

**CONSOLIDATED PLAN  
FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE STATE RETIREMENT SYSTEM  
ACTUARIAL VALUATION REPORT  
as of June 30, 2001**

**Consolidated Plan for Participating Local Districts  
of the Maine State Retirement System  
Actuarial Valuation Report**

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March 22, 2002

Board of Trustees  
Maine State Retirement System  
#46 State House Station  
Augusta, Maine 04333-0046

Dear Members of the Board:

At your request, we have conducted an actuarial valuation of the Consolidated Plan for Participating Local Districts of the Maine State Retirement System as of the June 30, 2001. The results of the valuation are contained in the following report.

The actuarial assumptions and methods used in this valuation are described in Appendix D. We believe that the assumptions used, in the aggregate, represent our best estimate of anticipated future experience of the plan. The assumptions and methods used in performing this valuation meet the parameters set for disclosure presented in the financial section by Government Accounting Standards Board (GASB) Statement No. 25, *Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans*.

We have relied, without audit, on employee census data and asset data provided by the Retirement System. We reviewed the census and asset data for reasonableness, and for consistency with the data provided for the last valuation.

The results contained in this report are only applicable to the 2003 fiscal year. Future years results may differ significantly.



Board of Trustees  
Maine State Retirement System  
March 22, 2002  
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I, Fiona Liston, am a Consulting Actuary for Milliman USA, and also a member of the American Academy of Actuaries and meet their Qualification Standards to render the actuarial opinion contained herein.

We hereby certify that, to the best of our knowledge, this report is complete and accurate, and has been prepared in accordance with generally recognized and accepted actuarial principles and practices as promulgated by the American Academy of Actuaries.

Sincerely,

Milliman USA

Jennifer R. Treasure  
Actuarial Assistant

Fiona E. Liston, F.S.A.  
Consulting Actuary

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**SECTION I**  
**BOARD SUMMARY**

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

**BOARD SUMMARY**

**Overview**

As of June 30, 2001, there were 228 participating local districts in the Consolidated Plan for Participating Local Districts (PLDs) of the Maine State Retirement System. This report presents the results of our June 30, 2001, actuarial valuation for this Plan. Comments on the findings of our valuation are presented below. Following our comments are detailed tables of the June 30, 2001, results for the Regular Plans and Special Plans that comprise the Consolidated Plan.

For the fifth year in a row, the Pooled Unfunded Actuarial Liability (PUAL) is negative as of this valuation date because, while investment returns were negative for the year ending June 30, 2001, they were on average greater than the investment return assumption of 8% over the last five years. The negative PUAL is translated into a reduction in the normal cost rates otherwise payable. The amount of the reduction varies by plan; however, mathematically, the result is a net employer contribution rate that is less than zero in all Regular Plans and all Special Plans.

When the 1999 actuarial valuation for the Plan indicated a net contribution rate less than zero, the Board, based on our recommendation and its own policy decisions, decided to slightly reduce the then-existing rates and to undertake an intensive study to determine whether the funding methodology then in place was the best approach given the Plan's well-funded status. The study examined several funding methodologies intended to manage the volatility associated with a well- or fully-funded plan and to address policy concerns related to employer contribution rates at or near zero.

We prepared and the Board examined multiple scenarios illustrating the application of selected funding approaches and their results. The Board ultimately decided on the methodology that establishes an employer contribution rate that is fixed within a given range of full-funded status ("base rate"), is incrementally adjusted when the funded status falls outside of the upper or lower limits of the range and, except when the Board identifies compelling circumstances dictating otherwise, is never less than a given minimum rate. The Board further decided that the base rate, representing the aggregate of the rates related to the various plans within the Consolidated Plan that reflect the payroll-weighted normal cost and pooled UAL contributions under each plan, be set at 3% of payroll, that the upper and lower limits of the range be set at 130% and 90% of full funding, respectively, that the factor for incremental adjustments when funded status falls above or below the range be set at 10% of the difference between the calculated rate and the rate

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

then in effect, and that the minimum base rate be set at 1% of payroll. As neither limit of the range is crossed in this current valuation, the base rate of 3% (which is the same as that set in the 2000 valuation) is in effect and the resulting rates for each plan in the Consolidated Plan are those shown in the chart in Section IV of this report.

In the following sections of the report we present detailed results on Plan Assets (Section II), Plan Liabilities (Section III), and Plan Contributions (Section IV). This report also contains four Appendices. Appendix A displays a list of the 228 PLDs that have entered the Plan and each PLD's benefit plan elections. Appendix B presents membership data and profiles and Appendix C provides a summary of benefit provisions of the plans within the Plan. Finally, an outline of all actuarial assumptions and procedures used in our valuation is contained in Appendix D.

**Valuation Comments**

**Assets**

As of June 30, 2001, the Plan had assets, when measured on a market value basis, of \$1,307 million as compared to \$1,443 million as of June 30, 2000.

On an actuarial basis, using a method which smooths market fluctuations, the assets were valued at \$1,381 million on June 30, 2001, as compared to \$1,336 million as of June 30, 2000. The components of this change, in millions, are:

<b>Actuarial</b>		<b>Market</b>
+ 34	employer and member contributions	+ 34
- 65	payment of benefits and expenses	- 65
+ 107	investment return per 8.0% assumption	+ 115
<u>- 31</u>	actuarial investment loss (actuarial rate of return @ positive 5.8%)	
	market investment loss (market rate of return @ minus 7.8%)	<u>- 220</u>
45	total change in assets	- 136

Section II of this report presents more detailed information on System assets.

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

**Liabilities**

Throughout this report we discuss two types of liabilities: (1) Unfunded Actuarial Liabilities and (2) Unfunded Accrued Benefit Liabilities. In Section III, we discuss in detail the different uses and definitions of these terms.

In general, Actuarial Liabilities are calculated for purposes of determining future contributions. Since actuarial funding methods are used to determine costs for future retirement benefits, unfunded actuarial liabilities will include future increases in pay and service credits. The calculated amount of a plan's actuarial liabilities is directly dependent on the particular funding method used by the actuary; use of different funding methods would provide entirely different results, even when none of the factors (e.g., inflation, salary growth, etc.) is different. In this valuation, the "Entry Age Normal" method of funding was used.

As of June 30, 2001, the total actuarial liability for the Plan was \$1,366 million, as compared to \$1,290 million as of June 30, 2000. Comparing this to the actuarial value of assets of \$1,381 million produces an unfunded actuarial liability of (\$15) million. \$199 million has been allocated to PLDs as their Initial Unfunded Unpooled Actuarial Liabilities (IUUAL) (described in detail on page III-1). Thus the Plan has a pooled surplus of \$214 million as of June 30, 2001. As of June 30, 2000 the pooled surplus was \$242 million. The components of the decrease in the surplus, in millions, are as follows:

Pooled Unfunded Actuarial Liability, June 30, 2000	\$ (242)
decrease expected	2
decrease due to asset loss (investment return)	31
other (gains)/losses	<u>(5)</u>
Pooled Unfunded Actuarial Liability, June 30, 2001	\$ (214)

The unexpected increase in unfunded actuarial liabilities from "other (gains)/losses" of \$5 million is attributable to the difference between assumed and actual rates of pay increases, members retiring, terminating employment or dying

The second type of liability presented in this report is the Accrued Benefit Liability. This represents the liabilities for all benefits to be paid in the future, based on members' earnings and service credits as of the valuation date. The difference between this figure and plan assets represents the Unfunded Accrued Benefit Liability. As of June 30, 2001, there is no Unfunded Accrued Benefit Liability.

