

**Delaware State Police
Pension Plan**

**Actuarial Valuation
as of June 30, 2011**

Produced by **Cheiron**

January 2012

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January 25, 2012

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 our annual actuarial valuation of the Delaware State Police Pension Plan as of June 30, 2011. The results of the valuation are contained in this report. The purpose of the valuation is discussed in the Foreword.

This report contains information on Plan assets, as well as analyses which combine asset and liability performance and projections. The report also discloses employer contribution levels, and required disclosures under the Governmental Accounting Standards Board Statement No. #25.

Your attention is called to the Foreword in which we refer to the general approach employed in the preparation of this report. We also comment on the sources and reliability of both the data and the actuarial assumptions on which our findings are based. Those comments are the basis for our certification that this report is complete and accurate to the best of our knowledge and belief. The results of this report are only applicable to the State contribution for Fiscal Year ending 2013 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.

We hereby certify that, to the best of our knowledge, this report and its contents are products of Cheiron, Inc. These work products are complete and accurate and have been prepared in accordance with generally recognized and accepted actuarial principles and practices which 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 solely for the Delaware State Police Pension Plan for the purposes described herein, except that the plan auditor may rely on this report solely for the purpose of completing an audit related to the matters herein. This valuation report is not intended to benefit any third party, and Cheiron assumes no duty or liability to any such party.

Sincerely,
Cheiron


Fiona E. Liston, FSA
Principal Consulting Actuary


Margaret A. Tempkin, FSA
Principal Consulting Actuary



**DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011**

FOREWORD

Cheiron has performed the actuarial valuation of the Delaware State Police Pension Plan as of June 30, 2011. 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 progress of the Plan;
- 3) **Determine the contribution rate** to be paid by the State for Fiscal Year 2013; and
- 4) **Provide specific information** and documentation required by the Governmental Accounting Standards Board (GASB).

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 actuarial 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 Plan liabilities, measured for actuarial, accounting, and government reporting purposes.

Section IV develops the State contribution rate determined using actuarial techniques.

Section V includes the required disclosures under GASB Statement number 25.

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 the actuarial methods and assumptions used in the valuations.

In preparing our report, we relied without audit, on information (some oral and some written) supplied by the Plan's staff. This information includes, but is not limited to, plan provisions, employee data, and financial information.

The actuarial assumptions reflect our understanding of the likely future experience of the Plan and the assumptions as a whole represent our best estimate for the future experience of the Plan. The results of this report are dependent upon future experience conforming to these assumptions. To the extent that future experience deviates from the actuarial assumptions, the true cost of the Plan could vary from our results.

Finally, in preparing this report, we have conformed to generally accepted actuarial principles and practices which are consistent with the Code of Professional Conduct, and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board.

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

SECTION I
BOARD SUMMARY

General Comments

The actuarially determined contribution rate increased from 16.43% for FY 2012 to 17.35% for FY 2013.

There were several reasons for this increase: a loss on the actuarial value of assets; a gain on the Plan's liability, and other normal plan operations. During the year ended June 30, 2011, the Plan's assets earned 23.8% on a market value basis. However, due to the Plan's asset-smoothing technique, the return on the actuarial asset value was 8.2%. This return is more than the assumed rate of return of 8.0% and resulted in an actuarial gain on investments of \$0.5 million. Note that with the assumption change going forward this comparison will be made against the revised 7.5% assumption in future years.

The Plan also experienced an actuarial gain on Plan liabilities resulting from salary increases different than assumed and members retiring, terminating, becoming disabled and dying at rates different from the actuarial assumptions. The gain decreased the actuarial liability by \$5.0 million. This type of activity is normal in the course of plan experience. The Plan will experience actuarial gains and losses over time because we cannot predict exactly how people will behave. When a plan experiences alternating gains and losses that are small compared to the total actuarial liability, then the plan's actuarial assumptions are reasonable. In addition to the actuarial gain, the plan's liabilities also increased by \$1.3 million due to granting of a post retirement increase and \$4.7 million due to changes in assumptions as recommended in our experience study performed in 2011. The combined loss increased the actuarial liability by \$1.0 million (0.3% of total actuarial liability).

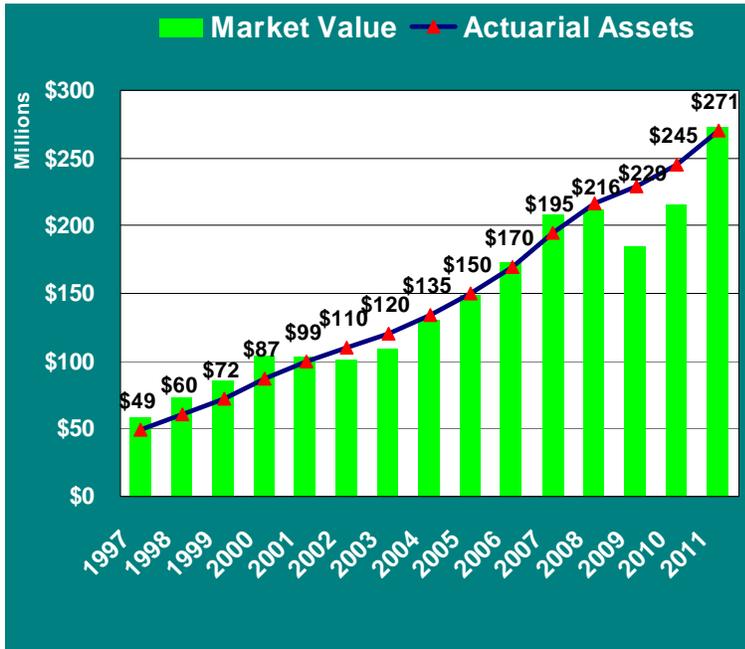
As of the June 30, 2011 actuarial valuation, the Plan's unfunded actuarial liability was \$16.3 million. This is an increase from last year's unfunded actuarial liability of \$15.0 million.

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

SECTION I
BOARD SUMMARY

Trends

Growth in Assets



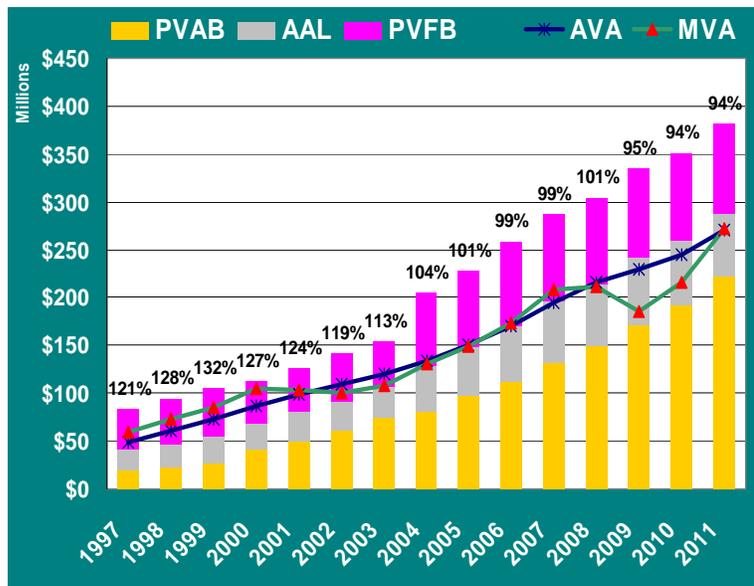
The market value of assets (MVA) returned 23.8% over the last year. The determination of the Plan's actuarial value of assets reflects only a portion of the returns above 8%, so an additional recognition of the 2008-2009 losses dampened the impact on the actuarial assets.

Over the period July 1, 1997 to June 30, 2011 the Plan's assets returned approximately 8.7% per year measured at actuarial value, compared to a valuation assumption of 8% per year.

Assets and Liabilities

The three colored bars represent the three different measures of liability mentioned in this report. For funding purposes, the target amount is represented by the top of the gray bar. We compare the actuarial value of assets to this measure of liability in developing the funded percent. These are the percentages shown in the graph labels.

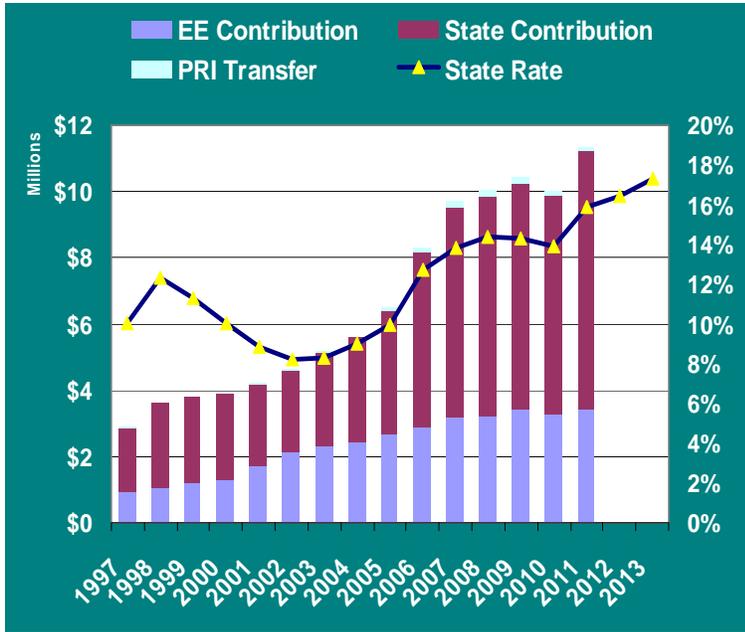
The amount represented by the top of the pink bars, the Present Value of Future Benefits (PVFB), is the amount needed to provide all benefits for the current participants and their beneficiaries. If the Plan had assets equal to the PVFB no contributions would, in theory, be needed for the current members.



