

**FIRE AND POLICE PENSION ASSOCIATION**

STATEWIDE HYBRID PLAN – DEFINED BENEFIT COMPONENT  
ACTUARIAL VALUATION REPORT

FOR THE YEAR BEGINNING JANUARY 1, 2010

June 30, 2010

Board of Directors  
Fire and Police Pension Association  
5290 DTC Parkway, #100  
Greenwood Village, Colorado 80111

**Re: Actuarial Valuation of the FPPA Statewide Hybrid Plan (Defined Benefit Component) as of January 1, 2010**

Dear Members of the Board:

We are pleased to present our Report on the actuarial valuation of the Fire and Police Pension Association (FPPA) Statewide Hybrid Plan Defined Benefit Component as of January 1, 2010.

In addition to the actuarial valuation results, various accounting and statistical tables are also included which compare the results with prior years. Census data and all other information for retirees and beneficiaries, and active and vested terminated members were provided by the Fire and Police Pension Association's staff.

We certify that the information included herein and contained in the 2010 Actuarial Valuation Report is accurate and fairly presents the actuarial position of the Fire and Police Pension Association (FPPA) Statewide Hybrid Plan Defined Benefit Component as of January 1, 2010.

This report presents the results of the January 1, 2010 actuarial valuation of the FPPA Statewide Hybrid Plan. The Report describes the current actuarial condition of the Statewide Hybrid Plan Defined Benefit Component, determines required annual employer contribution rates, and analyzes changes in these required rates. In addition, the Report provides information required in connection with Governmental Accounting Standards Board Statement No. 25 (GASB 25) and No. 27 (GASB 27), and it provides various summaries of the data.

Valuations are prepared annually, as of January 1<sup>st</sup>, the first day of the FPPA plan year.

### **Financing Objectives**

Contribution rates are established by the Board that, over time, are intended to remain level as a percent of payroll. The employer contributions, when combined with the contributions made by members, are intended to provide for the normal cost and to amortize the Unfunded Actuarial Accrued Liability (UAAL) over a period not to exceed 30 years.

### **Progress toward Realization of Financing Objectives**

The UAAL/(surplus) and the funded ratio (ratio of the actuarial value of assets to the actuarial accrued liability) illustrate the progress toward the realization of certain financing objectives. Based on this actuarial valuation as of January 1, 2010, the Plan is over-funded and the UAAL/(surplus) is now (\$3,266,217), assuming no cost-of-living allowances (COLA).

As listed in the Executive Summary under Section I of our Report, the normal cost rate of the Plan is 8.59% of pay. Because the plan is currently over-funded, contributions above the normal cost will fund for future COLAs.

The contribution rate required to fund the current law benefits (assuming no COLAs) is 6.69%. This rate is the normal cost plus the amortization of the UAAL/(surplus) over 30 years. This amortization is a credit when the Plan is in a surplus position, and, therefore, because of the surplus, the annual required contribution is less than the normal cost. This also means that the ultimate cost of the Plan is the normal cost (e.g. when no surplus exists), or 8.59% of pay.

For the valuation as of January 1, 2010, the cost of permanent 3% COLA benefits (3% COLA for all) is 11.49%. This is greater than the current combined employee/employer contribution Defined Benefit allocation of 11.40%. Therefore we recommend increasing the Defined Benefit allocation to 11.50% effective July 1, 2010.

### **Benefit Provisions**

The benefit provisions reflected in this valuation are those which were in effect on January 1, 2010. There were no material changes adopted since the previous actuarial valuation. The benefit provisions are summarized in Appendix B of our Report.

### **Assumptions and Methods**

Since the prior valuation, there was a change in the method used to determine the actuarial value of assets. This change continues to approximate a 3-year smoothing period and had no material impact on this valuation. The change was implemented because the new method is less volatile than the old method and will stay closer to the market value of assets over time. This was the only change to the actuarial methods and assumptions since the prior report. The methods and assumptions have been selected by the Board of Directors of FPPA based upon the actuary's analysis and recommendations from the 2008 Experience Study. These assumptions and methods are detailed in Appendix A of our Report. The Board of Directors has sole authority to determine the actuarial assumptions used for the Plan. The assumptions that are based upon the actuary's recommendations are internally consistent and are reasonably based on the actual past experience of the Plan. These assumptions are also in full compliance with all of the parameters established by GASB No. 25 and No. 27.

The results of any actuarial valuation are dependent upon the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions. Even seemingly minor changes in the assumptions can materially change the liabilities, calculated contribution rates and funding periods. The actuarial calculations presented in this Report are intended to provide information for rational decision making.

### **Data**

FPPA supplied data for retired, active and inactive members as of January 1, 2010. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent. FPPA also supplied asset data as of January 1, 2010.

### **Certification**

All of our work conforms with generally accepted actuarial principles and practices, and to the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of Colorado state law and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board.

The undersigned are independent actuaries. Both are Members of the Society of Actuaries and meet the Qualifications Standards of the American Academy of Actuaries, and they are experienced in performing valuations for large public retirement systems.

Respectfully submitted,  
**Gabriel, Roeder, Smith & Company**



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## **SECTION I**

### **EXECUTIVE SUMMARY**

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### Executive Summary

Item	January 1, 2010 (1)	January 1, 2009 (2)
Membership		
• Number of:		
- Active members	126	114
- Retirees and beneficiaries	6	6
- Inactive members	<u>8</u>	<u>11</u>
- Total	140	131
• Annualized payroll supplied by FPPA	\$ 8,623	\$ 7,339
Calculated Contribution Rates		
• Current law	6.69%	6.42%
• With one 3% ad hoc COLA	6.72%	6.45%
• With permanent 3% COLA	11.49%	11.36%
Assets		
• Market value	\$ 14,651	\$ 11,369
• Actuarial value	15,374	13,643
• Return on market value	19.6%	-30.0%
• Return on actuarial value	5.5%	-14.0%
• Contribution for prior year	\$ 1,385	\$ 1,881
• Ratio of actuarial value to market value	104.9%	120.0%
Actuarial Information		
Current Law		
• Total normal cost %	8.59%	8.47%
• Unfunded actuarial accrued liability/(surplus)	\$ (3,266)	\$ (2,994)
• Amortization rate	(1.91%)	(2.05%)
• Total required contribution %	6.69%	6.42%
• GASB funded ratio	127.0%	128.1%
With Permanent 3% COLA		
• Total normal cost %	11.24%	11.12%
• Unfunded actuarial accrued liability/(surplus)	\$ 427	\$ 347
• Amortization rate	0.25%	0.24%
• Total required contribution %	11.49%	11.36%
• GASB funded ratio	97.3%	97.5%

Note: Dollar amounts in \$000, unless otherwise noted

### **Executive Summary**

1. The annual required contribution rate (Current Law) is 6.69%.
2. The cost of the plan including permanent 3% COLA benefits (3% Permanent COLA) is 11.49%.
3. The contribution rate allocated to the Defined Benefit portion of the Hybrid plan is recommended to be the greater of the 11.24% normal cost associated with the permanent 3% COLA benefits and the total cost of the plan with permanent 3% COLA benefits which is 11.49%. Therefore, the recommended Defined Benefit contribution should be increased to 11.50% (based on a rounded value of the greater of the two calculated rates above) effective July 1, 2010.
4. There are six members in payment status. The cost of the one-year 3% COLA for current retirees is 0.03% of pay.
5. Assets earned 19.62% on a market basis and 5.48% on an actuarial basis in 2009, producing an actuarial loss.
6. The funded ratio (Current Law) is 127.00%. The funded ratio based on a permanent 3% COLA increase is 97.30%.
7. Due to the small size of this group, a large influx of membership could quickly alter the actuarial measures of the plan. Thus, these measures should be viewed with the potential in volatility that could occur.

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**SECTION II**  
DISCUSSION

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## Contribution Requirements

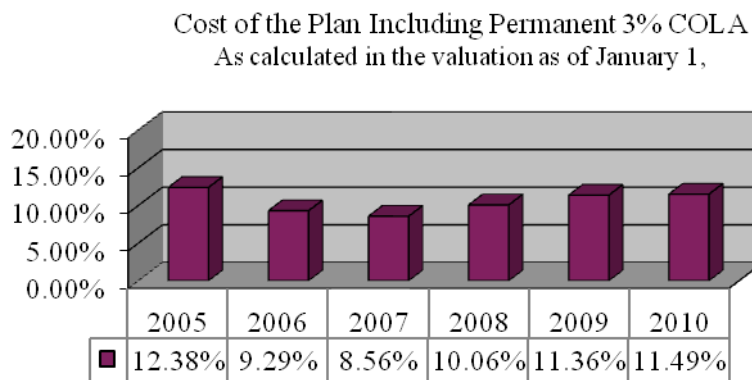
The valuation of the Fire and Police Pension Association Statewide Hybrid Plan as of January 1, 2010, reflects a current Defined Benefit contribution rate of 11.40%.

The valuation presents three sets of results:

1. The entire valuation run assuming no COLA for all benefits currently in payment status and all benefits that begin in the future (Current Law). This valuation is used for GASB reporting requirements and determines the annual required contribution rate.
2. The second valuation assumes the Board grants a one time ad hoc 3% COLA as of October 1, 2010 to all members currently in payment status. The COLAs granted each year are discretionary and require Board approval.
3. The third valuation shows the valuation assuming all future COLAs are granted at 3% and pre-funds for them. This valuation is used to determine the recommended annual contribution allocated to the Defined Benefit portion of the Hybrid Plan. The contribution rate determined from this valuation is referred to as the cost of the plan including permanent 3% COLA benefits.