More detailed information on plan liabilities is presented in Section III.



**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
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**Contributions**

In Section IV of this report, we present detailed information on the development of Plan employer contribution rates, calculated as of June 30, 2001.

Employer contributions to the Plan consist of:

- a "normal cost contribution", for the portion of projected liabilities attributable to service of members during the year following the valuation date,
- a "pooled unfunded actuarial liability contribution", for the excess of projected liabilities allocated to service to date over assets on hand and receivables from PLDs entering the Plan with IUUALs.

The normal cost varies by plan and is shown in detail in Table IV-1.

The Pooled UAL (PUAL) rate for all employees changed from -11.9% of payroll as of June 30, 2000, to -10.1% of payroll as of June 30, 2001. The primary components of this change are shown below.

Pooled UAL Rate as of June 30, 2000	-11.9%
investment loss (due to lower than expected investment returns)	2.2%
other (gains)/losses	<u>-0.4%</u>
Pooled UAL Rate as of June 30, 2001	-10.1%

The PUAL rate as calculated above would normally be reflected in the FY 2003 contribution rates. The PUAL rate is allocated to the individual plans and is used to offset the individual plans' normal costs to develop the ultimate rate for each plan. Because the PUAL rate would completely offset the Normal Cost rate for the respective individual plans, resulting in rates less than zero, and because of our recommendation against that result, the ensuing study and the Board's decision not to establish zero rates, the rates summarized in Table IV-1 are based on the PUAL rate as developed in the 1999 valuation

Employees also contribute to the plans; rates are set out at Appendix C-1.

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
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**Members and Benefit Recipients**

The total active membership of the Consolidated Plan increased from 8,569 as of June 30, 2000 to 8,753 as of June 30, 2001. The number of benefit recipients increased from 6,169 as of June 30, 2000 to 6,289 on June 30, 2001. The number of vested inactive members increased from 284 on June 30, 2000 to 318 on June 30, 2001.

The total annual payroll of active members in all plans increased from \$238 million as of June 30, 2000 to \$248 million as of June 30, 2001. Appendix B of this report presents more detail regarding members and benefit recipients.

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

**SUMMARY OF PRINCIPAL RESULTS  
TOTAL**

	<u>June 30, 2001</u>	<u>June 30, 2000</u>
1. Participant Data		
Number of:		
Active Members	8,753	8,559
Retired Members	4,797	4,742
Beneficiaries of Retired Members	907	881
Survivors of Deceased Members	231	221
Disabled Members	354	325
Vested Deferred Members	318	284
Total Membership	15,360	15,012
 Annual Salaries of Active Members	 \$ 248,220,217	 \$ 237,703,542
 Annual Retirement Allowances for Retired Members, Beneficiaries, Survivors and Disabled Members	 \$ 58,880,257	 \$ 54,637,091
2. Assets and Liabilities		
<b>Funding Liability</b>		
Actuarial Liability	\$ 1,366,485,266	\$ 1,290,545,355
Actuarial Value of Assets	1,381,355,851	1,336,237,898
Unfunded Actuarial Liability	\$ (14,870,585)	\$ (45,692,543)
Unpooled Portion (IUUAL)	199,077,115	196,136,516
Pooled Portion (PUAL)	\$ (213,947,700)	\$ (241,829,059)
 Actuarial Liability Funding Ratio	 101%	 104%
<b>FASB Accounting Liability</b>		
Accrued Benefit Liability	\$ 1,126,532,468	\$ 1,062,048,069
Market Value of Assets	1,307,328,009	1,443,126,169
Unfunded Accrued Benefit Liability	\$ 0	\$ 0
 Accrued Benefit Funding Ratio	 116%	 136%

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

**SUMMARY OF PRINCIPAL RESULTS  
REGULAR PLANS AC, AN & BC**

	<u>June 30, 2001</u>	<u>June 30, 2000</u>
1. Participant Data		
Number of:		
Active Members	7,146	6,937
Retired Members	3,397	3,385
Beneficiaries of Retired Members	730	715
Survivors of Deceased Members	210	204
Disabled Members	282	252
Vested Deferred Members	311	279
Total Membership	12,076	11,772
 Annual Salaries of Active Members	 \$ 184,640,948	 \$ 175,722,439
 Annual Retirement Allowances for Retired Members, Beneficiaries, Survivors and Disabled Members	 \$ 33,944,059	 \$ 31,977,576
2. Assets and Liabilities		
<b>Funding Liability</b>		
Actuarial Liability	\$ 811,398,536	\$ 762,441,191
Actuarial Value of Assets	851,997,503	823,835,193
Unfunded Actuarial Liability	\$ (40,598,967)	\$ (61,394,002)
Unpooled Portion (IUUAL)	90,929,764	90,011,505
Pooled Portion (PUAL)	\$ (131,528,731)	\$ (151,405,507)
 Actuarial Liability Funding Ratio	 105%	 108%
<b>FASB Accounting Liability</b>		
Accrued Benefit Liability	\$ 634,382,036	\$ 594,039,938
Market Value of Assets	806,338,351	889,735,374
Unfunded Accrued Benefit Liability	\$ 0	\$ 0
 Accrued Benefit Funding Ratio	 127%	 150%

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
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**SUMMARY OF PRINCIPAL RESULTS  
SPECIAL PLANS 1C-4C & 1N-4N**

	<u>June 30, 2001</u>	<u>June 30, 2000</u>
1. Participant Data		
Number of:		
Active Members	1,607	1,622
Retired Members	1,400	1,357
Beneficiaries and Survivors	177	166
Survivors of Deceased Members	21	17
Disabled Members	72	73
Vested Deferred Members	<u>7</u>	<u>5</u>
Total Membership	3,284	3,240
Annual Salaries of Active Members	\$ 63,579,269	\$ 61,981,103
Annual Benefits to Recipients	\$ 24,936,198	\$ 22,659,515
2. Assets and Liabilities		
<b>Funding Liability</b>		
Actuarial Liability	\$ 555,086,730	\$ 528,104,164
Actuarial Value of Assets	<u>529,358,348</u>	<u>512,402,705</u>
Unfunded Actuarial Liability	\$ 25,728,382	\$ 15,701,459
Unpooled Portion (IUUAL)	<u>108,147,351</u>	<u>106,125,011</u>
Pooled Portion (PUAL)	\$ (82,418,969)	\$ (90,423,552)
Actuarial Liability Funding Ratio	95%	97%
<b>FASB Accounting Liability</b>		
Accrued Benefit Liability	\$ 492,150,432	\$ 468,008,131
Market Value of Assets	<u>500,989,658</u>	<u>553,390,795</u>
Unfunded Accrued Benefit Liability	\$ 0	\$ 0
Accrued Benefit Funding Ratio	102%	118%

# **SECTION II**

# **ASSETS**

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

**ASSETS**

In this section we present the value assigned to assets held by the Plan. These assets are valued on two different bases: the market value and the actuarial value.

**Market Value of Assets**

For accounting statement purposes, Plan assets are valued at current market values. Briefly stated, these values represent the "snapshot" or "cash-out" value of Plan assets as of the valuation date.

**Actuarial Value of Assets**

The market value of assets, representing a "liquidation" value of the funds, is not a good measure of the System's ongoing ability to meet its obligations. Ongoing funding requirements established using market values are subject to significant variability because of the volatility of market values.

