

**FIRE AND POLICE PENSION ASSOCIATION**  
STATEWIDE DEFINED BENEFIT PLAN  
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 Defined Benefit Plan (the Plan) as of January 1, 2010**

Dear Members of the Board:

We are pleased to present our Report on the actuarial valuation of the Statewide Defined Benefit Plan for the Fire and Police Pension Association (FPPA) 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 was provided by the Fire and Police Pension Association's staff.

We certify that the information included herein and contained in our 2010 Actuarial Valuation Report is accurate and fairly presents the actuarial position of the FPPA Statewide Defined Benefit Plan as of January 1, 2010.

Our Report presents the results of the January 1, 2010 actuarial valuation of the FPPA Statewide Defined Benefit Plan (SWDB). The Report describes the current actuarial condition of the SWDB, 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 law that, over time, are intended to remain level as a percentage 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 our actuarial valuation as of January 1, 2010, the Plan's surplus status has decreased over the prior year and the surplus is now (\$0.2) million, assuming no cost-of-living adjustment (COLA).

As listed in the Executive Summary under Section I of our Report, the normal cost rate of the Plan is 12.66% of payroll under current law as of January 1, 2010. Since the employer contribution rate plus the member contribution rate totals 16.00% of payroll, an additional amount of 3.34% of payroll is available to amortize the UAAL and provide future COLAs. However, because the Plan is currently in a surplus position under current law, contribution amounts above the normal cost are applied towards increasing this existing surplus.

The contribution rate required to fund the current law benefits (assuming no COLAs) is 12.66%. This rate is the normal cost plus the amortization of the UAAL/(surplus) over 30 years. Currently, the surplus is too small to create an amortization payment, and therefore, the annual required contribution is equal to the normal cost, or 12.66% of payroll.

For the valuation as of January 1, 2010, the cost of the Plan, including a permanent 3% COLA benefit (3% COLA for all), is 20.65% of payroll. This is greater than the current combined employer/member contribution rate of 16.00%. Therefore, based on the Board's practice to advance fund the COLA before providing a Stabilization Reserve Account contribution, the recommended annual Stabilization Reserve Account contribution is 0.00% effective July 1, 2010.

***Benefit provisions***

All of the benefit provisions reflected in this valuation are those which were in effect on January 1, 2010. There were no 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 have concluded that the data is reasonable and consistent with the prior year's data. 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	January 1, 2009
	(1)	(2)
Membership		
• Number of:		
- Active members	5,331	5,197
- Retirees and beneficiaries	424	353
- Inactive members	<u>507</u>	<u>530</u>
- Total	6,262	6,080
• Annualized payroll supplied by FPPA	\$ 348,254	\$ 322,971
Calculated contribution rates		
• Current law	12.66%	12.51%
• With one 3% Ad Hoc COLA	12.72%	12.56%
• With permanent 3% COLA	20.65%	20.29%
Assets		
• Market value	\$ 914,227	\$ 713,408
• Actuarial value	963,501	856,090
• Rate of return on market value	19.9%	-29.7%
• Rate of return on actuarial value	6.1%	-13.7%
• Contribution for prior year	\$ 68,550	\$ 52,585
• Ratio of actuarial value to market value	105.4%	120.0%
Actuarial Information		
Current Law		
• Total normal cost %	12.66%	12.64%
• Unfunded actuarial accrued liability/(surplus)	\$ (200)	\$ (8,269)
• Amortization rate	0.00%	(0.13%)
• Total required contribution %	12.66%	12.51%
• GASB funded ratio	100.0%	101.0%
With Permanent 3% COLA		
• Total normal cost %	16.51%	16.49%
• Unfunded actuarial accrued liability/(surplus)	\$ 280,976	\$ 240,109
• Amortization rate	4.14%	3.80%
• Total required contribution %	20.65%	20.29%
• GASB funded ratio	77.4%	78.1%

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

## Executive Summary

1. The annual required contribution rate under Current Law increased from 12.51% to 12.66% as of January 1, 2010. This is mainly due to continued recognition of the investment losses from 2008.
2. The cost of the Plan including permanent 3% COLA benefits (3% Permanent COLA) increased from 20.29% to 20.65% as of January 1, 2010. This amount is above the current combined employer and member contribution rate of 16.00%. Therefore, based on the current objective of funding for future COLAs, we recommend a Stabilization Reserve Account contribution of 0.00% for the year beginning July 1, 2010.
3. Granting a 3% ad hoc COLA as of October 1, 2010 would increase the annual required contribution rate from 12.66% to 12.72%.
4. Assets earned 19.9% on a market basis and 6.1% on an actuarial basis in 2009, producing an actuarial loss of \$24 million.
5. The funded ratio under Current Law decreased from 101.0% to 100.0% as of January 1, 2010. The funded ratio based on a permanent 3% COLA decreased from 78.1% to 77.4% as of January 1, 2010.

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**SECTION II**  
DISCUSSION

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### Contribution Requirements

The valuation of the Fire and Police Pension Association Statewide Defined Benefit Plan (SWDB) as of January 1, 2010, reflects a combined employer and member contribution rate of 16.00%.

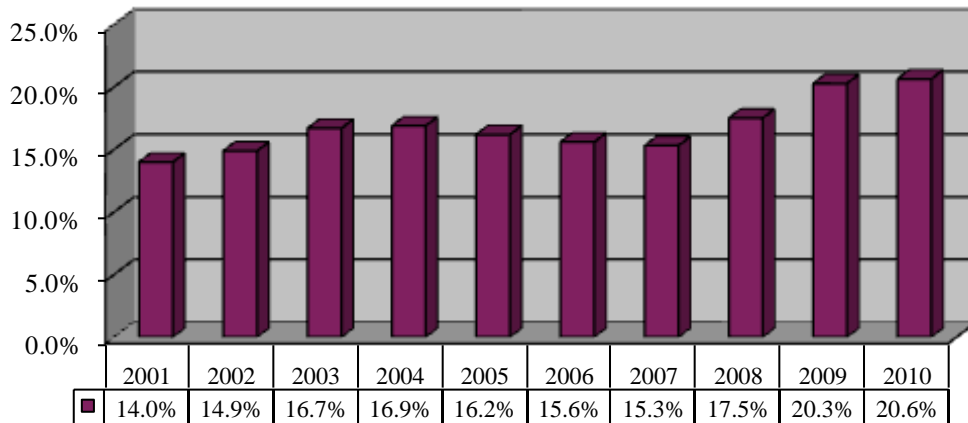
The valuation presents three sets of results:

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 assumes all future COLAs are granted at 3% and advance-funds for them. This valuation is used to determine the recommended annual contribution to the Stabilization Reserve Accounts (SRA). 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 in Table 1 in the following Section III of our report.

The cost of the Plan including permanent 3% COLA benefits (3% COLA for all) increased from 20.29% of covered payroll to 20.65%. The following graph shows the historical costs of permanent 3% COLA benefits as a percentage of pay.

**Cost of Plan Including Permanent 3% COLA  
 as stated in the Valuation as of January 1,**



### Contribution Requirements (cont.)

Effective January 1, 2007, members currently covered under social security were transferred into the new FPPA supplemental social security program. The new plan is designed to give half the benefit when compared to the SWDB for half the cost.

The plan membership also includes a group of employers whose contribution rates differ from the main section of the populations. This valuation calculates what the contribution rate for those members needs to be for next fiscal year. The number of members in this group has increased significantly since the prior valuation.

These employers joined FPPA as a whole after the membership had matured. No prior service was granted for benefit purposes but prior service was granted for eligibility purposes. The membership does have the opportunity to purchase their prior service at an actuarial equivalent price. This group has a higher average entry age than the rest of the population and therefore a higher normal cost even though this difference has been decreasing over time. This normal cost was calculated based on permanent 3% COLA benefits. The appropriate contribution rate for this group is the 16% plus the difference in the normal cost when compared to the general population. Therefore, the cost of benefits for this group is 16.34%. Because the combined employer/member contribution rate of this group is 20%, the recommended additional SRA contribution for this group is 3.66%. This amount would be in addition to any SRA approved by the Board for all participants. This amount is necessary in order to properly reflect that the full cost of benefits for this group is not 20.00%, but 16.34%.

The following table presents the various costs for the three groups of SWDB participants:

	Ordinary Members	Members whose departments reentered
Normal Cost based on No COLA	12.67%	13.02%
Normal Cost based on 3% COLA	16.54%	16.87%
Total Contribution based on 3% COLA	16.00%	16.34%

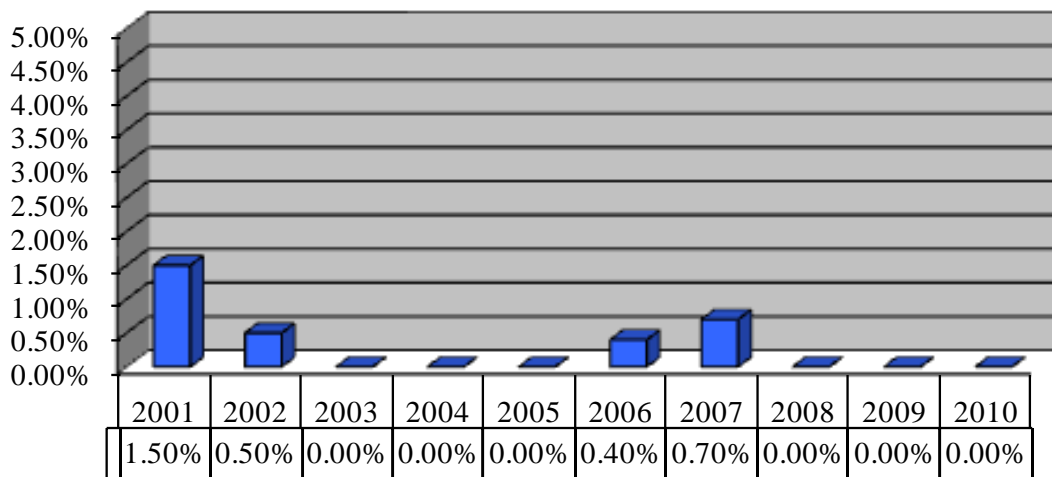
### Stabilization Reserve Account (SRA)

Annually, at the discretion of the Board of Directors, the difference between the combined member/employer contribution and the cost of the Plan including permanent 3% COLA benefits may be allocated to the stabilization reserve account (SRA). Amounts set aside in the SRA are allocated to individual accounts for each active plan member. A member may receive the amounts in the individual account only upon death or the election of normal, early, disability or vested retirement. If the cost of the defined benefit plan exceeds the combined member/employer contribution rate, funds from the SRA can be used to make up the shortfall.