DELAWARE STATE POLICE PENSION PLAN
 ACTUARIAL VALUATION AS OF JUNE 30, 2011

SECTION I
 BOARD SUMMARY

Contribution Rates



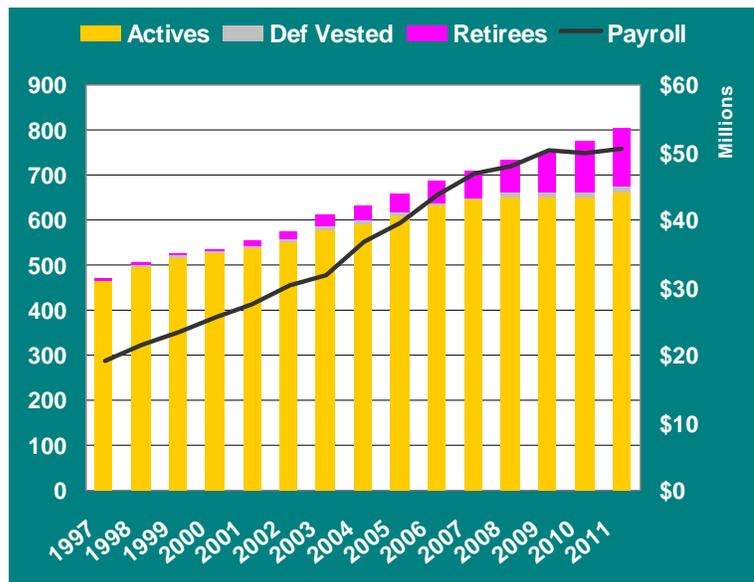
The stacked bars in this graph show the contributions made by the State, the PRI Fund, and the members (left hand scale). The black line shows the State contribution rate as a percent of payroll (right hand scale).

The member contribution rate is set by State law, depending on which plan the member participates in. The State contribution rate is set by the actuarial process and PRI Fund transfers depend on the increase granted. Please note there is a lag in the rate shown. For example, the 2011 value is the rate prepared by the 2009 valuation and implemented for the period July 1, 2010 to June 30, 2011.

Participant Trends

The bars show the number of participants in each category and should be read using the left-hand scale. As with many funds in this country, there has been a steady growth in the number of retired members as the Plan has matured.

The black line shows the covered payroll in the Plan and is read using the right-hand scale.

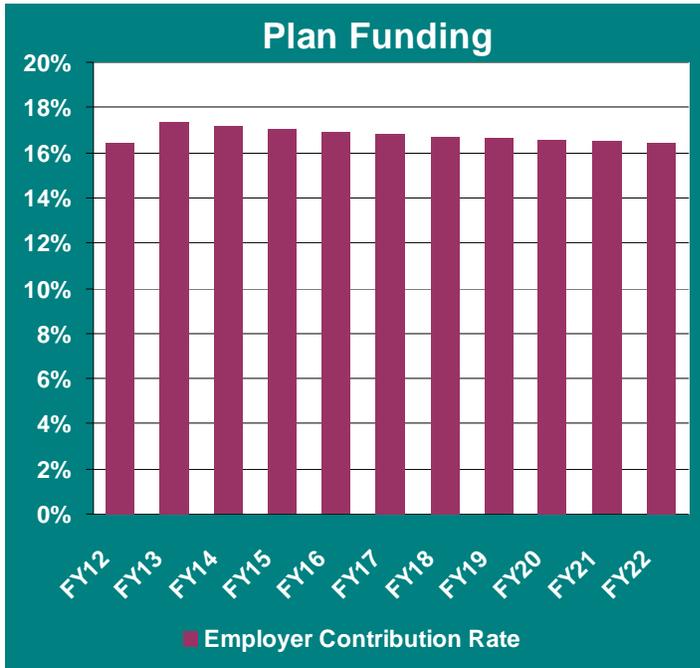


DELAWARE STATE POLICE PENSION PLAN
 ACTUARIAL VALUATION AS OF JUNE 30, 2011

SECTION I
 BOARD SUMMARY

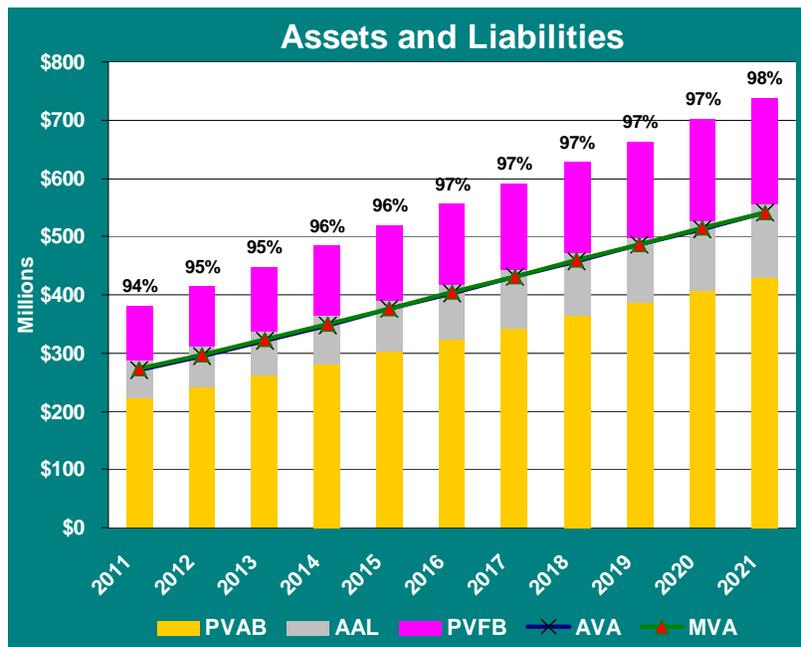
Future Outlook

Base Line Projections



These graphs show the expected progress of the Plan over the next ten years assuming the Plan’s assets earn 7.5% on their *market value*. The chart entitled “Plan Funding” shows the increase in the State rate from 16.43% to 17.35%. In future years, absent further gains or losses, the rate is anticipated to drop slowly.

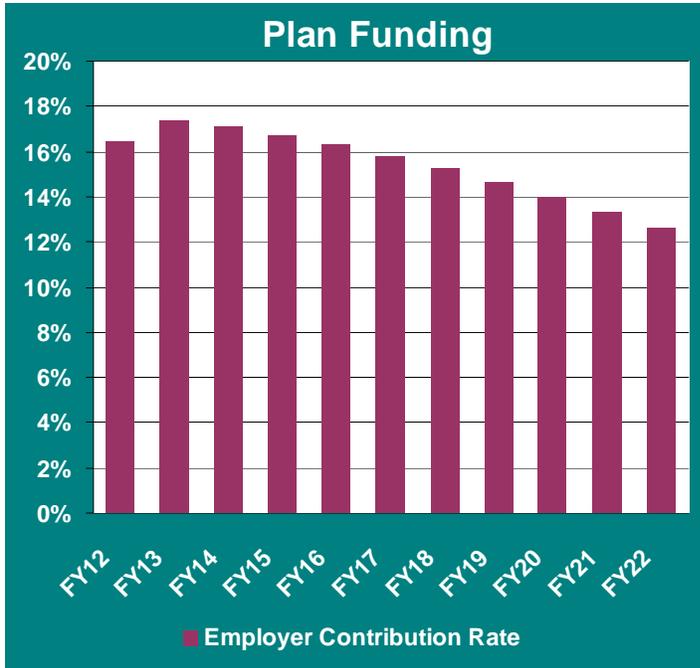
The “Assets and Liabilities” graph shows the projected funding status over the next ten years. The Plan’s funded status is projected to increase by 4% over the next 10 years.



**DELAWARE STATE POLICE PENSION PLAN
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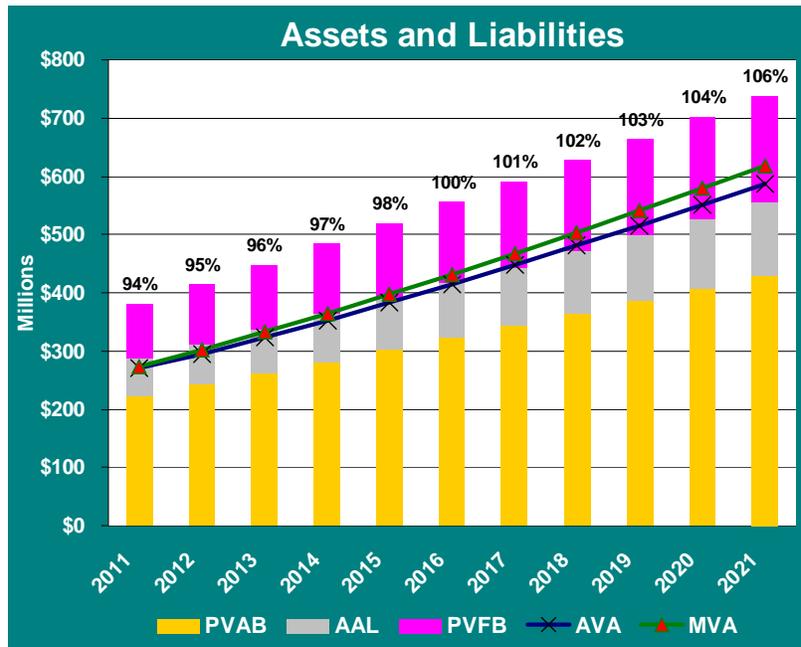
**SECTION I
BOARD SUMMARY**

Projections with Asset Returns of 9.0%



The future funding status of this Plan will be influenced by the investment earnings. Due to the size of assets, as compared to liabilities, the Plan is in a leveraged position. These two charts show what the next ten years would look like with a 9.0% annual return in each year.

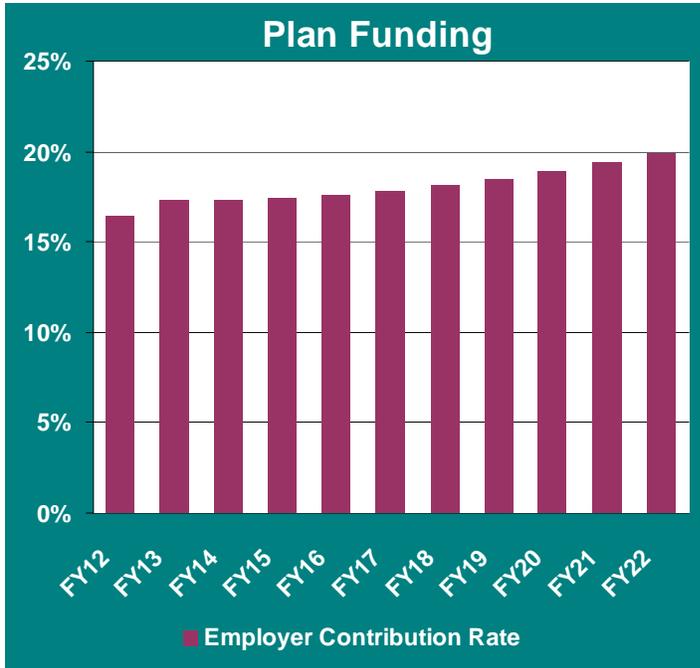
As you can see, the Plan's funded level steadily improves until reaching 106% funding by 2020. Contribution rates would decrease over the remaining years reaching a level slightly under 13% of payroll.



