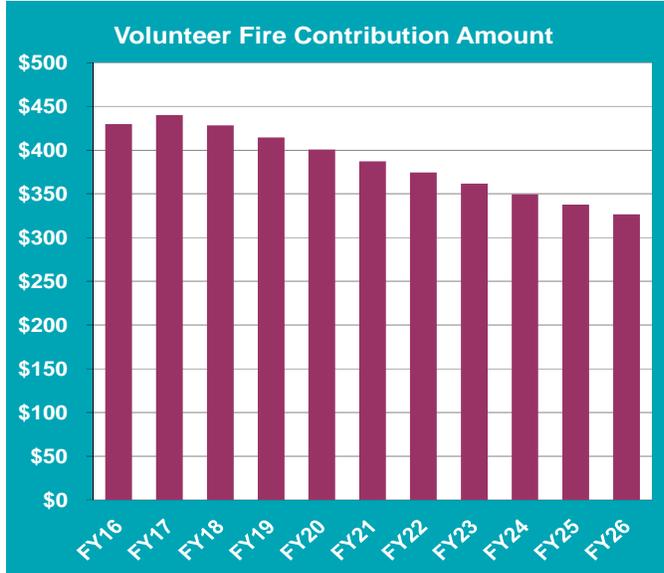


**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION I - BOARD SUMMARY**

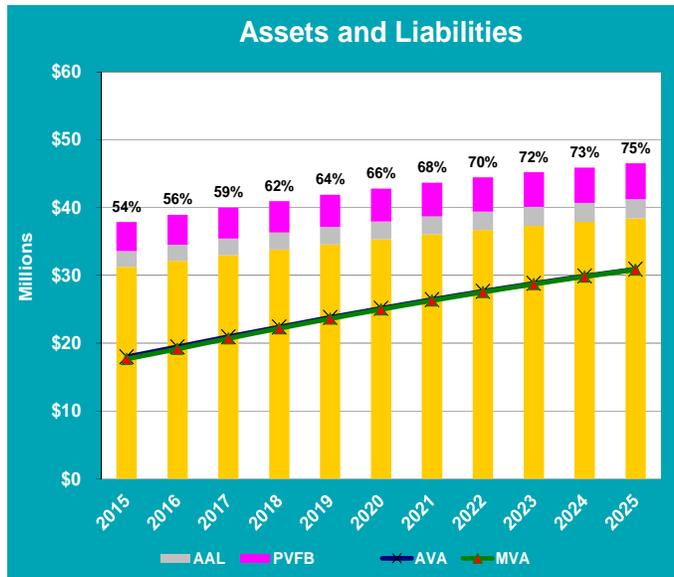
**Future Outlook**

Baseline Projections



These graphs show the expected progress of the Plan over the next ten years, assuming the Plan's assets earn 7.2% on a *market value* basis and assuming all assumptions are exactly met, including that the ADC amounts are made in full. The chart entitled "Volunteer Fire Contribution Amount" shows that the employer ADC amount per head is expected to decrease annually over the decade, absent further gains or losses. This pattern may be impacted by the phase-in to employer contributions equal to the full actuarially determined rates.

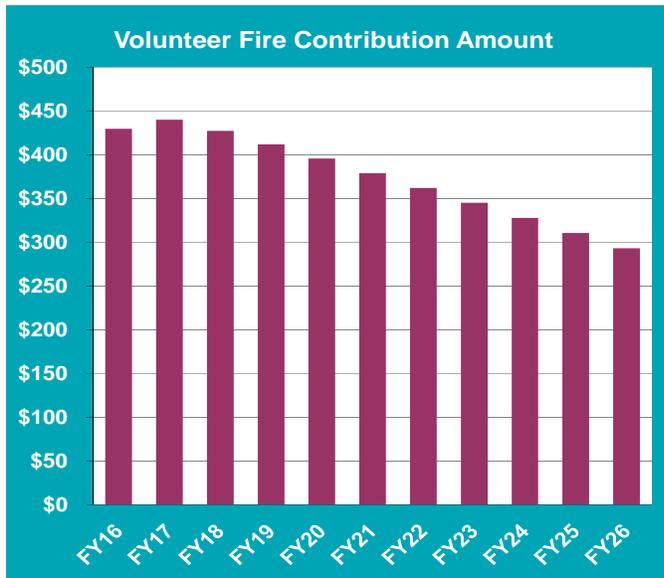
The "Assets and Liabilities" graph shows the projected funded ratios of the Plan over the next ten years. The Plan's funded status is projected to improve annually as the existing unfunded liability is paid off.



**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION I - BOARD SUMMARY**

Projections with Asset Returns of 8.2%

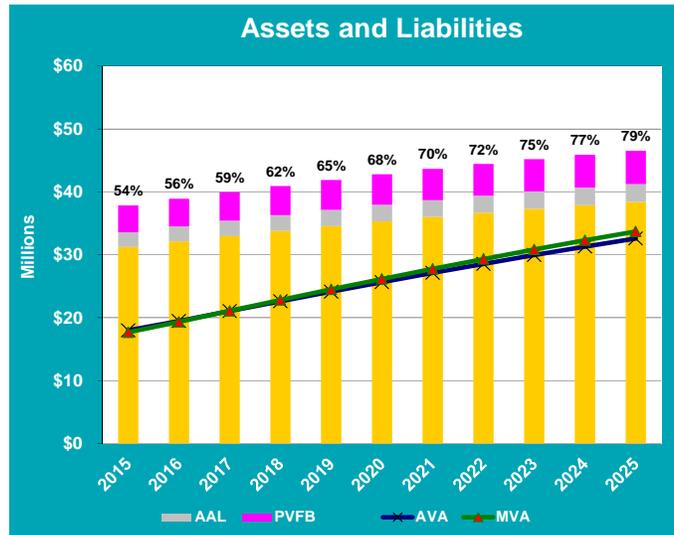


The Plan's investment earnings will affect the future funding status of the Plan. These two graphs show what the next ten years would be expected to look like if the Plan's investment performance is 8.2% each year, 1.0% higher than the valuation investment rate of return assumption.

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

The "Volunteer Fire Contribution Amount" graph shows that the employer ADC amount per head under this scenario decreases even more than the baseline scenario, dropping to approximately \$293 per head at the end of the projected period.