For the valuation as of January 1, 2010, the cost of the Plan including permanent 3% COLA benefits (3% COLA for all) is 20.65%. This is greater than the current combined member/employer contribution rate of 16.00%. Therefore, based on the Board’s practice to advance fund the COLA before providing a Stabilization Reserve Account contribution, the recommended annual Stabilization Reserve Account contribution is 0.00% effective July 1, 2010.

The following graph illustrates the SRA contribution percentages for the last nine years and the recommended percentage for 2010.

**Recommended SRA Contribution Rates**  
 as recommended in the Valuation as of January 1,



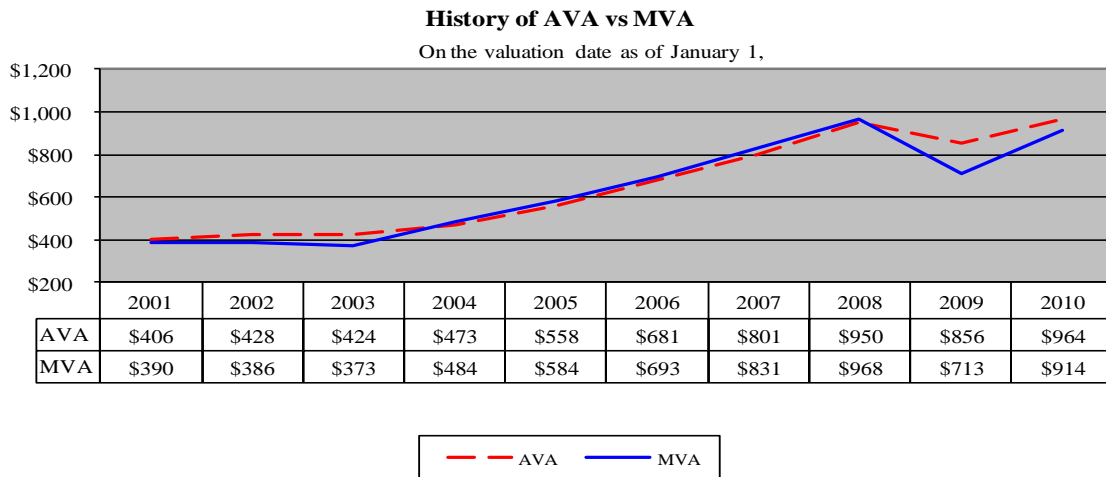
## Financial Data and Experience

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 SWDB. FPPA provided GRS with a summary of Plan assets as of January 1, 2010. The market value of assets (MVA) reported was \$914.2 million as of January 1, 2010, as compared to \$713.4 million as of January 1, 2009. 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 \$856.1 million to \$963.5 million since the prior valuation. This increase was less than expected and produced a loss of approximately \$24.2 million.

The valuation assumes investment returns of 8.0% each year. As indicated by item 7b of Table 9, the estimated return on mean market value was 19.93% in 2009; higher than the -29.67% return in 2008, and higher than the 8.0% assumption. The actuarial asset value returned 6.12%, compared to -13.67% in 2008. This difference in the estimated return on market value and actuarial value illustrates the smoothing effect of the asset valuation method.



Note: FPPA adopted policy to smooth assets effective 1/1/2000.

### Member Data

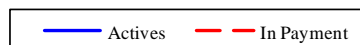
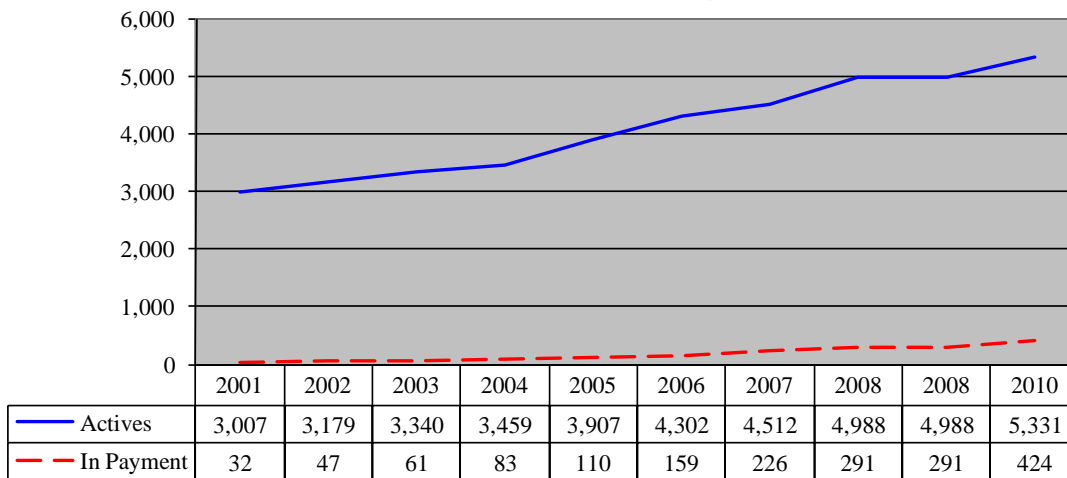
FPPA supplied member data as of January 1, 2010. While we did not audit this data, we did perform various tests to ensure that it was internally consistent, consistent with the prior year’s data, and was reasonable overall. Information provided for active members includes: name, member ID, sex, a code 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 in Section IV includes a summary of the benefit provisions for the SWDB. Highlights include:

- Normal Retirement
  - o Eligibility: Age 55 and 25 years of service
  - o Annual Benefit: 2% of average of the member's highest three years base salary for first 10 years of service credit and 2.5% for each year after 10.
  - 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 of 8% of base salary.
- 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.

### Actuarial Methods and Assumptions

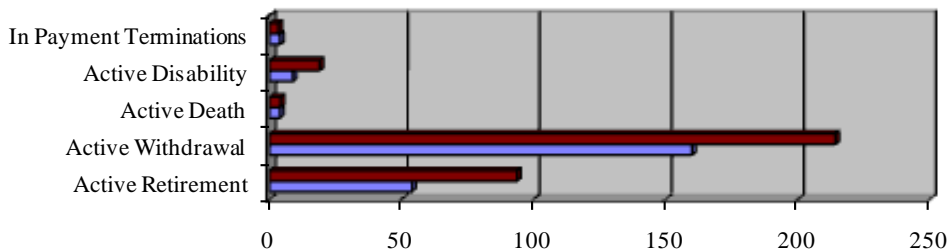
The valuation was prepared using the Entry Age Normal Method. This is the same funding method that has been used in prior years. The asset valuation method is an actuarial value based on a three-year weighted moving average of expected and actual market value of assets. See Appendix A for a complete 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 of Section IV. The economic assumptions include investment return and salary increases. Non-economic assumptions include rates of mortality, disability, and separation. There have been no changes to the actuarial assumptions since the prior valuation.

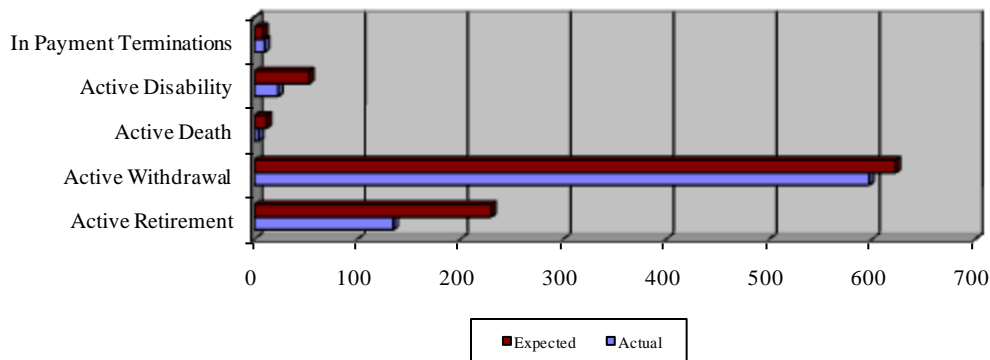
The results of the actuarial valuation are dependent on the actuarial assumptions used. Actual results can and almost certainly will differ, as actual experience deviates from the assumptions.

For FY2009, the actual salary increases were 98.6% of expected. The following charts provide a comparison of the actual experience versus the expected experience for selected demographic assumptions.

