



1301 Fifth Avenue  
Suite 3800  
Seattle, WA 98101-2605  
USA

Tel +1 206 624 7940  
Fax +1 206 623 3485

milliman.com

February 4, 2009

Ms. Patricia F. Pabst  
Retirement System Director  
Tacoma Employees' Retirement System  
1544 Tacoma Municipal Building, 747 Market Street  
Tacoma, WA 98402

Re: Updated Early Warning Projections for the Tacoma Employees' Retirement System

Dear Patricia:

The enclosed exhibits update the early warning provided this past November to use the best estimates of the preliminary asset and salary information as of December 31, 2008. The purpose of this letter is to provide rough estimates of how experience could impact the funded status of the System. In particular, investment experience has a large impact on the System's funding. The following 20-year projections are enclosed:

- Exhibit 1: Estimated January 1, 2009 Status with No Subsequent Gains or Losses
- Exhibit 2: Downside – Repeat of Returns from 2000 – 2002 (3.9%, -2.9%, -8.9%)
- Exhibit 3: Upside – Repeat of Returns from 2003 – 2005 (29.4%, 15.5%, 8.7%)

These projections rely on the member data provided for the January 1, 2007 actuarial valuation and preliminary asset and salary information through December 31, 2008. The projections use the assumptions adopted at the July 10, 2008 Retirement Board Meeting. It is assumed that the total contribution rate remains fixed at 14.00%. The model does not reflect the recent plan changes that keep benefits from increasing with employee contributions. An updated model incorporating these changes will be completed with our January 1, 2009 valuation. Net 2007 and 2008 investment returns are estimated to be 3.9% and -31.2% respectively. This is significantly below the 7.75% actuarial assumption. The 2008 general wage increase of 2% and the 2009 general wage increase of 3% for the majority of members is lower than the 4.25% assumption.

### Observations

- The extraordinary bear market which started in October of 2007 has hurt the System's funding. This is represented by estimated returns of 3.9% in 2007 and -31.2% in 2008.
- We estimate the System's Funded Ratio which is based on actuarial assets has declined from 114.0% at January 1, 2007 to 93.3% at January 1, 2009. The actuarial assets do not yet recognize all investment losses. If market assets are used we estimate the January 1, 2009 Funded Ratio would be 77.7%.

This work product was prepared solely for Tacoma Employee's Retirement System for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work.

- At January 1, 2012 when all current investment losses will be recognized the model projects a required contribution rate of 27.96%. This is approximately twice the current 14% of pay contribution rate. However, the increase is expected to be smaller when the recent plan changes which keep benefits from increasing with employee contributions are reflected.
- We are currently calculating contribution increases based on a 30 year amortization of the unfunded actuarial accrued liability because 30 years is the maximum period allowed by the Governmental Accounting Standards Board (GASB). We need to confirm the 30 year period with the Retirement Board since it is not specifically stated in the funding and benefits policy.

### Comments on Exhibits 1 - 3

Exhibits 1 to 3 are consistent with the November Updated Early Warning letter incorporating recent experience as described above. Exhibit 1 assumes investment returns of 7.75% in all years after 2008. Exhibits 2 and 3 demonstrate the potential downside and upside impact of investment volatility based on the actual returns the System experienced in two recent three year periods. Exhibit 3 shows that even if the strong returns of 2003 to 2005 (29.4%, 15.5% and 8.7%) were to reoccur in the next three years, contribution increases would still be required to amortize the unfunded actuarial accrued liability within a reasonable period. This confirms that the City's recent actions to increase contributions are appropriate.

### Graphs and Output

Each exhibit shows four graphs:

1. **Funded Ratio = AVA / AAL.** This is the funded ratio based on the Actuarial Value of Assets divided by the Actuarial Accrued Liability.

The Actuarial Value of Assets recognizes market value gains and losses in four even pieces starting at the valuation date. Therefore, if there had been a \$4 million market value gain or loss in the year ended December 31, 2007, it would have been recognized in four even \$1 million installments at January 1, of 2008, 2009, 2010 and 2011. Gains and losses for this purpose are based on whether the investments did better or worse than the 7.75% anticipated by the actuarial assumption. Therefore, a return of 3.75% would be treated as a 4.0% loss because it was 4.0% less than the 7.75% anticipated by the actuarial assumptions. The actuarial assets must be between 80% and 120% of market assets. The actuarial assets are expected to be equal to 120% of market assets at January 1, 2009.

