

May 16, 2005

TO: Steve Nelsen, Executive Director  
LEOFF Plan 2 Retirement Board

FROM: Marty McCaulay, Associate Actuary

CC: Matt Smith, State Actuary

**SUBJECT: CHANGING THE 2% MULTIPLIER IN THE LEOFF 2 FORMULA**

### Summary of Results

As requested, we estimated the cost of increasing the 2% multiplier in the LEOFF 2 accrued benefit formula to 2.25%, 2.50%, 2.75%, or 3.00%. Details on the costs of increasing the multiplier for all years of service are shown in Exhibits 1A and 1B. Exhibits 2A and 2B detail the costs if the higher rates are applied to future years of service only.

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Multiplier	Total Rate Increase		Total 2007-2009 Cost <i>(millions, employer plus member)</i>	
	All Service	Future Service	All Service	Future Service
2.25%	4.40%	2.25%	\$111.0	\$63.6
2.50%	8.80%	4.49%	\$222.0	\$126.6
2.75%	13.20%	6.73%	\$333.2	\$189.8
3.00%	17.58%	8.96%	\$444.0	\$258.4

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We also looked at various formulas with the multiplier increasing based on service - alternatives A, B, and C. Exhibits 3A and 3B detail the costs of these various options for increasing the multiplier based on years of service.

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Multiplier	Total Rate Increase	Total 2007-2009 Cost <i>(millions, employer plus member)</i>
Alternative A	12.46%	\$309.4
Alternative B	6.34%	\$157.4
Alternative C	5.14%	\$130.8

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### Summary of Alternatives A, B and C

Under the Alternative A, a member with 20 years of service would receive 2.50% for all 20 years, a member with 25 years would receive 2.75% for all years, and a member with 30 years would receive 3.00% for all years. Past service would be included. Under the Alternative B, a member would receive 2.00% for years 1-9; 2.25% for years 10-14; 2.50% for years 15-19; 2.75% for years 20-24; and 3.00% for years 25 and beyond. Past service would be included, but the higher rate would only apply to the years of service in the range for each multiplier. Alternative C is the same as the second, except that it would only apply to future service.

Years of Service	Benefit as a Percentage of Average Final Pay		
	Alternative A	Alternative B	Alternative C*
10	20.00%	20.00%	20.00%
15	30.00%	31.25%	31.25%
20	50.00%	43.75%	43.75%
25	68.75%	57.70%	57.50%
30	90.00%	72.50%	72.50%

\* Applies to future service only

### Analysis of Results

The cost of increasing the multiplier to 3.00% for all service is the most expensive proposal with a rate increase of 17.58%. It is an expensive improvement because the increased multiplier would apply retroactively to all years of service, greatly increasing the liability for active members who already have long periods of service. The cost for new entrants would be less because new entrants have no prior service. If the increased multiplier only applies to years of service after the effective date, it reduces the cost of the improvement nearly in half. The costs are proportionate - the costs of increasing the multiplier to 2.25%, 2.50%, and 2.75% are  $\frac{1}{4}$ ,  $\frac{1}{2}$ , and  $\frac{3}{4}$  of the cost of increasing the multiplier to 3.00%.

Alternatives A, B, and C are backloaded formulas (formulas that provide greater accrual rates at later years of service). The accrual pattern under Alternative A would be a non-standard accrual formula with unusually high effective accrual rates at certain years. For example, a member would have an accrued benefit of 38% of average pay at 19 years and 50% of average pay at 20 years, an increase in the accrual of 12% in one year.

Multipliers as high as 3% could result in members' benefits exceeding 100% of pay. Higher benefit amounts as a percent of pay might influence retirement behavior.

### Assumptions and Methods

The results are based on the 2003 valuation data and the same actuarial assumptions and methods as disclosed in the 2003 Actuarial Valuation report. We did not change retirement rates or any other assumptions. We did not limit benefits to 100% of pay. The costs shown would be higher if combined with other benefit improvements.

**Exhibit 1A - Increase Formula for All Years of Service**

The proposal to increase the benefit multiplier in the formula from 2.00% to 2.25%, 2.50%, 2.75% or 3.00% for all years of service would impact the actuarial funding of the system by increasing the present value of benefits payable under the System and the required actuarial contribution rate as shown below.