Demographic Experience - 2009



Demographic Experience - 2007 - 2009



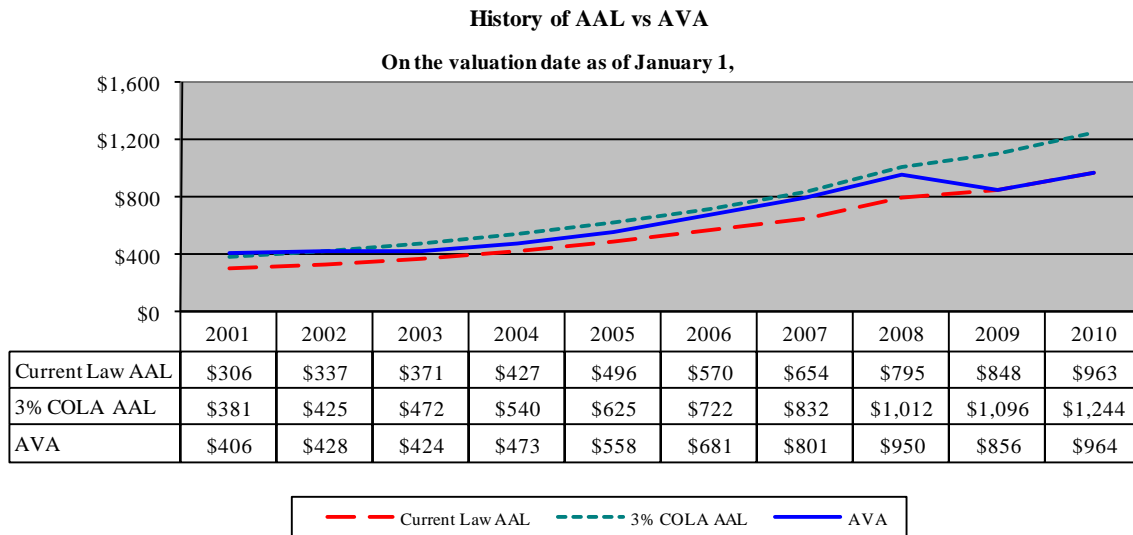
The In Payment Terminations above include deaths and benefits that were canceled for other reasons.

### 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 eventually will have to be 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.

Employers that participate in cost-sharing multiple-employer defined benefit pension plans are required to recognize pension expenditures/expense equal to the employer's contractually required contributions and a liability for unpaid contributions. For FPPA, the required employer contribution for 2010 is 8% of pay, estimated to be \$29,974,266 for the plan year ending December 31, 2010. (This is computed as 8% of pay times the estimated payroll of \$374,678,328).



The AAL referenced above is the actuarial accrued liability and the AVA is the actuarial value of assets.

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## **SECTION III**

### **TABLES**

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**Development of Contribution Rate**

	January 1, 2010			January 1, 2009		
	(1)	(2)	(3)	(4)	(5)	(6)
	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. Covered payroll (prior year)	\$ 348,253,545	\$ 348,253,545	\$ 348,253,545	\$ 322,971,268	\$ 322,971,268	\$ 322,971,268
2. Covered payroll adjusted for one-year's pay increase	\$ 374,678,328	\$ 374,678,328	\$ 374,678,328	\$ 348,485,609	\$ 348,485,609	\$ 348,485,609
3. Present value of future pay	\$ 3,740,559,101	\$ 3,740,559,101	\$ 3,740,559,101	\$ 3,539,446,666	\$ 3,539,446,666	\$ 3,539,446,666
4. Total normal cost rate	12.66%	12.66%	16.51%	12.64%	12.64%	16.49%
5. Actuarial accrued liability for active members						
a. Present value of future benefits for active members	\$ 1,164,735,702	\$ 1,164,735,702	\$ 1,534,948,247	\$ 1,065,738,127	\$ 1,065,738,127	\$ 1,404,896,883
b. Less: present value of future normal costs	(470,341,482)	(470,341,482)	(613,936,792)	(444,217,580)	(444,217,580)	(580,002,031)
c. Actuarial accrued liability (a - b)	\$ 694,394,220	\$ 694,394,220	\$ 921,011,455	\$ 621,520,547	\$ 621,520,547	\$ 824,894,852
6. Total actuarial accrued liability for:						
a. Retirees and beneficiaries	\$ 145,688,264	\$ 150,058,912	\$ 195,092,377	\$ 114,919,047	\$ 118,366,618	\$ 154,541,397
b. Inactive members (terminated vested and nonvested)	19,702,062	19,702,062	24,856,259	20,084,482	20,084,482	25,465,772
c. Active members (Item 5c)	694,394,220	694,394,220	921,011,455	621,520,547	621,520,547	824,894,852
d. Stabilization reserve account	103,516,306	103,516,306	103,516,306	91,297,046	91,297,046	91,297,046
e. Total	\$ 963,300,852	\$ 967,671,500	\$ 1,244,476,397	\$ 847,821,122	\$ 851,268,693	\$ 1,096,199,067
7. Actuarial value of assets	\$ 963,500,681	\$ 963,500,681	\$ 963,500,681	\$ 856,090,014	\$ 856,090,014	\$ 856,090,014
8. Unfunded actuarial accrued liability (UAAL)/(surplus) (Item 6e - Item 7)	\$ (199,829)	\$ 4,170,819	\$ 280,975,716	\$ (8,268,892)	\$ (4,821,321)	\$ 240,109,053
9. Contribution requirement						
a. UAAL amortization payment as % of pay	0.00%	0.06%	4.14%	(0.13%)	(0.08%)	3.80%
b. Normal cost	12.66%	12.66%	16.51%	12.64%	12.64%	16.49%
c. Contribution requirement (a + b)	12.66%	12.72%	20.65%	12.51%	12.56%	20.29%

**Actuarial Present Value of Future Benefits**

	<u>1/1/2010</u>	<u>1/1/2009</u>
	(1)	(2)
A. Current Law		
1. Active members		
a. Retirement benefits	\$ 1,099,943,048	\$ 1,004,524,366
b. Deferred termination benefits	47,695,289	44,529,136
c. Refunds	13,713,051	13,574,214
d. Death benefits	3,384,314	3,110,411
e. Total	<u>\$ 1,164,735,702</u>	<u>\$ 1,065,738,127</u>
2. Members in pay status		
a. Service retirements	\$ 143,998,652	\$ 113,350,797
b. Beneficiaries	1,689,612	1,568,250
c. Total	<u>\$ 145,688,264</u>	<u>\$ 114,919,047</u>
4. Inactive members		
a. Vested terminations	\$ 14,861,621	\$ 15,482,975
b. Nonvested terminations	4,840,441	4,601,507
c. Total	<u>\$ 19,702,062</u>	<u>\$ 20,084,482</u>
5. Stabilization Reserve Account	\$ 103,516,306	\$ 91,297,046
6. Total actuarial present value of future benefits	\$ 1,433,642,334	\$ 1,292,038,702
B. With Permanent 3% COLA		
1. Active members		
a. Retirement benefits	\$ 1,452,398,904	\$ 1,327,097,325
b. Deferred termination benefits	68,552,167	64,231,472
c. Refunds	9,371,557	9,316,399
d. Death benefits	4,625,619	4,251,687
e. Total	<u>\$ 1,534,948,247</u>	<u>\$ 1,404,896,883</u>
2. Members in pay status		
a. Service retirements	\$ 192,802,222	\$ 152,379,518
b. Beneficiaries	2,290,155	2,161,879
c. Total	<u>\$ 195,092,377</u>	<u>\$ 154,541,397</u>
4. Inactive members		
a. Vested terminations	\$ 20,015,818	\$ 20,864,265
b. Nonvested terminations	4,840,441	4,601,507
c. Total	<u>\$ 24,856,259</u>	<u>\$ 25,465,772</u>
5. Stabilization Reserve Account	\$ 103,516,306	\$ 91,297,046
6. Total actuarial present value of future benefits	\$ 1,858,413,189	\$ 1,676,201,098

**Analysis of Normal Cost by Component**

	<u>1/1/2010</u>	<u>1/1/2009</u>
	(1)	(2)
A. Current Law		
1. Retirement benefits	11.06%	11.04%
2. Deferred termination benefits	0.88%	0.88%
3. Refunds	0.69%	0.69%
4. Death benefits	0.03%	0.03%
5. Total normal cost	<u>12.66%</u>	<u>12.64%</u>
B. With Permanent 3% COLA		
1. Retirement benefits	14.59%	14.57%
2. Deferred termination benefits	1.32%	1.32%
3. Refunds	0.56%	0.56%
4. Death benefits	0.04%	0.04%
5. Total normal cost	<u>16.51%</u>	<u>16.49%</u>

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

	1/1/2010	1/1/2009
	(1)	(2)
<b>A. Current Law</b>		
1. Unfunded actuarial accrued liability (UAAL) as of January 1 of prior year *	\$ (8,268,892)	\$ (154,614,363)
2. Total normal cost for year (Normal Cost % x actual payroll paid during year)	44,917,404	40,900,539
3. Non service purchase contributions during year ending December 31	(56,265,718)	(50,198,470)
4. Interest on UAAL for one year	(661,511)	(12,369,149)
5. Interest on Item 2 and Item 3 for one-half year	<u>(445,200)</u>	<u>(364,762)</u>
6. Expected UAAL as of January 1 (1 + 2 + 3 + 4 + 5)	\$ (20,723,917)	\$ (176,646,205)
7. Actual UAAL at end of year	\$ (199,829)	\$ (8,268,892)
8. Actuarial gain/(loss) for the period (6 - 7)	\$ (20,524,088)	\$ (168,377,313)
<b>SOURCE OF GAINS/(LOSSES)</b>		
9. Asset gain/(loss) (See Table 10)	\$ (24,227,970)	\$ (165,054,799)
10. Salary liability gain/(loss) for the period	\$ 2,856,572	\$ (1,386,472)
11. COLA Granted as of October 1 (1.35% in 2009, 2.90% in 2008)	\$ (1,551,407)	\$ (2,619,841)
12. Net liability gain/(loss) for the period (8 - 9 - 10 - 11)	\$ 2,398,717	\$ 683,800
<b>B. With Permanent 3% COLA</b>		
1. Unfunded actuarial accrued liability (UAAL) as of January 1 of prior year *	\$ 240,109,053	\$ 62,146,605
2. Total normal cost for year (Normal Cost % x actual payroll paid during year)	58,601,724	53,356,746
3. Non service purchase contributions during year ending December 31	(56,265,718)	(50,198,470)
4. Interest on UAAL for one year	19,208,724	4,971,728
5. Interest on Item 2 and Item 3 for one-half year	<u>91,643</u>	<u>123,901</u>
6. Expected UAAL as of January 1 (1 + 2 + 3 + 4 + 5)	\$ 261,745,426	\$ 70,400,510
7. Actual UAAL at end of year	\$ 280,975,716	\$ 240,109,053
8. Actuarial gain/(loss) for the period (6 - 7)	\$ (19,230,290)	\$ (169,708,543)
<b>SOURCE OF GAINS/(LOSSES)</b>		
9. Asset gain/(loss) (See Table 10)	\$ (24,227,970)	\$ (165,054,799)
10. Salary liability gain/(loss) for the period	\$ 3,843,991	\$ (1,786,344)
11. COLA Granted as of October 1 (1.35% in 2009, 2.90% in 2008)	\$ 1,896,164	\$ 90,339
12. Net liability gain/(loss) for the period (8 - 9 - 10 - 11)	\$ (742,475)	\$ (2,957,739)