As a consequence, actuarial valuations employ a technique for determining the actuarial value of assets which dampens the swings in market value. The specific technique adopted in this valuation recognizes in a given year one-third of the investment return that is in excess of the 8.00% actuarial assumption for investment return. The following is a step-by-step description:

- Step 1:** Determine the total yield on the investments of the Plan using the full investment return (including capital gains) measured by the difference in the actuarial value of the assets at the beginning of the fiscal year just ended (adjusted for cash flow) and the market value of assets at the end of the fiscal year. The calculation of this return is:
- (a) Increase in assets = Market value of assets at the end of the year minus actuarial value of assets at the end of the prior year adjusted for net cash flow for the current year (contributions minus benefit payments) [= \$32,043,521].
  - (b) Adjusted actuarial value of assets = Actuarial value of assets at the end of the prior year plus one-half of net cash flow for the current year [= \$7,026,413,050].
  - (c) Return = (a) (Increase in assets) divided by (b) (Adjusted actuarial value of assets) [= (0.46%)].

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
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- Step 2:** Calculate the excess of the actual return determined in Step 1 over the expected return for the same year according to the actuarial assumption (8.00%). [(0.46) - 8.00% = (8.46%)]
- Step 3:** Calculate an adjusted rate that is equal to the rate expected by the actuarial assumption (8.00%) plus one-third of the rate determined in Step 2. [8.00% + (1/3 x (8.46%)) = 5.18%]
- Step 4:** The actuarial value of assets equals the amount that would have existed if the actual return on the prior year's actuarial value of assets had been the theoretical rate determined in Step 3 applied to the prior year's actuarial value of assets.

This four-step process and the amounts shown are applied in aggregate to the total assets of the System. The portion allocated to the PLD Consolidated Retirement Plan is based on the reported market value applicable to the Plan.



**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
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**TABLE II - 1**

**ASSET ALLOCATION**

	<b>Regular Plans</b>	<b>Special Plans</b>	<b>Total</b>
Market Value	\$806,338,351	\$500,989,658	\$1,307,328,009
Actuarial Value	\$851,997,503	\$529,358,348	\$1,381,355,852

**SECTION III**  
**LIABILITIES**

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

**LIABILITIES**

**Actuarial Liabilities**

A fundamental principle in financing the liabilities of a retirement program is that the cost of its benefits should be related to the period in which benefits are earned, rather than to the period of benefit distribution. There are several methods currently used by actuaries to realize this principle.

The method used for this valuation is referred to as the "entry age normal actuarial cost method". Under this method, a level-percent-of-pay employer cost is determined for each plan that, along with member contributions, will pay for projected benefits at retirement for a new entrant into the plan. This cost is assumed applicable to all active plan members. The level percent of pay is called the normal cost rate, and the product of that rate and payroll is the normal cost.

The actuarial liability is that portion of the present value of projected benefits that will not be paid by future employer normal cost contributions and member contributions. If this liability is greater than the actuarial value of plan assets as of the same date, the difference is referred to as the unfunded actuarial liability.

Upon entering the Consolidated Plan, each PLD had its individual actuarial liability calculated. Each PLD having an Initial Unpooled Unfunded Actuarial Liability (IUUAL) will pay this liability on a scheduled basis, in addition to making the Normal Cost Contribution required by the plan(s) in which it participates. Each PLD having negative IUUALs (i.e., positive balance) will use this balance to pay part or all of its employer contribution. Each year the valuation for the Consolidated Plan will calculate the Pooled Unfunded Actuarial Liability (PUAL) of the Regular and of the Special Plans under the Plan, and adjust the employer contribution rates accordingly. Benefit improvements, actuarial gains and losses, and changes in actuarial assumptions and methodologies, if any, will have an effect on the total actuarial liabilities of the Regular and of the Special Plans under the Plan and on the portions of these that are unfunded. In Table III-1 we have summarized the actuarial liabilities as of June 30, 2001.

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
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**Accounting Statement Information**

Statement No. 35 of the Financial Accounting Standards Board requires that every pension plan disclose certain information regarding the status of the plan.

As directed by the above referenced accounting statements, the liabilities shown in Table III-2, Accrued Benefit Liabilities, do not include any projections for future creditable service and pay increases.

The Governmental Accounting Standards Board (GASB) released a new pronouncement (Statement No. 25) which replaced the disclosures formerly required by Statement No. 5. The figures shown in Table III-1 are suitable for the new Statement No. 25 disclosures.

Both types of present values of benefits are determined assuming that the plan is ongoing and members continue to terminate employment, retire, etc., in accordance with the actuarial assumptions.

All PLDs that enter the Consolidated Plan cease to be individual sponsors of a "Single-Employer Defined Benefit Pension Plan" and instead become participants in a "Cost-Sharing Multiple-Employer Defined Benefit Pension Plan". As such, the disclosures made by individual PLDs should reflect the assets and liabilities of the Regular and/or Special Plan(s) under the Consolidated Plan in which a PLD participates and not those of the PLD itself.

**TABLE III-1**  
**CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS**  
**OF THE MAINE STATE RETIREMENT SYSTEM**  
**June 30, 2001**

**ACTUARIAL LIABILITIES**

	<u>Regular Plans</u>	<u>Special Plans</u>	<u>Total</u>
1. Present Value of Benefits	\$ 1,042,045,479	\$ 638,017,577	\$ 1,680,063,056
2. Present Value of Future Contributions			
1. Employer Normal Cost	130,561,572	51,059,074	181,620,656
2. Employee Contributions	<u>100,085,364</u>	<u>31,871,773</u>	<u>131,957,137</u>
3. Actuarial Liability (1) - (2)	\$ 811,398,536	\$ 555,086,730	\$ 1,366,485,266
4. Actuarial Value of Assets			
1. Total Invested Assets	\$ 892,729,402	\$ 550,934,052	\$ 1,443,663,454
2. IUUAL Surpluses in Individual PLD Accounts	<u>40,731,899</u>	<u>21,575,704</u>	<u>62,307,603</u>
3. Valuation Assets (a)-(b)	\$ 851,997,503	\$ 529,358,348	\$ 1,381,355,851
5. Unfunded Actuarial Liability			
1. Total Unfunded Liability (3) - (4c)	\$ (40,598,967)	\$ 25,728,382	\$ (14,870,585)
2. Individual PLD Unpooled Liability (IUUAL)	<u>90,929,764</u>	<u>108,147,351</u>	<u>199,077,115</u>
3. Pooled Unfunded Actuarial Liability (a) - (b)	\$ (131,528,731)	\$ (82,418,969)	\$ (213,947,700)
6. Amortization over 15 Years	\$ (15,366,442)	\$ (9,628,971)	\$ (24,995,413)
7. Payroll	\$ 184,640,948	\$ 63,579,269	\$ 248,220,217
8. Pooled Unfunded Liability Contribution Rate	-8.3%	-15.1%	-10.1%

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
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**TABLE III-2  
ACCRUED BENEFIT LIABILITY**

	<u>Regular Plans</u>	<u>Special Plans</u>	<u>Total</u>
1. Present Value of Accrued Benefits			
a.			
b. Vested Inactive Members	\$ 13,837,120	\$ 107,646	\$ 13,944,766
c. Retired Members, Beneficiaries Disabled Members and Survivors	333,148,630	304,970,535	638,119,165
d. Active Members	<u>287,396,286</u>	<u>187,072,251</u>	<u>474,468,537</u>
e. Total	\$ 634,382,036	\$ 492,150,432	\$1,126,532,468
2. Market Value of Assets	<u>806,338,351</u>	<u>500,989,658</u>	<u>1,307,328,009</u>
3. Unfunded Accrued Benefit Liability (1) - (2)	\$ 0	\$ 0	\$ 0
4. Accrued Benefit Funding Ratio (2)/(1)	127%	102%	116%

**SECTION IV**  
**CONTRIBUTIONS**

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

**CONTRIBUTIONS**

**General Comments**

Under established procedures, employer contribution rates based on this June 30, 2001, actuarial valuation, including our recommendation and the Board's decision not to establish zero rates, are used to determine Fiscal Year 2003 contributions. In this context, the term "employer contribution rate" means the percentage that is applied by each PLD to its active member payroll to determine the PLD's actual employer contribution amount.