DELAWARE STATE POLICE PENSION PLAN
 ACTUARIAL VALUATION AS OF JUNE 30, 2011

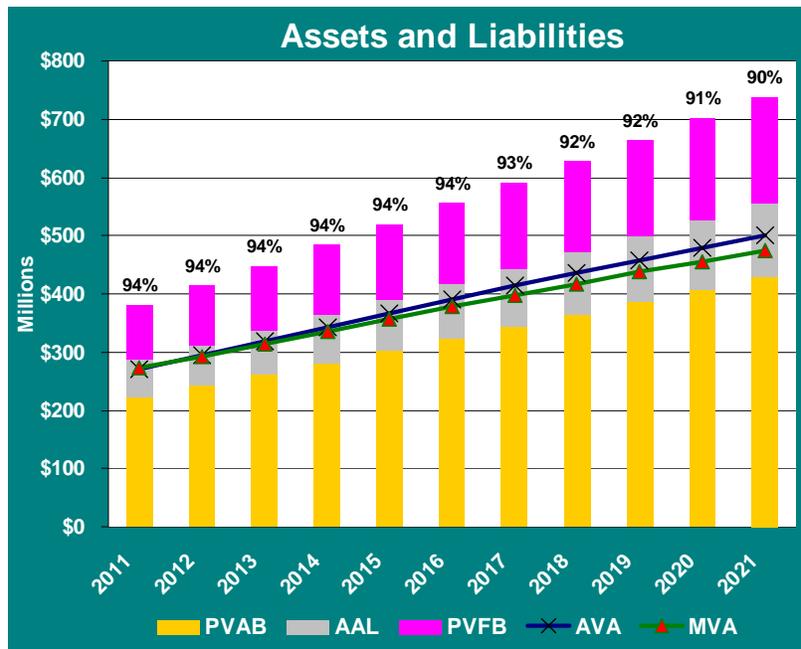
SECTION I
 BOARD SUMMARY

Projections with Asset Returns of 6.0%



To further demonstrate how the future funding of this Plan will be driven by investment earnings, we show the anticipated plan funding projections if the invested assets earn 6.0% per year over the entire ten-year period.

Under this scenario, the contribution increases and the funding status declines due to returns less than 7.5%.



DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

SECTION I
BOARD SUMMARY

| Table I-1 | | | |
|--|-------------------------|-------------------------|-----------------|
| Delaware State Police Pension Plan | | | |
| Summary of Principal Plan Results | | | |
| Valuation as of: | June 30, 2010 | June 30, 2011 | % Change |
| <u>Participant Counts</u> | | | |
| Active Participants | 651 | 662 | 1.69% |
| Disabled Participants | 19 | 21 | 10.53% |
| Retirees and Beneficiaries | 94 | 108 | 14.89% |
| Terminated Vested Participants | 8 | 10 | 25.00% |
| Inactive Participants | <u>1</u> | <u>2</u> | <u>N/A</u> |
| Total | 773 | 803 | 3.88% |
| Annual Salaries of Active Members* | \$ 49,896,300 | \$ 50,556,000 | 1.32% |
| Annual Retirement Allowances for Retired Members and Beneficiaries | \$ 5,604,000 | \$ 6,815,000 | 21.61% |
| <u>Assets and Liabilities</u> | | | |
| Actuarial Accrued Liability (AAL) | \$ 260,257,900 | \$ 286,889,700 | 10.23% |
| Actuarial Value of Assets | <u>245,303,000</u> | <u>270,624,900</u> | <u>10.32%</u> |
| Unfunded AAL | \$ 14,954,900 | \$ 16,264,800 | 8.76% |
| Funded Ratio | 94.3% | 94.3% | |
| Present Value of Accrued Benefits (PVAB) | \$ 190,830,400 | \$ 221,694,400 | 16.17% |
| Market Value of Assets | <u>215,664,800</u> | <u>272,546,900</u> | <u>26.38%</u> |
| Unfunded PVAB | \$ (24,834,400) | \$ (50,852,500) | 104.77% |
| Accrued Benefit Funding Ratio | 113.0% | 122.9% | |
| <u>Contributions as a Percentage of Payroll</u> | | | |
| | Fiscal Year 2012 | Fiscal Year 2013 | |
| Normal Cost Contribution | 14.02% | 15.00% | |
| Unfunded Actuarial Liability Contribution | 2.21% | 2.20% | |
| Administrative Expense | <u>0.20%</u> | <u>0.15%</u> | |
| Total State Contribution | 16.43% | 17.35% | |

* Assumes one year of payroll projection

SECTION II ASSETS

Pension Plan assets play a key role in the financial operation of the Plan and in the decisions 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 impact upon benefit levels, State contributions, and the ultimate security of participants' benefits.

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

- **Disclosure** of Plan assets at June 30, 2010 and June 30, 2011;
- 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 **cashflows** for the next ten years.

Disclosure

The market value of assets represents "snap-shot" or "cash-out" values which provide the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the marketplace. As a result, market values are usually not suitable for long-range planning.

The actuarial values are market values which have been smoothed to avoid overreacting to any one market event. They are used for evaluating the Plan's ongoing liability to meet its obligations.

Current methods employed by this Plan set the actuarial value equal to the expected value plus 20% of the difference between the expected value of assets and the actual market value. The expected value is equal to the prior year's actuarial value, rolled forward with actual contributions and benefit payments plus interest imputed at 8%. Next year's expected value will be rolled forward at an interest rate of 7.5%.

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

SECTION II
ASSETS

| | | |
|--|----------------------|-----------------------|
| Value of Assets – June 30, 2010 | | \$ 215,664,800 |
| <u>Additions</u> | | |
| Member Contributions | \$ 3,433,600 | |
| Employer Contributions | 7,810,400 | |
| PRI Fund Transfer | 86,200 | |
| Other | - | |
| Investment Return | <u>51,865,600</u> | |
| Total Additions | \$ 63,195,800 | |
| <u>Deductions</u> | | |
| Benefit Payments | \$ 6,236,200 | |
| Administrative Expenses | <u>77,500</u> | |
| Total Deductions | \$ 6,313,700 | |
| Value of Assets – June 30, 2011 | | \$ 272,546,900 |

**DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011**

**SECTION II
ASSETS**

| Table II-2 Development of Actuarial Value of Assets | | |
|--|---|----------------|
| 1. | Actuarial Value of Assets at June 30, 2010 | \$ 245,303,000 |
| 2. | Amount in (1) with interest to June 30, 2011 | 264,927,200 |
| 3. | Employer, PRI, member contributions and other for the Plan Year ended June 30, 2011 | 11,330,200 |
| 4. | Interest on contributions assuming payments made uniformly throughout the year to June 30, 2011 at 8.00% per year | 453,200 |
| 5. | Disbursements from Trust except investment expenses, July 1, 2010 through June 30, 2011 | 6,313,700 |
| 6. | Interest on disbursements to June 30, 2011 at 8.00% per year | 252,500 |
| 7. | Expected Actuarial Value of Assets at June 30, 2011 = (2) + (3) + (4) – (5) – (6) | 270,144,400 |
| 8. | Actual Market Value of Assets at June 30, 2011 | 272,546,900 |
| 9. | Excess of (8) over (7) | 2,402,500 |
| 10. | Actuarial Value of Assets at June 30, 2011 = (7) + 20% of (9) | \$ 270,624,900 |

Actuarial Value of Assets

The actuarial value of assets represents a “smoothed” value developed by the actuary to reduce, or eliminate, erratic results which could develop from short-term fluctuations in the market value of assets. For this Plan, the actuarial value has been calculated by adding 20% of the difference between market value and expected value to the expected value. The above table illustrates the calculation of actuarial value of assets for the June 30, 2011 valuation.

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

SECTION II
ASSETS

Investment Performance

The market value of assets (MVA) returned 23.8% during 2011, which is more than the assumed 8% return. A return of 8.2% on the actuarial value of assets (AVA) is primarily the result of the asset smoothing method being utilized for the calculation of the actuarial value of assets. Since only 20% of the gain or loss from the performance of the Plan is recognized in a given year, in periods of very good performance, the AVA can lag significantly behind the MVA. In a period of negative returns, the AVA does not decline as rapidly as the MVA.

Projection of Cash Flows

| Year Beginning July 1, | Expected Benefit Payments | Expected Contributions* |
|-------------------------------|----------------------------------|--------------------------------|
| 2011 | \$ 7,726,000 | \$ 11,993,000 |
| 2012 | 9,465,000 | 13,020,000 |
| 2013 | 11,135,000 | 13,444,000 |
| 2014 | 12,741,000 | 13,883,000 |
| 2015 | 14,723,000 | 14,336,000 |
| 2016 | 16,956,000 | 14,629,000 |
| 2017 | 19,127,000 | 14,918,000 |
| 2018 | 21,357,000 | 15,403,000 |
| 2019 | 23,712,000 | 15,904,000 |
| 2020 | 26,019,000 | 16,420,000 |

* Expected contributions include State Contributions, Member Contributions, and PRI Transfers. For illustration purposes, we have assumed the State Contribution rate will remain level and that payroll will increase at the actuarially assumed rate of 3.25% per year.

Expected benefit payments are projected for the closed group valued at June 30, 2011. Projecting any farther than ten years using a closed-group would not yield reliable predictions due to the omission of new hires.

SECTION III LIABILITIES

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

- **Disclosure** of Plan liabilities at June 30, 2010 and June 30, 2011;
- Statement of **changes** in these liabilities during the year; and

Disclosure

Several types of liabilities are calculated and presented in this report. Each type is distinguished by the people ultimately using the figures and the purpose for which they are using them.