A summary of all three valuations and the calculations to determine the annual calculated contribution rates for each is shown on Table 1.

The cost of the plan including permanent 3% COLA benefits (3% COLA for all) is 11.49%. The following graph shows the historical costs of the plan including permanent 3% COLA benefits as a percentage of pay.

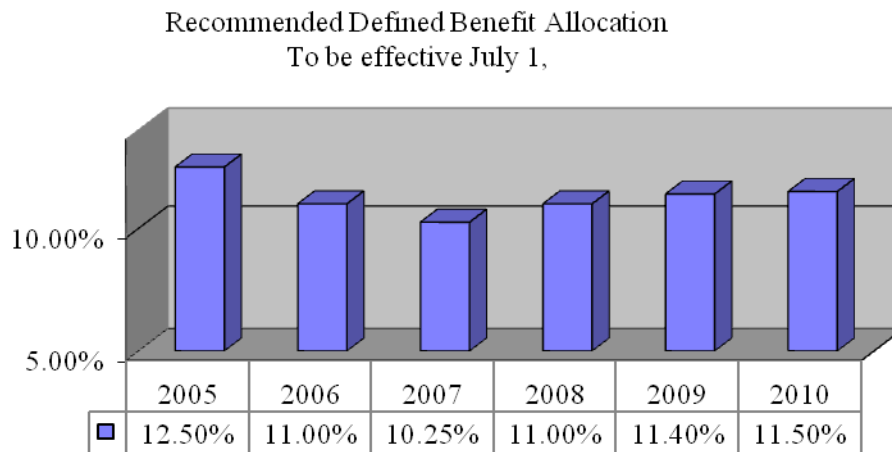


### Contributions Allocated to the Defined Benefit Portion of the Hybrid Plan

Annually, at the discretion of the Board of Directors, the amount of the combined employee and employer contribution rate to be allocated to the Defined Benefit portion of the Hybrid plan is determined. This amount is recommended to be an amount larger than the current cost of the plan including permanent 3% COLA benefits.

For the valuation as of January 1, 2010, the cost of the plan including permanent 3% COLA benefits (3% COLA for all) is 11.49%. Therefore we recommend the annual Defined Benefit allocation to be 11.50%. This percentage will ensure that the cost of ongoing benefits continues to be contributed to the plan throughout the potential volatility over the next few years due to the possibility of significant number of new members entering the plan.

The following graph illustrates the Defined Benefit allocation contribution percentages for last year and the recommended percentage for 2010.



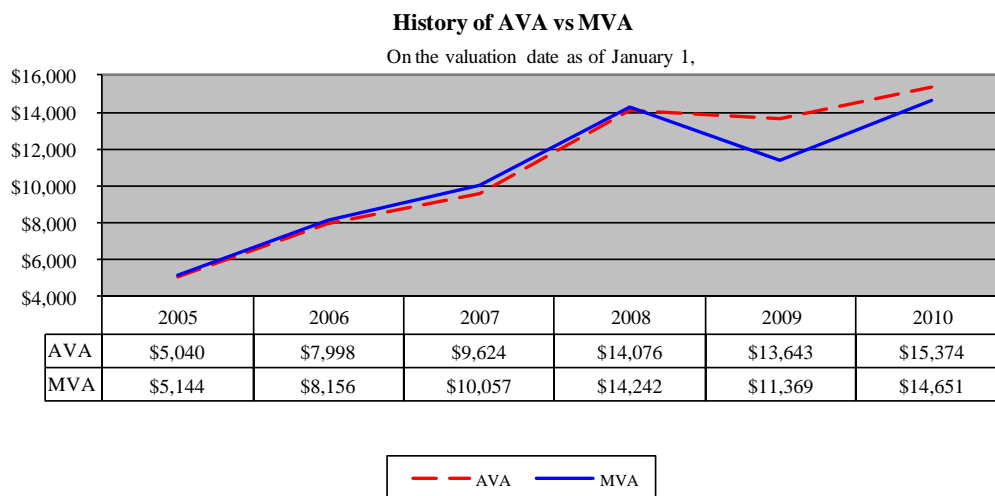
### Financial Data and Experience

This section provides an analysis of the change in Plan Net Assets during the year and an estimate of the yield on mean assets of the Hybrid Plan. FPPA provided GRS with a summary of plan assets as of January 1, 2010. The market value of assets reported was \$14,650,779 as of January 1, 2010. Table 7 shows data from some of the tables included in the annual financial statements of the Plan. Table 9 shows the estimated yield on a market value basis and on the actuarial asset valuation method.

The actuarial value of assets (AVA) is based on the market value of assets with a three-year smoothing method. The method used to compute the AVA takes the difference between actual earnings and expected earnings (based on the annual assumed 8.00% invested return rate) each year, and recognizes the cumulative excess return (or shortfall) over a three-year period at the rate of 33% per year. This is a slight modifications from the method used in prior valuations which would have recognized each year’s excess return (or shortfall) individually, while the new method will allow excess returns and shortfalls to offset each other before the 33% recognition is applied.

Table 8 shows the development of the actuarial value of assets. The actuarial value of assets increased from \$13,642,709 to \$15,373,546 since the prior valuation. This increase was less than expected and produced a loss of approximately \$0.36 million.

The valuation assumes investment returns of 8.0% each year. As indicated by item 8b of Table 9, the estimated return on mean market value is 19.62%. The actuarial asset value returned 5.48%. This difference in the estimated return on market value and actuarial value illustrates the smoothing effect of the asset valuation method.



### Member Data

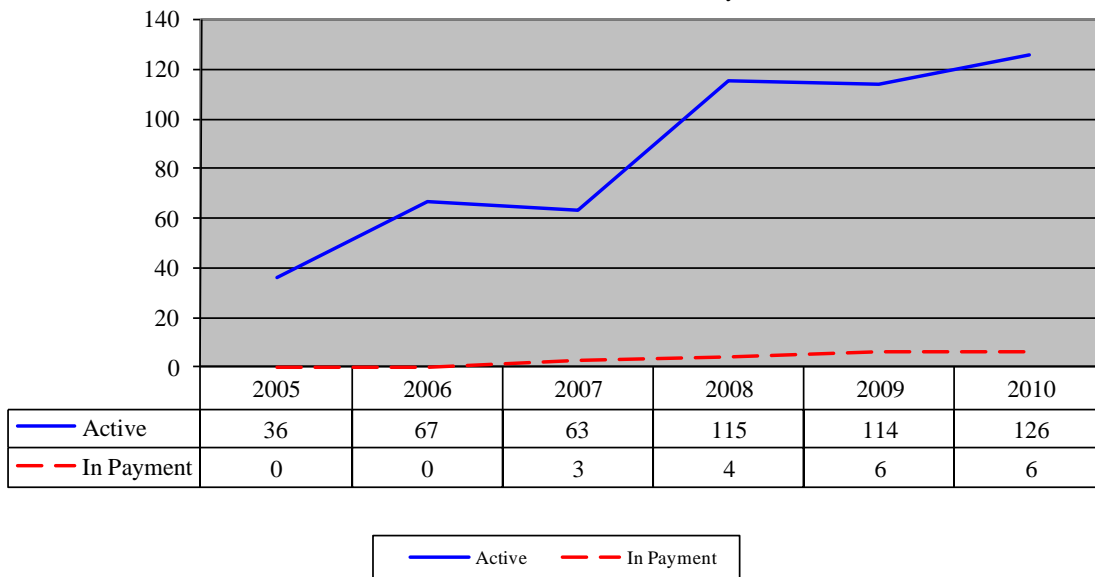
FPPA supplied member data as of January 1, 2010. While we did not audit this data, we did perform various tests to ensure that it was internally consistent, consistent with the prior year’s data, and was reasonable overall. Information provided for active members includes: name, member ID, sex, a code indicating whether the member was active or inactive, date of birth, service, salary, accumulated member contribution, and the accumulated stabilization reserve account. For retired members, data includes: name, member ID, sex, date of birth, date of retirement, amount of benefit, a code indicating the option elected and the type of retiree (normal retiree, vested retiree, beneficiary), and if applicable, the joint pensioner’s date of birth and sex.

Table 18 shows the number of members by category (active, inactive, retired, etc.). Table 19 shows a historical summary of active member statistics, and Table 20 shows the distribution of active members by age and service.

The total payroll shown on the statistical tables is the amount that was supplied by FPPA. For the cost calculations, the pays were adjusted in accordance with the actuarial assumptions to reflect one year’s salary increase.

#### History of Counts: Active vs In Payment

On the valuation date as of January 1,



## Benefit Provisions

Appendix B includes a summary of the benefit provisions for FPPA. This is the fifth valuation for this plan. Highlights include:

- Normal Retirement
  - o Eligibility: Age 55 and 25 years of service
  - o Annual Benefit: 1.5% of average of the member's highest three years base salary for each year of credit service.
  - o Payment Form: Benefits are paid as a monthly life annuity. Optional forms of payment are available.
- Contributions: Members of this fund and their employers are currently each contributing at the rate determined by the individual employer. The amount allocated to the Defined Benefit portion of the Hybrid Plan is annually set by the Board of Directors. The current amount is 11.40%, effective July 1, 2009. The recommended amount is 11.50%, effective July 1, 2010.
- Cost-of-living adjustments (COLA) are granted periodically at the discretion of the FPPA Board. Values throughout this report are presented three ways:
  1. Current Law: Assuming no future COLAs
  2. With 3% ad hoc COLA Granted: Assuming a one time ad hoc COLA of 3% will be granted next year
  3. With 3% COLA Granted all years: Assuming permanent 3% COLAs in each future year

There are no ancillary benefits (e.g., cost of living benefits) that are currently provided by a source independent of FPPA but that might be deemed an FPPA liability if continued beyond the availability of funding by the current funding source.