In addition to the applicable employer contribution rate, each individual PLD will make a dollar payment (or receive a dollar credit) based on its IUUAL to be added to (or subtracted from) the amount derived by applying the employer contribution rate to the participant payroll.

Employees are required to contribute to the plans; rates are set out at Appendix C-1.

**Description of Rate Components**

The Entry Age Normal funding method was used to develop the employer contribution rates in this section. Under this funding method, as with most other actuarial funding methods, a total contribution rate is determined which consists of two elements: the normal cost rate and the pooled unfunded actuarial liability rate.

**Normal Cost Rate**

For each of the Regular and Special Plans in the Consolidated Plan, an individual entry age normal cost rate was determined for a typical new entrant. This rate was determined by taking the value, as of age at entry into the plan, of the typical member's projected future benefits (including retirement, death and disability benefits), reducing it by the value of future member contributions, and dividing it by the value, also as of the member's entry age, of the member's expected future salary. The normal cost rate, so determined separately for each Regular and each Special Plan, was assumed applicable to all active members of each of the plans.

**Pooled Unfunded Actuarial Liability Rate**

The unfunded actuarial liability under the Entry Age Normal method equals the present value, at time of valuation, of future benefits less the present value of future normal costs, future member contributions, future IUUAL payments and current assets. Under the Consolidated Plan, a Pooled Unfunded Actuarial Liability Rate is



**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
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calculated for the Regular Plans as a group and for the Special Plans as a group. The rate for each group is then allocated to each plan within the Regular Plans and to those within the Special Plans, respectively, on the basis of total normal cost plus employee contributions for each such plan. That is, those plans which constitute a larger portion of the overall liability will pay a larger portion of the pooled UAL rate or receive a larger credit if the rate is negative.

**IUUAL Payments/(Credits)**

In addition to employer contributions required under the Consolidated Plan, each individual PLD in the Consolidated Plan that came into the Plan with liabilities in excess of assets continues to make payments on its IUUAL. Where IUUAL payments are due, each PLD makes payment of a specific dollar amount. Where a PLD had, at the time of entry into the Consolidated Plan, surplus assets, the PLD uses a portion of the surplus toward payment of its employer contributions to the Consolidated Plan. Credit transactions, also of specific dollar amounts, are accomplished by MSRS accounting entries.

**Employer Contribution Rate Summary**

In Table IV-1 we present employer contribution rates applicable for determining the Fiscal Year 2003 contributions to the Plan, using the cost methods described above. These were developed using actuarial assumptions and methods described in Appendix D.

**TABLE IV-1  
CONSOLIDATED PLAN FOR PARTICIPATING LOCAL DISTRICTS  
OF THE MAINE STATE RETIREMENT SYSTEM  
EMPLOYER CONTRIBUTION RATES\*  
FISCAL YEAR 2003**

	<u>Normal Cost**</u>	<u>Regular Plans</u>	<u>Pooled Unfunded Actuarial Liability Special Plans</u>	<u>Total Rates</u>
<b><u>Plans with COLA</u></b>				
Regular Employees Plan AC	9.0%	-6.2%		2.8%
Regular Employees Plan BC	5.5%	-3.8%		1.7%
Special Plan 1C	17.5%		-11.0%	6.5%
Special Plan 2C	10.8%		-6.8%	4.0%
Special Plan 3C	14.3%		-9.0%	5.3%
Special Plan 4C	9.3%		-5.8%	3.5%
<b><u>Plans with No COLA</u></b>				
Regular Employees Plan AN	4.8%	-3.3%		1.5%
Special Plan 1N	9.8%		-6.2%	3.6%
Special Plan 2N	5.8%		-3.6%	2.2%
Special Plan 3N	7.8%		-4.9%	2.9%
Special Plan 4N	5.0%		-3.1%	1.9%

\* IUUAL payments are made in addition to these costs and IUUAL credits are taken against these costs.

\*\* Includes costs of ancillary benefits.

**APPENDIX A**

**PARTICIPATING LOCAL DISTRICT  
PLAN ELECTIONS**

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

**PARTICIPATING LOCAL DISTRICT PLAN ELECTIONS**

PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Androscoggin County	67	A <sup>1</sup>	1	2	Yes	07/01/94	
Androscoggin Valley Council of Governments	231	A			Yes	07/01/96	
Aroostook County	106	A			Yes	07/01/94	
Auburn Housing Authority	145	A			Yes	07/01/94	
Auburn Lewiston Airport	256	A			Yes	07/01/96	
Auburn Public Library	43	A			No	07/01/96	
Auburn Water and Sewer District	52	A			Yes	07/01/94	
Augusta Sanitary District	64	A			Yes	07/01/94	
Augusta Water District	34	A			Yes	07/01/94	
Bangor Housing Authority	288	A			Yes	07/01/94	
Bangor Public Library	22	A			Yes	07/01/96	
Bangor Water District	59	B <sup>2</sup>			Yes	07/01/96	
Bath Water District	19	A			Yes	07/01/94	
Belfast Water District	132	A			Yes	07/01/95	
Berwick Sewer District	207	A			Yes	07/01/94	
Boothbay Harbor Water District	21	A			Yes	07/01/96	
Brewer Housing Authority	248	A			Yes	07/01/94	
Brewer Water District	68	A			No	07/01/96	
Bridgton Water District	253	A			No	07/01/96	
Brunswick Fire and Police	292		1	2	FO	07/01/97	07/01/97
Brunswick Public Library	273	A			FO	07/01/95	07/01/95
Brunswick Sewer District	72	A			Yes	07/01/96	

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Caribou Police and Fire	208	A	1	2	No	07/01/96	
Carrabasett Valley	277	A			FO	07/01/94	07/01/94
Cheverus High School	203		2		No	07/01/96	
City of Auburn	27	A	2		Yes	07/01/94	
City of Augusta	23	A	1	2	Yes	07/01/94	
City of Bangor	20	A	1	2	Yes	07/01/96	
City of Bath	73		2	3	Yes	07/01/96	
City of Belfast	35	A	2		Yes	07/01/96	
City of Biddeford	158	A			No	07/01/96	
City of Brewer	63	A	2		Yes	07/01/96	
City of Calais	36	A			FO	07/01/96	07/01/96
City of Ellsworth	13	A	4		Yes	07/01/95	
City of Gardiner	24	A	3		No	07/01/96	
City of Hallowell	160	A			Yes	07/01/96	
City of Lewiston	48	A	1	2	Yes	07/01/96	
City of Old Town	111	A	2		No	07/01/95	
City of Portland	2	A	1	2	Yes	07/01/95	
City of Rockland	18	A	3	2 <sup>3</sup>	Yes	07/01/95	
City of Saco	192	A	2		No	07/01/95	
City of South Portland	9	A	2		Yes	07/01/95	
Community School District #12	252	A			Yes	07/01/96	
Community School District #915	233	A			Yes	07/01/95	
Corinna Sewer District	251	A			No	07/01/96	
Cumberland County	5	A			Yes	07/01/96	