- **Present Value of Benefits:** Used for analyzing the financial outlook of the Plan, this represents the amount of money needed today to fully pay off all future benefits and expenses of the Plan, assuming participants continue to accrue benefits.
- **Actuarial Accrued Liability:** Used for funding calculations and GASB disclosures, this liability is calculated taking the Present Value of Benefits and subtracting the present value of future Member Contributions and future Employer Normal Costs under an acceptable actuarial funding method. This method is referred to as the **Entry Age Normal** funding method.
- **Present Value of Accrued Liabilities:** Used for communicating the current level of liabilities, this liability represents the total amount of money needed today to fully pay off the current accrued obligations of the Plan, assuming no future accruals of benefits. These liabilities are also required for accounting purposes (Topic No. 960) and used to assess whether the Plan can meet its current benefit commitments.

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

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

**SECTION III
LIABILITIES**

| Table III-1 | | |
|---|------------------------|------------------------|
| Liabilities/Net (Surplus)/Unfunded | | |
| | June 30, 2010 | June 30, 2011 |
| <u>Present Value of Benefits</u> | | |
| Active Participant Benefits | \$ 285,325,800 | \$ 299,148,100 |
| Retiree and Inactive Benefits | <u>65,840,700</u> | <u>82,284,000</u> |
| Present Value of Benefits (PVB) | \$ 351,166,500 | \$ 381,432,100 |
| | | |
| Market Value of Assets (MVA) | \$ 215,664,800 | \$ 272,546,900 |
| Future Member Contributions | 30,291,400 | 30,098,500 |
| Future State Contributions & PRI Fund Transfers | <u>105,210,300</u> | <u>78,786,700</u> |
| Total Resources | \$ 351,166,500 | \$ 381,432,100 |
| | | |
| <u>Actuarial Accrued Liability</u> | | |
| Present Value of Benefits (PVB) | \$ 351,166,500 | \$ 381,432,100 |
| Present Value of Future Normal Costs (PVFNC) | 60,617,200 | 64,443,900 |
| Present Value of Future Member Contributions (PVFEEC) | <u>30,291,400</u> | <u>30,098,500</u> |
| Actuarial Accrued Liability (AAL = PVB – PVFNC – PVFEEC) | \$ 260,257,900 | \$ 286,889,700 |
| Actuarial Value of Assets (AVA) | <u>245,303,000</u> | <u>270,624,900</u> |
| Net (Surplus)/Unfunded (AAL – AVA) | \$ 14,954,900 | \$ 16,264,800 |
| | | |
| <u>Present Value of Accrued Liability</u> | | |
| Present Value of Benefits (PVB) | \$ 351,166,500 | \$ 381,432,100 |
| Present Value of Future Benefit Accruals (PVFBA) | <u>160,336,100</u> | <u>159,737,700</u> |
| Present Value of Accrued Liability (PVAB=PVB–PVFBA) | \$ 190,830,400 | \$ 221,694,400 |
| | | |
| Market Value of Assets (MVA) | \$ 215,664,800 | \$ 272,546,900 |
| Net Unfunded (PVAB – MVA) | \$ (24,834,400) | \$ (50,852,500) |

**DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011**

**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 hires 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 or investment assumptions
- A change in the actuarial funding method

Unfunded liabilities will change because of all of the above, and also 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 which 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.

| (In Thousands) | Present Value of Benefits | Actuarial Accrued Liability | Present Value of Accrued Liability |
|---|--------------------------------------|--|---|
| Liabilities June 30, 2010 | \$ 351,167 | \$ 260,258 | \$ 190,830 |
| Liabilities June 30, 2011 | 381,432 | 286,890 | 221,694 |
| Liability Increase (Decrease) | 30,265 | 26,632 | 30,864 |
| Change Due to: | | | |
| PRI Increase | 1,304 | 1,304 | 1,304 |
| Actuarial (Gain)/Loss | NC * | (5,030) | NC * |
| Assumption Change | 7,350 | 4,692 | 9,650 |
| Benefits Accumulated and Other Sources | 21,611 | 25,666 | 19,910 |

* NC = not calculated

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

**SECTION III
LIABILITIES**

| Table III-3 | | |
|---|-----------------------|-----------------------|
| Actuarial Liabilities for Funding | | |
| | June 30, 2010 | June 30, 2011 |
| 1. Actuarial Liabilities | | |
| Retiree and Inactive Benefits | \$ 65,840,700 | \$ 82,284,000 |
| Active Members | <u>194,417,200</u> | <u>204,605,700</u> |
| Total Actuarial Liability | \$ 260,257,900 | \$ 286,889,700 |
| 2. Actuarial Value of Assets | \$ 245,303,000 | \$ 270,624,900 |
| 3. Unfunded Actuarial Liability | \$ 14,954,900 | \$ 16,264,800 |
| 4. Outstanding PRI Transfers/(1 – 5 years) | \$ 86,300 | \$ 1,303,600 |
| 5. Net (Gain)/Loss Base for 20 Year Amort. (3-4) | \$ 14,868,600 | \$ 14,961,200 |

**DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011**

**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 is 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 stable and predictable.

For this Plan, the funding method employed is the **Entry Age Actuarial Cost Method**. Under this method, there are three components to the total contribution: the **normal cost rate**, the **unfunded actuarial liability rate** (UAL rate), and the **administrative expense rate**. The normal cost rate is determined in the following steps. First, for a typical new entrant 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. This value is then divided by the value, also at entry age, of the member's expected future salary. Finally, the total normal cost rate is reduced by the member contribution rate to produce the employer normal cost rate.

The UAL rate is calculated by amortizing all UAL (except for the present value of scheduled PRI transfers) over an open 20 year period. All payments are determined assuming total pay increases by the annual inflation rate of 3.25%.

The assumed administrative expense rate is 0.15% 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 for this valuation and the prior one.

| Table IV-1 | | |
|-------------------------------------|----------------------|----------------------|
| Employer Contribution Rate | | |
| | June 30, 2010 | June 30, 2011 |
| Entry Age Normal Cost Rate | 14.02% | 15.00% |
| Amortization Payment | 2.21 | 2.20 |
| Expense | <u>0.20</u> | <u>0.15</u> |
| Actuarially Determined Contribution | 16.43% | 17.35% |

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

**SECTION IV
CONTRIBUTIONS**

| Table IV-2 Development of Plan Cost as of June 30, 2011 | | |
|--|-------------------|------------------------|
| | In Dollars | As % of Payroll |
| 1. Present value of projected benefits attributable to: | | |
| a. Total Normal Cost | \$ 11,122,300 | 22.00% |
| b. Expected Members Contribution | <u>3,538,900</u> | <u>7.00</u> |
| c. Employer Paid Normal Cost (a) – (b) | \$ 7,583,400 | 15.00% |
| 2. Amortization of Unfunded Liability | \$ 1,110,700 | 2.20% |
| 3. Allowance for Expense | \$ 75,800 | 0.15% |
| 4. Total Employer Contribution Rate (1) + (2) + (3) | \$ 8,769,900 | 17.35% |

**DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011**

**SECTION V
ACCOUNTING STATEMENT INFORMATION**

ASC Topic No. 960 of the Financial Accounting Standards Board requires the Plan to disclose certain information regarding its funded status. Statement No. 25 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.

The FASB ASC Topic No. 960 disclosures 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.

The GASB-25 actuarial accrued liability is the same as the actuarial liability amount calculated for funding purposes.

Both the present value of accrued benefits (Topic No. 960) and the actuarial accrued liability (GASB-25) are determined assuming that the Plan is on-going and participants continue to terminate employment, retire, etc., in accordance with the actuarial assumptions. Liabilities are discounted at the assumed valuation interest rate of 7.5% per annum.

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. GASB Statement No. 25 requires the actuarial accrued liability be compared with the actuarial value of assets for funding purposes. The relevant amounts as of June 30, 2011 are exhibited in Table V-1. Finally, Table V-2 reconciles the Topic No. 960 liabilities determined as of the prior valuation, July 1, 2010, to the liabilities as of June 30, 2011.

Tables V-3 through V-5 are exhibits to be used with the State CAFR report. 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.

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

SECTION V
ACCOUNTING STATEMENT INFORMATION

| Table V-1 | | |
|--|----------------------|----------------------|
| Accounting Statement Information | | |
| | June 30, 2010 | June 30, 2011 |
| A. FASB ASC Topic No. 960 Basis | | |
| 1. Present Value of Benefits Accrued and Vested to Date | | |
| a. Members Currently Receiving Payments | \$ 65,550,400 | \$ 81,299,300 |
| b. Former Vested Members | 290,300 | 984,700 |
| c. Active Members | <u>124,989,700</u> | <u>139,410,400</u> |
| 2. Total Present Value of Accrued Benefits (1 (a) + 1(b) + 1(c)) | \$ 190,830,400 | \$ 221,694,400 |
| 3. Assets at Market Value | <u>215,664,800</u> | <u>272,546,900</u> |
| 4. Unfunded Present Value of Accrued Benefits (2 – 3) | \$ (24,834,400) | \$ (50,852,500) |
| 5. Ratio of Assets to Present Value of Benefits (3 / 2) | 113.0% | 122.9% |
| B. GASB No. 25 Basis | | |
| 1. Actuarial Accrued Liabilities for retirees and beneficiaries currently receiving benefits and terminated employees not yet receiving benefits | \$ 65,840,700 | \$ 82,284,000 |
| 2. Actuarial Accrued Liabilities for current employees | <u>194,417,200</u> | <u>204,605,700</u> |
| 3. Total Actuarial Accrued Liability (1 + 2) | \$ 260,257,900 | \$ 286,889,700 |
| 4. Net Actuarial Assets available for benefits | <u>245,303,000</u> | <u>270,624,900</u> |
| 5. Unfunded Actuarial Accrued Liability (3 – 4) | \$ 14,954,900 | \$ 16,264,800 |

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

SECTION V
ACCOUNTING STATEMENT INFORMATION

| Table V-2 | |
|--|---|
| Statement of Changes in Total Actuarial Present Value of All Accrued Benefits | |
| | Accumulated Benefit Obligation (Topic No. 960) |
| Actuarial Present Value of Accrued Benefits at June 30, 2010 | \$ 190,830,400 |
| Increase (Decrease) During Years Attributable to: | |
| Passage of Time | 15,017,000 |
| Benefit Paid – FY 2011 | (6,236,200) |
| Plan/Assumption Change | 9,649,600 |
| PRI | 1,303,600 |
| Benefits Accrued, Other Gains/Losses | <u>11,130,000</u> |
| Net Increase (Decrease) | 30,864,000 |
| Actuarial Present Value of Accrued Benefits at June 30, 2011 | \$ 221,694,400 |

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

**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, 2011 |
| Actuarial cost method | Entry age |
| Amortization method | Level percent open |
| Amortization period | 20 years |
| Asset valuation method | 5-Year smoothed market |
| Actuarial assumptions: | |
| Investment rate of return* | 7.5% |
| Projected salary increases* | 4.8%-11.8% |
| Cost-of-living adjustments | ad hoc |
| *Includes inflation at | 3.25% |

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 rate of employer contributions to the Plan is composed of the normal cost, amortization of the unfunded actuarial accrued liability and an allowance for administrative expenses. The normal cost is a level percent of payroll cost which, along with member contributions, will pay for projected benefits at retirement for the average plan participant. The actuarial accrued 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 accrued liability. The allowance for administrative expenses is based upon the Plan's actual administrative expenses.