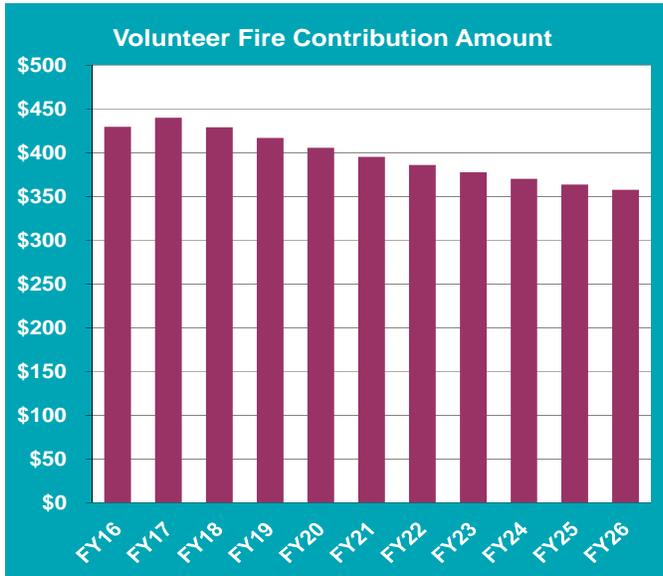
The "Assets and Liabilities" graph shows that the Plan would reach a 79% funded ratio by 2025 under this scenario, an improvement over the baseline scenario's 75%.



**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION I - BOARD SUMMARY**

Projections with Asset Returns of 6.2%



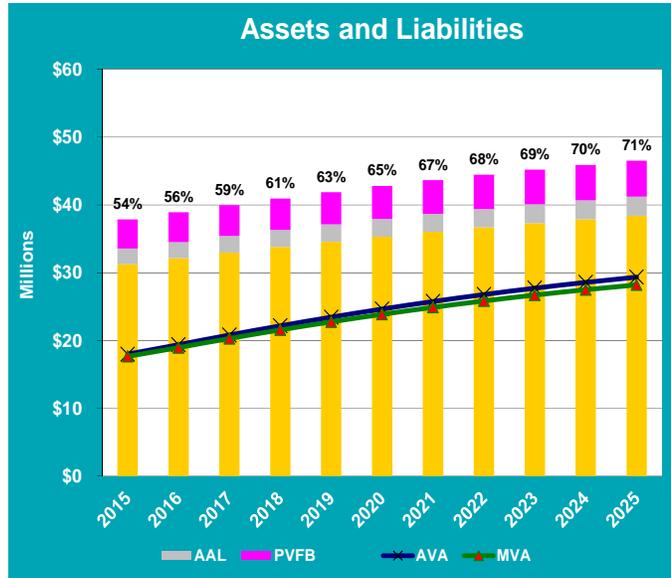
The graphs on this page show projections of the Plan's funding status assuming the Plan's investment performance is 6.2% each year of the projection, 1.0% lower than the valuation investment rate of return assumption. While the current remaining unrecognized gains would cushion the new annual losses for a period, eventually the new losses would result in the funded ratio dropping and the required contributions increasing compared to the baseline scenario. This effect demonstrates the importance of investment earnings on the Plan's future funding needs.

including payment of participating employer contributions equal to the full actuarially determined contribution.

Note that these projections assume all other assumptions are exactly met,

Under this scenario, the employer ADC amount increases to approximately \$358 per head, compared to \$326 per head in the baseline, and the funded ratio as of 2025 decreases to 71%, compared to 75% in the baseline scenario.

The projection of this scenario shows an increase in the Plan's funded status from 54% to 71% by the end of the period. The improvement in funded status is driven by the assumption that contributions are being made towards paying down the UAL. If actual contributions continue to come in at less than the ADC amount, this improvement may not occur.



**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION I - BOARD SUMMARY**

<b>Table I-1 Summary of Principal Plan Results</b>			
<b>Valuation as of:</b>	<b>June 30, 2014</b>	<b>June 30, 2015</b>	<b>% Change</b>
<b><u>Member Counts</u></b>			
Active Members	4,828	4,742	(1.78%)
Retirees and Members	1,702	1,749	2.76%
Terminated Vested Members	168	160	(4.76%)
Terminated Non-Vested Members	7	9	28.57%
<b>Total</b>	<b>6,705</b>	<b>6,660</b>	<b>(0.67%)</b>
Annual Benefit Payments for Retirees, Disabled Members, and Beneficiaries	\$ 1,801,900	\$ 1,870,300	3.80%
<b><u>Assets and Liabilities</u></b>			
Actuarial Liability (AL)	\$ 33,191,700	\$ 33,638,900	1.35%
Actuarial Value of Assets (AVA)	<u>17,066,300</u>	<u>18,001,800</u>	5.48%
Unfunded AL (UAL)	\$ 16,125,400	\$ 15,637,100	(3.03%)
Funded Ratio on AVA Basis (AVA/AL)	51.4%	53.5%	
Funded Ratio on MVA Basis (MVA/AL)	52.6%	52.5%	
Present Value of Accrued Benefits (PVAB)	\$ 30,751,900	\$ 31,279,600	1.72%
Market Value of Assets (MVA)	<u>17,462,400</u>	<u>17,671,200</u>	1.20%
Unfunded PVAB	\$ 13,289,500	\$ 13,608,400	2.40%
Accrued Benefit Funded Ratio	56.8%	56.5%	
<b><u>Employer Contribution Amount</u></b>			
	<b>Fiscal Year 2015</b>	<b>Fiscal Year 2016</b>	
Entry Age Normal Cost	\$ 304,200	\$ 298,700	
UAL Amortization Payment	1,736,300	1,679,200	
Administrative Expense	<u>34,100</u>	<u>32,400</u>	
Actuarially Determined Contribution (ADC)	\$ 2,074,600	\$ 2,010,300	

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION II - ASSETS**

Pension plan assets play a key role in the financial operation of the plan and in the decisions that the 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, 2014 and June 30, 2015;
- Statement of the **changes** in market values during the year;
- 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 ten 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, 2014 and June 30, 2015, along with the changes between the two.

<b>Table II-1 Changes in Market Values of Assets</b>	
<b>Market Value of Assets – June 30, 2014</b>	<b>\$ 17,462,400</b>
<b><u>Additions</u></b>	
Member Contributions	\$ 164,300
Employer Contributions	1,667,500
Investment Returns	<u>412,100</u>
<b>Total Additions</b>	<b>\$ 2,243,900</b>
<b><u>Deductions</u></b>	
Benefit Payments	\$ 2,002,700
Administrative Expenses	<u>32,400</u>
<b>Total Deductions</b>	<b>\$ 2,035,100</b>
<b>Market Value of Assets – June 30, 2015</b>	<b>\$ 17,671,200</b>

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**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, 2015.