Based on the results of this valuation, the plan can afford a 3% ad hoc COLA, effective October 1, 2010.

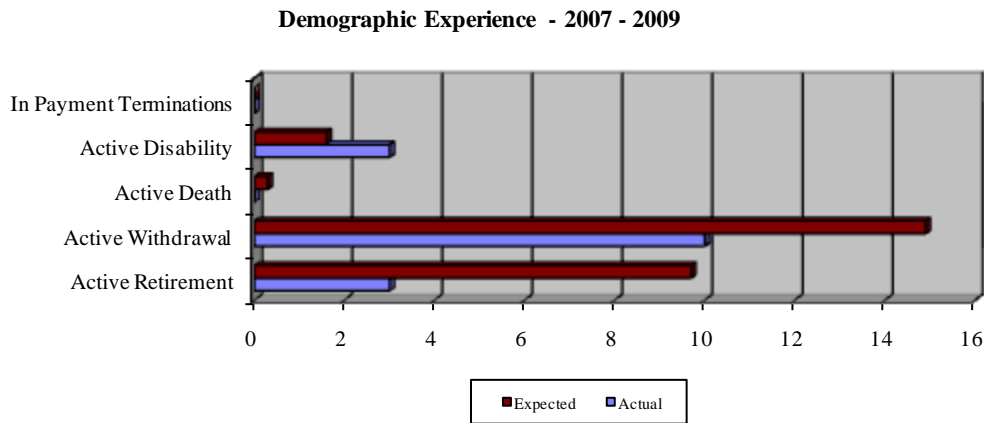
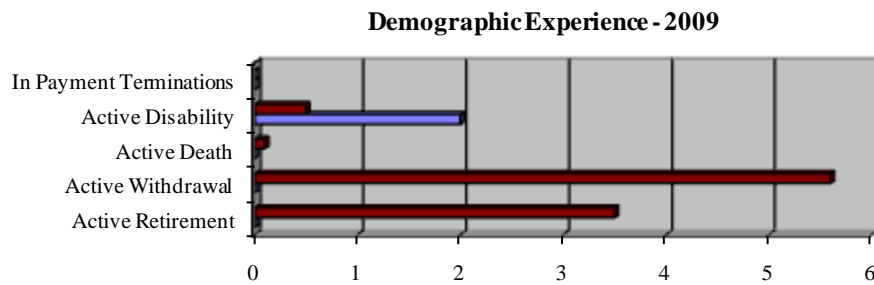
### Actuarial Methods and Assumptions

The valuation was prepared using the Entry Age Normal Method. This is the same funding method that has been used for the Statewide Defined Benefit Plan. The asset valuation method is an actuarial value based on a three-year weighted moving average of expected and actual market value of assets. See Appendix A for a complete description of this method.

The actuarial value of future benefits from the plan is based on several economic and non-economic assumptions. These are summarized in Appendix A. The economic assumptions include investment return and salary increases. Non-economic assumptions include rates of mortality, disability, and separation. There were no actuarial assumption changes made since the prior valuation.

The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions.

For FY2009, the actual salary increases were 96.1% of expected. The following charts provide a comparison of the actual experience versus the expected experience for selected demographic assumptions.



### GASB 25, GASB 27, and Funding Progress

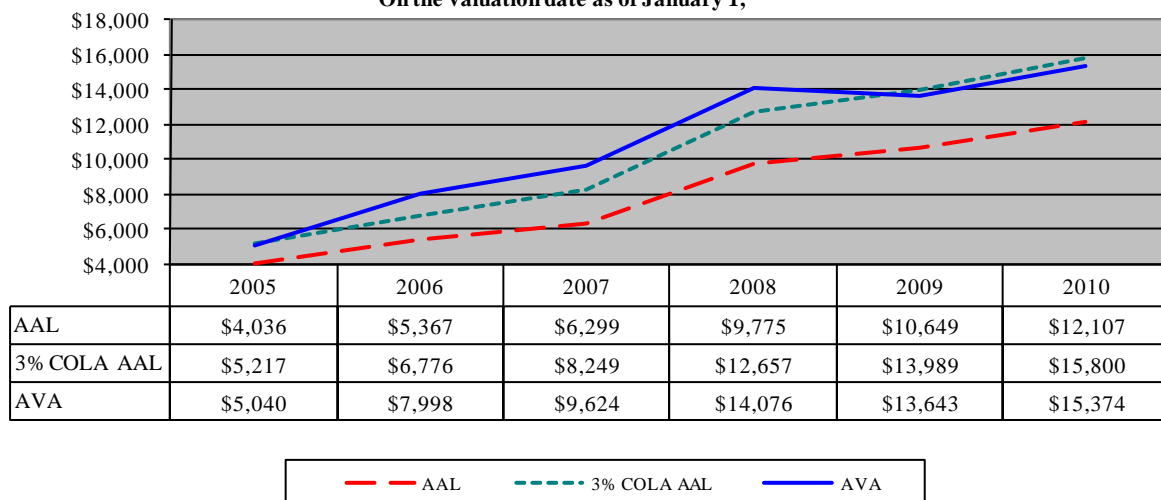
Accounting requirements for FPPA are set by Governmental Accounting Standards Board Statement No. 25 (GASB 25) and No. 27 (GASB 27). Table 12 shows a historical summary of the funded ratios and other information for FPPA. Table 17 shows other information needed in connection with disclosure under GASB 25. GASB Statement No. 27 governs reporting by the employers of government-sponsored retirement plans. Table 16 shows the development of the net pension obligation.

GASB 25 requires that plans calculate an Annual Required Contribution (ARC), and, if actual contributions received are less than the ARC, this must be disclosed. The ARC is calculated in accordance with certain parameters. In particular, it includes a payment to amortize the UAAL. This amortization payment is computed using a funding period no greater than 30 years. Further, the amortization payment included in the ARC may be computed as a level amount, or it may be computed as an amount that increases with payroll. The payroll growth assumption may not anticipate future membership growth.

For the Hybrid Plan, the employer Annual Required Contribution for 2010 is 11.50% of pay effective July 1, 2010. The dollar contribution is estimated to be \$1,082,753 for the plan year ending December 31, 2010. This is computed as 11.40% of projected payroll \$9,456,360 for 6 months and 11.50% for 6 months.

#### History of AAL vs AVA

On the valuation date as of January 1,



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## **SECTION III**

### **TABLES**

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**Development of Contribution Rate**

	January 1, 2010			January 1, 2009		
	Current Law	With 3% Ad Hoc COLA Granted	With Permanent 3% COLA	Current Law	With 3% Ad Hoc COLA Granted	With Permanent 3% COLA
	(1)	(2)	(3)	(4)	(5)	(6)
1. Covered payroll (prior year)	\$ 8,622,865	\$ 8,622,865	\$ 8,622,865	\$ 7,338,959	\$ 7,338,959	\$ 7,338,959
2. Covered payroll adjusted for one-year's pay increase	\$ 9,456,360	\$ 9,456,360	\$ 9,456,360	\$ 8,059,809	\$ 8,059,809	\$ 8,059,809
3. Present value of future pay	\$ 89,937,444	\$ 89,937,444	\$ 89,937,444	\$ 79,068,380	\$ 79,068,380	\$ 79,068,380
4. Total normal cost rate	8.59%	8.59%	11.24%	8.47%	8.47%	11.12%
5. Actuarial accrued liability for active members						
a. Present value of future benefits for active members	\$ 17,826,490	\$ 17,826,490	\$ 23,266,626	\$ 15,395,251	\$ 15,395,251	\$ 20,205,617
b. Less: present value of future normal costs	<u>(7,723,407)</u>	<u>(7,723,407)</u>	<u>(10,115,423)</u>	<u>(6,696,289)</u>	<u>(6,696,289)</u>	<u>(8,805,271)</u>
c. Actuarial accrued liability (a - b)	\$ 10,103,083	\$ 10,103,083	\$ 13,151,203	\$ 8,698,962	\$ 8,698,962	\$ 11,400,346
6. Total actuarial accrued liability for:						
a. Retirees and beneficiaries	\$ 1,738,422	\$ 1,790,575	\$ 2,289,081	\$ 1,705,118	\$ 1,756,272	\$ 2,257,790
b. Inactive members (terminated vested and nonvested)	265,824	265,824	359,900	244,632	244,632	331,131
c. Active members (Item 5c)	<u>10,103,083</u>	<u>10,103,083</u>	<u>13,151,203</u>	<u>8,698,962</u>	<u>8,698,962</u>	<u>11,400,346</u>
d. Total	\$ 12,107,329	\$ 12,159,482	\$ 15,800,184	\$ 10,648,712	\$ 10,699,866	\$ 13,989,267
7. Actuarial value of assets	\$ 15,373,546	\$ 15,373,546	\$ 15,373,546	\$ 13,642,709	\$ 13,642,709	\$ 13,642,709
8. Unfunded actuarial accrued liability UAAL/(surplus) (Item 6d - Item 7)	\$ (3,266,217)	\$ (3,214,065)	\$ 426,638	\$ (2,993,997)	\$ (2,942,843)	\$ 346,558
9. Contribution requirement						
a. UAAL amortization payment as % of pay	(1.91%)	(1.88%)	0.25%	(2.05%)	(2.02%)	0.24%
b. Normal cost	<u>8.59%</u>	<u>8.59%</u>	<u>11.24%</u>	<u>8.47%</u>	<u>8.47%</u>	<u>11.12%</u>
c. Contribution requirement (a + b)	6.69%	6.72%	11.49%	6.42%	6.45%	11.36%