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Dover - Foxcroft Water District	137	A			Yes	07/01/94	
Eagle Lake Water & Sewer District	274	A			Yes	07/01/96	
Erskine Academy	249	A			No	07/01/94	
Falmouth Memorial Library	58	A			Yes	07/01/96	
Farmington Village Corp.	118	A			No	07/01/94	
Fort Fairfield Housing Authority	275	A			FO	07/01/94	07/01/94
Fort Fairfield Utilities District	131	A			Yes	07/01/96	
Gardiner Water District	221	A			No	07/01/94	
Gould Academy	205	A			No	07/01/96	
Hampden Water District	183	A			Yes	07/01/96	
Hancock County	56	A			Yes	07/01/94	
Houlton Water District	26	A			Yes	07/01/95	
Indian Township Tribal Gov't	244	A			No	07/01/96	
Jackman Utility District	294	A			Yes	07/01/96	
Kennebec County	47	A			Yes	07/01/95	
Kennebec Sanitary Treatment District	220	A			FO	07/01/95	07/01/95
Kennebec Water District	31	A			Yes	07/01/96	
Kennebunk Light and Power Co.	62	A			Yes	07/01/94	
Kennebunk Sewer District	201	A			FO	07/01/94	07/01/2001
Kennebunk, Kennebunkport & Wells Water District	255	A			FO	07/01/96	07/01/99
Kittery Water District	12	A			Yes	07/01/94	
Lew Aub Water Pollution Control Authority	163	A			FO	07/01/96	07/01/96
Lewiston Housing Authority	154	A			Yes	07/01/94	

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Lewiston - Auburn 9-1-1	291	A			Yes	07/01/94	
Lincoln Academy	134	A			Yes	07/01/94	
Lincoln Sanitary District	219	A			Yes	07/01/94	
Lincoln Water District	92	A			Yes	07/01/95	
Lisbon Water Department	243	A			No	07/01/96	
Livermore Falls Water District	32	A			Yes	07/01/94	
Lubec Water and Electric District	88	A			Yes	07/01/96	
Madawaska Water District	236	A			Yes	07/01/94	
MADSEC	297	A			Yes	07/01/99	
Maine County Commissioners Assoc.	225	A			No	07/01/96	
Maine International Trade Center	293	A			Yes	07/01/98	
Maine Maritime Academy	38	A	2		Yes	07/01/96	
Maine Municipal Bond Bank	93	A			Yes	07/01/95	
Maine School Management Association	239	A			Yes	07/01/94	
Maine State Retirement Agency	290	A			Yes	07/01/94	
Maine Turnpike Authority	49	A			Yes	07/01/94	
Maine Veterans Home	271	A			Yes	07/01/94	
Mars Hill Utility District	283	A			Yes	07/01/94	
Me Secondary School Principals Association	105	A			Yes	07/01/94	
Mechanic Falls Sanitary District	282	A			No	07/01/94	
Milo Water District	238	A			No	07/01/96	
Mt Desert Island Reg. School District	120	A			Yes	07/01/96	
Norway Water District	136	A			FO	07/01/95	07/01/2001
Old Town Housing Authority	262	A			FO	07/01/94	07/01/94

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Old Town Water District	79	A			No	07/01/94	
Oxford County	57	A			Yes	07/01/94	
Paris Utility District	159	A			Yes	07/01/95	
Penobscot County	11	A			Yes	07/01/94	
Penquis Cap Inc	237	A			No	07/01/95	
Piscataquis County	121	A			Yes	07/01/94	
Pleasant Point Passamaquoddy	165	A			Yes	07/01/96	
Portland Housing Authority	185	A			Yes	07/01/94	
Portland Public Library	41	A			Yes	07/01/95	
Richmond Utilities District	242	A			No	07/01/94	
Rumford Fire and Police	60	A	3	4	Yes	07/01/95	
Rumford Mexico Sewerage District	247	A			Yes	07/01/96	
Rumford Water District	65	A			Yes	07/01/95	
Sanford Housing Authority	152	A			Yes	07/01/96	
Sanford Sewerage District	89	A			No	07/01/94	
Sanford Water District	170	A			No	07/01/96	
School Administrative District No. 9	119	A			Yes	07/01/95	
School Administrative District No. 13	223	A			Yes	07/01/96	
School Administrative District No. 16	190	A			No	07/01/94	
School Administrative District No. 21	211	A			FO	07/01/96	07/01/2001
School Administrative District No. 29	168	A			Yes	07/01/96	
School Administrative District No. 31	50	A			FO	07/01/94	07/01/94



**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
School Administrative District No. 41	143	A			Yes	07/01/96	
School Administrative District No. 49	189	A			No	07/01/95	
School Administrative District No. 51	198	A			No	07/01/96	
School Administrative District No. 53	129	A			No	07/01/96	
School Administrative District No. 54	115	A			Yes	07/01/96	
School Administrative District No. 60	187	A			No	07/01/94	
School Administrative District No. 67	126	A			Yes	07/01/96	
School Administrative District No. 71	128	A			No	07/01/96	
Searsport Water District	124	A			No	07/01/96	
So Penobscot Voc School Reg. #4	269	A			No	07/01/96	
So Portland Housing Authority	206	A			Yes	07/01/96	
Somerset County	101	A			Yes	07/01/94	
South Berwick Water	171		2		Yes	07/01/96	
Town of Baileyville	69	A	3		Yes	07/01/96	
Town of Bar Harbor	15	A	4		Yes	07/01/95	
Town of Berwick	108	A			No	07/01/96	
Town of Bethel	246	A			Yes	07/01/96	
Town of Boothbay Harbor	146	A			FO	07/01/96	07/01/96
Town of Brunswick	42	A			FO	07/01/95	07/01/2001
Town of Bucksport	130	A			No	07/01/95	

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Town of Camden	8	A			Yes	07/01/94	
Town of Chesterville	295	A <sup>4</sup>			Yes	07/01/99	
Town of China	235	A			No	07/01/96	
Town of Corinna	217	A			No	07/01/96	
Town of Cumberland	216	B <sup>5</sup>			Yes	07/01/95	
Town of Dexter	97	A			Yes	07/01/96	
Town of Dover Foxcroft	167	A			No	07/01/95	
Town of Durham	234	A			No	07/01/96	
Town of East Millinocket	54	A	2		Yes	07/01/96	
Town of Easton	240	A			Yes	07/01/94	
Town of Eliot	180	A	4		Yes	07/01/94	
Town of Fairfield	260	A	3		Yes	07/01/95	
Town of Falmouth	87	A			Yes	07/01/96	
Town of Farmington	100	A	1	4	Yes	07/01/95	
Town of Fayette	296	A			Yes	07/01/99	
Town of Fort Fairfield	17	A			Yes	07/1/2000	
Town of Frenchville	98	A			No	07/01/96	
Town of Fryeburg	149	A			No	07/01/96	
Town of Glenburn	174	A			Yes	07/01/94	
Town of Gorham	133	A	2	4	Yes	07/01/96	
Town of Greenville	112	A			Yes	07/01/96	
Town of Hampden	151	A			No	07/01/96	
Town of Harpswell	270	A			Yes	07/01/94	
Town of Harrison	280	B <sup>6</sup>			Yes	07/01/94	
Town of Hermon	150	A			No	07/01/96	
Town of Hodgdon	215	A			No	07/01/96	

