contra costa county
Employees' Retirement Association
1355 willow way suite 221 concord ca 94520
925.521.3960 fax 925.646.5747

March 23, 2011
Agenda Item 7



March 14, 2011

Lou Ann Texeria
Contra Costa County Local Agency Formation Commission
651 Pine Street, 8th Floor
Martinez, CA 94553

Re: Five-Year Projection of Employer Contribution Rate Changes

Dear Employer:

At the February 9, 2011 Board meeting, the Segal Company presented the *Five-Year Projection of Employer Contribution Rate Change*, which was derived from the December 31, 2009 actuarial valuation. This presentation included additional information by cost group not provided in previous years due to the depooling approved by the Board of Retirement in October 2009.

The February 1, 2011 *Five-Year Projection of Employer Contribution Rate Change* was based on the assumed rate of return of 7.75% for 2010. The Segal Company has provided an updated document, dated March 11, 2011, incorporating an estimated actual return of 14% for the period ended December 31, 2010

We have provided copies of both documents with this letter. Please note that both of these projections are based on figures from the December 31, 2009 actuarial valuation results.

We will provide an updated *Five-Year Projection* after the completion of the December 31, 2010 actuarial valuation.

Please let me know if you have any questions on this information.

Sincerely,

Marilyn Leedom

Marilyn Leedom
Retirement Chief Executive Officer

SEGAL

THE SEGAL COMPANY
100 Montgomery Street, Suite 500 San Francisco, CA 94104-4308
T 415.263.8200 F 415.263.8290 www.segalco.com

John W. Monroe, ASA, MAAA, EA
Vice President & Associate Actuary
jmonroe@segalco.com

February 1, 2011

Ms. Marilyn Leedom
Chief Executive Officer
Contra Costa County Employees' Retirement Association
1355 Willow Way, Suite 221
Concord, CA 94520

**Re: Contra Costa County Employees' Retirement Association**
**Five-Year Projection of Employer Contribution Rate Changes**

Dear Marilyn:

As requested, we have prepared a five-year projection of estimated employer contribution rate changes for CCCERA. This projection is derived from the December 31, 2009 actuarial valuation results. Key assumptions and methods are detailed below.

**Results**

The estimated contribution rate changes shown on the next page apply to the recommended average employer contribution rate. For purposes of this projection, the rate changes are assumed to be from asset gains and losses that are funded as a level percentage of the Association's total active payroll base. The asset gains and losses are due to: (1) deferred gains and losses from the actuarial asset smoothing methodology; (2) losses due to investment income not earned on the difference between the Actuarial Value of Assets (AVA) and Market Value of Assets (MVA); and (3) contribution gains and losses which occur from delaying the implementation of new rates until 18 months after the actuarial valuation date.

The following table provides the year-to-year rate changes from each of the above causes and the cumulative rate change over the five-year projection period. To obtain the estimated average employer contribution rate at each successive valuation date, these cumulative rate changes should be added to the rates developed from the December 31, 2009 valuation. These rate changes become effective 18 months following the actuarial valuation date shown in the table.

The rate changes shown below represent the average rate for the aggregate plan.

| Rate Change Component | Valuation Date | | | | |
|---|---|---|---|---|---|
| | 12/31/2010 | 12/31/2011 | 12/31/2012 | 12/31/2013 | 12/31/2014 |
| (1) Deferred (Gains)/Losses | 2.58% | 2.81% | 2.91% | 0.41% | -0.42% |
| (2) Loss of Investment Income on Difference Between AVA and MVA | 0.62% | 0.40% | 0.17% | -0.01% | -0.02% |
| (3) 18 Month Rate Delay | 0.41% | 0.45% | 0.41% | 0.40% | 0.19% |
| Incremental Rate Change | 3.61% | 3.66% | 3.49% | 0.80% | -0.25% |
| Cumulative Rate Change | 3.61% | 7.27% | 10.76% | 11.56% | 11.31% |

The rate change for an individual cost group or employer will vary depending primarily on the size of that group's assets and liabilities relative to its payroll. The ratio of the group's assets to payroll is sometimes referred to as the volatility index (VI). A higher VI results in more volatile contributions and can result from the following factors:

- More generous benefits
- More retirees
- Older workforce
- Shorter careers
- Issuance of Pension Obligation Bonds (POBs)

The attached exhibit shows the VI for CCCERA's cost groups along with the "relative VI" which is the VI for that specific cost group divided by the average VI for the aggregate plan. Using these ratios we have estimated the rate change due to these generally investment related net losses for each individual cost group by multiplying the rate changes shown above for the aggregate plan by the relative VI for each cost group. These estimated rate changes for each cost group are shown in the attached exhibit.