<i>(Dollars in Millions)</i>	<b>Multiplier</b>	<b>Current</b>	<b>Increase</b>	<b>Total</b>
<b>Actuarial Present Value of Projected Benefits</b>	<b>2.25%</b>	\$4,383	\$523	\$4,906
(The Value of the Total Commitment to all Current Members)	<b>2.50%</b>	\$4,383	\$1,047	\$5,430
	<b>2.75%</b>	\$4,383	\$1,570	\$5,953
	<b>3.00%</b>	\$4,383	\$2,094	\$6,477
 <b>Unfunded Liability (PBO)</b>	 <b>2.25%</b>	 (\$547)	 \$257	 (\$290)
(The Value of the Total Commitment to all Current Members Attributable to Past Service)	<b>2.50%</b>	(\$547)	\$513	(\$33)
	<b>2.75%</b>	(\$547)	\$770	\$224
	<b>3.00%</b>	(\$547)	\$1,027	\$481

**Increase in Contribution Rates: \***  
(Effective 09/01/2006)

	<b>Multiplier</b>			
	<b>2.25%</b>	<b>2.50%</b>	<b>2.75%</b>	<b>3.00%</b>
<b>Current Members</b>				
Employee	2.20%	4.40%	6.60%	8.79%
Employer	1.32%	2.64%	3.96%	5.27%
State	<u>0.88%</u>	<u>1.76%</u>	<u>2.64%</u>	<u>3.52%</u>
Total - Current Members	4.40%	8.80%	13.20%	17.58%
 <b>New Entrants**</b>				
Employee	1.12%	2.24%	3.36%	4.48%
Employer	0.68%	1.35%	2.02%	2.69%
State	<u>0.45%</u>	<u>0.90%</u>	<u>1.35%</u>	<u>1.79%</u>
Total - New Entrants	2.25%	4.49%	6.73%	8.96%

\*For LEOFF 2, the employer pays 60% of the Employer State cost, the State pays 40%.

\*\*Rate change applied to future new entrant payroll and used for fiscal budget determinations only. A single supplemental rate increase, equal to the increase for current members, would apply initially for all members or employers.

**Exhibit 1B - Increase Formula for All Years of Service**

**Fiscal Budget Determinations:**

The proposal would result in higher contribution rates for all LEOFF 2 members and employers. As a result of the changes in the required contribution rates, the increase/(decrease) in funding expenditures is projected to be:

	<b>Multiplier</b>			
	<b>2.25%</b>	<b>2.50%</b>	<b>2.75%</b>	<b>3.00%</b>
<b>Costs (in Millions):</b>				
<b>2006-2007</b>				
<b>State:</b>				
General Fund	\$8.7	\$17.4	\$26.1	\$34.8
Non-General Fund	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>
<b>Total State</b>	<b>\$8.7</b>	<b>\$17.4</b>	<b>\$26.1</b>	<b>\$34.8</b>
Local Government	\$13.1	\$26.1	\$39.2	\$52.2
Total Employer	\$21.8	\$43.5	\$65.3	\$87.0
Total Employee	\$21.8	\$43.5	\$65.3	\$87.0
<b>2007-2009</b>				
<b>State:</b>				
General Fund	\$22.2	\$44.4	\$66.6	\$88.9
Non-General Fund	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>
<b>Total State</b>	<b>\$22.2</b>	<b>\$44.4</b>	<b>\$66.6</b>	<b>\$88.9</b>
Local Government	\$33.3	\$66.6	\$100.0	\$133.1
Total Employer	\$55.5	\$111.0	\$166.6	\$222.0
Total Employee	\$55.5	\$111.0	\$166.6	\$222.0
<b>2005-2030</b>				
<b>State:</b>				
General Fund	\$400.3	\$800.7	\$1,201.0	\$1,601.3
Non-General Fund	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>
<b>Total State</b>	<b>\$400.3</b>	<b>\$800.7</b>	<b>\$1,201.0</b>	<b>\$1,601.3</b>
Local Government	\$600.5	\$1,201.0	\$1,801.5	\$2,400.0
Total Employer	\$1,000.8	\$2,001.7	\$3,002.5	\$4,001.3
Total Employee	\$1,000.8	\$2,001.7	\$3,002.5	\$4,001.3

**Exhibit 2A - Increase Formula for Future Years of Service**

The proposal to increase the benefit multiplier in the formula from 2.00% to 2.25%, 2.50%, 2.75% or 3.00% for future years of service would impact the actuarial funding of the system by increasing the present value of benefits payable under the System and the required actuarial contribution rate as shown below.