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Town of Houlton	10	A			No	07/01/96	
Town of Jay	45	A			Yes	07/01/94	
Town of Kennebunk	84	A	2		Yes	07/01/96	
Town of Kennebunkport	188	A	1		No	07/01/96	
Town of Kittery	14	A	1	2	Yes	07/01/95	
Town of Lebanon	181	A			Yes	07/01/96	
Town of Lincoln	76	A	3		No	07/01/96	
Town of Linneus	214	A			No	07/01/96	
Town of Lisbon	103	A	2		Yes	07/01/96	
Town of Livermore Falls	109	A			No	07/01/96	
Town of Lovell	276	A			Yes	07/01/96	
Town of Lubec	228	A			No	07/01/96	
Town of Madawaska	82	A			Yes	07/01/96	
Town of Mapleton	265	A			Yes	07/01/96	
Town of Mars Hill	227	A			Yes	07/01/96	
Town of Mechanic Falls	114	A			FO	07/01/94	07/01/94
Town of Medway	194	A			Yes	07/01/96	
Town of Mexico	74	A			Yes	07/01/96	
Town of Milford	186	A			No	07/01/96	
Town of Millinocket	3	A	3	4	Yes	07/01/96	
Town of Monson	184	A			No	07/01/96	
Town of Mount Desert	16	A			Yes	07/01/96	
Town of New Gloucester	210	A			No	07/01/95	
Town of North Berwick	254	A	1		No	07/01/96	

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Town of Norway	125	A			FO	07/01/96	07/01/2001
Town of Orland	166	A			No	07/01/96	
Town of Orono	61	A	4		No	07/01/96	
Town of Orrington	209	A			No	07/01/95	
Town of Otisfield	193	A			FO	07/01/96	07/01/96
Town of Oxford	200	A			No	07/01/96	
Town of Paris	127	A			No	07/01/96	
Town of Phippsburg	202	A			Yes	07/01/96	
Town of Pittsfield	110	A			No	07/01/96	
Town of Princeton	258	A			No	07/01/96	
Town of Rockport	161	A			No	07/01/96	
Town of Rumford	90	A			Yes	07/01/95	
Town of Sabattus	175	A			No	07/01/96	
Town of Sanford	83	A	1	4	No	07/01/95	
Town of Scarborough	147	A	2		Yes	07/01/96	
Town of Searsport	117	A			No	07/01/96	
Town of Skowhegan	80	A	3		Yes	07/01/96	
Town of South Berwick	141	A			FO	07/01/96	07/01/96
Town of St. Agatha	30	A			No	07/01/96	
Town of Topsham	81	A	2		Yes	07/01/96	
Town of Van Buren	182	A			Yes	07/01/95	
Town of Vassalboro	153	A			Yes	07/01/96	
Town of Waldoboro	195	A	3		Yes	07/01/95	
Town of Washburn	230	A			No	07/01/94	

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

PLD Name	PLD #	Regular Plan	Special Plan	Special Plan	COLA	Entry Date	FO COLA Date
Town of Wells	107	A	3		Yes	07/01/95	
Town of Winslow	144	A			No	07/01/96	
Town of Winthrop	179	A			No	07/01/94	
Town of Yarmouth	116	A	2		Yes	07/01/96	
Town of York	28	A	2		Yes	07/01/94	
Tri Community Sanitary Landfill	267	A			Yes	07/01/96	
Van Buren Housing Authority	229	A			Yes	07/01/95	
Waldo County	46	A			Yes	07/01/94	
Waldo County Technical Center	224	A			No	07/01/96	
Washington County	40	A			Yes	07/01/96	
Waterville Fire and Police	66	A	3		No	07/01/96	
Waterville Sewerage District	222	A			Yes	07/01/94	
Wells Ogunquit CSD	266	A			FO	07/01/95	07/01/95
Westbrook Housing Authority	259	A			Yes	07/01/96	
Winter Harbor Utility District	250	A			Yes	07/01/95	
Yarmouth Water District	278	A			Yes	07/01/94	
York County	37	A	2		Yes	07/01/96	
York Sewer District	139	A			No	07/01/94	
York Water District	39	A			Yes	07/01/96	

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

**Notes:**

FO = Future Service COLA only, that is, for benefits attributable to service rendered after the Future Service COLA date.

- <sup>1</sup> Employees hired prior to July 1, 1997 and who are members of the System are covered under Special Plan #1. Corrections Officers and Law Enforcement Officers hired on or after July 1, 1997, will be covered under Special Plan #2. All other employees hired on or after July 1, 1997, will be covered under Regular Plan A.
- <sup>2</sup> applicable to all new hires on or after July 1, 1996. All members in the PLD at July 1, 1996 elected to remain in the 1/50 Plan under Regular Plan A.
- <sup>3</sup> applicable to all new police hires on or after July 1, 1998.
- <sup>4</sup> applicable for future service only from July 1, 2001.
- <sup>5</sup> applicable to all new hires on or after July 1, 1995. All members in the PLD at July 1, 1995 elected to remain in the 1/50 Plan under Regular Plan A.
- <sup>6</sup> applicable to all new hires on or after July 1, 1994. All members in the PLD at July 1, 1994 elected to remain in the 1/50 Plan under Regular Plan A.

**APPENDIX B**

**MEMBER AND BENEFITS  
RECIPIENTS DATA AND PROFILES**

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

**MEMBER AND BENEFITS RECIPIENTS DATA AND PROFILES**

**ACTIVE MEMBER DATA**

**Regular Plans Members**

Count	7,146
Average Current Age	45.3
Average Service	8.4
Average Valuation Pay	\$ 25,838

**Special Plans Members**

Count	1,607
Average Current Age	34.2
Average Service	9.1
Average Valuation Pay	\$ 39,564

**All Plans Members**

Count	8,753
Average Current Age	43.2
Average Service	8.6
Average Valuation Pay	\$ 28,358



**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

**BENEFIT RECIPIENT AND INACTIVE VESTED MEMBER DATA**

REGULAR PLANS

Retired Members, Beneficiaries, Disabled Members and Survivors

Count		4,619
Total Annual Benefit	\$	38,944,059
Average Annual Benefit	\$	7,349

Inactive Vested

Count		311
Total Annual Deferred Benefit (Payable at Normal Retirement Age)	\$	2,052,313
Average Annual Deferred Benefit (Payable at Normal Retirement Age)	\$	6,599

SPECIAL PLANS

Retired Members, Beneficiaries, Disabled Members and Survivors

Count		1,670
Total Annual Benefit	\$	24,407,143
Average Annual Benefit	\$	14,932

Inactive Vested

Count		7
Total Annual Deferred Benefit (Payable at Normal Retirement Age)	\$	26,505
Average Annual Deferred Benefit (Payable at Normal Retirement Age)	\$	3,786

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

**BENEFIT RECIPIENT AND INACTIVE VESTED MEMBER DATA**

ALL PLANS

Retired Members, Beneficiaries, Disabled Members and Survivors

Count	6,289
Total Annual Benefit	\$ 58,880,257
Average Annual Benefit	\$ 9,362

Inactive Vested

Count	318
Total Annual Deferred Benefit (Payable at Normal Retirement Age)	\$ 2,078,818
Average Annual Deferred Benefit (Payable at Normal Retirement Age)	\$ 6,537

**APPENDIX C**

**SUMMARY OF PLAN PROVISIONS**

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

**SUMMARY OF PLAN PROVISIONS**

**1. Member Contributions**

Members are required to contribute a percent of earnable compensation which varies by plan as follows:

Regular AC & AN	6.5%
Regular BC	3.0%
Special 1C & 1N	6.5%
Special 2C & 2N	6.5%
Special 3C & 3N	8.0% for first 25 years, 6.5% after
Special 4C & 4N	7.5% for first 25 years, 6.5% after

**2. Average Final Compensation**

For purposes of determining benefits payable under the plan, average final compensation is the average annual rate of earnable compensation for the 3 years of creditable service (not necessarily consecutive) which produce the highest such average.