**Analysis of Change in Calculated Contribution Rate**

	<u>1/1/2010</u>	<u>1/1/2009</u>
<b>A. Current Law</b>		
1. Recommended contribution rate as of last valuation	12.51%	9.98%
2. Change in contribution rate during year		
a. Change in normal cost	0.02%	0.01%
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	(0.20%)	(0.33%)
e. Recognition of prior asset losses (gains)	0.45%	(0.26%)
f. Actuarial (gain) loss from current year asset performance	(0.07%)	3.02%
g. Effect of payroll growth	0.00%	0.01%
h. COLA granted October 1, 2009	0.02%	0.05%
i. Resetting Funding Period to 30 Years	0.00%	0.00%
j. Actuarial (gain) loss from other liability sources	(0.07%)	0.03%
k. Total change	<u>0.15%</u>	<u>2.53%</u>
3. Recommended contribution rate as of this valuation	12.66%	12.51%
<b>B. With Permanent 3% COLA</b>		
1. Recommended contribution rate as of last valuation	20.29%	17.53%
2. Change in contribution rate during year		
a. Change in normal cost	0.02%	0.02%
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	0.24%	0.09%
e. Recognition of prior asset losses (gains)	0.44%	(0.31%)
f. Actuarial (gain) loss from current year asset performance	(0.07%)	3.02%
g. Effect of payroll growth	(0.13%)	(0.14%)
h. COLA granted October 1, 2009	(0.03%)	0.00%
i. Resetting Funding Period to 30 Years	(0.08%)	(0.08%)
j. Actuarial (gain) loss from other liability sources	(0.03%)	0.16%
k. Total change	<u>0.36%</u>	<u>2.76%</u>
3. Recommended contribution rate as of this valuation	20.65%	20.29%

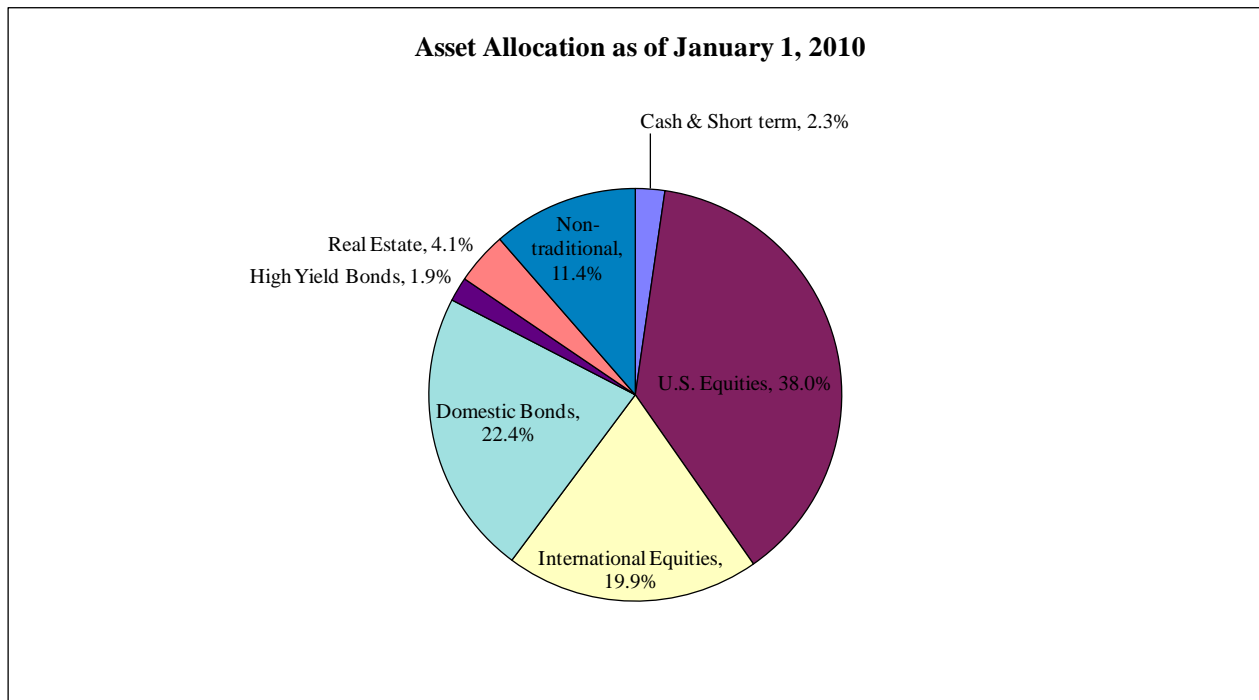
**Summary of Historical Valuation Results  
As of the Valuation Date January 1,**

	<u>2010</u>	<u>2009</u>	<u>2008</u>	<u>2007</u>	<u>2006</u>	<u>2005</u>	<u>2004</u>	<u>2003</u>	<u>2002</u>
1. Number of Members									
a. Active	5,331	5,197	4,988	4,512	4,302	3,907	3,459	3,340	3,179
b. Retired/DROP/Beneficiaries	424	353	291	226	159	110	83	61	47
c. Inactive members	507	530	524	282	274	237	126	108	104
d. Total	<u>6,262</u>	<u>6,080</u>	<u>5,803</u>	<u>5,020</u>	<u>4,735</u>	<u>4,254</u>	<u>3,668</u>	<u>3,509</u>	<u>3,330</u>
2. Covered payroll (prior year)	\$ 348,254	\$ 322,971	\$ 298,314	\$ 264,560	\$ 239,643	\$ 209,765	\$ 182,826	\$ 166,735	\$ 151,370
3. Average Compensation	\$ 65.3	\$ 62.1	\$ 59.8	\$ 58.6	\$ 55.7	\$ 53.7	\$ 52.9	\$ 49.9	\$ 47.6
4. Covered payroll adjusted for one-year's pay increase	\$ 374,678	\$ 348,486	\$ 322,441	\$ 283,518	\$ 257,072	\$ 224,988	\$ 189,359	\$ 172,626	\$ 156,809
5. Actuarial Value of Assets	\$ 963,501	\$ 856,090	\$ 950,114	\$ 801,427	\$ 681,193	\$ 557,950	\$ 473,007	\$ 424,089	\$ 428,389
6. Market Value of Assets	\$ 914,227	\$ 713,408	\$ 967,883	\$ 831,477	\$ 692,649	\$ 583,615	\$ 483,967	\$ 373,284	\$ 385,670
With Permanent 3% COLA									
7. Present Value of Benefits									
a. Retired/Beneficiaries	\$ 195,092	\$ 154,541	\$ 121,661	\$ 90,383	\$ 57,833	\$ 35,286	\$ 24,101	\$ 15,249	\$ 10,462
b. Terminations	24,856	25,466	25,074	20,375	19,897	18,091	14,052	11,350	10,831
c. Actives	1,534,948	1,404,897	1,280,709	969,178	874,063	765,316	658,996	610,906	543,984
d. Reserve Account	103,516	91,297	128,736	120,394	108,484	101,664	87,469	73,374	80,173
Total	<u>\$ 1,858,413</u>	<u>\$ 1,676,201</u>	<u>\$ 1,556,181</u>	<u>\$ 1,200,330</u>	<u>\$ 1,060,277</u>	<u>\$ 920,357</u>	<u>\$ 784,619</u>	<u>\$ 710,878</u>	<u>\$ 645,450</u>
8. Total Contribution									
a. Amount	\$ 77,370	\$ 70,703	\$ 56,526	\$ 43,431	\$ 40,117	\$ 36,459	\$ 31,928	\$ 28,855	\$ 23,305
b. Percent of Pay	20.65%	20.29%	17.53%	15.32%	15.61%	16.20%	16.86%	16.72%	14.86%
c. SRA Allocation	0.0%	0.0%	0.0%	0.7%	0.4%	0.0%	0.0%	0.0%	0.5%
8. Net Pension Obligation	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0

\$ amounts in '000s

**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 Ending	
	December 31, 2009 (1)	December 31, 2008 (2)
1. Market value of assets at beginning of year	\$ 713,408,345	\$ 967,883,077
2. Revenue for the year		
a. Contributions	\$ 68,550,470	\$ 52,585,187
b. Net investment income		
i. Interest	\$ (7,089,413)	\$ (7,089,413)
ii. Dividends	15,503,682	15,503,682
iii. Real estate	203,725	203,725
iv. Net change in accrued income	1,698,609	1,698,609
v. Unrealized gain/(loss)	(257,416,367)	(257,416,367)
vi. Realized gain/(loss)	404,084,696	(36,296,571)
vii. Deferred contribution earnings	324,189	324,189
viii. Fees and expenses	(7,118,274)	(7,118,274)
ix. Other income	(2,723,112)	(2,723,112)
c. Total revenue	<u>\$ 216,018,205</u>	<u>\$ (240,328,345)</u>
3. Expenditures for the year		
a. Refunds	\$ (1,926,954)	\$ (3,621,108)
b. Benefit payments	(13,271,623)	(10,525,279)
c. Identified Receipts	(765)	0
d. Total expenditures	<u>\$ (15,199,342)</u>	<u>\$ (14,146,387)</u>
4. Increase in net assets (Item 2c + Item 3d)	\$ 200,818,863	\$ (254,474,732)
5. Market value of assets at end of year (Item 1 + Item 4)	\$ 914,227,208	\$ 713,408,345