<b>Table II-2 Development of Actuarial Value of Assets</b>		
1.	Actuarial Value of Assets at June 30, 2014	\$ 17,066,300
2.	Amount in (1) with interest to June 30, 2015 at 7.50% per year	\$ 18,295,100
3.	Employer and member contributions for the Plan Year ended June 30, 2015	1,831,800
4.	Interest on contributions assuming payments made uniformly throughout the year to June 30, 2015 at 7.50% per year	65,900
5.	Disbursements from Trust except investment expenses, July 1, 2014 through June 30, 2015	2,035,100
6.	Interest on disbursements to June 30, 2015 at 7.50% per year	<u>73,200</u>
7.	Expected Actuarial Value of Assets at June 30, 2015 = (2) + (3) + (4) – (5) – (6)	\$ 18,084,500
8.	Actual Market Value of Assets at June 30, 2015	<u>\$ 17,671,200</u>
9.	Excess of (8) over (7)	(413,300)
10.	Actuarial Value of Assets at June 30, 2015 = (7) + 20% of (9)	\$ 18,001,800

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION II - ASSETS**

**Investment Performance**

The market value of assets (MVA) returned 2.4% during 2015, which is greater than the assumed 7.2% investment rate of return. The actuarial value of assets (AVA) returned 6.7% over this same year, reflecting the standard 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**

<b>Table II-3 Cash Flow Projections</b>		
<b>Year Beginning July 1,</b>	<b>Expected Benefit Payments</b>	<b>Expected Contributions*</b>
2015	\$ 1,972,000	\$ 2,322,000
2016	2,064,000	2,295,000
2017	2,167,000	2,295,000
2018	2,268,000	2,295,000
2019	2,364,000	2,295,000
2020	2,456,000	2,295,000
2021	2,551,000	2,295,000
2022	2,654,000	2,295,000
2023	2,745,000	2,295,000
2024	2,844,000	2,295,000

\* Expected contributions include employer contributions and member contributions. For illustration purposes, we have assumed the employer contribution rate will remain level from FYE 2016 and do not reflect the continued phase-in to paying the full actuarially calculated amount.

Expected benefit payments are projected for the closed group valued at June 30, 2015. Projecting any farther than ten 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.

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION III - LIABILITIES**

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

- **Disclosure** of the Plan's liabilities at June 30, 2014 and June 30, 2015; 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 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. This 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. These liabilities are also required for some accounting purposes (Topic No. 960) and are sometimes used as part of assessing whether a plan can meet its current benefit commitments. Note that this 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 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.

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION III - LIABILITIES**

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

	<b>June 30, 2014</b>	<b>June 30, 2015</b>
<b><u>Present Value of Benefits</u></b>		
Active Member Benefits	\$ 20,801,500	\$ 20,716,700
Retiree, Beneficiary, Disabled, and Terminated Members Benefits	<u>17,039,600</u>	<u>17,448,600</u>
<b>Present Value of Benefits (PVB)</b>	<b>\$ 37,841,100</b>	<b>\$ 38,165,300</b>
Market Value of Assets (MVA)	\$ 17,462,400	\$ 17,671,200
Future Member Contributions	2,268,000	2,208,000
Future Employer Contributions	<u>18,110,700</u>	<u>18,286,100</u>
<b>Total Resources</b>	<b>\$ 37,841,100</b>	<b>\$ 38,165,300</b>
<b><u>Actuarial Liability</u></b>		
Present Value of Benefits (PVB)	\$ 37,841,100	\$ 38,165,300
Present Value of Future Employer Normal Costs (PVFNC)	2,381,400	2,318,400
Present Value of Future Member Contributions (PVFEEC)	<u>2,268,000</u>	<u>2,208,000</u>
<b>Actuarial Liability (AL=PVB-PVFNC-PVFEEC)</b>	<b>\$ 33,191,700</b>	<b>\$ 33,638,900</b>
Actuarial Value of Assets (AVA)	<u>17,066,300</u>	<u>18,001,800</u>
<b>Net (Surplus)/Unfunded AL (AL - AVA)</b>	<b>\$ 16,125,400</b>	<b>\$ 15,637,100</b>
<b><u>Present Value of Accrued Benefits</u></b>		
Present Value of Benefits (PVB)	\$ 37,841,100	\$ 38,165,300
Present Value of Future Benefit Accruals (PVFBA)	<u>7,089,200</u>	<u>6,885,700</u>
<b>Present Value of Accrued Benefits (PVAB=PVB-PVFBA)</b>	<b>\$ 30,751,900</b>	<b>\$ 31,279,600</b>
Market Value of Assets (MVA)	\$ 17,462,400	\$ 17,671,200
<b>Net (Surplus)/Unfunded PVAB (PVAB - MVA)</b>	<b>\$ 13,289,500</b>	<b>\$ 13,608,400</b>

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**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 method

Unfunded liabilities (or surpluses) will change because of all of the above as well as due to changes in plan assets 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.

<b>Table III-2 Liability Changes</b>			
<b>(In Thousands)</b>	<b>Present Value of Benefits</b>	<b>Actuarial Liability</b>	<b>Present Value of Accrued Benefits</b>
Liabilities June 30, 2014	\$ 37,841	\$ 33,192	\$ 30,752
Liabilities June 30, 2015	38,165	33,639	31,280
Liability Increase (Decrease)	324	447	528
Change Due to:			
Assumption Changes	0	0	0
Actuarial (Gain)/Loss	NC*	(505)	NC*
Benefits Accumulated and Other Sources	324	952	528

\* NC = not calculated

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**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.