2. **Funded Ratio = MVA / AAL.** This is the funded ratio based on the Market Value of Assets divided by the Actuarial Accrued Liability. It will differ from AVA / AAL to the extent some of the market value gains and losses have not yet been recognized in the Actuarial Value of Assets.

3. **Amortization Period.** This is currently how long it will take for the Funding Reserve to be used up by the excess of the Normal Cost Rate (16.94%) over the Contribution Rate (14.00% of pay). Note that in cases where there is no Funding Reserve, the amortization period shown in the graph is 0 years.
4. **Calculated Total Contribution Rate.** If there is a Funding Reserve (Actuarial Assets exceed Actuarial Accrued Liabilities) this is the rate required to maintain the Funding Reserve for 20 years consistent with the Funding & Benefits Policy. If there is an Unfunded Actuarial Accrued Liability (Actuarial Assets are less than Actuarial Accrued Liabilities) this is the rate required to pay for the Unfunded Actuarial Accrued Liability over 30 years consistent with the Governmental Accounting Standards Board parameters. Note that this is the maximum period under GASB guidelines, so it should be considered a minimum funding level.

**Numbers:** We have attached a numerical summary to each exhibit showing the underlying numbers for the “current” bars.

#### **Exhibit 4 - Funding and Benefits Policy**

Exhibit 4 is the Board's Funding and Benefits Policy. The Funding and Benefits Policy is designed by the Board to provide guidance as to when adjustments to the Retirement System's contributions and benefits should be considered. The Funding & Benefits Policy is meant to assist in establishing a contribution rate which is relatively stable over the long term while the System provides its members superior retirement income.

#### **Data, Methods and Assumptions**

The estimates in this letter are based on the member data and plan provisions used in the January 1, 2007 actuarial valuation. The December 31, 2007 and December 31, 2008 asset information and the general wage increase for most members at January 1, 2008 and January 1, 2009 were provided by the System. The total contribution rate is assumed to continue unchanged at 14.00% for these projections. These estimates do not include any other gains or losses from liability or asset experience. We have not made any adjustments to anticipate incremental increases in the Normal Cost Rate since the last actuarial valuation due to new members born in later years living longer. More sophisticated projection work would be required to reflect this. The January 1, 2009 actuarial valuation will include any incremental increases in the Normal Cost Rate over the preceding two years. The assumptions and methods were adopted by the Retirement Board. The most recent changes in assumptions adopted at the July 10, 2008 Retirement Board meeting are used in all projections.

## **Certification**

Milliman's work product was prepared exclusively for the use or benefit of the Tacoma Employees' Retirement System for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning the System's operations, and uses the System's data which Milliman has not audited. Any third party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs. Any distribution of this report must be in its entirety, unless prior written consent from Milliman is obtained.

These estimates are subject to the uncertainties of a regular actuarial valuation; they are inexact because they are based on assumptions that are themselves necessarily inexact, even though we consider them reasonable. Thus, the emerging costs may vary from those presented in this letter to the extent actual experience differs from that projected by the actuarial assumptions.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board (ASB) and the Code of Professional Conduct and Qualification Standards for Public Statements of Actuarial Opinion of the American Academy of Actuaries. We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

## **Summary**

We have projected the results of the January 1, 2007 actuarial valuation forward to January 1, 2009 using updated asset and wage increase information and the new assumptions adopted at the July 10, 2008 Retirement Board meeting. The estimated Funding Ratio based on actuarial assets at January 1, 2009 is 93.3%. The estimated Funding Ratio based on market assets at January 1, 2009 is 77.7%. The January 1, 2009 actuarial valuation is likely to show required contribution increases of more than 10% of pay when it is completed later this year. The projections support the City's recent actions to strengthen the funding of the Retirement System by increasing contributions.

The projections assume a contribution rate of 14.00% of pay. The projections do not reflect the recent plan changes that keep benefits from increasing with employee contributions. An updated model incorporating these changes will be completed with our January 1, 2009 actuarial valuation.