<i>(Dollars in Millions)</i>	<b>Multiplier</b>	<b>Current</b>	<b>Increase</b>	<b>Total</b>
<b>Actuarial Present Value of Projected Benefits</b>	<b>2.25%</b>	\$4,383	\$267	\$4,649
(The Value of the Total Commitment to all Current Members)	<b>2.50%</b>	\$4,383	\$533	\$4,916
	<b>2.75%</b>	\$4,383	\$800	\$5,182
	<b>3.00%</b>	\$4,383	\$1,066	\$5,449
 <b>Unfunded Liability (PBO)</b>	 <b>2.25%</b>	 (\$547)	 \$0	 (\$547)
(The Value of the Total Commitment to all Current Members Attributable to Past Service)	<b>2.50%</b>	(\$547)	\$0	(\$547)
	<b>2.75%</b>	(\$547)	\$0	(\$547)
	<b>3.00%</b>	(\$547)	\$0	(\$547)

**Increase in Contribution Rates: \***  
(Effective 09/01/2006)

	<b>Multiplier</b>			
	<b>2.25%</b>	<b>2.50%</b>	<b>2.75%</b>	<b>3.00%</b>
<b>Current Members</b>				
Employee	1.12%	2.24%	3.36%	4.48%
Employer	0.68%	1.35%	2.02%	2.69%
State	<u>0.45%</u>	<u>0.90%</u>	<u>1.35%</u>	<u>1.79%</u>
Total - Current Members	2.25%	4.49%	6.73%	8.96%
 <b>New Entrants**</b>				
Employee	1.12%	2.24%	3.36%	4.48%
Employer	0.68%	1.35%	2.02%	2.69%
State	<u>0.45%</u>	<u>0.90%</u>	<u>1.35%</u>	<u>1.79%</u>
Total - New Entrants	2.25%	4.49%	6.73%	8.96%

\*For LEOFF 2, the employer pays 60% of the Employer State cost, the State pays 40%.

\*\*Rate change applied to future new entrant payroll and used for fiscal budget determinations only. A single supplemental rate increase, equal to the increase for current members, would apply initially for all members or employers.

**Exhibit 2B - Increase Formula for Future Years of Service**

**Fiscal Budget Determinations:**

The proposal would result in higher contribution rates for all LEOFF 2 members and employers. As a result of the changes in the required contribution rates, the increase/(decrease) in funding expenditures is projected to be:

	<b>Multiplier</b>			
	<b>2.25%</b>	<b>2.50%</b>	<b>2.75%</b>	<b>3.00%</b>
<b>Costs (in Millions):</b>				
<b>2006-2007</b>				
<b>State:</b>				
General Fund	\$4.8	\$9.6	\$14.4	\$19.2
Non-General Fund	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>
<b>Total State</b>	<b>\$4.8</b>	<b>\$9.6</b>	<b>\$14.4</b>	<b>\$19.2</b>
Local Government	\$7.3	\$14.4	\$21.6	\$28.8
Total Employer	\$12.1	\$24.0	\$36.0	\$48.0
Total Employee	\$12.1	\$24.0	\$36.0	\$48.0
<b>2007-2009</b>				
<b>State:</b>				
General Fund	\$12.7	\$25.3	\$38.0	\$50.4
Non-General Fund	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>
<b>Total State</b>	<b>\$12.7</b>	<b>\$25.3</b>	<b>\$38.0</b>	<b>\$50.4</b>
Local Government	\$19.1	\$38.0	\$56.9	\$75.8
Total Employer	\$31.8	\$63.3	\$94.9	\$129.2
Total Employee	\$31.8	\$63.3	\$94.9	\$129.2
<b>2005-2030</b>				
<b>State:</b>				
General Fund	\$312.3	\$624.7	\$937.0	\$1,247.3
Non-General Fund	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>
<b>Total State</b>	<b>\$312.3</b>	<b>\$624.7</b>	<b>\$937.0</b>	<b>\$1,247.3</b>
Local Government	\$469.5	\$937.0	\$1,404.5	\$1,871.9
Total Employer	\$781.8	\$1,561.7	\$2,341.5	\$3,119.2
Total Employee	\$781.8	\$1,551.7	\$2,341.5	\$3,119.2

### Exhibit 3A - Increase Multiplier Based on Service

The proposals to increase the benefit multiplier in the formula based on years of service years would impact the actuarial funding of the system by increasing the present value of benefits payable under the System and the required actuarial contribution rate as shown below.