<b>Table III-3 Actuarial Liabilities for Funding</b>		
	<b>June 30, 2014</b>	<b>June 30, 2015</b>
1. Actuarial Liabilities		
Retiree, Beneficiary, Disabled, and Terminated Members Benefits	\$ 17,039,600	\$ 17,448,600
Active Members	<u>16,152,100</u>	<u>16,190,300</u>
<b>Total Actuarial Liability</b>	<b>\$ 33,191,700</b>	<b>\$ 33,638,900</b>
2. Actuarial Value of Assets	\$ 17,066,300	\$ 18,001,800
3. Unfunded Actuarial Liability (UAL)	\$ 16,125,400	\$ 15,637,100

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**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 normal cost contribution rate is determined in the following steps. First, for each active member an individual 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 projected future service. Then, this total normal cost rate is reduced by the member contribution rate to produce the employer normal cost amount for each member. The employer normal cost amount for all active members equals the sum of the employer normal cost amounts 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 cost contributions or 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 contribution rate is calculated by amortizing this UAL over a 15-year open period.

The assumed administrative expense is equal to the actual administrative expenses charged in the prior year. This amount 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 amounts for the Plan for this valuation and the immediately prior one.

<b>Table IV-1 Employer Contribution Amounts</b>		
	<b>June 30, 2014 Fiscal Year 2015</b>	<b>June 30, 2015 Fiscal Year 2016</b>
Entry Age Normal Cost Amount	\$ 304,200	\$ 298,700
UAL Amortization Payment	1,736,300	1,679,200
Administrative Expense	<u>34,100</u>	<u>32,400</u>
Actuarially Determined Contribution	\$ 2,074,600	\$ 2,010,300

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION IV - CONTRIBUTIONS**

Table IV-2 below provides additional detail about the development of the expected employer contribution amount for FY 2016.

<b>Table IV-2 Expected FY 2016 Employer Contributions</b>	
	<b>In Dollars</b>
1. Present Value of Projected Benefits Attributable to:	
a. Total Normal Cost	\$ 583,200
b. Expected Members Contribution	<u>284,500</u>
c. Employer Paid Normal Cost (a) – (b)	\$ 298,700
2. Amortization of Unfunded Liability	1,679,200
3. Allowance for Administrative Expense	<u>32,400</u>
4. Total Employer Actuarially Determined Contribution Amount (1) + (2) + (3)	\$ 2,010,300

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
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**SECTION V - ACCOUNTING STATEMENT INFORMATION**

ASC Topic Number 960 of the Financial Accounting Standards Board (FASB) requires plans subject to it to disclose certain information regarding its funded status. Statement Number 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 Number 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.

FASB ASC Topic Number 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. The relevant amounts as of June 30, 2014 and June 30, 2015 are exhibited in Table V-1 which also includes a reconciliation of liabilities determined as of the prior valuation, July 1, 2014, to the liabilities as of June 30, 2015.

This valuation contains information reported in the June 30, 2015 Comprehensive Annual Financial Report (CAFR) of Delaware PERS under GASB Statement Number 67. Disclosures are based on the use of updated procedures to roll forward the 2014 valuation results. The calculation of Net Pension Liability in Table V-2 shows the amounts disclosed for the Plan Year June 30, 2015, based on the 2014 liability valuation, as well as a projection of the anticipated June 30, 2016 disclosures, based on 2015 liability valuations, assuming all actuarial assumptions are met over the coming year.

Tables V-3 through V-5 are exhibits to be used for the System’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 assets. The Government Finance Officers Association (GFOA) has named this exhibit the Solvency Test. None of the liabilities or assets shown is 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 any information reported based on the new GASB Statement Number 68 that will be effective for the employers beginning in its Fiscal Year 2015 CAFR.

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION V - ACCOUNTING STATEMENT INFORMATION**

<b>Table V-1 Accounting Statement Disclosure and Reconciliation of Present Value of Accrued Benefits</b>		
	<b>June 30, 2014</b>	<b>June 30, 2015</b>
<b>FASB ASC Topic No. 960 Basis</b>		
1. Present Value of Accrued Benefits		
a. Members Currently Receiving Payments	\$ 15,325,700	\$ 15,849,600
b. Former Vested Members	1,713,900	1,599,000
c. Active Members	<u>13,712,300</u>	<u>13,831,000</u>
2. Total Present Value of Accrued Benefits (1 (a) + 1(b) + 1(c))	\$ 30,751,900	\$ 31,279,600
3. Assets at Market Value	<u>17,462,400</u>	<u>17,671,200</u>
4. Unfunded Present Value of Accrued Benefits (2 – 3)	\$ 13,289,500	\$ 13,608,400
5. Ratio of Assets to Present Value of Benefits (3 / 2)	56.8%	56.5%
<b>Reconciliation of Present Value of Accrued Benefits</b>		
Actuarial Present Value of Accrued Benefits at June 30, 2014		\$ 30,751,900
Increase (Decrease) During Years Attributable to:		
Passage of Time		2,142,000
Benefit Paid – FY 2015		(2,002,700)
Benefit Changes		0
Benefits Accrued, Other Gains/Losses		<u>388,400</u>
Net Increase (Decrease)		527,700
Actuarial Present Value of Accrued Benefits at June 30, 2015		\$ 31,279,600

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**SECTION V - ACCOUNTING STATEMENT INFORMATION**

**Table V-2  
GASB Number 67 Disclosures**

	<b>June 30, 2015</b>	<b>Estimated June 30, 2016*</b>
<b><u>Total Pension Liability</u></b>		
Service cost	\$ 290,000	\$ 822,000
Interest	2,340,000	2,270,000
Changes in benefit terms	0	0
Differences between expected and actual experience	1,615,000	(2,139,000)
Changes in assumptions	0	0
Benefit payments, including refunds of member contributions	(2,003,000)	(1,972,000)
<b>Net change in Total Pension Liability</b>	<b>\$ 2,242,000</b>	<b>\$ (1,019,000)</b>
<b>Total Pension Liability - beginning</b>	<b>\$ 31,576,000</b>	<b>\$ 33,818,000</b>
<b>Total Pension Liability - ending (a)</b>	<b>\$ 33,818,000</b>	<b>\$ 32,799,000</b>
<b><u>Plan Fiduciary Net Position</u></b>		
Contributions - Employer	\$ 1,668,000	\$ 2,038,000
Contributions - Non-employer	0	0
Contributions - Member	164,000	284,000
Net investment income	412,000	1,284,000
Benefit payments, including refunds of member contributions	(2,003,000)	(1,972,000)
Administrative expenses	(32,000)	(34,000)
<b>Net change in Plan Fiduciary Net Position</b>	<b>\$ 209,000</b>	<b>\$ 1,600,000</b>
<b>Plan Fiduciary Net Position - beginning</b>	<b>\$ 17,462,000</b>	<b>\$ 17,671,000</b>
<b>Plan Fiduciary Net Position - ending (b)</b>	<b>\$ 17,671,000</b>	<b>\$ 19,271,000</b>
<b>Plan Net Pension Liability (Asset) - ending [(a)-(b)]</b>	<b>\$ 16,147,000</b>	<b>\$ 13,528,000</b>

\*Items printed in red will be replaced with actual amounts once known at the end of FY 2016.