**Development of Actuarial Value of Assets**

	2010 (1)
1. Actuarial value as of January 1	\$ 856,090,014
a. Contributions	\$ 68,550,470
b. Identified receipts	(765)
c. Benefits paid	(13,271,623)
d. Refunds	(1,926,954)
e. Net cash flow	<u>53,351,128</u>
2. Expected actuarial value of assets as of December 31	\$ 980,062,388
3. Actual market value of assets as of December 31	\$ 914,227,208
4. Excess earnings/(shortfall)	\$ (65,835,180)
5. Gain/(loss) on SRA assets	<u>7,707,318</u>
6. Net asset gain/(loss) (Item 4 - Item 5)	\$ (73,542,498)
7. Excess earnings/(shortfall) recognized (33% x Item 6)	\$ (24,269,024)
8. Actuarial value of assets as of December 31 (Item 2 + Item 5 + Item 7)	\$ 963,500,681

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)	\$ 713,408,345	\$ 856,090,014
2. Contributions during FY09	68,550,470	68,550,470
3. Benefit payments made during FY09	(13,272,388)	(13,272,388)
4. Refunds of contributions during FY09	(1,926,954)	(1,926,954)
5. Investment return during FY09	<u>147,467,735</u>	<u>54,059,540</u>
6. Assets as of January 1, 2010 (B): (1 + 2 + 3 + 4 + 5)	914,227,208	963,500,681
7. Approximate rate of return on average invested assets		
a. Net investment income (I)	147,467,735	54,059,540
b. Estimated return based on $(2I / (A + B - I))$	19.93%	6.12%

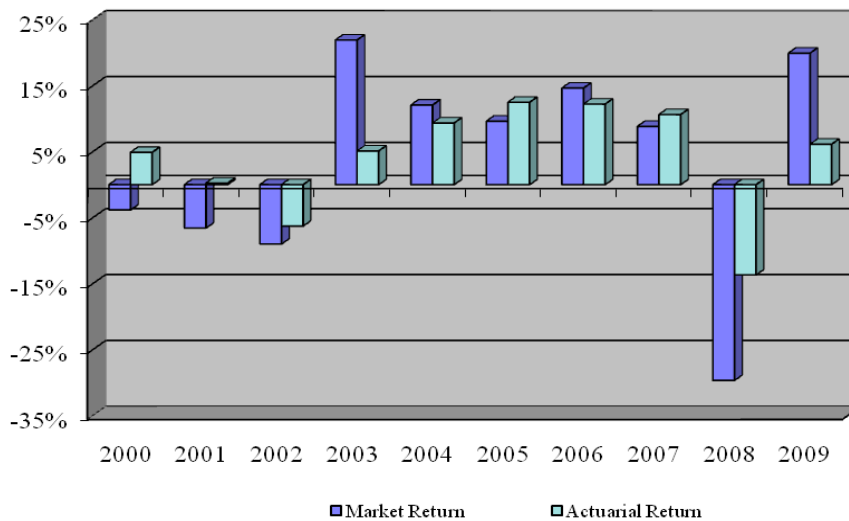
**Gain/(Loss) on Actuarial Value of Assets**

Item (1)	Valuation as of 1/1/2010 (2)	Valuation as of 1/1/2009 (3)
1. Actuarial assets, prior valuation	\$ 856,090,014	\$ 950,114,346
2. Total contributions since prior valuation	\$ 68,550,470	\$ 52,585,187
3. Benefits and refunds since prior valuation	\$ (15,199,342)	\$ (14,146,387)
4. Assumed net investment income at 8.0%		
a. Beginning assets	\$ 68,487,201	\$ 76,009,148
b. Contributions	2,689,268	2,062,942
c. Benefits and refunds paid	(596,278)	(554,970)
d. Total	\$ 70,580,191	\$ 77,517,120
5. Expected actuarial assets (1 + 2 + 3 + 4)	\$ 980,021,333	\$ 1,066,070,266
6. Actual actuarial assets, this valuation	\$ 963,500,681	\$ 856,090,014
7. Preliminary asset gain/(loss) (6 - 5)	\$ (16,520,652)	\$ (209,980,252)
8. Excess return on SRA	\$ 7,707,318	\$ (44,925,453)
9. Net asset gain (loss) since prior valuation (7 - 8)	\$ (24,227,970)	\$ (165,054,799)
	Loss	Loss

**History of Investment Return Rates**

For Fiscal Year Ending (1)	Market Value (2)	Actuarial Value (3)
December 31, 2000	(3.82%)	4.88%
December 31, 2001	(6.58%)	0.24%
December 31, 2002	(8.99%)	(6.28%)
December 31, 2003	21.92%	5.10%
December 31, 2004	12.06%	9.34%
December 31, 2005	9.62%	12.49%
December 31, 2006	14.63%	12.20%
December 31, 2007	8.82%	10.62%
December 31, 2008	(29.67%)	(13.67%)
December 31, 2009	19.93%	6.12%
Average Returns:		
Last 5 Years	2.89%	5.05%
Last 10 Years	2.57%	3.77%

**History of Asset Returns**



**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, 2001	\$ 405,598,652	\$ 305,500,209	\$ (100,098,443)	132.8%	\$ 141,154,007	(70.9%)
January 1, 2002	428,388,591	337,391,594	(90,996,997)	127.0%	156,808,953	(58.0%)
January 1, 2003	424,088,589	371,056,405	(53,032,184)	114.3%	172,625,858	(30.7%)
January 1, 2004	473,006,658	426,673,675	(46,332,983)	110.9%	189,359,234	(24.5%)
January 1, 2005	557,949,693	495,915,617	(62,034,076)	112.5%	217,752,582	(28.5%)
January 1, 2006	681,193,087	569,819,934	(111,373,153)	119.5%	246,693,626	(45.1%)
January 1, 2007	801,426,848	654,097,657	(147,329,192)	122.5%	271,906,902	(54.2%)
January 1, 2008	950,114,346	795,499,983	(154,614,363)	119.4%	312,857,166	(49.4%)
January 1, 2009	856,090,014	847,821,122	(8,268,892)	101.0%	337,918,774	(2.4%)
January 1, 2010	963,500,681	963,300,852	(199,829)	100.0%	363,265,902	(0.1%)

### History of Employer Contributions

<u>Valuation Date</u> (1)	<u>Annual Required Contribution Rate</u> (2)	<u>Actual Contribution Rate</u> (3)	<u>Percent</u> (4)
January 1, 2001	8.00%	8.00%	100%
January 1, 2002	8.00%	8.00%	100%
January 1, 2003	8.00%	8.00%	100%
January 1, 2004	8.00%	8.00%	100%
January 1, 2005	8.00%	8.00%	100%
January 1, 2006	8.00%	8.00%	100%
January 1, 2007	8.00%	8.00%	100%
January 1, 2008	8.00%	8.00%	100%
January 1, 2009	8.00%	8.00%	100%
January 1, 2010	8.00%	8.00%	100%

**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, 2001	\$ 75,909	\$ 9,134	\$ 220,457	\$ 405,599	100.0%	100.0%	100.0%
January 1, 2002	85,368	15,946	236,078	428,389	100.0%	100.0%	100.0%
January 1, 2003	95,830	19,925	255,301	424,089	100.0%	100.0%	100.0%
January 1, 2004	106,332	28,578	291,764	473,007	100.0%	100.0%	100.0%
January 1, 2005	130,910	40,029	324,977	557,950	100.0%	100.0%	100.0%
January 1, 2006	161,665	57,780	350,375	681,193	100.0%	100.0%	100.0%
January 1, 2007	177,180	82,227	394,691	801,427	100.0%	100.0%	100.0%
January 1, 2008	211,285	110,301	473,914	950,114	100.0%	100.0%	100.0%
January 1, 2009	232,742	135,004	480,075	856,090	100.0%	100.0%	100.0%
January 1, 2010	259,369	165,390	538,542	963,501	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)			
2000	\$ 22,182	\$ (345)	\$ (1,301)	\$ (362)	\$ (1,666)	\$ (3,673)	\$ 18,509	\$ 390,254	4.7%
2001	24,378	(565)	(1,838)	(167)	(1,507)	(4,076)	20,302	385,670	5.3%
2002	26,080	(865)	(1,720)	(170)	(1,730)	(4,484)	21,596	373,284	5.8%
2003	29,729	(1,304)	(1,862)	(117)	(1,896)	(5,180)	24,548	483,967	5.1%
2004	42,708	(2,005)	(1,694)	(83)	(2,113)	(5,895)	36,813	583,615	6.3%
2005	56,453	(3,129)	(2,889)	-	(4,152)	(10,171)	46,282	692,649	6.7%
2006	44,137	(5,114)	(4,061)	-	(5,089)	(14,264)	29,873	831,477	3.6%
2007	72,338	(7,261)	(4,698)	(51)	(6,428)	(18,438)	53,900	967,883	5.6%
2008	52,585	(10,525)	(3,621)	0	(7,118)	(21,265)	31,321	713,408	4.4%
2009	68,550	(13,272)	(1,927)	(1)	(7,119)	(22,318)	46,232	914,227	5.1%
2010*	59,949	(16,150)	(2,935)	0	(7,422)	(26,507)	33,442	1,022,145	3.3%
2011*	62,496	(21,353)	(3,060)	0	(7,737)	(32,150)	30,346	1,135,477	2.7%
2012*	65,152	(26,471)	(3,190)	0	(8,066)	(37,727)	27,426	1,254,838	2.2%