We need to confirm with the Board that contribution rate calculations will amortize the unfunded actuarial accrued liability over 30 years which is the maximum period allowed by the GASB parameters. Consideration should be given to adding this specifically to the Funding and Benefits Policy.



These early warning calculations only provide the Board with a rough barometer of the System's experience over the last two years. The results of the January 1, 2009 actuarial valuation could be materially different.

If you have any questions, please call.

Sincerely,

A handwritten signature in black ink that reads "Mark C. Olleman".

Mark C. Olleman, FSA, EA, MAAA  
Consulting Actuary  
MCO/trs  
Enclosures

A handwritten signature in black ink that reads "Joshua A. C. Davis".

Joshua A. C. Davis, ASA, MAAA  
Actuary



## Tacoma Employees' Retirement System Numerical Summary of Results

### Deterministic Projection

(Dollar Amounts in \$Millions)

**Estimated January 1, 2009 Status with No Subsequent Gains or Losses**

based on the current total contribution rate of 14.00% of pay

Year	Actuarial Accrued Liability	Actuarial Value of Assets	Funded Ratio = AVA / AAL	Market Value of Assets	Funded Ratio = MVA / AAL	Normal Cost Rate	Contribution Rate Minus Normal Cost Rate	Funding Reserve Amortization Period	Greater of Current Rate or 20/30 Year Amort Rate
2007	892.2	1,021.3	114.5%	1,117.6	125.3%	16.94%	-2.94%	54.2	14.00%
2008	939.8	1,123.3	119.5%	1,144.8	121.8%	16.94%	-2.94%	Rsrv Grows	14.00%
2009	993.1	926.6	93.3%	772.2	77.7%	16.94%	3.55%	UAAL Grows	20.49%
2010	1,053.9	972.1	92.2%	810.1	76.9%	16.94%	4.01%	UAAL Grows	20.95%
2011	1,117.0	958.8	85.8%	848.3	75.9%	16.94%	6.59%	UAAL Grows	23.53%
2012	1,182.3	886.6	75.0%	886.6	75.0%	16.94%	11.02%	UAAL Grows	27.96%
2013	1,250.0	924.9	74.0%	924.9	74.0%	16.94%	11.57%	UAAL Grows	28.51%
2014	1,319.9	962.9	73.0%	962.9	73.0%	16.94%	12.13%	UAAL Grows	29.07%
2015	1,392.1	1,000.4	71.9%	1,000.4	71.9%	16.94%	12.71%	UAAL Grows	29.65%
2016	1,466.7	1,037.3	70.7%	1,037.3	70.7%	16.94%	13.32%	UAAL Grows	30.26%
2017	1,543.5	1,073.3	69.5%	1,073.3	69.5%	16.94%	13.94%	UAAL Grows	30.88%
2018	1,622.9	1,108.2	68.3%	1,108.2	68.3%	16.94%	14.59%	UAAL Grows	31.53%
2019	1,704.8	1,142.0	67.0%	1,142.0	67.0%	16.94%	15.25%	UAAL Grows	32.19%
2020	1,789.6	1,174.5	65.6%	1,174.5	65.6%	16.94%	15.95%	UAAL Grows	32.89%
2021	1,877.3	1,205.6	64.2%	1,205.6	64.2%	16.94%	16.66%	UAAL Grows	33.60%
2022	1,968.5	1,235.2	62.8%	1,235.2	62.8%	16.94%	17.39%	UAAL Grows	34.33%
2023	2,063.4	1,263.5	61.2%	1,263.5	61.2%	16.94%	18.15%	UAAL Grows	35.09%
2024	2,162.4	1,290.3	59.7%	1,290.3	59.7%	16.94%	18.94%	UAAL Grows	35.88%
2025	2,266.0	1,315.7	58.1%	1,315.7	58.1%	16.94%	19.75%	UAAL Grows	36.69%
2026	2,374.7	1,339.7	56.4%	1,339.7	56.4%	16.94%	20.59%	UAAL Grows	37.53%
2027	2,489.3	1,362.4	54.7%	1,362.4	54.7%	16.94%	21.46%	UAAL Grows	38.40%