<i>(Dollars in Millions)</i>	<b>Multiplier</b>	<b>Current</b>	<b>Increase</b>	<b>Total</b>
<b>Actuarial Present Value of Projected Benefits</b> (The Value of the Total Commitment to all Current Members)	<b>Alternative A<sup>1</sup></b>	\$4,383	\$1,484	\$5,867
	<b>Alternative B<sup>2</sup></b>	\$4,383	\$756	\$5,139
	<b>Alternative C<sup>3</sup></b>	\$4,383	\$611	\$4,994
<b>Unfunded Liability (PBO)</b> (The Value of the Total Commitment to all Current Members Attributable to Past Service)	<b>Alternative A<sup>1</sup></b>	(\$547)	\$204	(\$343)
	<b>Alternative B<sup>2</sup></b>	(\$547)	\$145	(\$402)
	<b>Alternative C<sup>3</sup></b>	(\$547)	\$0	(\$547)

#### Increase in Contribution Rates: <sup>4</sup> (Effective 09/01/2006)

	<b>Multiplier</b>		
	<b>Alt. A<sup>1</sup></b>	<b>Alt. B<sup>2</sup></b>	<b>Alt. C<sup>3</sup></b>
<b>Current Members</b>			
Employee	6.23%	3.17%	2.57%
Employer	3.74%	1.90%	1.54%
State	<u>2.49%</u>	<u>1.27%</u>	<u>1.03%</u>
Total - Current Members	12.46%	6.34%	5.14%
<b>New Entrants<sup>5</sup></b>			
Employee	2.74%	1.40%	1.40%
Employer	1.64%	0.84%	0.84%
State	<u>1.10%</u>	<u>0.56%</u>	<u>0.56%</u>
Total - New Entrants	5.48%	2.80%	2.80%

<sup>1</sup>0-19=2.0%, 20-24=2.5%, 25-29=2.75%, 30+=3.0%: Percentage applies to all past service once each service threshold is reached

<sup>2</sup>0-9=2.0%, 10-14=2.25%, 15-19=2.5%, 20-24=2.75%, 25+=3.0%: Percentage applies only to service earned after each service threshold is reached

<sup>3</sup>0-9=2.0%, 10-14=2.25%, 15-19=2.5%, 20-24=2.75%, 25+=3.0%: Increased percentage applies only to service earned after September, 2003 and after each service threshold is reached

<sup>4</sup>For LEOFF 2, the employer pays 60% of the Employer State cost, the State pays 40%.

<sup>5</sup>Rate change applied to future new entrant payroll and used for fiscal budget determinations only. A single supplemental rate increase, equal to the increase for current members, would apply initially for all members or employers.

### Exhibit 3B - Increase Multiplier Based on Service

#### Fiscal Budget Determinations:

The proposal would result in higher contribution rates for all LEOFF 2 members and employers. As a result of the changes in the required contribution rates, the increase/(decrease) in funding expenditures is projected to be:

	<b>Multiplier</b>		
	<b>Alternative A<sub>1</sub></b>	<b>Alternative B<sub>2</sub></b>	<b>Alternative C<sub>3</sub></b>
<b>Costs (in Millions):</b>			
<b>2006-2007</b>			
<b>State:</b>			
General Fund	\$24.4	\$12.4	\$10.3
Non-General Fund	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>
<b>Total State</b>	<b>\$24.4</b>	<b>\$12.4</b>	<b>\$10.3</b>
Local Government	\$36.6	\$18.6	\$15.3
Total Employer	\$61.0	\$31.0	\$25.6
Total Employee	\$61.0	\$31.0	\$25.6
<b>2007-2009</b>			
<b>State:</b>			
General Fund	\$61.8	\$31.5	\$26.2
Non-General Fund	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>
<b>Total State</b>	<b>\$61.8</b>	<b>\$31.5</b>	<b>\$26.2</b>
Local Government	\$92.9	\$47.2	\$39.2
Total Employer	\$154.7	\$78.7	\$65.4
Total Employee	\$154.7	\$78.7	\$65.4
<b>2005-2030</b>			
<b>State:</b>			
General Fund	\$1,048.4	\$535.2	\$486.1
Non-General Fund	<u>\$0.0</u>	<u>\$0.0</u>	<u>\$0.0</u>
<b>Total State</b>	<b>\$1,048.4</b>	<b>\$535.2</b>	<b>\$486.1</b>
Local Government	\$1,573.6	\$801.8	\$728.1
Total Employer	\$2,622.0	\$1,337.0	\$1,214.2
Total Employee	\$2,622.0	\$1,337.0	\$1,214.2

<sup>1</sup>0-19=2.0%, 20-24=2.5%, 25-29=2.75%, 30+=3.0%: Percentage applies to all past service once each service threshold is reached

<sup>2</sup>0-9=2.0%, 10-14=2.25%, 15-19=2.5%, 20-24=2.75%, 25+=3.0%: Percentage applies only to service earned after each service threshold is reached

<sup>3</sup>0-9=2.0%, 10-14=2.25%, 15-19=2.5%, 20-24=2.75%, 25+=3.0%: Increased percentage applies only to service earned after September, 2003 and after each service threshold is reached