\* 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 16% and 4.25% annual payroll growth  
 Expected benefit payments are based on no 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

\$ amounts in '000s

**Net Pension Obligation**  
**GASB #27**

<b>Estimated Employer Required Contribution</b> (8% of projected payroll)	\$ 29,974,266
<b>Net Pension Obligation</b>	
1. Net Pension Obligation as of January 1, 2010	\$ 0
2. Estimated Employer Required Contribution (8% x pay)	29,974,266
3. Estimated Employer Contribution for 2010 plan year (8% x pay)	<u>29,974,266</u>
4. Estimated Net Pension Obligation as of December 31, 2010	\$ 0

**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-Yr 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> (3)
1. Active members			
a. Number	5,331	5,197	4,988
b. Total payroll	\$ 348,253,545	\$ 322,971,268	\$ 298,313,990
c. Average annual salary	65,326	62,146	59,806
d. Average age	40.1	39.6	39.3
e. Average service	9.9	9.5	9.2
2. Inactive members			
a. Vested	165	166	154
b. NonVested *	342	364	370
3. Service retirees			
a. Number	412	344	282
b. Total annual benefits	\$ 13,368,816	\$ 10,461,685	\$ 8,220,723
c. Average annual benefit	32,449	30,412	29,151
d. Average age	60.1	59.8	59.4
4. Beneficiaries and spouses			
a. Number	12	9	9
b. Total annual benefits	\$ 170,571	\$ 139,803	\$ 81,161
c. Average annual benefit	14,214	15,534	9,018
d. Average age	52.9	57.7	57.5

\* Includes members who have terminated and could elect a deferred benefit, but have not yet been processed

**Historical Summary of Active Member Data**

<u>Valuation Date</u>	<u>Active Count</u>	<u>Average Age</u>	<u>Average Svc</u>	<u>Covered Payroll</u>	<u>Average Annual Salary</u>	<u>Percent Change in Average Salary</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)
2000	2,768	37.5	8.6	\$ 114,579,015	\$ 41,394	1.59%
2001	3,007	37.7	8.6	136,306,027	45,330	9.51%
2002	3,179	38.0	8.8	151,369,850	47,616	5.04%
2003	3,340	38.4	9.1	166,734,883	49,921	4.84%
2004	3,459	38.9	9.4	182,825,786	52,855	5.88%
2005	3,907	39.0	9.1	209,765,329	53,690	1.58%
2006	4,302	39.1	9.1	239,642,543	55,705	3.75%
2007	4,512	39.3	9.2	264,560,282	58,635	5.26%
2008	4,988	39.3	9.2	298,313,990	59,806	2.00%
2009	5,197	39.6	9.5	322,971,268	62,146	3.91%
2010	5,331	40.1	9.9	348,253,545	65,326	5.12%

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

Attained Age	Years of Credited Service												Total Count & Avg. Comp.
	Less than 1 Count & Avg. Comp.	1-2 Count & Avg. Comp.	2-3 Count & Avg. Comp.	3-4 Count & Avg. Comp.	4-5 Count & Avg. Comp.	5-9 Count & Avg. Comp.	10-14 Count & Avg. Comp.	15-19 Count & Avg. Comp.	20-24 Count & Avg. Comp.	25-29 Count & Avg. Comp.	30-34 Count & Avg. Comp.	35 & Over Count & Avg. Comp.	
Under 25	30	39	21	4	3								97
		\$40,942	\$43,945	\$46,241	\$58,203								\$41,211
25-29	69	142	120	117	75	94	1						618
	\$39,815	\$44,447	\$46,275	\$53,870	\$58,056	\$61,989	\$71,660						\$50,433
30-34	44	91	104	103	101	332	63						838
	\$43,884	\$46,203	\$50,246	\$53,544	\$60,023	\$64,517	\$72,856						\$58,410
35-39	64	65	63	76	93	404	313	37					1,115
	\$48,297	\$45,481	\$51,551	\$57,942	\$61,995	\$65,243	\$72,665	\$80,518					\$64,166
40-44	35	41	53	58	57	252	276	177	25				974
	\$57,575	\$45,247	\$49,122	\$53,910	\$62,076	\$65,174	\$74,163	\$79,408	\$82,994				\$67,928
45-49	22	18	26	17	22	106	153	182	156	35			737
	\$61,396	\$45,618	\$51,784	\$61,358	\$59,727	\$65,490	\$72,799	\$77,770	\$85,342	\$85,287			\$73,824
50-54	15	10	12	11	17	54	69	84	145	151	42		610
	\$69,880	\$46,757	\$55,755	\$58,187	\$60,802	\$65,010	\$73,186	\$76,802	\$78,475	\$83,684	\$84,762		\$76,140
55-59	7	4	7	8	9	34	19	40	63	60	29		280
	\$69,458	\$52,699	\$54,150	\$55,913	\$61,943	\$70,177	\$71,594	\$72,991	\$77,650	\$84,156	\$77,956		\$74,817
60-64	2	2	2	1	5	15	7	7	8	1	5		55
	\$77,789	\$42,878	\$53,902	\$65,001	\$64,538	\$77,181	\$76,042	\$80,827	\$85,226	\$65,210	\$71,986		\$74,538
65 & Over			1	1			1	2	1	1			7
			\$43,000	90,865			\$105,972	73,446	76,922	67,684			\$75,905
Total	288	412	409	396	382	1,291	902	529	398	248	76		5,331
	\$48,414	\$44,926	\$49,139	\$55,100	\$60,531	\$65,085	\$73,239	\$78,019	\$81,452	\$83,885	\$81,324		\$65,326

Average:

Age: 40.1  
 Service: 9.9

Number of participants:

Males: 4,847  
 Females: 484

**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, 1994	3	\$ 22,458	1	\$ 4,740	10	\$ 78,559	17.56%	\$ 7,856
December 31, 1995	3	21,759	1	5,071	12	89,605	14.06%	7,467
December 31, 1996	8	54,955	1	568	19	137,627	53.59%	7,244
December 31, 1997	2	22,218	1	568	20	156,512	13.72%	7,826
December 31, 1998	5	61,039	0	0	25	253,185	61.77%	10,127
December 31, 1999	4	56,252	1	6592	28	311,906	23.19%	11,140
December 31, 2000	5	50,774	1	15,482	32	353,534	13.35%	11,048
December 31, 2001	16	374,072	1	3,697	47	735,257	107.97%	15,644
December 31, 2002	14	301,795	0	0	61	1,054,842	43.47%	17,292
December 31, 2003	24	606,147	2	21898	83	1,648,771	56.31%	19,865
December 31, 2004	27	825,955	0	0	110	2,506,161	52.00%	22,783
December 31, 2005	51	1,458,446	2	22713	159	3,941,893	57.29%	24,792
December 31, 2006	69	2,284,964	2	97,352	226	6,129,506	55.50%	27,122
December 31, 2007	66	2,201,387	1	29,009	291	8,301,884	35.44%	28,529
December 31, 2008	65	2,375,478	3	75,874	353	10,601,488	27.70%	30,033
December 31, 2009	75	2,981,664	4	43,765	424	13,539,387	27.71%	31,933

Includes beneficiaries of deceased members with a deferred benefit.

Summary of Members and Adjusted Payroll by Employer

City Code	City Name	Police		Fire		Total	
		No.	Earnings	No.	Earnings	No.	Earnings
5	ANTONITO	1	\$ 25,999	0	\$ 0	1	\$ 25,999
501	ARVADA FPD	0	0	98	6,178,126	98	6,178,126
9	AULT	6	235,297	0	0	6	235,297
12	BASALT	8	513,937	0	0	8	513,937
719	BASALT & RURAL FPD	0	0	5	280,501	5	280,501
13	BAYFIELD	4	190,376	0	0	4	190,376
718	BENNETT FPD #7	0	0	5	306,751	5	306,751
503	BERTHOUD FPD	0	0	16	1,007,773	16	1,007,773
7331	BIG SANDY FPD	0	0	1	70,441	1	70,441
580	BLACK FOREST RESCUE	0	0	10	589,766	10	589,766
723	BLACK HAWK	0	0	18	1,134,348	18	1,134,348
18	BLANCA	1	29,969	0	0	1	29,969
726	BOULDER MOUNTAIN AUTH	0	0	4	186,569	4	186,569
730	BOULDER RURAL FPD	0	0	13	789,384	13	789,384
326	BRIGHTON	48	2,705,113	0	0	48	2,705,113
26	BRIGHTON (GREATER) FPD	0	0	55	3,467,839	55	3,467,839
28	BRUSH	11	426,329	0	0	11	426,329
7247	BURNING MOUNTAINS FPD ADMIN	0	0	3	211,170	3	211,170
33	CANON CITY	16	865,478	0	0	16	865,478
740	CARBONDALE AND RURAL FPD ADMIN	0	0	16	1,043,828	16	1,043,828
35	CASTLE ROCK	0	0	67	4,301,251	67	4,301,251
37	CENTER	5	146,334	0	0	5	146,334
749	CHAFFEE COUNTY FPD	0	0	1	63,357	1	63,357
754	CIMARRON HILLS FPD	0	0	11	657,287	11	657,287
7125	CLEAR CREEK AUTHORITY	0	0	1	63,242	1	63,242
509	CLIFTON FPD ADMIN	0	0	14	850,558	14	850,558
44	COLLBRAN MARSHALS	1	37,091	0	0	1	37,091
45	COLORADO SPRINGS	108	5,959,435	93	6,197,829	201	12,157,264
46	COLUMBINE VALLEY	6	311,088	0	0	6	311,088
764	COPPER MOUNTAIN	0	0	15	870,614	15	870,614
765	CORTEZ FPD	0	0	2	105,320	2	105,320
774	CRIPPLE CREEK	0	0	13	846,223	13	846,223