**3. Creditable Service**

Creditable service includes service while a member, certain service prior to the establishment of the plan, purchased military service credit, and service while receiving disability benefits under the plan.

**4. Service Retirement Benefits**

Regular Plan AC

Normal Retirement Age: 60

Eligibility for member in active service and inactive members: 25 years of creditable service.

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

Eligibility alternative for members in active service: at least one year of creditable service immediately before retirement and at least normal retirement age.

Eligibility for members not in active service at retirement, and not in active service on or after October 1, 2000: at least 10 years of creditable service and at least normal retirement age.

Eligibility for members not in active service at retirement, but in active service on or after October 1, 2000: at least 5 years of creditable service and at least normal retirement age.

**Benefit:** 1/50 of average final compensation multiplied by years of membership service under Consolidated Plan A plus a variable percentage of average final compensation multiplied by years of service under any previous plans (the percentage depends on the previous plan(s)), the sum of which is reduced by approximately 2-¼% for each year that a member is younger than age 60 at retirement.

**Form of payment:** life annuity ("full benefit"), unless an optional method of payment is selected.

**Cost of living Adjustment:** See item 10.

**Regular Plan AN**

This benefit plan is the same as Regular Benefit Plan AC, except that there is no provision for cost of living adjustments.

**Regular Plan BC**

**Normal Retirement Age:** 60

**Eligibility for member in active service and inactive members:** 25 years of creditable service.

**REPORT OF THE ACTUARY ON THE VALUATION OF THE  
PLD CONSOLIDATED RETIREMENT PLAN  
AS OF JUNE 30, 2001**

Eligibility alternative for members in active service: at least one year of creditable service immediately before retirement and at least normal retirement age.

Eligibility for members not in active service at retirement, and not in active service on or after October 1, 2000: at least 10 years of creditable service and at least normal retirement age.

Eligibility for members not in active service at retirement, but in active service on or after October 1, 2000: at least 5 years of creditable service and at least normal retirement age.

Benefit: 1/100 of average final compensation multiplied by years of membership service under Consolidated Plan B plus a variable percentage of average final compensation multiplied by years of service under any previous plans (the percentage depends on the previous plan(s)), the sum of which is reduced by approximately 2-1/4% for each year that a member is younger than age 60 at retirement.

Form of payment: life annuity ("full benefit"), unless an optional method of payment is selected.

Cost of living Adjustment: See item 10.

Special Plan 1C

Eligibility: 20 years of creditable service in named positions.

Benefit: ½ of average final compensation plus 2% for each year of service in excess of 20.

Form of payment: life annuity ("full benefit"), unless an optional method of payment is selected.

Cost of Living Adjustment: See item 10.

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**Special Plan 1N**

This benefit plan is identical to Special Benefit Plan 1C, except that there is no provision for cost of living adjustments.

**Special Plan 2C**

Eligibility: 25 years of creditable service in named positions.

Benefit:  $\frac{1}{2}$  average final compensation plus 2% for each year of service in excess of 25.

Form of payment: life annuity ("full benefit"), unless an optional method of payment is selected.

Cost of Living Adjustment: See item 10.

**Special Plan 2N**

This benefit plan is identical to Special Benefit Plan 2C, except that there is no provision for cost of living adjustments.

**Special Plan 3C**

Eligibility: 25 years of creditable service in named positions.

Benefit:  $\frac{2}{3}$  of average final compensation plus 2% for each year of service in excess of 25.

Form of payment: life annuity ("full benefit"), unless an optional method of payment is selected.

Cost of Living Adjustment: See item 10.

**Special Plan 3N**

This benefit is identical to Regular Benefit Plan 3C, except that there is no provision for cost of living adjustments.

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**Special Plan 4C**

<b>Eligibility:</b>	Age 55 with 25 years of creditable service in named positions.
<b>Benefit:</b>	2% of average final compensation for each year of service.
<b>Form of payment:</b>	life annuity ("full benefit"), unless an optional method of payment is selected.

**Cost of Living Adjustment:** See item 10.

**Special Plan 4N**

This benefit plan is identical to Special Benefit Plan 4C, except that there is no provision for cost of living adjustments.

If Special Plan members fail to meet the Special Plan eligibility criteria, their service retirement benefits are those provided by the applicable underlying Regular Plan; Special Plan service credits are used toward Regular Plan eligibility requirements.

**5. Pre-Retirement Accidental Death Benefits**

<b>Eligibility:</b>	Death while active or disabled resulting from injury received in the line of duty.
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<b>Benefit:</b>	- if the member leaves no dependent children, 2/3 of the member's average final compensation to the surviving spouse until death,
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- if the member is survived by a spouse who has the care of dependent child(ren) of the member, the surviving spouse shall receive an annual sum equal to the member's average final compensation. When there is no longer any dependent child(ren), the surviving spouse shall receive 2/3 of member's average final compensation until death,

- if the member is survived by a spouse who does not have the care of the member's dependent child(ren),



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the surviving spouse and dependent child(ren) shall share equally an annual sum equal to the member's average final compensation. When there is no longer any dependent child(ren), the surviving spouse shall receive 2/3 of member's average final compensation until death,

- if the member leaves no spouse, the dependent child(ren) shall be paid an annual amount equal to the member's average final compensation. Benefits will cease when the last dependent child no longer meets the definition of "dependent child".

**6. Pre-Retirement Ordinary Death Benefits**

Eligibility	Death while active or disabled.
Benefit:	designated beneficiary, spouse, child(ren), or parents entitled to benefit calculated as if deceased member had retired under Option 2 (see item 12); however, beneficiary may elect survivor benefits payable to a surviving spouse, dependent child(ren), parents, or other designated beneficiaries in monthly amounts varying by status of beneficiary and number of eligible survivors. Otherwise, accumulated contributions with interest are payable to designated beneficiary, spouse, child(ren), older parent or estate.

**7. Disability Benefits Other Than No Age Benefits**

Eligibility:	Disabled as defined in the MSRS statutes, prior to normal retirement age; unable to perform duties of own position; employed prior to October 16, 1992 and did not elect No Age Disability Option.
Benefit:	66-2/3% of average final compensation, reduced by employment earnings over the specified statutory limit, and to the extent that the benefit, in combination with worker's compensation and Social Security, exceeds 80% of average final compensation.

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**Form of payment:** Payment begins on termination of service and ceases on cessation of disability or after 5 years, unless the member is unable to engage in any substantially gainful activity; in which case payments cease on the earlier of 10 years following normal retirement age or date the service retirement benefit equals or exceeds the disability benefit.

**Conversion to service retirement:** During the period of disability average final compensation is increased with cost-of-living adjustments and service is credited. On the date when service benefits reach a level of 66 2/3% of average final compensation or 10 years after the normal retirement date, if earlier, the disability benefit converts to a service retirement benefit based on service and average final compensation at that point.