**Actuarial Present Value of Future Benefits**

	1/1/2010 <u>(1)</u>	1/1/2009 <u>(2)</u>
A. Current Law		
1. Active members		
a. Retirement benefits	\$ 16,899,305	\$ 14,557,162
b. Deferred termination benefits	855,947	769,733
c. Refunds	15,259	17,370
d. Death benefits	55,979	50,986
e. Total	<u>\$ 17,826,490</u>	<u>\$ 15,395,251</u>
2. Members in pay status		
a. Service retirements	\$ 1,738,422	\$ 1,705,118
b. Beneficiaries	0	0
c. Total	<u>\$ 1,738,422</u>	<u>\$ 1,705,118</u>
4. Inactive members		
a. Vested terminations	\$ 265,824	\$ 244,632
b. Nonvested terminations	229,696	251,843
c. Total	<u>\$ 495,520</u>	<u>\$ 496,475</u>
5. Total actuarial present value of future benefits	\$ 20,060,432	\$ 17,596,844
B. With Permanent 3% COLA		
1. Active members		
a. Retirement benefits	\$ 22,032,644	\$ 19,091,317
b. Deferred termination benefits	1,141,787	1,026,836
c. Refunds	15,259	17,370
d. Death benefits	76,936	70,094
e. Total	<u>\$ 23,266,626</u>	<u>\$ 20,205,617</u>
2. Members in pay status		
a. Service retirements	\$ 2,289,081	\$ 2,257,790
b. Beneficiaries	0	0
c. Total	<u>\$ 2,289,081</u>	<u>\$ 2,257,790</u>
4. Inactive members		
a. Vested terminations	\$ 359,900	\$ 331,131
b. Nonvested terminations	229,696	251,843
c. Total	<u>\$ 589,596</u>	<u>\$ 582,974</u>
5. Total actuarial present value of future benefits	\$ 26,145,303	\$ 23,046,381

**Analysis of Normal Cost by Component**

	<u>1/1/2010</u>	<u>1/1/2009</u>
	(1)	(2)
A. Current Law		
1. Retirement benefits	7.83%	7.66%
2. Deferred termination benefits	0.71%	0.76%
3. Refunds	0.03%	0.03%
4. Death benefits	0.02%	0.02%
5. Total	<u>8.59%</u>	<u>8.47%</u>
B. With Permanent 3% COLA		
1. Retirement benefits	10.24%	10.05%
2. Deferred termination benefits	0.95%	1.01%
3. Refunds	0.03%	0.03%
4. Death benefits	0.02%	0.03%
5. Total	<u>11.24%</u>	<u>11.12%</u>

**Actuarial Gain/(Loss) on UAAL**

	<u>1/1/2010</u> (1)	<u>1/1/2009</u> (1)
<b>A. Current Law</b>		
1. Unfunded actuarial accrued liability (UAAL) as of January 1 of prior year	\$ (2,993,997)	\$ (4,301,078)
2. Total normal cost for year (Normal cost % x actual payroll paid during year)	730,576	636,036
3. Non service purchase contributions during year ending December 31	(951,531)	(1,801,659)
4. Interest on UAAL for one year	(239,520)	(344,086)
5. Interest on Item 2 and Item 3 for one-half year	<u>(8,668)</u>	<u>(45,728)</u>
6. Expected UAAL as of January 1 (1 + 2 + 3 + 4 + 5)	\$ (3,463,139)	\$ (5,856,514)
7. Actual UAAL at end of year	\$ (3,266,217)	\$ (2,993,997)
8. Actuarial gain/(loss) for the period (6 - 7)	\$ (196,922)	\$ (2,862,517)
<u>SOURCE OF GAINS/(LOSSES)</u>		
9. Asset gain/(loss) (See Table 10)	\$ (355,990)	\$ (3,270,867)
10. Salary liability gain/(loss) for the period	\$ 144,373	\$ 185,757
11. COLA granted as of October 1 (3% in 2009, 3% in 2008)	\$ (51,154)	\$ (30,641)
12. Net liability gain/(loss) for the period (8 - 9 - 10 - 11)	\$ 65,848	\$ 253,233
<b>B. With Permanent 3% COLA</b>		
1. Unfunded actuarial accrued liability (UAAL) as of January 1 of prior year *	\$ 346,558	\$ (1,418,854)
2. Total normal cost for year (Normal Cost % x actual payroll paid during year)	959,151	834,986
3. Non service purchase contributions during year ending December 31	(951,531)	(1,801,659)
4. Interest on UAAL for one year	27,725	(113,508)
5. Interest on Item 2 and Item 3 for one-half year	<u>299</u>	<u>(37,923)</u>
6. Expected UAAL as of January 1 (1 + 2 + 3 + 4 + 5)	\$ 382,202	\$ (2,536,958)
7. Actual UAAL at end of year	\$ 426,638	\$ 346,558
8. Actuarial gain/(loss) for the period (6 - 7)	\$ (44,436)	\$ (2,883,516)
<u>SOURCE OF GAINS/(LOSSES)</u>		
9. Asset gain/(loss) (See Table 10)	\$ (355,990)	\$ (3,270,867)
10. Salary liability gain/(loss) for the period	\$ 188,668	\$ 178,629
11. COLA granted as of October 1 (3% in 2009, 3% in 2008)	\$ -	\$ -
12. Net liability gain/(loss) for the period (8 - 9 - 10)	\$ 122,886	\$ 208,722

### Analysis of Change in Calculated Contribution Rate

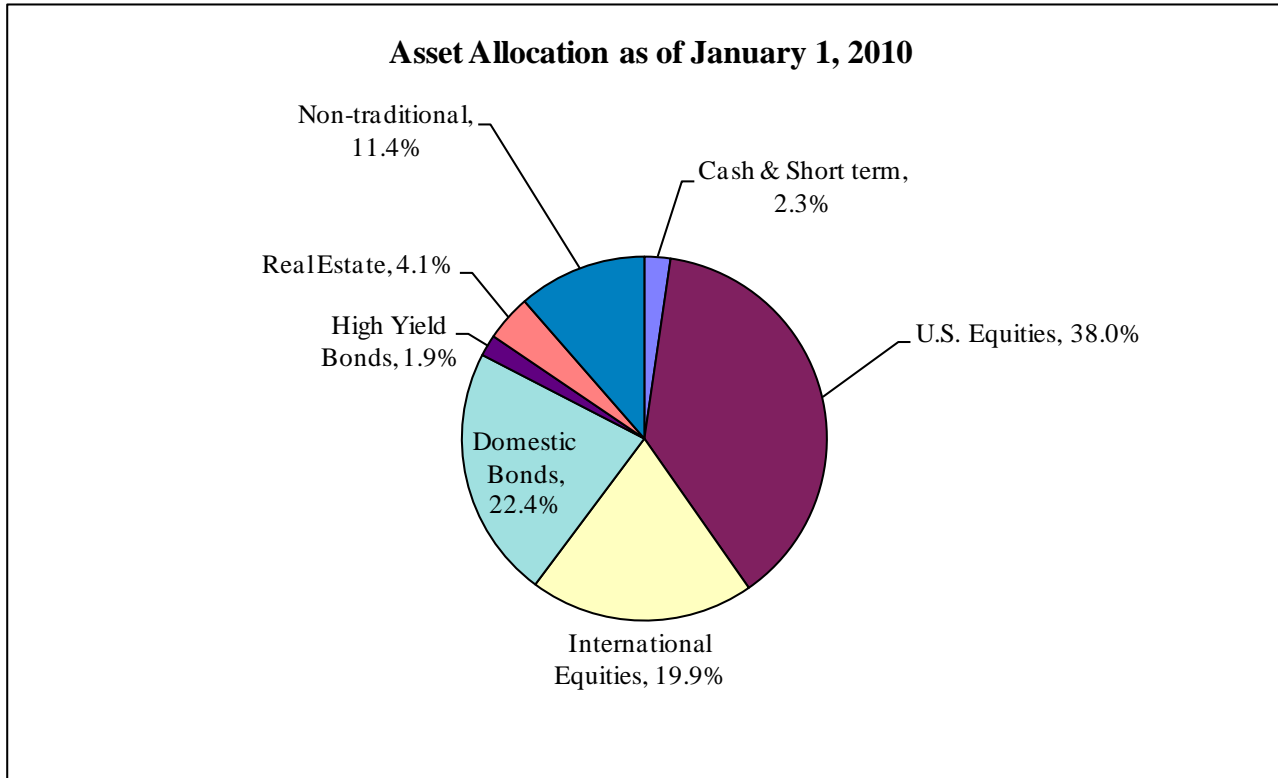
	<u>1/1/2010</u>	<u>1/1/2009</u>
A. Current Law		
1. Recommended contribution rate as of last valuation	6.42%	5.35%
2. Change in Contribution Rate During Year		
a. Change in normal cost	0.13%	0.03%
b. Change in assumptions	0.00%	0.00%
c. Change in benefit provisions	0.00%	0.00%
d. Impact of contributing less/(more) than calculated rate	(0.28%)	(0.29%)
e. Recognition of prior asset losses (gains)	0.31%	(0.12%)
f. Actuarial (gain) loss from current year asset performance	(0.07%)	2.42%
g. Effect of payroll growth	0.25%	0.01%
h. COLA granted October 1, 2008	0.04%	0.02%
i. Actuarial (gain) loss from other liability sources	<u>(0.10%)</u>	<u>(1.01%)</u>
j. Total Change	0.27%	1.06%
3. Recommended contribution rate as of this valuation	6.69%	6.42%
B. With Permanent 3% COLA		
1. Recommended contribution rate as of last valuation	11.36%	10.06%
2. Change in contribution rate during year		
a. Change in normal cost	0.12%	0.04%
b. Change in assumptions	0.00%	0.00%
c. Change in benefit provisions	0.00%	0.00%
d. Impact of contributing less/(more) than calculated rate	0.00%	(0.03%)
e. Recognition of prior asset losses (gains)	0.30%	(0.13%)
f. Actuarial (gain) loss from current year asset performance	(0.06%)	2.42%
g. Effect of payroll growth	(0.04%)	0.00%
h. Actuarial (gain) loss from other liability sources	<u>(0.19%)</u>	<u>(1.00%)</u>
i. Total Change	0.13%	1.30%
3. Recommended contribution rate as of this valuation	11.49%	11.36%