**Fire and Police Pension Association  
Statewide Defined Benefit Plan  
Actuarial Valuation – January 1, 2010**

*Section III  
Table 21*

City Code	City Name	Police		Fire		Total	
		No.	Earnings	No.	Earnings	No.	Earnings
506	CUNNINGHAM FPD	0	\$ 0	76	\$ 4,644,454	76	\$ 4,644,454
57	DACONO	8	463,003	0	0	8	463,003
58	DEBEQUE	2	110,554	0	0	2	110,554
779	DEBEQUE FPD	0	0	3	163,559	3	163,559
62	DENVER	1,424	106,315,578	824	51,130,432	2,248	157,446,010
566	DONALD WESCOTT FPD	0	0	14	943,546	14	943,546
567	DURANGO & RESCUE AUTH	0	0	46	2,752,038	46	2,752,038
507	EAST GRAND FPD #4 ADMIN	0	0	5	326,074	5	326,074
795	EATON FPD ADMIN	0	0	4	319,003	4	319,003
73	EDGEWATER	0	0	1	74,742	1	74,742
74	ELIZABETH	4	205,496	0	0	4	205,496
7102	ELK CREEK FPD	0	0	8	434,772	8	434,772
75	EMPIRE	1	43,191	0	0	1	43,191
76	ENGLEWOOD	0	0	48	2,990,077	48	2,990,077
77	ERIE	19	1,125,902	0	0	19	1,125,902
79	EVANS	7	442,458	16	1,075,614	23	1,518,072
510	FAIRMOUNT FPD	0	0	20	1,392,567	20	1,392,567
80	FAIRPLAY MARSHALLS	3	134,819	0	0	3	134,819
7112	FALCON FPD	0	0	18	989,920	18	989,920
81	FEDERAL HEIGHTS	21	1,049,185	14	1,018,544	35	2,067,729
85	FLORENCE	7	290,680	0	0	7	290,680
7222	FOOTHILLS & RESCUE	0	0	3	145,742	3	145,742
7123	FORT LUPTON FPD	0	0	10	647,429	10	647,429
90	FOWLER	2	48,940	0	0	2	48,940
511	FRANKTOWN FPD	0	0	19	1,249,320	19	1,249,320
92	FREDERICK	16	912,183	0	0	16	912,183
592	FREDERICK STONE FPD ADMIN	0	0	33	2,095,034	33	2,095,034
93	FRISCO	13	750,614	0	0	13	750,614
7136	GENESEE	0	0	2	144,565	2	144,565
97	GEORGETOWN	3	165,702	0	0	3	165,702

City Code	City Name	Police		Fire		Total	
		No.	Earnings	No.	Earnings	No.	Earnings
98	GILCREST	2	\$ 76,618	0	\$ 0	2	\$ 76,618
7147	GRAND FPD #1	0	0	1	71,851	1	71,851
7149	GRAND LAKE FPD	0	0	6	369,271	6	369,271
7150	GRAND VALLEY FPD	0	0	14	939,865	14	939,865
7153	GREATER EAGLE FPD	0	0	17	1,045,364	17	1,045,364
512	GREEN MTN FALLS/CHIPITA	0	0	1	105,538	1	105,538
7156	GYPSUM FPD	0	0	5	336,006	5	336,006
7158	HARTSEL FPD	0	0	1	45,254	1	45,254
115	HAXTUN	3	201,462	0	0	3	201,462
119	HOLYOKE	4	227,803	0	0	4	227,803
7176	HUDSON FPD	0	0	1	65,122	1	65,122
124	HUGO	3	118,650	0	0	3	118,650
125	IDAHO SPRINGS	7	321,847	0	0	7	321,847
126	IGNACIO	7	338,126	0	0	7	338,126
7191	JEFFERSON-COMO FPD	0	0	4	242,792	4	242,792
129	JOHNSTOWN	13	861,256	0	0	13	861,256
7193	JOHNSTOWN FPD	0	0	4	263,653	4	263,653
7198	KIOWA FPD	0	0	3	227,009	3	227,009
136	KREMMLING	4	249,799	0	0	4	249,799
138	LA JARA	3	90,912	0	0	3	90,912
144	LA SALLE	5	240,459	0	0	5	240,459
7211	LA SALLE FPD	0	0	2	143,828	2	143,828
146	LA VETA	3	94,460	0	0	3	94,460
137	LAFAYETTE	30	1,602,961	16	967,368	46	2,570,329
593	LAKE DILLON FPD	0	0	36	2,358,085	36	2,358,085
263	LAKESIDE	4	181,332	0	0	4	181,332
141	LARKSPUR FPD ADMIN	0	0	21	1,433,280	21	1,433,280
145	LAS ANIMAS	4	140,482	0	0	4	140,482
147	LEADVILLE	6	215,766	10	596,180	16	811,946
574	LEFTHAND FPD	0	0	1	33,450	1	33,450

**Fire and Police Pension Association  
Statewide Defined Benefit Plan  
Actuarial Valuation – January 1, 2010**

*Section III  
Table 21*

City Code	City Name	Police		Fire		Total	
		No.	Earnings	No.	Earnings	No.	Earnings
149	LITTLETON	0	\$ 0	104	\$ 7,088,383	104	\$ 7,088,383
150	LOCHBUIE	7	295,708	0	0	7	295,708
268	LONE TREE	43	2,920,238	0	0	43	2,920,238
578	LOS PINOS FPD ADMIN	0	0	25	1,542,697	25	1,542,697
7226	LOWER VALLEY FPD	0	0	5	401,123	5	401,123
7227	LYONS FPD	0	0	1	37,700	1	37,700
157	MANITOU SPRINGS	15	589,875	6	386,672	21	976,547
163	MILLIKEN	7	407,327	0	0	7	407,327
7237	MILLIKEN FPD	0	0	6	428,159	6	428,159
537	MONTROSE FPD	0	0	29	1,777,436	29	1,777,436
170	MOUNTAIN VIEW	1	39,680	0	0	1	39,680
516	MOUNTAIN VIEW FPD	0	0	66	4,472,396	66	4,472,396
7246	NEDERLAND FPD	0	0	3	163,721	3	163,721
7251	NORTH FORK FPD	0	0	1	59,404	1	59,404
532	NORTH METRO RESCUE ADMIN	0	0	98	6,555,906	98	6,555,906
7253	NORTH ROUTT COUNTY	0	0	1	43,469	1	43,469
517	NORTH WASHINGTON FPD	0	0	55	3,366,375	55	3,366,375
7255	NORTHEAST TELLER COUNTY	0	0	15	953,025	15	953,025
7259	NORTH-WEST FPD ADMIN	0	0	7	376,614	7	376,614
179	OAK CREEK	1	70,984	0	0	1	70,984
7263	OAK CREEK FPD	0	0	3	169,630	3	169,630
180	OLATHE	4	128,016	0	0	4	128,016
588	PAGOSA FPD	0	0	7	503,105	7	503,105
188	PAGOSA SPRINGS	9	391,759	0	0	9	391,759
189	PALISADE	6	271,710	2	143,558	8	415,268
190	PALMER LAKE	3	123,459	0	0	3	123,459
192	PAONIA	5	329,453	0	0	5	329,453
106	PARACHUTE	6	294,425	0	0	6	294,425
191	PARKER	59	3,960,605	0	0	59	3,960,605
7281	PEYTON FPD	0	0	1	39,304	1	39,304

City Code	City Name	Police		Fire		Total	
		No.	Earnings	No.	Earnings	No.	Earnings
7285	PLATTE CANYON FPD	0	\$ 0	7	\$ 480,734	7	\$ 480,734
7287	PLATTE VALLEY FPD	0		3	205,365	3	205,365
196	PLATTEVILLE	7	298,394	0		7	298,394
513	PLATTEVILLE/GILCREST FPD ADMIN	0		10	665,226	10	665,226
7289	PLEASANT VIEW METRO	0		5	300,953	5	300,953
199	PUEBLO	186	12,282,748	121	7,688,803	307	19,971,551
519	PUEBLO RURAL FPD	0		29	1,918,703	29	1,918,703
7294	PUEBLO W. METRO	0		18	1,237,963	18	1,237,963
7298	RATTLESNAKE FPD	0		2	114,326	2	114,326
521	RED WHITE & BLUE FPD	0		51	3,047,739	51	3,047,739
7306	RIFLE FPD	0		20	1,333,551	20	1,333,551
752	ROCKY MOUNTAIN FPD	0		33	1,946,869	33	1,946,869
7314	RYE FPD ADMIN	0		7	511,730	7	511,730
542	SABLE-ALTURA FPD	0		5	337,207	5	337,207
213	SALIDA	15	676,767	10	625,048	25	1,301,815
215	SANFORD	1	28,700	0		1	28,700
222	SILT	7	335,849	0		7	335,849
524	SNOWMASS-WILDCAT FPD ADMIN	0		10	648,802	10	648,802
525	SOUTH ADAMS COUNTY FPD ADMIN	0		8	542,687	8	542,687
7339	SOUTH FORK	1	44,990	0		1	44,990
7340	SOUTHEAST WELD FPD	0		2	125,387	2	125,387
548	SOUTHERN PARK COUNTY FPD	0		1	44,563	1	44,563
229	SPRINGFIELD	4	296,635	0		4	296,635
231	STEAMBOAT SPRINGS	0		23	1,539,732	23	1,539,732
232	STERLING	21	850,559	15	1,021,353	36	1,871,912
82	STONE MARSHALLS	21	1,183,539	0		21	1,183,539
7349	STRATMOOR HILLS FPD	0		5	311,121	5	311,121
233	STRATTON	1	35,940	0		1	35,940
545	TELLURIDE FPD ADMIN	0		8	464,445	8	464,445
238	THORNTON	0		14	864,456	14	864,456