Note that GASB Statement Number 67 requires that the level percent of payroll version of Entry Age Normal calculations be used, even when benefits are not related to salary. For this reason, the figures shown for the GASB Number 67 disclosures above will not agree with those shown elsewhere in this report relating to funding.

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**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 actuarial valuation at the date indicated. Additional information as of the latest actuarial valuation follows:

Valuation date	July 1, 2015
Actuarial cost method	Entry age
Amortization method	Level dollar - open
Remaining amortization period	15 years
Asset valuation method	5-Year smoothed market
Actuarial assumptions:	
Investment rate of return*	7.2%
Projected salary increases	N/A
Cost-of-living adjustments	ad hoc
*Includes inflation at	3.00%

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 2011. The Board of Trustees further modified the investment rate of return and inflation assumptions for the 2014 Plan Year.

The rate of employer contributions to the Plan is composed of the normal cost, amortization of the unfunded actuarial liability and an allowance for administrative expenses. The normal cost is a level dollar amount which, along with 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 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.

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**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**

Type of Activity	<i>Gain (or Loss) for Year ending June 30, (expressed in thousands)</i>					
	2010	2011	2012	2013	2014	2015
Investment Income on Actuarial Assets	\$ (345)	\$ (27)	\$ (200)	\$ (97)	\$ 141	\$ (83)
Combined Liability Experience	<u>260</u>	<u>29</u>	<u>388</u>	<u>161</u>	<u>230</u>	<u>505</u>
(Loss)/Gain During Year from Financial Experience	\$ (85)	\$ 2	\$ 188	\$ 64	\$ 371	\$ 422
Non-Recurring Items	<u>0</u>	<u>(1,132)</u>	<u>0</u>	<u>(28)</u>	<u>(1,287)</u>	<u>0</u>
Composite Gain (or Loss) During Year	\$ (85)	\$ (1,130)	\$ 188	\$ 36	\$ 916	\$ 422

**Table V-5  
Solvency Test  
Aggregate Accrued Liabilities for**

Valuation Date June 30,	(expressed in thousands)						
	Active Member Contributions	Retirees & Beneficiaries	Active Member State Financed Contributions	Actuarial Value of Reported Assets	Portion of Accrued Liabilities Covered by Reported Assets		
	(1)	(2)	(3)		(1)	(2)	(3)
2015	\$ 5,282	\$ 15,850	\$ 12,507	\$ 18,002	100%	80%	0%
2014	5,210	15,326	12,656	17,066	100	77	0
2013	5,087	14,291	11,663	15,773	100	75	0
2012	4,896	13,998	11,255	14,972	100	72	0
2011	4,797	13,457	11,261	14,379	100	71	0
2010	4,727	12,692	9,963	13,663	100	70	0

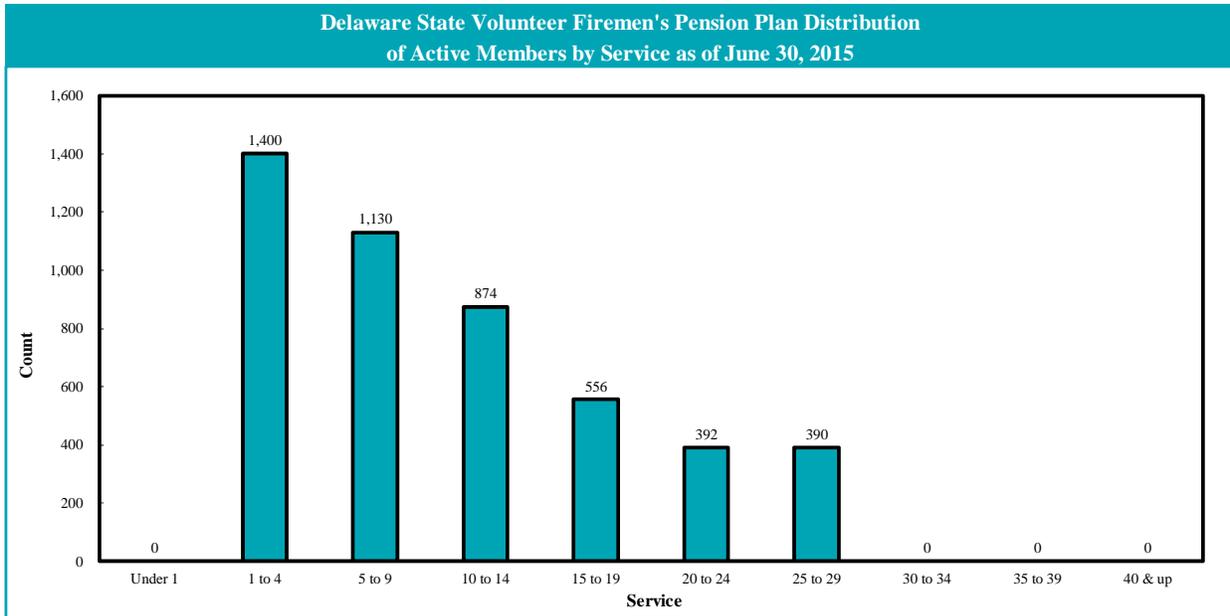
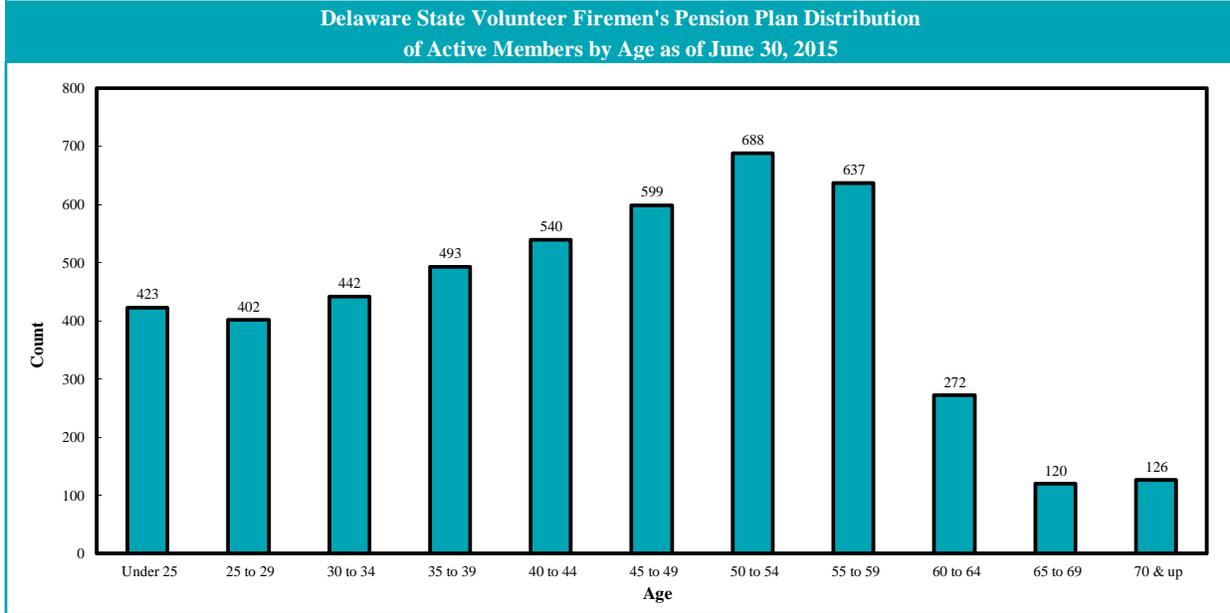
**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX A - MEMBERSHIP INFORMATION**