**Summary of Historical Valuation Results (with Permanent 3% COLA)  
 As of the Valuation date January 1,**

	<u>2010</u>	<u>2009</u>	<u>2008</u>	<u>2007</u>	<u>2006</u>	<u>2005</u>
1. Number of Members						
a. Active	126	114	115	63	67	36
b. Retired/DROP/Beneficiaries	6	6	4	3	0	0
c. Inactive members	8	11	2	0	0	0
d. Total	<u>140</u>	<u>131</u>	<u>121</u>	<u>66</u>	<u>67</u>	<u>36</u>
2. Covered payroll (prior year)	\$ 8,622,865	\$ 7,338,959	\$ 6,988,987	\$ 4,257,723	\$ 3,967,889	\$ 2,561,203
3. Average compensation	\$ 68,435	\$ 64,377	\$ 60,774	\$ 67,583	\$ 59,222	\$ 71,145
4. Covered payroll adjusted for one-year's pay increase	\$ 9,456,360	\$ 8,059,809	\$ 7,690,109	\$ 4,495,268	\$ 4,315,529	\$ 2,772,433
5. Actuarial value of assets	\$ 15,373,546	\$ 13,642,709	\$ 14,075,984	\$ 9,624,239	\$ 7,998,356	\$ 5,040,067
6. Market value of assets	\$ 14,650,779	\$ 11,368,924	\$ 14,241,929	\$ 10,056,739	\$ 8,156,421	\$ 5,144,011
With Permanent 3% COLA						
7. Present value of benefits						
a. Retired/Beneficiaries	\$ 2,289,081	\$ 2,257,790	\$ 1,356,145	\$ 1,149,675	\$ 0	\$ 0
b. Terminations	359,900	331,131	305,995	0	0	0
c. Actives	23,266,626	20,205,617	19,344,660	10,527,393	10,003,440	6,896,583
d. Total	<u>\$ 25,915,607</u>	<u>\$ 22,794,538</u>	<u>\$ 21,006,800</u>	<u>\$ 11,677,068</u>	<u>\$ 10,003,440</u>	<u>\$ 6,896,583</u>
8. Total contribution						
a. Amount	\$ 1,082,753	\$ 902,699	\$ 812,268	\$ 460,765	\$ 474,708	\$ 346,554
b. Percent of pay	11.50%	11.40%	11.00%	10.25%	11.00%	12.50%
c. Effective date	July 1	July 1	August 1	August 1	August 1	August 1
9. Net pension obligation	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0

**Allocation of Plan Assets  
 at Market Fair Value**

	<u>January 1, 2010</u>	<u>January 1, 2009</u>	<u>Target Allocation</u>
	(1)	(2)	(3)
1. Cash & Short term	2.3%	1.4%	2.0%
2. U.S. Equities	38.0%	34.9%	38.0%
3. International Equities	19.9%	16.2%	20.0%
4. Domestic Bonds	22.4%	25.6%	23.8%
5. High Yield Bonds	1.9%	1.4%	1.3%
6. Real Estate	4.1%	8.4%	6.0%
7. Non-traditional	<u>11.4%</u>	<u>12.1%</u>	<u>9.0%</u>
8. Total	100.0%	100.0%	100.0%



**Reconciliation of Plan Net Assets**

	Year Beginning January 1, 2010 <u>(1)</u>	Year Beginning January 1, 2009 <u>(2)</u>
1. Market value of assets at beginning of year	\$ 11,368,924	\$ 14,241,929
2. Revenue for the year		
a. Contributions	\$ 1,384,791	\$ 1,880,763
b. Net investment income		
i. Interest	\$ 65,301	\$ (119,690)
ii. Dividends	169,859	236,970
iii. Real estate	18	3,051
iv. Net change in accrued income	(13,442)	26,652
v. Unrealized gain/(loss)	2,148,788	(3,950,385)
vi. Realized gain/(loss)	185,779	(563,893)
vii. Other Income	<u>(133,603)</u>	<u>(43,664)</u>
c. Total revenue	\$ 3,807,492	\$ (2,530,196)
3. Expenditures for the year		
a. Refunds	\$ (232,027)	\$ (78,716)
b. Benefit payments	(195,627)	(155,143)
c. Administrative and miscellaneous expenses	<u>(97,983)</u>	<u>(108,949)</u>
d. Total expenditures	\$ (525,637)	\$ (342,808)
4. Increase in net assets (Item 2c - Item 3d)	\$ 3,281,855	\$ (2,873,005)
5. Market value of assets at end of year (Item 1 + Item 4)	\$ 14,650,779	\$ 11,368,924

**Development of Actuarial Value of Assets**

	2010 (1)
1. Actuarial value as of January 1	\$ 13,642,709
a. Contributions	\$ 1,384,791
b. Identified receipts	(12)
c. Benefits paid	(195,627)
d. Refunds	(232,027)
e. Net cash flow	<u>957,125</u>
2. Expected actuarial value of assets as of December 31	\$ 15,729,536
3. Actual market value of assets as of December 31	\$ 14,650,779
4. Excess earnings/(shortfall)	\$ (1,078,757)
5. Excess earnings/(shortfall) recognized (33% x Item 4)	\$ (355,990)
6. Actuarial value of assets as of December 31 (Item 2 + Item 5)	\$ 15,373,546

Calculation for 2009 not shown because of the change in method since the prior valuation.

**Investment Yields**

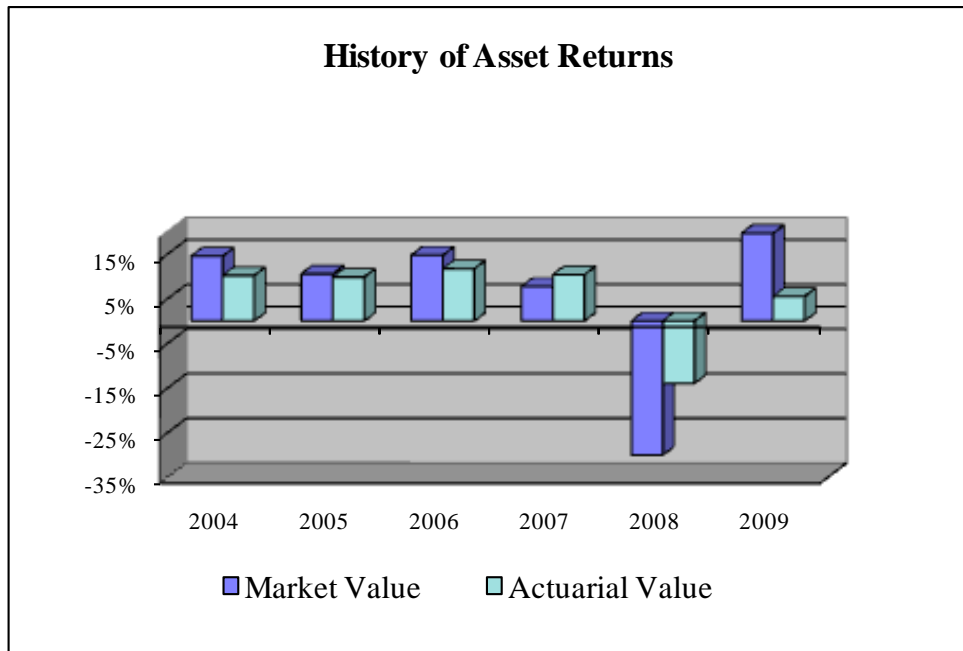
Item (1)	Market Value (2)	Actuarial Value (3)
1. Assets as of January 1, 2009 (A)	\$ 11,368,924	\$ 13,642,709
2. Contributions during FY09	1,384,791	1,384,791
3. Benefit payments made during FY09	195,627	195,627
4. Refunds of contributions during FY09	232,027	232,027
5. Transfers to member's DROP accounts during FY09	12	12
6. Investment return during FY09	<u>2,324,730</u>	<u>773,712</u>
7. Assets as of January 1, 2010 (B): (1 + 2 - 3 - 4 - 5 + 6)	\$ 14,650,779	\$ 15,373,546
8. Approximate rate of return on average invested assets		
a. Net investment income (I)	\$ 2,324,730	\$ 773,712
b. Estimated return based on $(2I / (A + B - I))$	19.62%	5.48%