**Fire and Police Pension Association  
Statewide Defined Benefit Plan  
Actuarial Valuation – January 1, 2010**

*Section III  
Table 21*

City Code	City Name	Police		Fire		Total	
		No.	Earnings	No.	Earnings	No.	Earnings
2557	TRI-LAKES MONUMENT FPD ADMIN	0	\$ 0	39	\$ 2,356,999	39	\$ 2,356,999
240	TRINIDAD	0	0	11	791,911	11	791,911
5107	UNION COLONY RESCUE	0	0	90	5,526,382	90	5,526,382
595	UPPER PINE RIVER FPD ADMIN	0	0	26	1,601,661	26	1,601,661
534	WEST METRO FPD ADMIN	0	0	106	7,128,521	106	7,128,521
7375	WEST ROUTT FPD	0	0	2	136,758	2	136,758
252	WESTMINSTER	0	0	109	7,049,717	109	7,049,717
7381	WHEAT RIDGE FPD	0	0	4	248,168	4	248,168
254	WIGGINS	2	64,464	0	0	2	64,464
257	WINDSOR	20	1,252,430	0	0	20	1,252,430
7384	WINDSOR SEVERANCE FPD	0	0	26	1,727,651	26	1,727,651
260	WRAY	6	250,287	0	0	6	250,287
262	YUMA	7	305,587	0	0	7	305,587
Totals		2,308	\$ 156,196,812	3,023	\$ 192,056,733	5,331	\$ 348,253,545

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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, for members with more than 25 years of service

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% .

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 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. Allocation to SRA

The SRA contribution rate is determined annually based on the normal cost plus amortization of unfunded liability (surplus). The excess of sixteen percent contributions over the actuarial requirement is available as the SRA contribution rate. The Board has the authority and responsibility to choose the SRA rate. Other considerations may be evaluated such as:

1. Investment performance subsequent to the actuarial valuation
2. Potential future plan changes under consideration
3. Stability of SRA
4. Projections of future SRA contributions

F. Changes to the assumptions:

There was a change in the method used in determining the actuarial value of assets since the prior valuation. The new method allows the aggregation of excess returns or shortfalls before the three year recognition versus the old method of recognizing each year's gain or loss over a closed three year period. This change was immaterial to the results of this valuation.

## SUMMARY OF BENEFIT PROVISIONS

1. Effective Date and Authority: The Fire and Police Pension Association Plan (FPPA) was established January 1, 1980. The SWDB is a defined benefit plan for Colorado Fire and Police employees hired on or after April 8, 1978.
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 Defined Benefit Plan is a qualified governmental defined benefit 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 [31-31-102]. As of August 1, 2003, the Plan may include clerical and other personnel from fire districts whose services are auxiliary to fire protection.

Also included are employees of any employer that covers members under the federal Social Security Act or any county that chooses to affiliate with FPPA and that covers salaried employees whose duties are directly involved with the provision of law enforcement or fire protection as certified by the county under the federal Social Security Act [31-31-704]. This supplemental plan provides one half the benefits provided by the full SWDB plan.

6. Contributions: Members of this fund and their employers are currently each contributing at the rate of 8% of base salary [31-31-402]. Contributions from members and employers of affiliated social security employers are 4% of base salary for a total contribution rate of 8% [31-31-704.6].

Contributions from members and employers of plans re-entering the system are established by resolution and approved by the FPPA Board of Directors.

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. [Rule 101.05].
8. Highest Average Salaries (HAS): The average of the member's highest three calendar years’ annual base salaries.
9. Normal Retirement
  - a. Eligibility: Currently, all members are eligible for retirement on or after age 55 if they have credit for 25 years of service [31-31-403].
  - b. Annual Benefit: The annual Normal Retirement Benefit shall be 2% of the average of the member’s highest three years base salary for each year of credited service up to ten years plus 2.5% for each year thereafter [31-31-403 and Resolution 2000-4; Amendment One]. The benefit for members of affiliated social security employers will be reduced by the amount of social security income the member receives annually, calculated as if the social security benefit started as of age 62 for benefits prior to 2007 [31-31-704]. Beginning January 1, 2007, members of affiliated social security employers will participate in the FPPA supplemental social security program which will provide benefits equal to 1% of the average of the member’s highest three years base salary for each year of credited service up to ten years plus 1.25% for each year thereafter [31-31-704.6].
  - c. Payment Form: Benefits are paid as a monthly life annuity. Optional forms of payment are available; see below.

10. Early Retirement

- a. Eligibility: A member shall be eligible for an Early Retirement Benefit after completion of thirty years of service or attainment of age 50.
- b. Annual Benefit: The Early Retirement Benefit shall be the Normal Retirement Benefit reduced on an actuarially equivalent basis [31-31-403].

11. Deferred Retirement

- a. Annual Benefit: The Normal Retirement Benefit for members who continue to work after their normal retirement date will be increased on an actuarial equivalent basis for service after their Normal Retirement Date [31-31-403].

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 benefit, payable at age 55. [31-31-404]
- 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 [31-31-404]. The benefit for members of affiliated social security employers earned prior to January 1, 2007 will be reduced by the amount of social security income the member receives annually [31-31-704].
- c. Payment Form: The same as for Retirement above.
- d. Death Benefit before Retirement: Survivors of an active member who dies prior to retirement eligibility is entitled to receive the benefit described below in item 14. Survivors of an active or inactive member who is eligible for a Normal or Early retirement and who dies after leaving active service but before electing a payment option or receiving the first pension payment is entitled to receive a benefit according to payment Option 1, (100% survivor benefits). See item 15 below [31-31-403].
- e. Death Benefit after Retirement: Survivor benefits are paid according to the payment option elected by the member at the time of retirement [31-31-403].

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 future vested 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 on these contributions [31-31-404].

14. Death Benefit of Active Members

- a. Eligibility: Death must have occurred while an active or an inactive, non-retired member.
- b. Basic Benefit: Upon the death of a non-vested active, unmarried member with no spouse no dependent children, and no beneficiary, a refund of the member's contributions is paid to the member's estate. If the member was vested, single and had no dependent children and was not eligible for a Normal or Early retirement, a joint and survivor annuity may be paid to the beneficiary if greater than the refund [31-31-403]. The benefit for members of affiliated social security employers earned prior to January 1, 2007 will be reduced by the amount of social security income the member receives annually [31-31-704].
- c. Survivors (spouse or dependent children) of active members who die prior to retirement eligibility are covered by the benefits provided by the Statewide Death and Disability Plan.

15. Optional Forms of Payment: In addition to a life annuity, FPPA offers members these optional forms of payment on an actuarially equivalent:

- 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 member, 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 member, 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 to the higher of 3% or the CPI.
17. Stabilization Reserve Account: Annually, at the discretion of the Board of Directors, the difference between the combined member/employer contribution and the actuarially determined contribution rate may be allocated to the stabilization reserve account. Amounts set aside in the SRA are allocated to individual accounts for each new hire member. A member may receive the amounts in this individual account only upon election of normal, early, disability or vested retirement. If the cost of the defined benefit plan exceeds the combined member/employer contribution rate, funds from the SRA may be used to make up the shortfall [31-31-405, 31-31-406]. If a member leaves with less than five years of service, the SRA account is forfeited. If a member has more than five years of service and dies prior to retirement eligibility, then the SRA would be paid to the member's beneficiary or estate.
18. Deferred Retirement Option Plan: 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 contribution continues and it is credited to the DROP.

Effective January 1, 2003, 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**

A. Impact of 9% Member Contribution Rate

This analysis studies the impact of increasing the member rate by 1%. More contributions into the Plan would most importantly increase the sustainability of the Plan and decrease the probability of having to (1) roll back prior benefit enhancements, (2) increase the retirement age, or (3) mandatorily increase contribution. In addition, higher contributions would allow for higher cost of living increase over time. Based on the current contribution rate, we have estimated that the Plan could sustain a 1.25% annual cost of living increase. An increase in the member rate to 9% would increase this estimate to 1.62%.

Actuarial Results based on Current Law

Item (1)	Current Plan (2)	Proposed Plan (3)	Difference (4)
a. Unfunded Actuarial Accrued Liability/(Surplus)	\$ (199,829)	\$ (2,492,807)	\$ (2,292,978)
b. Calculated Contribution	12.66%	12.70%	0.08%

Actuarial Results based on a Permanent 3% COLA

Item (1)	Current Plan (2)	Proposed Plan (3)	Difference (4)
a. Unfunded Actuarial Accrued Liability/(Surplus)	\$ 280,975,716	\$ 278,975,352	\$ (2,000,364)
b. Calculated Contribution	20.65%	20.69%	0.04%

B. Impact of 10% Member Contribution Rate

This analysis studies the impact of increasing the member rate by 2%. More contributions into the Plan would most importantly increase the sustainability of the Plan and decrease the probability of having to (1) roll back prior benefit enhancements, (2) increase the retirement age, or (3) mandatorily increase contribution. In addition, higher contributions would allow for higher cost of living increase over time. Based on the current contribution rate, we have estimated that the Plan could sustain a 1.25% annual cost of living increase. An increase in the member rate to 10% would increase this estimate to 1.97%.

Actuarial Results based on Current Law

Item	Current Plan	Proposed Plan	Difference
(1)	(2)	(3)	(4)
a. Unfunded Actuarial Accrued Liability/(Surplus)	\$ (199,829)	\$ (4,899,871)	\$ (4,700,042)
b. Calculated Contribution	12.66%	12.76%	0.10%

Actuarial Results based on a Permanent 3% COLA

Item	Current Plan	Proposed Plan	Difference
(1)	(2)	(3)	(4)
a. Unfunded Actuarial Accrued Liability/(Surplus)	\$ 280,975,716	\$ 276,828,259	\$ (4,147,457)
b. Calculated Contribution	20.65%	20.73%	0.08%