## Tacoma Employees' Retirement System Numerical Summary of Results

### Deterministic Projection (Dollar Amounts in \$Millions)

**Downside - Repeat of Returns from 2000 to 2002 (3.9%, -2.9%, -8.9%) followed by 7.75%**

based on the current total contribution rate of 14.00% of pay

Year	Actuarial Accrued Liability	Actuarial Value of Assets	Funded Ratio = AVA / AAL	Market Value of Assets	Funded Ratio = MVA / AAL	Normal Cost Rate	Contribution Rate Minus Normal Cost Rate	Funding Reserve Amortization Period	Greater of Current Rate or 20/30 Year Amort Rate
2007	892.2	1,021.3	114.5%	1,117.6	125.3%	16.94%	-2.94%	54.2	14.00%
2008	939.8	1,123.3	119.5%	1,144.8	121.8%	16.94%	-2.94%	Rsrv Grows	14.00%
2009	993.1	926.6	93.3%	772.2	77.7%	16.94%	3.55%	UAAL Grows	20.49%
2010	1,053.9	936.9	88.9%	780.7	74.1%	16.94%	5.30%	UAAL Grows	22.24%
2011	1,117.0	881.8	78.9%	734.8	65.8%	16.94%	9.31%	UAAL Grows	26.25%
2012	1,182.3	773.0	65.4%	644.2	54.5%	16.94%	14.87%	UAAL Grows	31.81%
2013	1,250.0	744.3	59.5%	663.7	53.1%	16.94%	17.44%	UAAL Grows	34.38%
2014	1,319.9	711.5	53.9%	681.5	51.6%	16.94%	19.98%	UAAL Grows	36.92%
2015	1,392.1	697.1	50.1%	697.1	50.1%	16.94%	21.79%	UAAL Grows	38.73%
2016	1,466.7	710.5	48.4%	710.5	48.4%	16.94%	22.71%	UAAL Grows	39.65%
2017	1,543.5	721.1	46.7%	721.1	46.7%	16.94%	23.65%	UAAL Grows	40.59%
2018	1,622.9	728.8	44.9%	728.8	44.9%	16.94%	24.61%	UAAL Grows	41.55%
2019	1,704.8	733.2	43.0%	733.2	43.0%	16.94%	25.61%	UAAL Grows	42.55%
2020	1,789.6	734.0	41.0%	734.0	41.0%	16.94%	26.65%	UAAL Grows	43.59%
2021	1,877.3	730.9	38.9%	730.9	38.9%	16.94%	27.72%	UAAL Grows	44.66%
2022	1,968.5	723.8	36.8%	723.8	36.8%	16.94%	28.83%	UAAL Grows	45.77%
2023	2,063.4	712.4	34.5%	712.4	34.5%	16.94%	29.97%	UAAL Grows	46.91%
2024	2,162.4	696.5	32.2%	696.5	32.2%	16.94%	31.15%	UAAL Grows	48.09%
2025	2,266.0	675.9	29.8%	675.9	29.8%	16.94%	32.38%	UAAL Grows	49.32%
2026	2,374.7	650.3	27.4%	650.3	27.4%	16.94%	33.64%	UAAL Grows	50.58%
2027	2,489.3	619.6	24.9%	619.6	24.9%	16.94%	34.95%	UAAL Grows	51.89%



## Tacoma Employees' Retirement System Numerical Summary of Results

### Deterministic Projection

(Dollar Amounts in \$Millions)