**Gain/(Loss) on Actuarial Value of Assets**

Item (1)	Valuation as of January 1, 2010 (2)	Valuation as of January 1, 2009 (3)
1. Actuarial assets, prior valuation	\$ 13,642,709	\$ 14,075,984
2. Total contributions since prior valuation	\$ 1,384,791	\$ 1,880,763
3. Benefits and refunds since prior valuation	\$ (427,666)	\$ (233,859)
4. Assumed net investment income at 8.0%		
a. Beginning assets	\$ 1,091,417	\$ 1,126,079
b. Contributions	55,392	73,783
c. Benefits and refunds paid	(17,107)	(9,174)
d. Total	<u>\$ 1,129,702</u>	<u>\$ 1,190,688</u>
5. Expected actuarial assets (1 + 2 + 3 + 4)	\$ 15,729,536	\$ 16,913,576
6. Actual actuarial assets, this valuation	\$ 15,373,546	\$ 13,642,709
7. Asset gain (loss) since prior valuation (6 - 5)	\$ (355,990)	\$ (3,270,867)
	Loss	Loss

**History of Investment Return Rates**

For Fiscal Year Ending (1)	Market Value (2)	Actuarial Value (3)
December 31, 2004	14.50%	10.17%
December 31, 2005	10.52%	9.82%
December 31, 2006	14.71%	11.69%
December 31, 2007	7.70%	10.36%
December 31, 2008	-30.00%	-13.96%
December 31, 2009	19.62%	5.48%



**Schedule of Funding Progress (Based on Current Law – 0% COLA)  
 (As required by GASB #25)**

Date	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AAL)	Unfunded Actuarial Accrued Liability (UAAL) (3) - (2)	Funded Ratio (2)/(3)	Annual Payroll	UAAL as % of Payroll (4)/(6)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
January 1, 2005	\$ 5,040,067	\$ 4,035,894	\$ (1,004,173)	124.9%	\$ 2,587,830	(38.8%)
January 1, 2006	7,998,356	5,366,912	(2,631,444)	149.0%	4,053,146	(64.9%)
January 1, 2007	9,624,239	6,299,422	(3,324,817)	152.8%	4,391,954	(75.7%)
January 1, 2008	14,075,984	9,774,906	(4,301,078)	144.0%	7,342,967	(58.6%)
January 1, 2009	13,642,709	10,648,712	(2,993,997)	128.1%	7,726,670	(38.7%)
January 1, 2010	15,373,546	12,107,329	(3,266,217)	127.0%	9,026,182	(36.2%)

**History of Employer Contributions**

Valuation Date (1)	Contribution Effective Date (1)	Annual Required Contribution Rate (2)	Actual Contribution Rate (3)	Percent (4)
N/A	January 1, 2004	14.00%	14.00%	100%
January 1, 2005	August 1, 2005	12.50%	12.50%	100%
January 1, 2006	August 1, 2006	11.00%	11.00%	100%
January 1, 2007	August 1, 2007	10.25%	10.25%	100%
January 1, 2008	August 1, 2008	11.00%	11.00%	100%
January 1, 2009	July 1, 2009	11.40%	11.40%	100%
January 1, 2010	July 1, 2010	11.50%	N/A	N/A

**Solvency Test (Based on Current Law – 0% COLA)**

Valuation Date	Aggregated Accrued Liabilities for			Actuarial Value of Assets	Portion of Accrued Liabilities Covered by Reported Assets		
	Active Members Contributions	Retirees Beneficiaries and Vested Terminations	Members (Employer Financed Portion)		(5)/(2)	[(5)-(2)]/(3)	[(5)-(2)-(3)]/(4)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
January 1, 2005	\$ 4,796,229	\$ 0	\$ (760,335)	\$ 5,040,067	100.0%	100.0%	100.0%
January 1, 2006	6,565,089	0	(1,198,177)	7,998,356	100.0%	100.0%	100.0%
January 1, 2007	6,372,113	869,103	(941,794)	9,624,239	100.0%	100.0%	100.0%
January 1, 2008	9,263,435	1,249,679	(738,208)	14,075,984	100.0%	100.0%	100.0%
January 1, 2009	7,488,207	2,201,593	958,912	13,642,709	100.0%	100.0%	100.0%
January 1, 2010	7,717,567	2,233,942	2,155,820	15,373,546	100.0%	100.0%	100.0%

**Cash Flow Analysis**

Year Ending December 31, (1)	Contributions for the Year (2)	Expenditures During the Year					External Cash Flow for the Year (8)	Market Value of Assets (9)	External Cash Flow as Percent of Market Value (10)
		Benefit Payments (3)	Refund of Contributions (4)	Identified Receipts (5)	Expenses (6)	Total (7)			
2004	\$ 4,796,245	\$ -	\$ -	\$ -	\$ (6,300)	\$ (6,300)	\$ 4,789,945	\$ 5,144,011	93.1%
2005	2,384,615	-	(36,779)	0	(46,372)	(83,151)	2,301,465	8,156,421	28.2%
2006	697,112	(42,481)	(2,108)	0	(60,873)	(105,462)	591,650	10,056,739	5.9%
2007	3,502,835	(95,405)	(122,503)	0	(82,933)	(300,841)	3,201,994	14,241,929	22.5%
2008	1,880,763	(155,143)	(78,716)	0	(108,949)	(342,808)	1,537,955	11,368,924	13.5%
2009	1,384,791	(195,627)	(232,027)	(12)	(97,983)	(525,649)	859,142	14,650,779	5.9%
2010*	1,082,753	(255,474)	(7,768)	0	(102,147)	(365,389)	717,364	16,568,900	4.3%
2011*	1,133,699	(424,341)	(8,098)	0	(106,489)	(538,928)	594,772	18,512,974	3.2%
2012*	1,181,882	(561,300)	(8,442)	0	(111,014)	(680,757)	501,125	20,515,182	2.4%

\* Results for 2010, 2011, & 2012 are based on expected contributions, expected benefit payments, and assumed investment return of 8%  
 Expected contributions are based on combined employee and employer rate of 11.5% and 4.25% annual payroll growth  
 Expected benefit payments are based on 3% COLA and expected retirements, terminations, and mortality  
 Assets are assumed to increase at the annual return of 8% with all cash flow occurring in the middle of the year



**Notes to Required Supplementary Information**  
**(As required by GASB #25)**

Valuation Date	January 1, 2010
Actuarial cost method	Entry age normal
Amortization method	Level percentage of payroll, open
Remaining amortization period	30 years
Asset valuation method	3-year smoothed fair market value
Actuarial assumptions:	
Investment rate of return *	8.00%
Projected salary increase *	4.75% - 16.75%
* Includes inflation at:	3.50%
Cost of living adjustment	0.00%

**Membership Data**

	<u>January 1, 2010</u> (1)	<u>January 1, 2009</u> (2)	<u>January 1, 2008</u> (2)
1. Active members			
a. Number	126	114	115
b. Total payroll	\$ 8,622,865	\$ 7,338,959	\$ 6,988,987
c. Average annual salary	68,435	64,377	60,774
d. Average age	42.7	41.2	40.9
e. Average service	8.9	8.8	8.5
2. Inactive members			
a. Vested	1	1	1
b. NonVested	7	10	1
3. Service retirees			
a. Number	6	6	4
b. Total annual benefits	\$ 166,763	\$ 161,905	\$ 97,089
c. Average annual benefit	27,794	26,984	24,272
d. Average age	59.8	58.8	57.4
4. Beneficiaries and spouses			
a. Number	0	0	0
b. Total annual benefits	\$ 0	\$ 0	\$ 0
c. Average annual benefit	0	0	0
d. Average age	0.0	0.0	0.0

**Historical Summary of Active Member Data**

<u>Valuation Date</u>	<u>Active Count</u>	<u>Average Age</u>	<u>Average Service</u>	<u>Covered Payroll</u>	<u>Average Annual Salary</u>	<u>Percent Change in Average Salary</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2005	36	48.7	12.2	\$2,561,203	\$71,145	0.00%
2006	67	42.4	9.8	\$3,967,889	\$59,222	(16.76%)
2007	63	41.7	10.3	4,257,723	67,583	14.12%
2008	115	40.9	8.5	6,988,987	60,774	(10.08%)
2009	114	41.2	8.8	7,338,959	64,377	5.93%
2010	126	42.7	8.9	8,622,865	68,435	6.30%

**Distribution of Active Members by Age and by Years of Service  
 As of December 31, 2009**

Attained Age	Years of Credited Service												Total
	Less than 1	1-2	2-3	3-4	4-5	5-9	10-14	15-19	20-24	25-29	30-34	35 & Over	
	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	Count & Avg. Comp.	
Under 25													
25-29	1 \$44,267	2 \$55,182	5 \$55,397	2 \$53,050	2 \$50,212	1 \$43,812							13 \$52,458
30-34	1 \$49,592	1 \$46,966	1 \$73,087	2 \$51,334	3 \$59,751	4 \$55,193	1 \$75,559						13 \$57,530
35-39		3 \$68,402	9 \$62,841		9 \$67,149	6 \$74,036	2 \$78,845						29 \$68,173
40-44	1 \$81,703		6 \$54,865		2 \$58,962	4 \$74,029	4 \$83,440		2 \$80,775				19 \$69,486
45-49	5 \$81,697		5 \$63,652				2 \$74,409	2 \$81,395		1 \$108,736			15 \$76,472
50-54	3 \$79,806	3 \$43,536		1 \$78,632		1 \$103,008	2 \$55,778	2 \$75,203	4 \$74,578	5 \$73,563			21 \$70,464
55-59		1 \$88,973	1 \$48,497		1 \$116,487	1 \$70,528				4 \$73,150	3 \$71,829	1 \$80,330	12 \$76,075
60-64	1 \$112,440						2 \$83,988			1 \$75,599			4 \$89,004
65 & Over													0 \$0
Total	12 \$77,992	10 \$58,212	27 \$59,688	5 \$57,480	17 \$65,790	17 \$69,321	13 \$76,566	4 \$78,299	6 \$76,644	11 \$76,795	3 \$71,829	1 \$80,330	126 \$68,435
Average:		Age: Service:	42.7 8.9		Number of participants:		Fully vested: Not Vested:	55 71		Males: Females:	114 12		