Delaware State Volunteer Firemen's Pension Plan Distribution of Active Members by Age and Service as of June 30, 2015												
Counts By Age/Service												
Age	Service										Total	
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up		
Under 25	0	335	88	0	0	0	0	0	0	0	0	423
25 to 29	0	190	158	53	1	0	0	0	0	0	0	402
30 to 34	0	161	135	105	41	0	0	0	0	0	0	442
35 to 39	0	129	119	121	89	34	1	0	0	0	0	493
40 to 44	0	118	110	122	89	83	18	0	0	0	0	540
45 to 49	0	122	115	115	97	80	70	0	0	0	0	599
50 to 54	0	113	129	128	105	89	124	0	0	0	0	688
55 to 59	0	94	89	130	88	81	155	0	0	0	0	637
60 to 64	0	58	79	58	34	23	20	0	0	0	0	272
65 to 69	0	41	48	19	8	2	2	0	0	0	0	120
70 & up	0	39	60	23	4	0	0	0	0	0	0	126
Total	0	1,400	1,130	874	556	392	390	0	0	0	0	4,742

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX A - MEMBERSHIP INFORMATION**



**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX A - MEMBERSHIP INFORMATION**

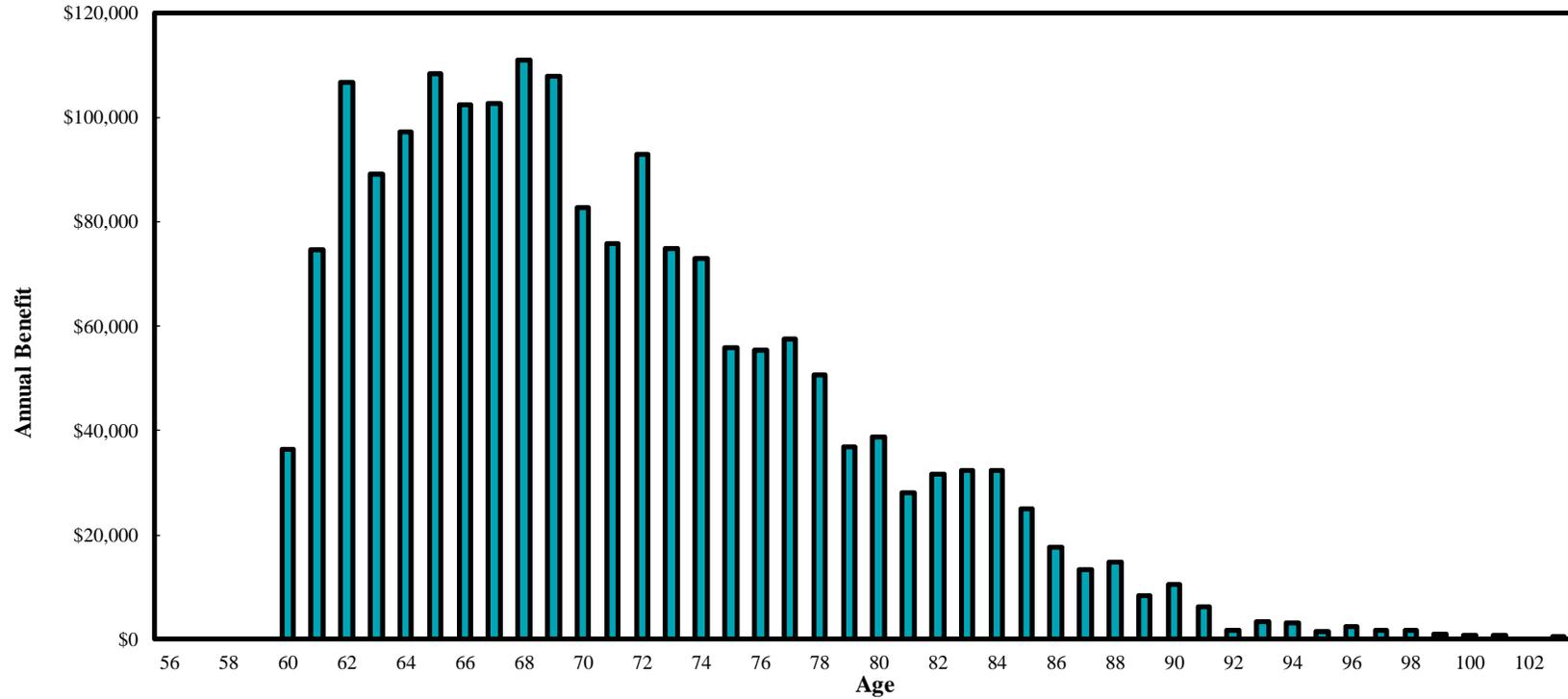
**Delaware State Volunteer Firemen's Pension Plan Annual Benefit  
Distribution of Retired Members and Beneficiaries as of June 30, 2015**