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

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 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|------------|----------|------------|-------------|------------|----------|
| Investment Income on Actuarial Assets | \$ 852 | \$ 3,425 | \$ (1,179) | \$ (11,135) | \$ (7,410) | \$ 481 |
| Combined Liability Experience | (2,369) | (3,722) | 4,190 | (2,136) | 6,287 | 5,030 |
| (Loss)/Gain During Year from Financial Experience | \$ (1,517) | \$ (297) | \$ 3,011 | \$ (13,271) | \$ (1,123) | \$ 5,511 |
| Non-Recurring Items | (330) | 0 | 0 | 0 | 0 | (5,996) |
| Composite Gain (or Loss) During Year | \$ (1,847) | \$ (297) | \$ 3,011 | \$ (13,271) | \$ (1,123) | \$ (485) |

Table V-5
Solvency Test
Aggregate Accrued Liabilities for
(expressed in thousands)

| Valuation Date June 30, | Active Member Contributions (1) | Retirants & Beneficiaries (2) | Active Member Employer Financed Contributions (3) | Actuarial Value of Reported Assets | Portion of Accrued Liabilities Covered by Reported Assets | | |
|----------------------------|--|-------------------------------------|--|---|--|------|-----|
| | | | | | (1) | (2) | (3) |
| 2011 | \$ 43,865 | \$ 81,299 | \$ 161,726 | \$ 270,625 | 100% | 100% | 90% |
| 2010 | 40,955 | 65,550 | 153,753 | 245,303 | 100 | 100 | 90 |
| 2009 | 38,619 | 47,700 | 154,932 | 229,457 | 100 | 100 | 92 |
| 2008 | 35,707 | 36,474 | 142,740 | 216,368 | 100 | 100 | 101 |
| 2007 | 31,979 | 29,887 | 133,945 | 194,560 | 100 | 100 | 99 |
| 2006 | 28,551 | 22,373 | 119,953 | 169,824 | 100 | 100 | 99 |

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

APPENDIX A
MEMBERSHIP INFORMATION

**Delaware State Police Pension Plan Distribution of Active Members
by Age and Service as of June 30, 2011**

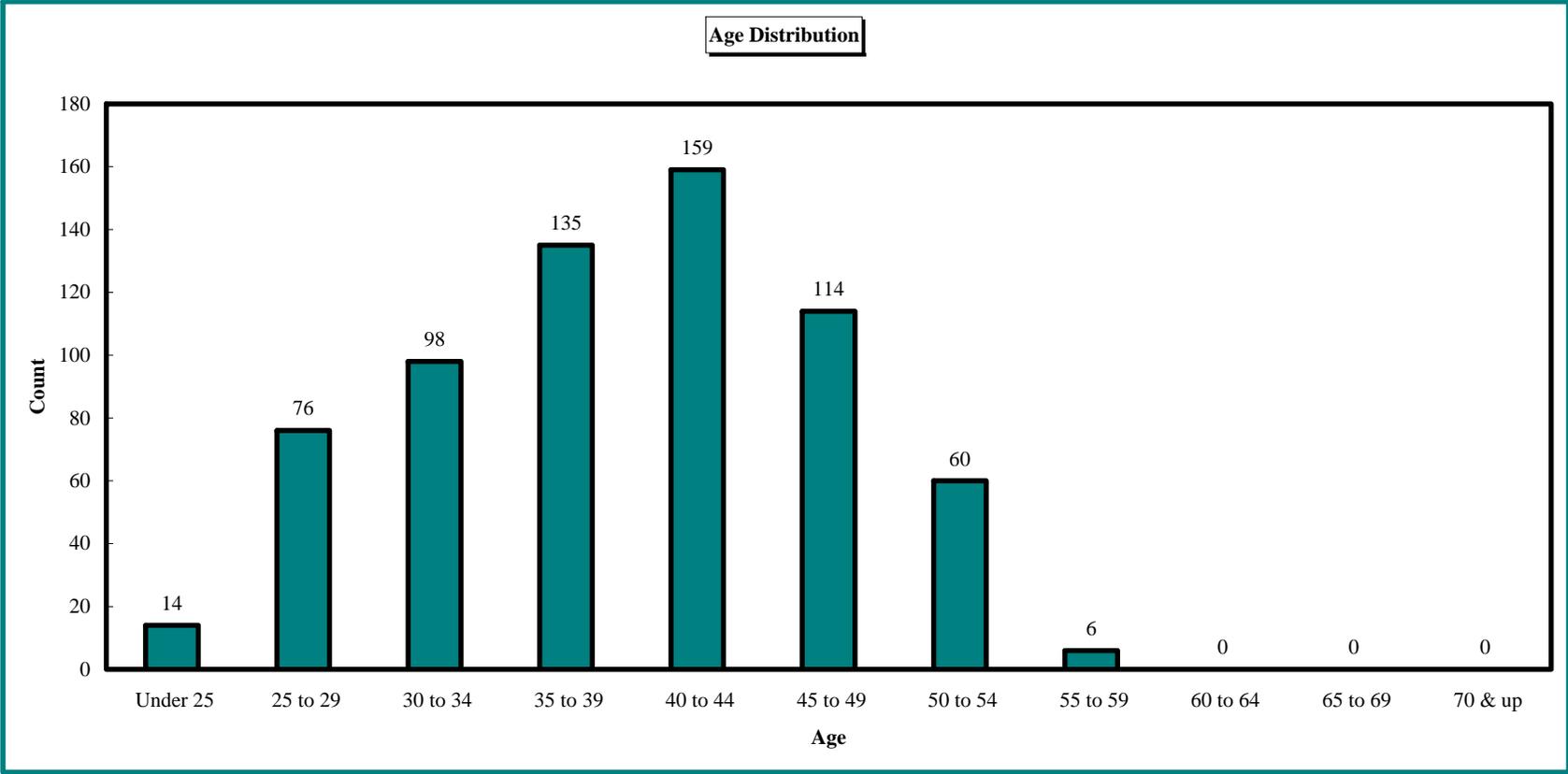
COUNTS BY AGE/SERVICE

| 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 | 9 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 25 to 29 | 14 | 44 | 17 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 76 |
| 30 to 34 | 4 | 24 | 59 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 98 |
| 35 to 39 | 5 | 11 | 42 | 56 | 21 | 0 | 0 | 0 | 0 | 0 | 135 |
| 40 to 44 | 0 | 2 | 25 | 52 | 56 | 24 | 0 | 0 | 0 | 0 | 159 |
| 45 to 49 | 0 | 0 | 4 | 7 | 13 | 75 | 15 | 0 | 0 | 0 | 114 |
| 50 to 54 | 0 | 0 | 0 | 0 | 3 | 20 | 33 | 4 | 0 | 0 | 60 |
| 55 to 59 | 0 | 0 | 0 | 0 | 1 | 1 | 4 | 0 | 0 | 0 | 6 |
| 60 to 64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65 to 69 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70 & up | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 32 | 86 | 147 | 127 | 94 | 120 | 52 | 4 | 0 | 0 | 662 |

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

APPENDIX A
MEMBERSHIP INFORMATION

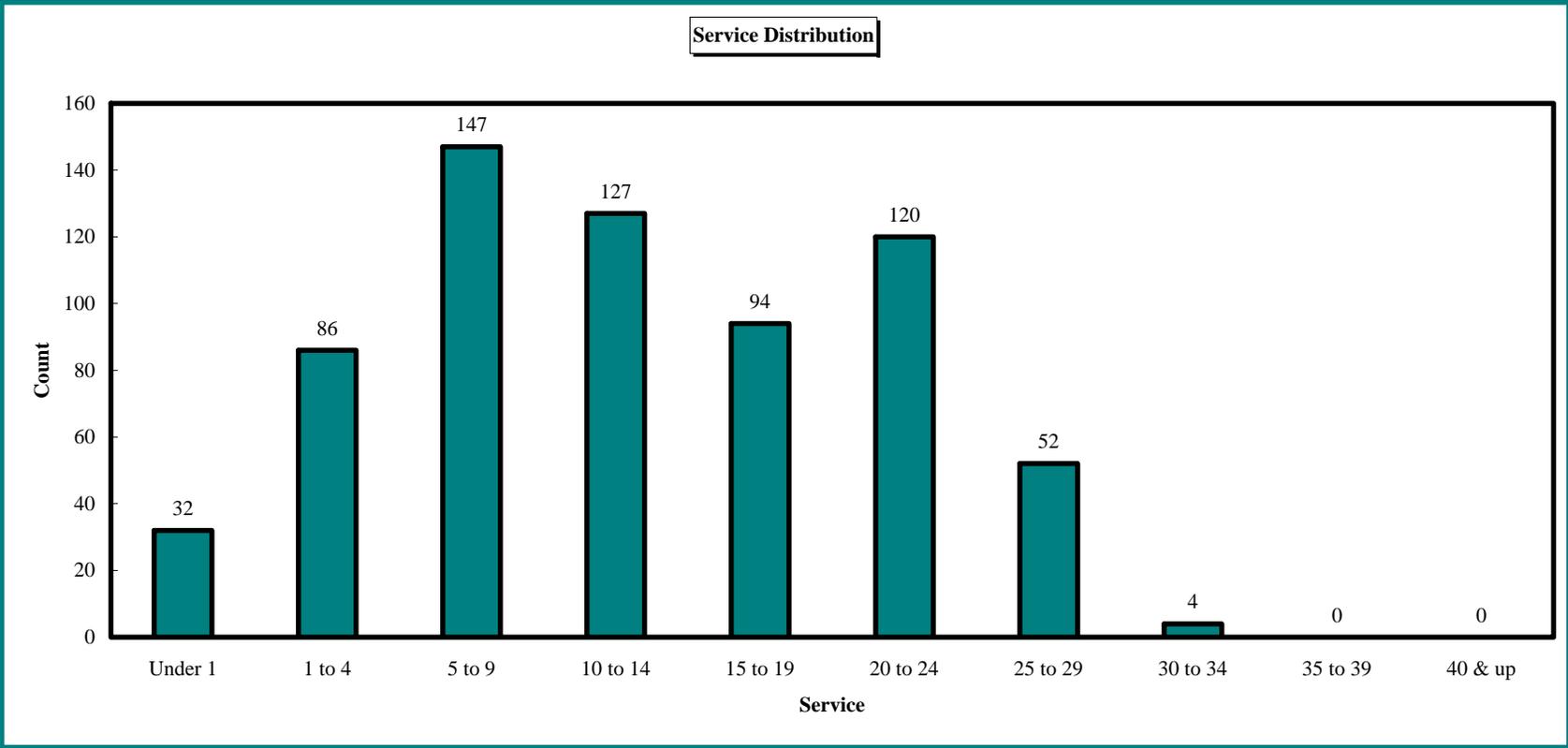
**Delaware State Police Pension Plan Distribution of Active Members
by Age as of June 30, 2011**



DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

APPENDIX A
MEMBERSHIP INFORMATION

**Delaware State Police Pension Plan Distribution of Active Members
by Service as of June 30, 2011**



**DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011**

**APPENDIX A
MEMBERSHIP INFORMATION**

**Delaware State Police Pension Plan Distribution of Active Members
by Age and Service as of June 30, 2011**

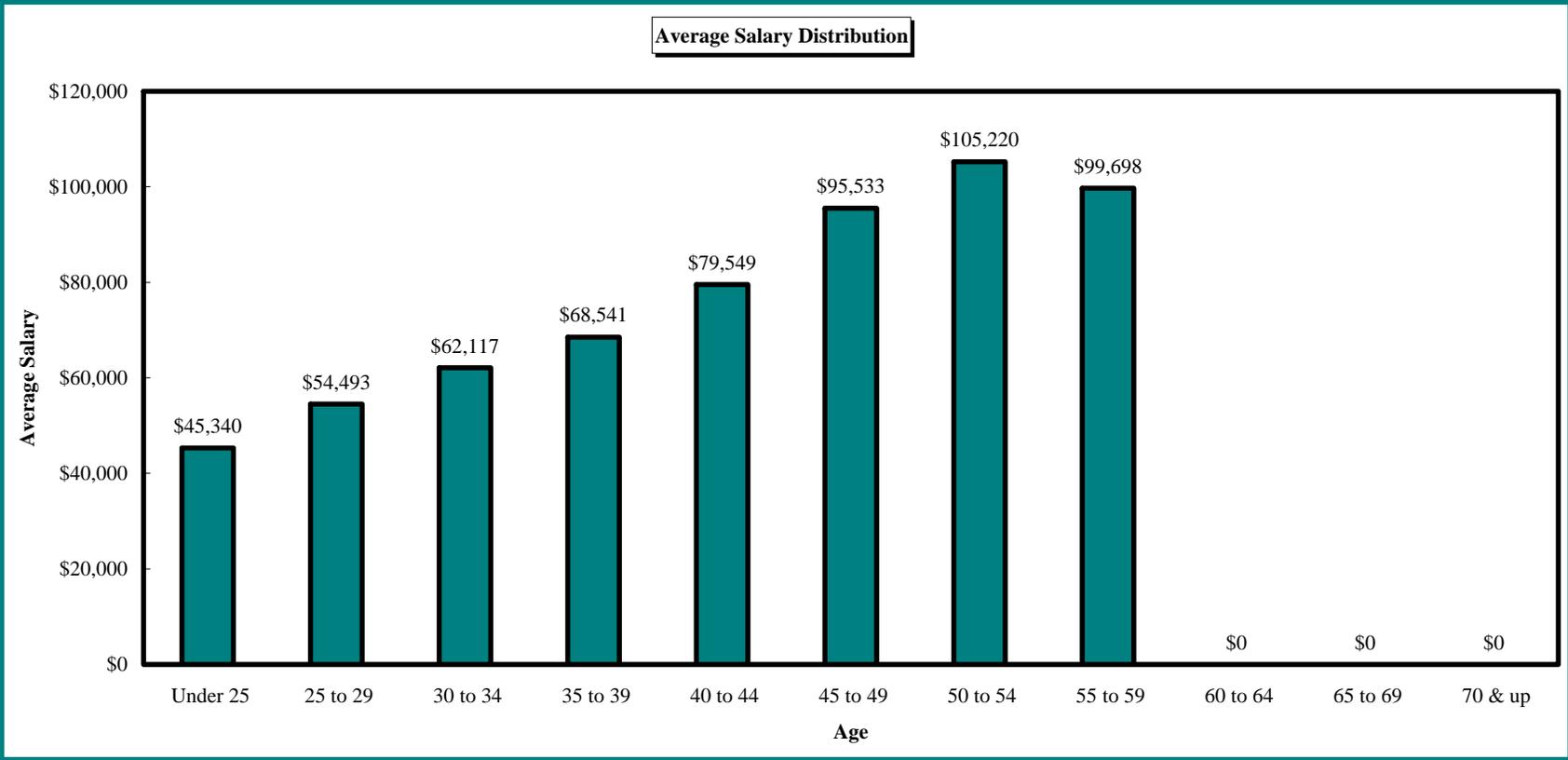
AVERAGE SALARY BY AGE/SERVICE

| 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 | \$ 41,966 | \$ 51,413 | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 45,340 |
| 25 to 29 | 42,972 | 56,766 | 61,136 | 2,814 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54,493 |
| 30 to 34 | 32,577 | 57,436 | 64,187 | 71,969 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62,117 |
| 35 to 39 | 38,300 | 56,135 | 64,332 | 71,955 | 81,552 | 0 | 0 | 0 | 0 | 0 | 0 | 68,541 |
| 40 to 44 | 0 | 55,215 | 64,412 | 75,196 | 84,721 | 94,710 | 0 | 0 | 0 | 0 | 0 | 79,549 |
| 45 to 49 | 0 | 0 | 65,826 | 73,853 | 84,982 | 97,430 | 113,235 | 0 | 0 | 0 | 0 | 95,533 |
| 50 to 54 | 0 | 0 | 0 | 0 | 82,037 | 96,429 | 110,656 | 121,716 | 0 | 0 | 0 | 105,220 |
| 55 to 59 | 0 | 0 | 0 | 0 | 79,764 | 92,285 | 106,535 | 0 | 0 | 0 | 0 | 99,698 |
| 60 to 64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 65 to 69 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70 & up | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | \$ 40,660 | \$ 56,525 | \$ 63,958 | \$ 72,843 | \$ 83,911 | \$ 96,676 | \$ 111,083 | \$ 121,716 | \$ 0 | \$ 0 | \$ 0 | \$ 76,386 |

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

APPENDIX A
MEMBERSHIP INFORMATION

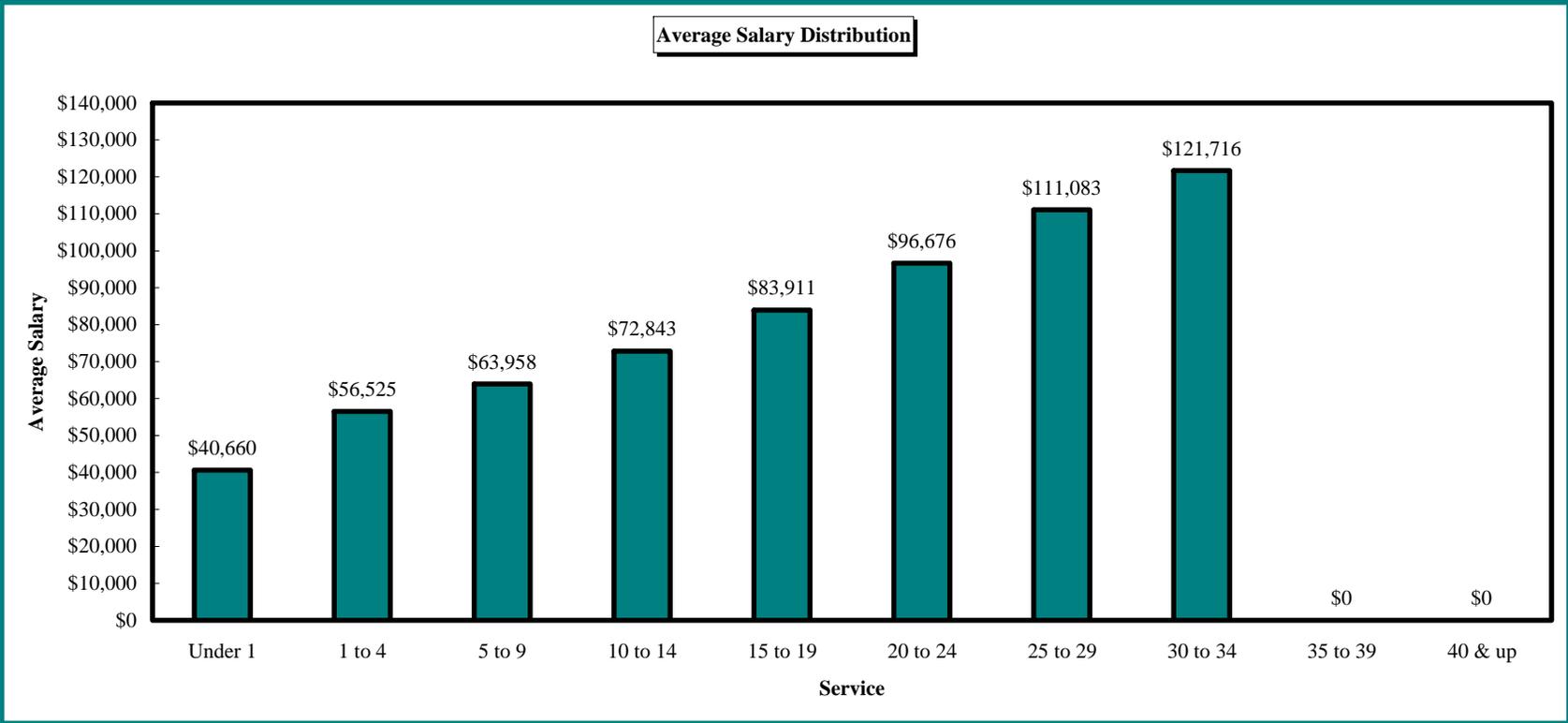
Delaware State Police Pension Plan Distribution of Active Members
by Age as of June 30, 2011



DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

APPENDIX A
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Delaware State Police Pension Plan Distribution of Active Members
by Service as of June 30, 2011



**DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011**

**APPENDIX A
MEMBERSHIP INFORMATION**

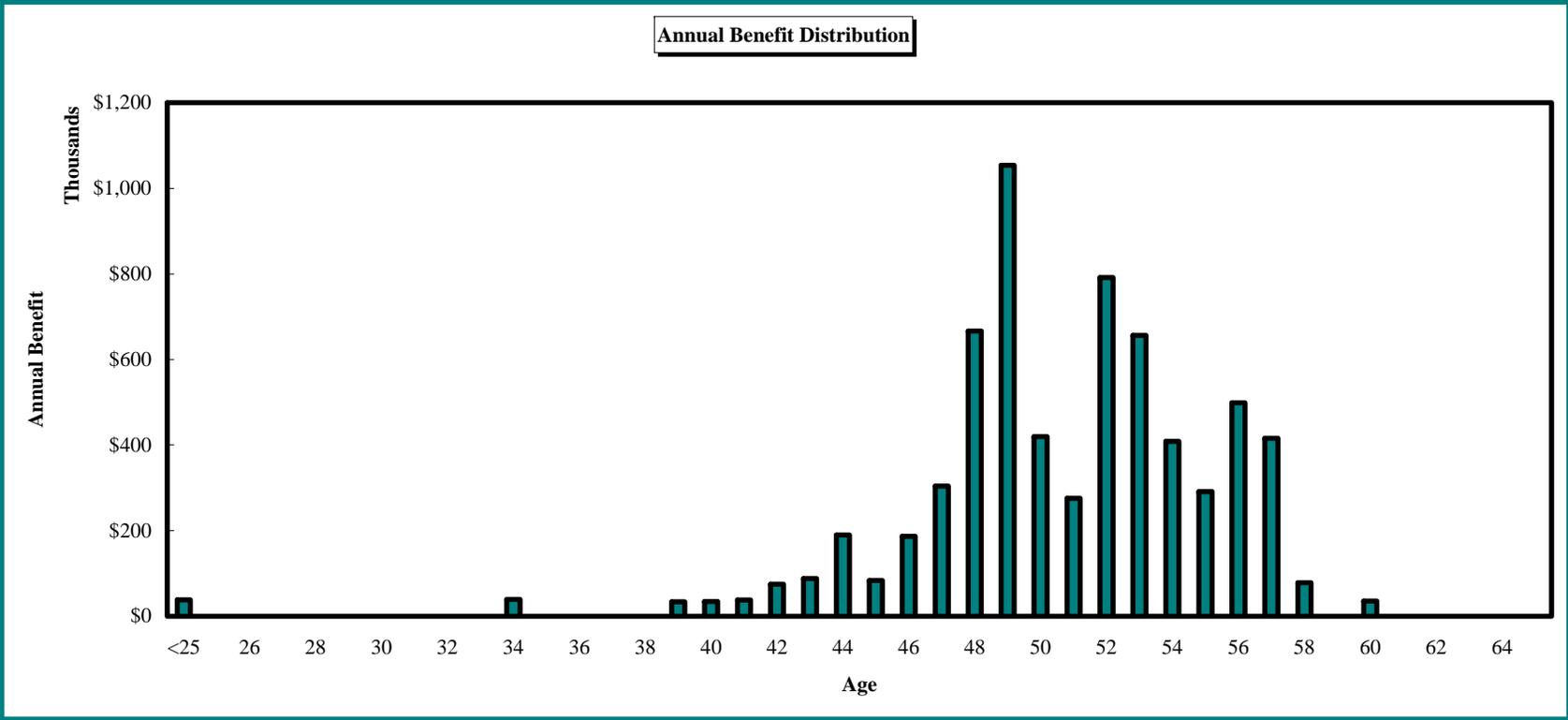
**Delaware State Police Pension Plan Distribution of Retired Members,
Survivors, and Disabled Members as of June 30, 2011**

| Age | Count | Annual Benefit | Age | Count | Annual Benefit |
|-----|-------|----------------|--------|-------|----------------|
| <25 | 1 | \$ 38,549 | 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 | 0 | 0 | 82 | 0 | 0 |
| 34 | 1 | 39,652 | 83 | 0 | 0 |
| 35 | 0 | 0 | 84 | 0 | 0 |
| 36 | 0 | 0 | 85 | 0 | 0 |
| 37 | 0 | 0 | 86 | 0 | 0 |
| 38 | 0 | 0 | 87 | 0 | 0 |
| 39 | 1 | 34,213 | 88 | 0 | 0 |
| 40 | 1 | 34,328 | 89 | 0 | 0 |
| 41 | 1 | 38,073 | 90 | 0 | 0 |
| 42 | 3 | 75,123 | 91 | 0 | 0 |
| 43 | 2 | 87,992 | 92 | 0 | 0 |
| 44 | 4 | 189,932 | 93 | 0 | 0 |
| 45 | 2 | 83,610 | 94 | 0 | 0 |
| 46 | 4 | 186,692 | 95 | 0 | 0 |
| 47 | 5 | 304,017 | 96 | 0 | 0 |
| 48 | 12 | 666,168 | 97 | 0 | 0 |
| 49 | 20 | 1,053,579 | 98 | 0 | 0 |
| 50 | 6 | 419,857 | 99 | 0 | 0 |
| 51 | 6 | 275,315 | 100 | 0 | 0 |
| 52 | 17 | 791,558 | 101 | 0 | 0 |
| 53 | 10 | 656,303 | 102 | 0 | 0 |
| 54 | 8 | 408,605 | 103 | 0 | 0 |
| 55 | 6 | 291,265 | 104 | 0 | 0 |
| 56 | 10 | 498,719 | 105 | 0 | 0 |
| 57 | 7 | 415,824 | 106 | 0 | 0 |
| 58 | 1 | 78,260 | 107 | 0 | 0 |
| 59 | 0 | 0 | 108 | 0 | 0 |
| 60 | 1 | 35,364 | 109 | 0 | 0 |
| 61 | 0 | 0 | 110 | 0 | 0 |
| 62 | 0 | 0 | 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 | 129 | \$ 6,702,998 |

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

APPENDIX A
MEMBERSHIP INFORMATION

**Delaware State Police Pension Plan Distribution of Retired Members,
Survivors, and Disabled Members as of June 30, 2011**



**DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011**

**APPENDIX A
MEMBERSHIP INFORMATION**

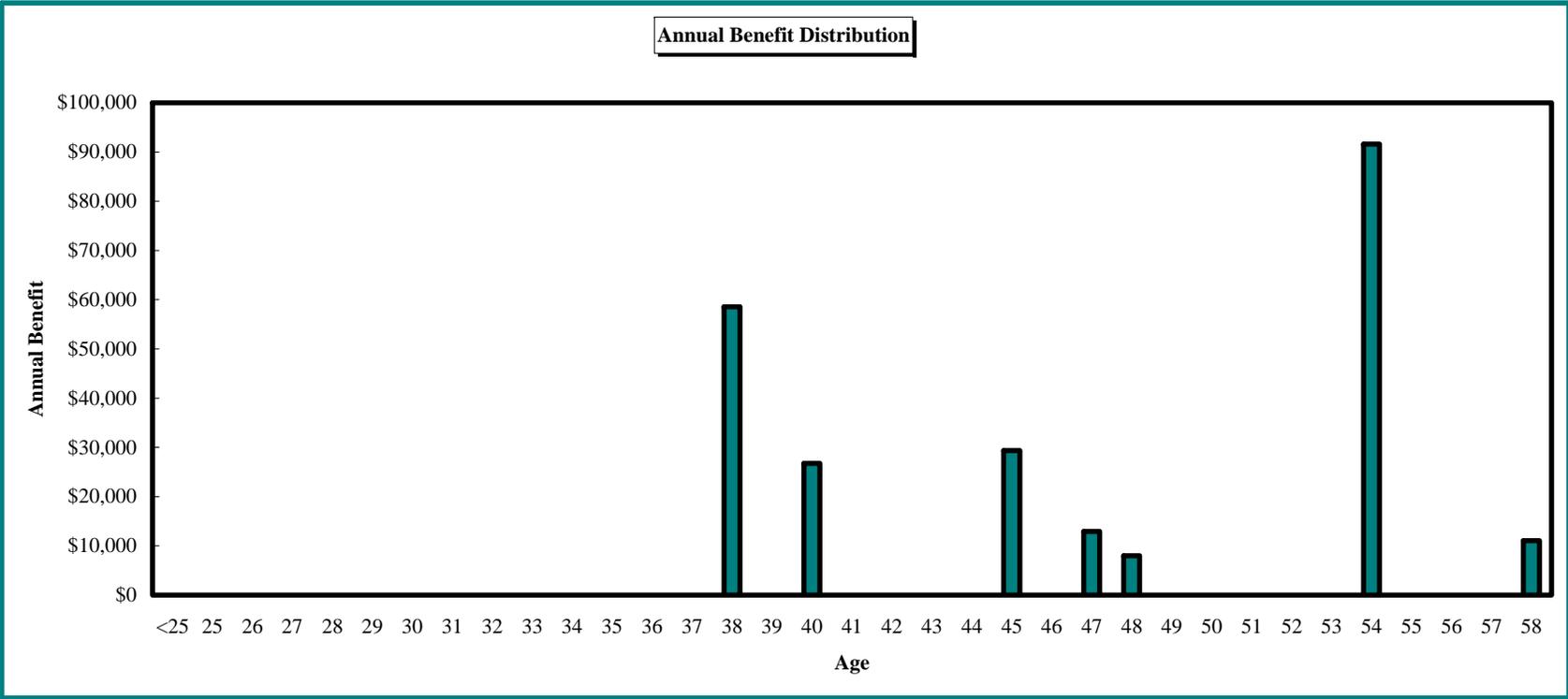
**Delaware State Police Pension Plan Distribution of Vested Members
as of June 30, 2011**