**Upside - Repeat of Returns from 2003 to 2005 (29.4%, 15.5%, 8.7%) followed by 7.75%**

based on the current total contribution rate of 14.00% of pay

Year	Actuarial Accrued Liability	Actuarial Value of Assets	Funded Ratio = AVA / AAL	Market Value of Assets	Funded Ratio = MVA / AAL	Normal Cost Rate	Contribution Rate Minus Normal Cost Rate	Funding Reserve Amortization Period	Greater of Current Rate or 20/30 Year Amort Rate
2007	892.2	1,021.3	114.5%	1,117.6	125.3%	16.94%	-2.94%	54.2	14.00%
2008	939.8	1,123.3	119.5%	1,144.8	121.8%	16.94%	-2.94%	Rsrv Grows	14.00%
2009	993.1	926.6	93.3%	772.2	77.7%	16.94%	3.55%	UAAL Grows	20.49%
2010	1,053.9	1,083.0	102.8%	975.1	92.5%	16.94%	-0.37%	5.7	16.57%
2011	1,117.0	1,072.8	96.0%	1,100.9	98.6%	16.94%	2.55%	UAAL Grows	19.49%
2012	1,182.3	1,082.7	91.6%	1,169.1	98.9%	16.94%	4.37%	UAAL Grows	21.31%
2013	1,250.0	1,205.5	96.4%	1,229.3	98.3%	16.94%	2.44%	UAAL Grows	19.38%
2014	1,319.9	1,288.3	97.6%	1,290.9	97.8%	16.94%	1.98%	UAAL Grows	18.92%
2015	1,392.1	1,353.8	97.2%	1,353.8	97.2%	16.94%	2.13%	UAAL Grows	19.07%
2016	1,466.7	1,418.1	96.7%	1,418.1	96.7%	16.94%	2.39%	UAAL Grows	19.33%
2017	1,543.5	1,483.5	96.1%	1,483.5	96.1%	16.94%	2.64%	UAAL Grows	19.58%
2018	1,622.9	1,550.3	95.5%	1,550.3	95.5%	16.94%	2.91%	UAAL Grows	19.85%
2019	1,704.8	1,618.3	94.9%	1,618.3	94.9%	16.94%	3.19%	UAAL Grows	20.13%
2020	1,789.6	1,687.7	94.3%	1,687.7	94.3%	16.94%	3.47%	UAAL Grows	20.41%
2021	1,877.3	1,758.6	93.7%	1,758.6	93.7%	16.94%	3.76%	UAAL Grows	20.70%
2022	1,968.5	1,831.1	93.0%	1,831.1	93.0%	16.94%	4.06%	UAAL Grows	21.00%
2023	2,063.4	1,905.6	92.4%	1,905.6	92.4%	16.94%	4.38%	UAAL Grows	21.32%
2024	2,162.4	1,982.1	91.7%	1,982.1	91.7%	16.94%	4.70%	UAAL Grows	21.64%
2025	2,266.0	2,061.2	91.0%	2,061.2	91.0%	16.94%	5.04%	UAAL Grows	21.98%
2026	2,374.7	2,142.9	90.2%	2,142.9	90.2%	16.94%	5.38%	UAAL Grows	22.32%
2027	2,489.3	2,227.9	89.5%	2,227.9	89.5%	16.94%	5.74%	UAAL Grows	22.68%

## Tacoma City Employees' Retirement System Funding & Benefits Policy

### Objective

This policy is intended to provide guidance as to when adjustments to the Retirement System's contributions and benefits should be considered. The Funding & Benefits Policy is meant to assist in establishing a contribution rate which is relatively stable over the long term while the System provides its members superior retirement income.

### Policy

When the Funding Ratio is:

- (a) Above 120% - The potential for benefit improvements will be reviewed providing the Retirement System's funding status is expected to be stable and remain stable after the improvements.
- (b) Between 95% and 120% - There will be no action, provided that either:
  - 1. The Contribution Rate is greater than or equal to the Normal Cost Rate, or
  - 2. There is a Funding Reserve which is projected to be amortized over not less than 20 years.

If neither of these conditions is met, then the Retirement Board will consider an increase in the contribution rates.

- (c) Between 80% and 95% - The Retirement Board will consider an increase in the contribution rates.
- (d) Under 80% - The funding and benefits policy will be reviewed and reevaluated.

### Additional Guidelines

- (a) The amount by which the Normal Cost Rate exceeds the Contribution Rate should not be allowed to grow larger than 3.25%. This was the estimated difference in May of 2006.
- (b) There is a long term goal of achieving a Contribution Rate greater than or equal to the Normal Cost Rate so that if the Funding Reserve is lost due to adverse experience, there will not be a sudden increase in the calculated required contribution.
- (c) Increases in the contribution rate may be made in small increments.
- (d) Requests for increases in the contribution rate should be made at least 1 year prior to the beginning of the financial biennium.

### Terminology

- (a) The Funding Ratio is calculated by dividing the System's Actuarial Value of Assets by the Actuarial Accrued Liability.
- (b) The Funding Reserve is the dollar amount by which the System's Actuarial Value of Assets exceeds the Actuarial Accrued Liability.