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	0	\$ -	73	67	\$ 74,820
25	0	-	74	68	72,900
26	0	-	75	55	55,860
27	0	-	76	58	55,320
28	0	-	77	62	57,480
29	0	-	78	52	50,700
30	0	-	79	40	36,840
31	0	-	80	44	38,820
32	0	-	81	33	28,200
33	0	-	82	38	31,620
34	0	-	83	41	32,400
35	0	-	84	43	32,460
36	0	-	85	34	25,020
37	0	-	86	24	17,760
38	0	-	87	19	13,440
39	0	-	88	20	14,940
40	0	-	89	12	8,460
41	0	-	90	16	10,440
42	0	-	91	9	6,300
43	0	-	92	3	1,800
44	0	-	93	5	3,360
45	0	-	94	4	3,240
46	0	-	95	2	1,500
47	0	-	96	3	2,400
48	0	-	97	2	1,680
49	0	-	98	2	1,800
50	0	-	99	1	1,020
51	0	-	100	1	900
52	0	-	101	1	780
53	0	-	102	0	-
54	0	-	103	1	600
55	0	-	104	0	-
56	0	-	105	0	-
57	0	-	106	0	-
58	0	-	107	0	-
59	0	-	108	0	-
60	26	36,480	109	0	-
61	58	74,640	110	0	-
62	83	106,740	111	0	-
63	73	89,040	112	0	-
64	79	97,200	113	0	-
65	85	108,240	114	0	-
66	86	102,300	115	0	-
67	91	102,660	116	0	-
68	94	111,000	117	0	-
69	94	107,820	118	0	-
70	71	82,680	119	0	-
71	69	75,720	120	0	-
72	80	92,880			
			Totals	1,749	\$ 1,870,260

DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015

APPENDIX A - MEMBERSHIP INFORMATION

Delaware State Volunteer Firemen's Pension Plan Annual Benefit  
Distribution of Retired Members and Beneficiaries as of June 30, 2015



**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX A - MEMBERSHIP INFORMATION**

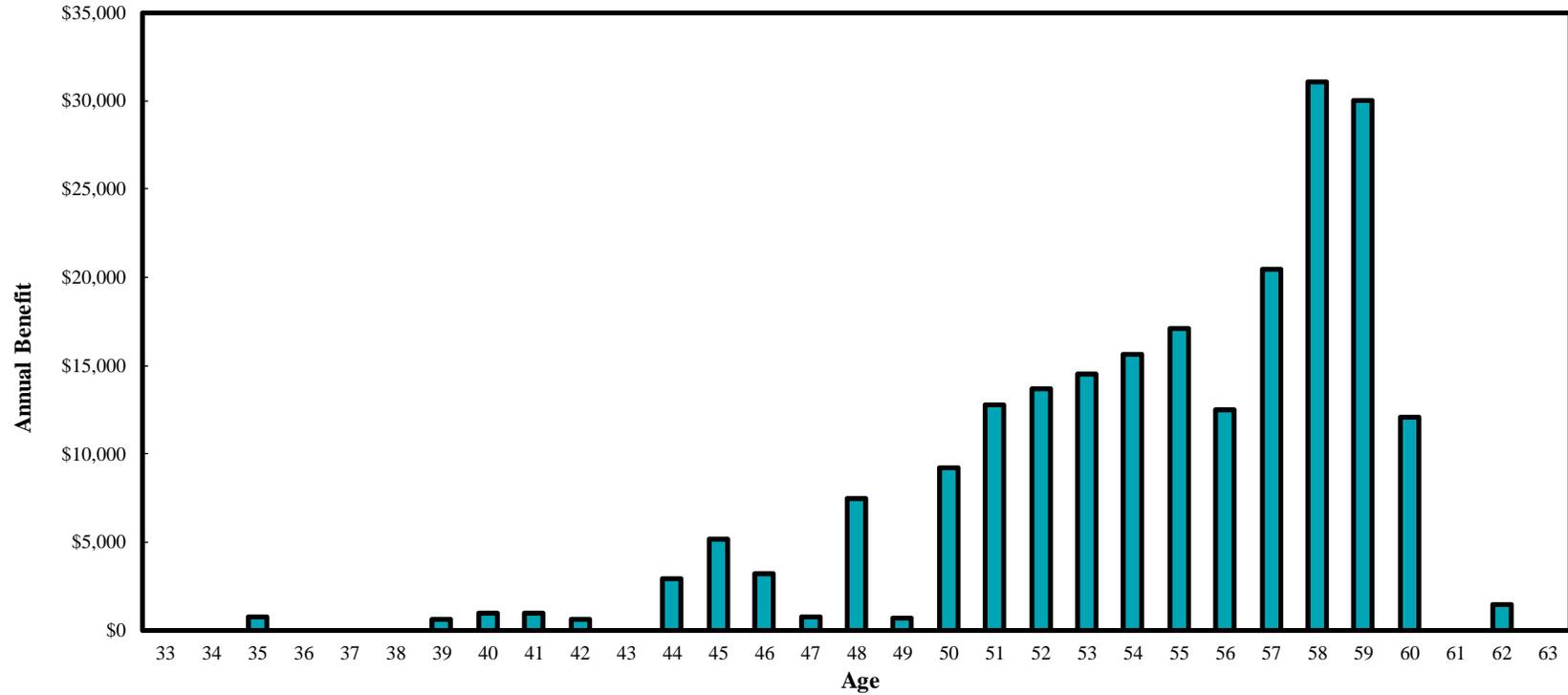
**Delaware State Volunteer Firemen's Pension Plan Annual Benefit  
Distribution of Vested Members as of June 30, 2015**