| 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 | 0 | 0 | 82 | 0 | 0 |
| 34 | 0 | 0 | 83 | 0 | 0 |
| 35 | 0 | 0 | 84 | 0 | 0 |
| 36 | 0 | 0 | 85 | 0 | 0 |
| 37 | 0 | 0 | 86 | 0 | 0 |
| 38 | 2 | 58,574 | 87 | 0 | 0 |
| 39 | 0 | 0 | 88 | 0 | 0 |
| 40 | 1 | 26,773 | 89 | 0 | 0 |
| 41 | 0 | 0 | 90 | 0 | 0 |
| 42 | 0 | 0 | 91 | 0 | 0 |
| 43 | 0 | 0 | 92 | 0 | 0 |
| 44 | 0 | 0 | 93 | 0 | 0 |
| 45 | 3 | 29,369 | 94 | 0 | 0 |
| 46 | 0 | 0 | 95 | 0 | 0 |
| 47 | 1 | 12,915 | 96 | 0 | 0 |
| 48 | 1 | 8,014 | 97 | 0 | 0 |
| 49 | 0 | 0 | 98 | 0 | 0 |
| 50 | 0 | 0 | 99 | 0 | 0 |
| 51 | 0 | 0 | 100 | 0 | 0 |
| 52 | 0 | 0 | 101 | 0 | 0 |
| 53 | 0 | 0 | 102 | 0 | 0 |
| 54 | 1 | 91,602 | 103 | 0 | 0 |
| 55 | 0 | 0 | 104 | 0 | 0 |
| 56 | 0 | 0 | 105 | 0 | 0 |
| 57 | 0 | 0 | 106 | 0 | 0 |
| 58 | 1 | 11,057 | 107 | 0 | 0 |
| 59 | 0 | 0 | 108 | 0 | 0 |
| 60 | 0 | 0 | 109 | 0 | 0 |
| 61 | 0 | 0 | 110 | 0 | 0 |
| 62 | 0 | 0 | 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 | | | | 10 | \$ 238,304 |

DELAWARE STATE POLICE PENSION PLAN
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APPENDIX A
MEMBERSHIP INFORMATION

Delaware State Police Pension Plan Distribution of Vested Members
as of June 30, 2011



DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

**APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS**

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

1. Demographic Assumptions

a. Healthy Inactive Mortality

With Full Generational Mortality Improvements (Projection Scale AA)

Male: RP-2000 Combined Mortality Table

Female: RP-2000 Combined Mortality Table

| Age | Rates (Prior to Projection) | | Projection Scale AA | |
|-----|--------------------------------|--------|------------------------|--------|
| | Male | Female | Male | Female |
| 50 | 0.21% | 0.17% | 1.80% | 1.70% |
| 55 | 0.36 | 0.27 | 1.90 | 0.80 |
| 60 | 0.67 | 0.51 | 1.60 | 0.50 |
| 65 | 1.27 | 0.97 | 1.40 | 0.50 |
| 70 | 2.22 | 1.67 | 1.50 | 0.50 |
| 75 | 3.78 | 2.81 | 1.40 | 0.80 |
| 80 | 6.43 | 4.59 | 1.00 | 0.70 |
| 85 | 11.08 | 7.74 | 0.70 | 0.60 |
| 90 | 18.34 | 13.17 | 0.40 | 0.30 |

b. Healthy Active Mortality

With Full Generational Mortality Improvements (Projection Scale AA)

Male: RP-2000 Combined Mortality Table

Female: RP-2000 Combined Mortality Table

| Age | Rates of Healthy Active Mortality (Prior to Projection) | |
|-----|--|--------|
| | Male | Female |
| 20 | 0.03% | 0.02% |
| 25 | 0.04 | 0.02 |
| 30 | 0.04 | 0.02 |
| 35 | 0.08 | 0.05 |
| 40 | 0.11 | 0.07 |
| 45 | 0.15 | 0.11 |
| 50 | 0.21 | 0.17 |
| 55 | 0.36 | 0.27 |
| 60 | 0.67 | 0.51 |

DELAWARE STATE POLICE PENSION PLAN
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APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

c. Disabled Inactive Mortality

2011 PBGC Disabled Mortality Tables, 50% Social Security Disabled / 50% Non-Social Security Disabled.

| Rates of Disabled Inactive Mortality | | |
|---|-------------|---------------|
| Age | Male | Female |
| 40 | 1.97% | 1.06% |
| 45 | 2.22 | 1.24 |
| 50 | 2.51 | 1.47 |
| 55 | 2.88 | 1.79 |
| 60 | 3.33 | 2.21 |
| 65 | 3.91 | 2.77 |
| 70 | 4.78 | 3.38 |
| 75 | 6.39 | 4.53 |
| 80 | 8.93 | 6.46 |

d. Rates of Active Disability

| Rates of Active Disability | |
|-----------------------------------|----------------|
| Age | Current |
| 20 | 0.02% |
| 25 | 0.02 |
| 30 | 0.07 |
| 35 | 0.10 |
| 40 | 0.39 |
| 45 | 0.78 |
| 50 | 1.10 |
| 55 | 1.50 |
| 60 | 0.00 |

1/3 of disabilities are partial and 2/3 is total.

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

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

**APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS**

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

10-year Select & Ultimate tables (service-based). Table applies until eligibility for retirement is reached.

| Select: | Service | Rate |
|----------|---------|-------|
| 0 | | 8.00% |
| 1 | | 2.50 |
| 2 | | 2.50 |
| 3 | | 2.25 |
| 4 | | 2.00 |
| 5 | | 2.00 |
| 6 | | 1.75 |
| 7 | | 1.50 |
| 8 | | 1.25 |
| 9 | | 1.00 |
| Ultimate | | 1.00 |

f. Retirement

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

- a) age 55
- b) 20 years of credited service

| Age | Normal Retirement | |
|-------|-------------------|----------|
| | Select | Ultimate |
| <37 | 14.45% | 0.00% |
| 37-49 | 14.45 | 9.35 |
| 50-54 | 14.45 | 11.48 |
| 55-59 | 14.45 | 63.75 |
| 60+ | 14.45 | 100.00 |

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

g. Merit/Seniority Salary Increase (in addition to across-the-board increase)

30-year Service-based tables include an annual inflation rate of 3.25%.

| Service | Increase |
|---------|----------|
| 0 | 11.75% |
| 1 | 9.75 |
| 2 | 7.75 |
| 3 | 6.25 |
| 4 | 6.00 |
| 5 | 6.00 |
| 10 | 4.75 |
| 15 | 4.75 |
| 20 | 4.75 |
| 30 | 4.75 |

h. Family Composition

Female spouses are assumed to be three years younger than males.
80% are assumed married for both male and female employees.

2. Economic Assumptions

- a. Rate of Investment Return: 7.50%
- b. Rate of General Wage Increase: 3.25%
- c. Rate of Increase in Cost of Living for Retirees: 0.00%
- d. Rate of Increase in Total Payroll (for Amortization): 3.25%
- e. Administrative Expenses as a Percentage of Payroll: 0.15%

3. Changes Since Last Valuation

As a result of an experience study completed in spring 2011, the following assumptions were changed:

Healthy, Inactive, Active and Disabled Mortality
Salary Increase
Rate of Investment Return
Rate of General Age Increase
Rate of Increase in Total Payroll (for Amortization)
Administrative Expense

APPENDIX B
ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Methods

1. Funding Method

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

The actuarial accrued 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 accrued liability in excess of plan assets is amortized to develop an additional cost or savings which 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 which is not expected to be paid through transfers from the PRI Fund is amortized over a rolling 20-year period. All payments are determined assuming total pay increases by the annual inflation rate.

2. Actuarial Value of Assets

For purposes of determining the State contribution rate to the plan, we use an actuarial value of assets. The asset adjustment 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 payments 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

1. Membership

The plan covers full-time State Police Officers first hired on or after July 1, 1980.

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) of compensation paid to the member, including salary or wages but excluding salary or wages but excluding overtime and payment for extra duties.

5. Normal Retirement

Eligibility: (i) Must be employed at 55 with ten years of credited service; or (ii) any age with 20 years of credited service; or (iii) ten years of credited service when age plus service equals 75.

Benefit: 2.5% of final average compensation multiplied by years of service up to a maximum of 20 years, plus 3.5% of final average compensation multiplied by years of service in excess of 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 salary at the time disability commences plus 10% for each eligible dependent not to exceed 100%.

Eligibility: If member is partially disabled: the normal retirement benefit based on credited service at date of disability, but is not less than 50% of salary at the time disability commences.

APPENDIX C
SUMMARY OF PLAN PROVISIONS

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, but is not less than 50% of the salary 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, but is not less than 30% of salary at the time of disability.

8. Survivor's Benefit

Eligibility: Death while active or death after retirement.

Benefit: For eligible survivors of employees who die in the line of duty: 50% of salary, payable to the primary survivor.

For eligible survivors of pensioners who die: 50% of the member's pension at the time of death.

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. If there are no eligible survivors, accumulated contributions with interest over aggregate pension payments made are payable to the beneficiary.

9. Burial Benefit

\$7,000 lump sum.

10. Vesting

Eligibility: Ten years of credited service.

Benefit: Normal retirement benefit, payable at age 62, based on final average compensation and credited 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.

DELAWARE STATE POLICE PENSION PLAN
ACTUARIAL VALUATION AS OF JUNE 30, 2011

APPENDIX C
SUMMARY OF PLAN PROVISIONS

11. Withdrawal

Eligibility: Terminates service and is not eligible for other benefits.

Benefit: Accumulated employee contributions with interest.

12. Changes Since Last Valuation

None.