**Schedule of Retirants & Annuitants Added to & Removed from Rolls**

Year Ended	Added to Rolls*		Removed from Rolls		Rolls-End of Year		% Increase in Annual Benefits	Average Annual Benefits
	Number	Annual Benefits	Number	Annual Benefits	Number	Annual Benefits		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
December 31, 2004	0	\$ 0	0	\$ 0	0	\$ 0	N/A	\$ 0
December 31, 2005	0	0	0	0	0	0	N/A	\$ 0
December 31, 2006	3	83,287	0	0	3	83,287	N/A	27,762
December 31, 2007	1	13,802	0	0	4	97,089	16.57%	24,272
December 31, 2008	2	59,330	0	0	6	161,905	66.76%	26,984
December 31, 2009	0	4,858	0	0	6	166,763	3.00%	27,794

\* Includes cost of living adjustments

Summary of Members and Adjusted Payroll by Employer

City Code	City Name	Police		Fire		Total	
		No.	Earnings	No.	Earnings	No.	Earnings
326	BRIGHTON POLICE	1	\$ 61,908	0	\$ 0	1	\$ 61,908
33	CANON CITY POLICE	8	\$ 416,917	0	\$ 0	8	\$ 416,917
740	CARBONDALE AND RURAL FPD ADMIN	0	\$ 0	1	\$ 78,632	1	\$ 78,632
57	DACONO POLICE	1	\$ 38,824	0	\$ 0	1	\$ 38,824
79	EVANS	22	\$ 1,309,417	0	\$ 0	22	\$ 1,309,417
81	FEDERAL HEIGHTS	1	\$ 61,509	1	\$ 71,535	2	\$ 133,044
102	GRANADA POLICE	1	\$ 28,800	0	\$ 0	1	\$ 28,800
137	LAFAYETTE POLICE	8	\$ 539,003	0	\$ 0	8	\$ 539,003
593	LAKE DILLON FPD	0	\$ 0	6	\$ 417,049	6	\$ 417,049
149	LITTLETON FIRE	0	\$ 0	10	\$ 846,818	10	\$ 846,818
163	MILLIKEN POLICE	1	\$ 38,985	0	\$ 0	1	\$ 38,985
537	MONTROSE FPD	0	\$ 0	1	\$ 109,288	1	\$ 109,288
532	NORTH METRO FIRE RESCUE	0	\$ 0	2	\$ 178,168	2	\$ 178,168
524	SNOWMASS WILDCAT FPD	0	\$ 0	3	\$ 177,253	3	\$ 177,253
232	STERLING FIRE	0	\$ 0	1	\$ 57,767	1	\$ 57,767
240	TRINIDAD FIRE	0	\$ 0	3	\$ 137,889	3	\$ 137,889
534	WEST METRO FPD	0	\$ 0	43	\$ 3,105,100	43	\$ 3,105,100
252	WESTMINSTER FIRE	0	\$ 0	12	\$ 948,003	12	\$ 948,003
	Totals	43	\$ 2,495,363	83	\$ 6,127,502	126	\$ 8,622,865

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## **SECTION IV**

### APPENDICES

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## SUMMARY OF ACTUARIAL METHODS AND ASSUMPTIONS

### I. Valuation Date

The valuation date is January 1st of each plan year. This is the date as of which the actuarial present value of future benefits and the actuarial value of assets are determined.

### II. Actuarial Cost Method

The actuarial valuation uses the Entry Age Normal actuarial cost method. Under this method, the employer contribution rate is the sum of (i) the employer normal cost rate, and (ii) a rate that will amortize the unfunded actuarial liability.

1. The valuation is prepared on the projected benefit basis. The present value of each participant's expected benefit payable at retirement or termination is determined, based on age, service, sex, compensation, and the interest rate assumed to be earned in the future (8%). The calculations take into account the probability of a participant's death or termination of employment prior to becoming eligible for a benefit, as well as the possibility of his terminating with a service benefit. Future salary increases are also anticipated. The present value of the expected benefits payable on account of the active participants is added to the present value of the expected future payments to retired participants and beneficiaries to obtain the present value of all expected benefits payable from the Plan on account of the present group of participants and beneficiaries.
2. The employer contributions required to support the benefits of the Plan are determined following a level funding approach, and consist of a normal contribution and an accrued liability contribution.
3. The normal contribution is determined using the Entry Age Normal method. Under this method, a calculation is made to determine the average uniform and constant percentage rate of employer contribution which, if applied to the compensation of each new participant during the entire period of his anticipated covered service, would be required in addition to the contributions of the participant to meet the cost of all benefits payable on their behalf.
4. The unfunded accrued liability contributions are determined by subtracting the actuarial value of assets from the actuarial accrued liability and amortizing the result over 30 years from the valuation date. It is assumed that payments are made monthly throughout the year.

III. Actuarial Value of Assets

The actuarial value of assets is based on the market value of assets with a three-year phase-in of actual investment return in excess of or less than expected investment income. The actual calculation is based on the difference between actual earnings and expected earnings each year, and recognizes the cumulative excess return (or shortfall) over a three-year period at the rate of 33% per year. Expected earnings are determined using the assumed investment return rate and the beginning of year actuarial value of assets (adjusted for receipts and disbursements during the year). The returns are computed net of administrative and investment expenses.

IV. Actuarial Assumptions

A. Economic Assumptions

1. Investment return: 8.00% per annum, compounded annually, composed of an assumed 3.50% inflation rate and a 4.50% real rate of return. This rate represents the assumed return, net of all investment and administrative expenses.
2. Salary increase rate: Inflation rate of 3.50%, plus productivity component of 1.25%, plus step-rate/ promotional component as shown:

Years of Service	Annual Step-rate/ Promotional Rate	Total Annual Rate of Increase Including 3.50% Inflation Component and 1.25% Productivity Component
(1)	(2)	(4)
1	12.00%	16.75%
2	10.00%	14.75%
3	8.00%	12.75%
4	7.00%	11.75%
5	2.50%	7.25%
6	2.00%	6.75%
7	1.50%	6.25%
8	1.25%	6.00%
9	1.00%	5.75%
10	0.75%	5.50%
11	0.75%	5.50%
12	0.50%	5.25%
13	0.50%	5.25%
14	0.25%	5.00%
15	0.00%	4.75%

Salary increases are assumed to occur once a year, on January 1. Therefore the pay used for the period between the valuation date and the first anniversary of the valuation date is equal to the reported pay for the prior year, annualized if necessary, and then increased by the salary increase assumption.

3. Payroll growth rate: In the amortization of the unfunded actuarial accrued liability, payroll is assumed to increase 4.25% per year. This increase rate is primarily due to the effect of inflation on salaries, with no allowance for future membership growth.

B. Demographic Assumptions

1. Mortality rates (members in payment status) – 1994 Group Annuity Mortality Table

Annual Rate per 1,000 Members					
Age	Males	Females	Age (cont.)	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)
50	2.58	1.43	70	23.73	13.73
55	4.43	2.29	75	37.21	22.67
60	7.98	4.44	80	62.03	39.40
65	14.54	8.64	85	97.24	67.74

2. Mortality rates (active members) – 1994 Group Annuity Mortality Table, 50% multiplier for off-duty mortality. Increased by .00025 for on-duty related Fire and Police experience. Sample rates are shown below:

Annual Rate per 1,000 Members					
Age	Males	Females	Age (cont.)	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)
20	0.25	0.14	40	0.54	0.35
25	0.33	0.15	45	0.79	0.49
30	0.40	0.18	50	1.29	0.71
35	0.43	0.24	55	2.21	1.15

3. Disability rates: 15% of disabilities are assumed to be total and 85% are assumed to be occupational. Sample rates are shown below.

Annual Rate per 1,000 Members			
Age	Rates	Age (cont.)	Rates
(1)	(2)	(3)	(4)
20	0.14	40	3.49
25	0.14	45	4.82
30	1.15	50	6.26
35	2.26	55	7.81

4. Termination rates (for causes other than death, disability or retirement): Termination rates are based on service. Termination rates are not applied after a member becomes eligible for a retirement benefit. Rates at selected ages are shown:

Police – Annual Rate per 1,000 Members					
Service	Rates	Service (cont.)	Rates	Service (cont.)	Rates
0	180.0	8	32.5	16	17.6
1	130.0	9	29.3	17	16.6
2	111.8	10	26.7	18	15.8
3	77.9	11	24.5	19	15.1
4	60.3	12	22.7	20	14.4
5	49.5	13	21.1	21	13.8
6	42.0	14	19.8	22	13.2
7	36.7	15	18.6	23	12.7

4. Termination rates (continued):

Fire– Annual Rate per 1,000 Members					
Service	Rates	Service (cont.)	Rates	Service (cont.)	Rates
0	90.0	8	25.6	16	10.8
1	70.1	9	23.1	17	9.5
2	55.3	10	20.8	18	8.2
3	46.6	11	18.8	19	7.1
4	40.4	12	16.9	20	6.0
5	35.7	13	15.2	21	4.9
6	31.8	14	13.6	22	4.0
7	28.5	15	12.1	23	3.0

5. Retirement rates:

Age-Based Retirement rates

Age	Annual Rate per 100 Members
55-59	50
60	100

Service-Based Retirement rates

Service	Annual Rate per 100 Members
5-9	5
10-19	12
20-24	25

C. Other Assumptions

1. Percent married: 80% of employees are assumed to be married.
2. Age difference: Male members are assumed to be two years older than their spouses, and female members are assumed to be two years younger than their spouses.
3. Cost of living escalators (COLA): Current Law – 0%. Permanent COLA valued at 3% (maximum permitted by law).