**8. No-Age Disability Benefits**

**Eligibility:** Disabled as defined in the MSRS statutes; employed on or after October 16, 1992 or employed prior to October 16, 1992 and elected the provisions of No Age Disability.

**Benefit:** 59% of average final compensation, reduced by employment earnings over the specified statutory limit, and to the extent that the benefit, in combination with worker's compensation and Social Security, exceeds 80% of average final compensation.

**Form of payment:** Payment begins on termination of service and ceases on cessation of disability or after five years, unless the member is unable to engage in any substantially gainful activity; in which case payments cease on the date the service retirement benefit equals or exceeds the disability benefit.

**Conversion to service retirement:** During the period of disability average final compensation is increased with cost-of-living adjustments and service is credited. On the date when

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service benefits reach a level of 59% of average final compensation the disability benefit converts to a service retirement benefit based on service and average final compensation at that point.

**9. Refund of Contributions**

Eligibility: termination of service other than by retirement or death.

Benefit: member's accumulated contributions with interest.

**10. Cost of Living Adjustments**

All retirement (and survivor) benefits payable to (or in relation to) benefit recipients who were employed by a PLD that elected a plan which provides for a COLA are adjusted each year that there is a percentage change in the Consumer Price Index, based on the Index. Cost of living adjustments are effective September 1 and are applied to all benefits which have been in payment for six months. The maximum annual increase or decrease is 4%.

**11. Methods of Payment of Service Retirement Benefits**

At retirement, a member must choose one of the following methods of payment.

Full Benefit: Unadjusted benefit paid for the life of the member only.

Option 1: Cash refund equal to the remaining employee contribution balance, if any, at the date of death (the employee contribution balance having been reduced each month by the portion of the monthly benefit deemed to be provided by employee contributions.).

Option 2: 100% joint and survivor annuity.

Option 3: 50% joint and survivor annuity.

Option 4: Joint and survivor annuity at any percentage other than those available under Option 2 and Option 3.

Option 5: Designated percentage of the benefit (not less than 51%) payable to the member, with the remaining percentage (the two to equal 100%) payable to a beneficiary (may only be a sole beneficiary) while both

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are alive. At the death of either, the higher of the two percentages is paid to the survivor for the survivor's life, and the lower-percentage benefit ceases to be paid.

- Option 6: 100% joint and survivor annuity with pop-up\*.
- Option 7: 50% joint and survivor annuity with pop-up\*.
- Option 8: Option 4 with pop-up\*.

\* The "pop-up" feature attached to a given Option means that in the case of a beneficiary predeceasing the member, the member's benefit will be revised prospectively to the amount that the benefit would have been had the member selected Full Benefit payment upon retirement.

**APPENDIX D**

**ACTUARIAL ASSUMPTIONS  
AND METHODS**

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**ACTUARIAL ASSUMPTIONS AND METHODS**

**A. Actuarial Assumptions**

1. Annual Rate of Investment Return    8.0%
2. Cost of Living Increases  
in Benefits                                    4.0%                    (Where Applicable)
3. Annual Rate of Salary Increase       5.5%

4. Rates of Termination at Selected Ages*	Age	Regular & Special Plan Members % Leaving
	25	7.0%
	30	6.0
	35	5.0
	40	4.0
	45	3.0
	50	2.0
	55	1.0

\* *Members with ten or more years of service are assumed to elect deferred vested benefits; other terminations are assumed to elect refunds.*

5. Rates of Active Healthy Life Mortality at Selected Ages (number of deaths per 10,000 members) **	Age	Male	Female
	25	7	3
	30	9	4
	35	9	5
	40	12	8
	45	17	10
	50	28	15
	55	48	25

\*\* *For Regulars, 5% of deaths are assumed to arise out of and in the course of employment; for Specials, 20% of deaths are assumed to arise out of and in the course of employment.*

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**A. Actuarial Assumptions (cont.)**

		Regular & Special Plan Members	
6. Rates of Inactive Healthy Life Mortality at Selected Ages (number of deaths per 10,000 members)	Age	Male	Female
	25	6	3
	30	8	5
	35	11	7
	40	16	9
	45	29	14
	50	53	22
	55	85	33
7. Rates of Mortality for Future Anticipated Disableds at Selected Ages (number of deaths per 10,000 members)	Age	Male	Female
	25	92	72
	30	112	89
	35	134	109
	40	160	126
	45	193	144
	50	236	165
	55	295	191
	60	362	226
	65	446	272
	70	576	331
8. Rates of Disabled Life Mortality at Selected Ages (number of deaths per 10,000 members)	Age	Male	Female
	25	391	528
	30	315	467
	35	321	326
	40	332	215
	45	349	191
	50	376	207
	55	420	240
	60	488	288
	65	595	366
	70	763	487

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**A. Actuarial Assumptions (cont.)**

9. Rates of Retirement at Selected Ages (number retiring per 1,000 members)	Age	Regular Plan	Special Plan
	45	25	*
	50	38	
	55	50	
	59	60	
	60	1000	

\* *Assumed to retire when eligible for retirement. - i.e., after 20 years of service in Special Plan 1, after 25 years of service in Special Plans 2 and 3, and at the later of age 55 or 25 years of service in Special Plan 4.*

10. Rates of Disability at Selected Ages (members becoming disabled per 10,000 members) **	Age	Regular Plan	Special Plan
	25	6	13
	30	6	13
	35	7	14
	40	11	18
	45	22	29
	50	42	49
	55	72	79

\*\* *Disabilities are assumed to be 75% non-service connected for Regular employees and 25% non-service connected for Police and Fire.*

11. **Family Composition Assumptions**      80% of active members are married and have two children born when the member is 24 and 28; children are dependent until age 18; spouses are same age; member has no dependent parents; unmarried members have beneficiaries entitled to benefits worth 80% as much as those of married members' beneficiaries.



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**B. Actuarial Methods**

**1. Funding Method**

The Entry Age Normal method is used to determine costs. Under this funding method, the total employer contribution rate is determined which consists of two elements, the normal cost rate and the pooled unfunded actuarial liability (PUAL) rate. The actual contribution for a given PLD will include an IUUAL payment as well, unless the PLD came into the Plan with surplus assets.

For each Regular and Special Plan, a normal cost rate is determined for the average new entrant. This rate is determined by taking the value, as of age at entry into the plan, of the member's projected future benefits, reducing it by the value of future member contributions, and dividing it by the value, also as of the member's entry age, of the member's expected future salary.

In addition to normal cost contributions calculated per plan, the employers in each plan are required to make contributions to fund that plan's pooled unfunded actuarial liability, if any. The actuarial liability is defined as the present value of future benefits less the present value of future normal costs, less future member contributions, and less expected IUUAL payments. The pooled unfunded actuarial liability is the total of the actuarial liability for all members less the actuarial value of the Plan's assets. The actuarial liability includes projections of future member pay increases and future service credits.

The Initial Unpooled Unfunded Actuarial Liability (IUUAL) was calculated at entry into the Consolidated Plan for each PLD. For PLDs with liabilities greater than assets, these amounts are amortized by annual payments over a fixed number of years. Additional unfunded liability amounts which arise after entry to the Consolidated Plan will be pooled and amortized over 15 years.

**2. Asset Valuation Method**

The actuarial valuation employs a technique for determining the actuarial value of assets which dampens the swings in market value. The specific technique adopted in this valuation recognizes in a given year one-third of the investment return that is in excess of the 8.00% actuarial assumption for investment return.