Age	Count	Annual Benefit	Age	Count	Annual Benefit
<25	0	\$ -	73	0	\$ -
25	0	-	74	0	-
26	0	-	75	0	-
27	0	-	76	0	-
28	0	-	77	0	-
29	0	-	78	0	-
30	0	-	79	0	-
31	0	-	80	0	-
32	0	-	81	0	-
33	0	-	82	0	-
34	0	-	83	0	-
35	1	780	84	0	-
36	0	-	85	0	-
37	0	-	86	0	-
38	0	-	87	0	-
39	1	600	88	0	-
40	1	960	89	0	-
41	1	960	90	0	-
42	1	660	91	0	-
43	0	-	92	0	-
44	3	2,940	93	0	-
45	5	5,160	94	0	-
46	3	3,240	95	0	-
47	1	780	96	0	-
48	5	7,500	97	0	-
49	1	720	98	0	-
50	7	9,180	99	0	-
51	9	12,780	100	0	-
52	10	13,680	101	0	-
53	10	14,520	102	0	-
54	11	15,660	103	0	-
55	13	17,100	104	0	-
56	9	12,480	105	0	-
57	15	20,460	106	0	-
58	23	31,080	107	0	-
59	20	30,000	108	0	-
60	9	12,060	109	0	-
61	0	-	110	0	-
62	1	1,440	111	0	-
63	0	-	112	0	-
64	0	-	113	0	-
65	0	-	114	0	-
66	0	-	115	0	-
67	0	-	116	0	-
68	0	-	117	0	-
69	0	-	118	0	-
70	0	-	119	0	-
71	0	-	120	0	-
72	0	-			
			Totals	160	\$ 214,740

DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015

APPENDIX A - MEMBERSHIP INFORMATION

Delaware State Volunteer Firemen's Pension Plan Annual Benefit  
Distribution of Vested Members as of June 30, 2015



**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS**

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

**1. Demographic Assumptions**

**a. Healthy Active and Inactive Mortality**

Mortality Improvements Projected to 2015 (Projection Scale AA)

Male: RP-2000 Combined Mortality Table

Female: RP-2000 Combined Mortality Table

<b>Rates of Healthy Active and Inactive Mortality Rates (With Projection Scale AA)</b>		
<b>Age</b>	<b>Male</b>	<b>Female</b>
20	0.03%	0.02%
25	0.03	0.02
30	0.04	0.02
35	0.07	0.04
40	0.10	0.06
45	0.12	0.09
50	0.16	0.13
55	0.27	0.24
60	0.53	0.47
65	1.03	0.90
70	1.77	1.55
75	3.06	2.49
80	5.54	4.13
85	9.97	7.08
90	17.27	12.59

Mortality table was set in conjunction with the 2011 experience study to include a static projection to 2015. The System is embarking on a new experience study in 2016 which will determine whether the margin for future mortality improvements remains and to propose revised tables.

**b. Termination of Employment (Prior to Normal Retirement Eligibility)**

10-year Select (age- and service based) & Ultimate (age-based) Tables

<b>Age</b>	<b>Service</b>										
<b>Select:</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>Ultimate</b>
<55	50.00%	6.00%	5.50%	5.00%	4.50%	4.00%	4.00%	3.50%	3.50%	1.50%	0.50%
55+	25.00%	6.00%	5.50%	5.00%	4.50%	4.00%	4.00%	3.50%	3.50%	1.50%	0.50%

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS**

**c. Retirement**

Normal Retirement: one-year Select & Ultimate (age-based) upon attaining age 60 with completion of ten years of service:

<b>Male Normal Retirement</b>		
<b>Age</b>	<b>Select</b>	<b>Ultimate</b>
<61	70.00%	0.00%
61-69	40.00	30.00
70-79	100.00	30.00
80+	100.00	100.00

<b>Female Normal Retirement</b>		
<b>Age</b>	<b>Select</b>	<b>Ultimate</b>
<61	70.00%	0.00%
61-64	45.00	35.00
65-69	50.00	35.00
70-79	70.00	35.00
80+	70.00	100.00

**d. Salary Increase**

Not applicable. Salary is not a component of this Plan.

**2. Economic Assumptions**

- a. Investment Rate of Return: 7.20%
- b. General Wage Increase Rate: N/A
- c. Annual Cost-of-Living Increase Rate for Retirees: 0.00%
- d. Total Payroll Increase Rate (for Amortization): N/A
- e. Administrative Expenses: Assume following year's expense will equal allocation of administrative expenses made in the prior year.

**3. Rationale for Assumptions**

The assumptions were adopted by the Board of Trustees as a result of the latest experience study review performed in 2011 and covering the period July 1, 2005 through June 30, 2010.

The Board continually reviews the investment return assumption and adopted a reduced rate of 7.20% effective with the 2014 valuation, at the advice of its investment consultant.

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX B - ACTUARIAL ASSUMPTIONS AND METHODS**

**4. Changes Since Last Valuation**

None

**B. Actuarial Methods**

**1. Funding Method**

The Entry Age Normal funding method is used to determine costs. Under this funding method, a normal cost is determined as the level dollar amount 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 is amortized as a level dollar amount over a rolling 15-year period. The unfunded liability was being amortized by annual payments over a 40-year period from July 1, 1987 until July 1, 2013, at which time the funding method was moved to a 15-year open period. 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 more level contributions over time.

For purposes of the GASB 67 disclosures, the Entry Age Normal funding method assuming a level percentage of pay is used. For this method, the pay increase assumption is the underlying inflation rate of 3%.

**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 and Rationale for Change**

None.

**DELAWARE STATE VOLUNTEER FIREMEN'S PENSION PLAN  
ACTUARIAL VALUATION AS OF JUNE 30, 2015**

**APPENDIX C - SUMMARY OF PLAN PROVISIONS**

**1. Membership**

The Plan covers actively-participating volunteers of one of the state volunteer fire departments, ladies auxiliaries and service organizations providing volunteer ambulance services.

**2. Member Contributions**

\$60.00 per member per year.  
Interest is credited at the rate of 5% per year.

**3. Credited Service**

Service prior to July 1, 1986: one year of service for each three years of service.

Service after June 30, 1986: all service as a volunteer as certified by a fire company.

**4. Normal Retirement**

Eligibility: Age 60 with ten years of credited service.

Benefit: \$5.00 per year of credited service, to a maximum of \$125.00 per month.

**5. Survivor's Benefit**

Eligibility: Death of a member, inactive member, or retired member.

Benefit: Lump sum equal to the excess, if any, of the accumulated member contributions with interest over the total pension payments made, if any.

**6. Vesting**

Eligibility: Ten years of credited service.

Benefit: Normal retirement benefit payable at age 60 based on service at date of termination. In lieu of a pension, a member may receive a refund of accumulated employee contributions with interest. Upon application for a refund of contributions, a member's vested right to a monthly benefit shall be forfeited.

**7. Form of Payment**

The normal form of payment is a single life annuity with a guarantee that at least member contributions will be paid out.

**8. Changes Since Last Valuation**

None