4. Percent electing annuity on death (when eligible): All of the spouses of vested, married participants are assumed to elect an annuity.
5. Percent electing deferred termination benefit: Vested terminating members are assumed to elect a refund or a deferred benefit, whichever is more valuable at the time of termination.
6. There will be no recoveries once disabled.
7. No surviving spouse will remarry and there will be no children's benefit.
8. Assumed age for commencement of deferred benefits: Members electing to receive a deferred benefit are assumed to commence receipt at the first age at which unreduced benefits are available.
9. Administrative expenses: The assumed investment return rate represents the anticipated net return after payment of all investment and administrative expenses.
10. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
11. Decrement timing: Decrements of all types are assumed to occur mid-year.
12. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
13. Decrement relativity: Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
14. Incidence of Contributions: Contributions are assumed to be received continuously throughout the year based upon the computed percent of payroll shown in this report, and the actual payroll payable at the time contributions are made.
15. Benefit Service: All members are assumed to accrue 1 year of service each year. Exact fractional service is used to determine the amount of benefit payable.

D. Participant Data

Participant data was supplied on electronic files in the form of spreadsheets. There were separate tabs for (i) active and non-vested inactive members, and (ii) members and beneficiaries receiving benefits or vested inactives.

The data for an active members included birthdate, sex, service, salary and employee contribution account balance. For retired members and beneficiaries, the data included date of birth, sex, spouse's date of birth (where applicable), amount of monthly benefit, date of retirement, and a form of payment code.

Salary supplied for the current year was based on the earnings for the year preceding the valuation date. This salary was adjusted by the salary increase rate for one year.

Assumptions were made to correct for missing, bad, or inconsistent data. These had no material impact on the results presented.

E. Changes to the assumptions

Since the prior valuation, there was a change in the method used to determine the actuarial value of assets. This change continues to approximate a 3-year smoothing period and had no material impact on this valuation. The change was implemented because the new method is less volatile than the old method and will stay closer to the market value of assets over time. This was the only change to the actuarial methods and assumptions since the prior report.

## SUMMARY OF BENEFIT PROVISIONS

1. Effective Date and Authority: The Fire and Police Pension Association Plan (FPPA) was established January 1, 1980. The Hybrid plan was effective as of January 1, 2004.
2. Plan Year: A twelve-month period ending December 31st.
3. Administration: FPPA administers this statewide multiple employer public employee retirement plan. FPPA is responsible for the investment of the trust assets, including the establishment of the asset allocation policy.
4. Type of Plan: The Statewide Hybrid Plan is a qualified governmental Hybrid retirement plan. For Governmental Accounting Standards Board purposes, it is a cost-sharing multiple employer plan.
5. Eligibility: Members included are active employees who are full-time salaried employees of a participating municipality, fire protection district, fire authority, or county improvement district normally serving at least 1,600 hours in a calendar year and whose duties are directly involved with the provision of police or fire protection. Plan may include clerical and other personnel from fire districts whose service are auxiliary to fire protection.
6. Contributions: Members of this fund and their employers are currently each contributing at the rate determined by the individual employer. The amount allocated to the Defined Benefit portion of the Hybrid Plan is annually set by the Board of Directors. The current amount is 11.40%, effective July 1, 2009. The recommended amount is 11.50%, effective July 1, 2010.

7. Salary: Base salary means the total base rate of pay including Member Contributions to the Statewide Defined Benefit Plan or Statewide Money Purchase Plan which are “picked up“ by the employer, and shall also include longevity pay, sick leave pay taken in the normal course of employment, vacation leave pay taken in the normal course of employment, shift differential, and mandatory overtime that is part of the Member’s fixed, periodic compensation. Accumulated vacation leave pay will also be included if a Member completes his/her service requirement for purposes of Normal retirement while exhausting accumulated vacation leave. Base salary shall not include overtime pay (except as noted in the preceding sentence), step-up pay or other pay for temporarily acting in a higher rank, uniform allowances, accumulated sick leave pay, accumulated vacation leave pay (except as noted in the preceding sentence), and other forms of extra pay (including Member Contributions which are paid by the employer and not deducted from the Member's salary). In the event an employer has established or does establish a Deferred Compensation Plan, the amount of the Member's salary that is deferred shall be included in the Member's base salary. Any amounts voluntarily contributed to an Internal Revenue Code Section 125 “Cafeteria Plan“ shall be included in the Member's base salary. A Member is deemed temporarily acting in a higher rank if the appointment to the rank is anticipated to last less than six months.
8. Highest Average Salary (HAS): The average of the member's highest three annual base salaries.
9. Normal Retirement
  - a. Eligibility: All members are eligible for retirement on or after age 55 if they have credit for 25 years of service.
  - b. Annual Benefit: The annual Normal Retirement Benefit shall be 1.5% of the average of the member’s highest three years base salary for each year of credited service.
  - c. Payment Form: Benefits are paid as a monthly life annuity. Optional forms of payment are available; see below.
10. Early Retirement
  - a. Eligibility: All members are eligible for an early retirement if they have completed 30 years of service or are age 50.
  - b. Annual Benefit: The Normal Retirement Benefit reduced actuarially for each month that the benefit commences prior to age 55.

11. Deferred Retirement

- a. Annual Benefit: The Normal Retirement Benefit for members who continue to work after their normal retirement date will be increased by the actuarial equivalent of the benefit.

12. Terminated Vested Benefit

- a. Eligibility: A member with at least five years of service is vested. A vested member who does not withdraw his/her contributions from the fund is eligible for a vested termination benefit.
- b. Monthly Benefit: The monthly benefit is based on the retirement formula described above. Both the HAS and service are determined at the time the member leaves active employment or enters the Deferred Retirement Option Plan (DROP). Benefits may commence at age 55.
- c. Payment Form: The same as for Retirement above.
- d. Death Benefit before retirement: A member who dies after leaving active service but before retiring is entitled to receive a benefit as described below in item 14.
- e. Death Benefit after retirement: The same as for Retirement above.

13. Withdrawal (Refund) Benefit

- a. Eligibility: All members leaving covered employment with less than five years of service are eligible. Optionally, vested members (those with five or more years of service) may withdraw their accumulated contributions in lieu of the deferred benefits otherwise due.
- b. Benefit: The member receives a lump-sum payment equal to the sum of his/her employee contributions. 5% as interest is credited to these contributions.

14. Death Benefit of Active or Inactive Members

- a. Eligibility: Death must have occurred while an active or an inactive, non-retired member.
- b. Basic Benefit: Upon the death of an active, unmarried member with no dependent children, a refund of the member's contributions is paid. If the member was eligible for retirement, a joint and survivor annuity may be paid to the beneficiary when the member would have been age 55.

15. Optional Forms of Payment: In addition to a life annuity, FPPA offers members these optional forms of payment on an actuarially equivalent basis:
- a. Option 1 (Joint and 100% Survivor) - A life annuity payable while either the member or his beneficiary is alive.
  - b. Option 2 (Joint and 50% Survivor) - A life annuity payable to the member while both the member and beneficiary are alive, reducing to 50% of this amount if the member predeceases the beneficiary.
  - c. Option 3 (Joint and 50% Last Survivor) - A life annuity payable to the member while both the member and beneficiary are alive, reducing to 50% of this amount if either the member or the beneficiary dies.
  - d. Option 4 (Joint and 100% Survivor with “Pop Up”) – 100% of the reduced retirement income payable for the life of the beneficiary upon the death of the retiring member, with the provision that, should the beneficiary predecease the participant, the monthly annuity will revert to the amount that would have been payable under the normal form of payment.
  - e. Option 5 (Joint and 50% Survivor with “Pop Up”) –50% of the reduced retirement income payable for the life of the beneficiary upon the death of the retiring participant, with the provision that, should the beneficiary predecease the member, the monthly annuity will revert to the amount that would have been payable under the normal form of payment.

Actuarial equivalence is based on tables adopted by the Board.

16. Cost of Living Adjustment (COLA): Benefits to members and beneficiaries are increased annually on October 1. The amount is based on the Board’s discretion and can range from 0-3%.
17. Deferred Retirement Option Program: A member may elect to participate in the DROP after reaching eligibility for normal retirement, early retirement or vested retirement and age 55. A member can continue to work while participating in the DROP, but must terminate employment within 5 years of entry into the DROP. The member’s percentage of retirement benefit is frozen at the time of entry into the DROP. The monthly payments that begin at entry into the DROP are accumulated until the member terminates service, at which time the DROP accumulated benefits can be paid as a lump sum, if desired. The member’s contributions continue and are credited to the DROP.

The member shall self-direct the investments of their DROP funds.

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**SECTION V**

**SUPPLEMENTAL STUDIES**

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## **SUPPLEMENTAL STUDIES**

There were no supplemental studies requested.