Note that because we have estimated the allocation of the rate changes across the cost groups, the actual rate changes by group may differ from those shown in the exhibit, even if the plan-wide average rate changes are close to those shown above.

**Key Assumptions and Methods**

The projection is based upon the following assumptions and methods:

- December 31, 2009 non-economic assumptions remain unchanged.
- December 31, 2009 retirement benefit formulas remain unchanged.
- December 31, 2009 1937 Act statutes remain unchanged.
- UAAL amortization method remains unchanged (i.e., 18-year layers, level percent of pay).
- December 31, 2009 economic assumptions remain unchanged, including the 7.75% investment earnings assumption.
- 7.75% is actually earned on a market value basis for each of the five years, including 2010.
- Active payroll grows at 4.25% per annum.
- Deferred investment gains and losses are recognized per the asset smoothing schedule prepared by the Association as of December 31, 2009. They are funded as a level percentage of the Association's total active payroll base.
- Deferred investment gains are all applied directly to reduce the UAAL. Note that this assumption may not be entirely consistent with the details of the Board's Interest Crediting and Excess Earnings Policy.
- All other actuarial assumptions used in the December 31, 2009 actuarial valuation are realized.
- No changes are made to actuarial methodologies, such as adjusting for the contribution rate delay in advance.

Finally, we emphasize that projections, by their nature, are not a guarantee of future results. The modeling projections are intended to serve as illustrations of future financial outcomes that are based on the information available to us at the time the modeling is undertaken and completed, and the agreed-upon assumptions and methodologies described herein. Emerging results may differ significantly if the actual experience proves to be different from these assumptions or if alternative methodologies are used. Actual experience may differ due to such variables as demographic experience, the economy, stock market performance and the regulatory environment.

Unless otherwise noted, all of the above calculations are based on the December 31, 2009 actuarial valuation results including the participant data and actuarial assumptions on which that valuation was based. That valuation and these projections were completed under the supervision of John Monroe, ASA, MAAA, Enrolled Actuary.

Please let us know if you have any questions.

Sincerely,

John Monroe

John Monroe

CZI/hy

cc: Rick Koehler

# Exhibit

## Contra Costa County Employees' Retirement Association

## Estimated Employer Rate Change by Cost Group (CG) Based on December 31, 2009 Valuation

| | CG#1 & CG#2 Combined Enhanced General Tier 1 & 3 | CG#3 Enhanced CCC Sanitary District Tier 1 | CG#4 Enhanced Housing Authority Tier 1 | CG#5 Enhanced CCCFPD Tier 1 | CG#6 Non-Enhanced District Tier 1 |
|---|---|---|---|---|---|
| Market Value of Assets (MVA)* | $2,447,785,160 | $148,760,234 | $28,810,562 | $31,258,412 | $3,233,626 |
| Projected Payroll for 2010 | $500,585,254 | $25,199,002 | $5,349,534 | $4,223,488 | $733,227 |
| Volatility Index (VI) = MVA/Payroll | 4.89 | 5.90 | 5.39 | 7.40 | 4.41 |
| Relative Volatility Index (VI) = CG VI / Total Plan VI | 0.76 | 0.92 | 0.84 | 1.15 | 0.69 |
| | | | | | |
| Estimated Incremental Rate Change as of 12/31/2010 | 2.75% | 3.32% | 3.03% | 4.16% | 2.48% |
| Estimated Incremental Rate Change as of 12/31/2011 | 2.79% | 3.36% | 3.07% | 4.22% | 2.51% |
| Estimated Incremental Rate Change as of 12/31/2012 | 2.66% | 3.21% | 2.92% | 4.02% | 2.40% |
| Estimated Incremental Rate Change as of 12/31/2013 | 0.61% | 0.73% | 0.67% | 0.92% | 0.55% |
| Estimated Incremental Rate Change as of 12/31/2014 | -0.19% | -0.23% | -0.21% | -0.29% | -0.17% |
| | | | | | |
| Cumulative Rate Change as of 12/31/2010 | 2.75% | 3.32% | 3.03% | 4.16% | 2.48% |
| Cumulative Rate Change as of 12/31/2011 | 5.54% | 6.68% | 6.10% | 8.38% | 4.99% |
| Cumulative Rate Change as of 12/31/2012 | 8.20% | 9.89% | 9.02% | 12.40% | 7.39% |
| Cumulative Rate Change as of 12/31/2013 | 8.81% | 10.62% | 9.69% | 13.32% | 7.94% |
| Cumulative Rate Change as of 12/31/2014 | 8.62% | 10.39% | 9.48% | 13.03% | 7.77% |

| | CG#7 & CG#9 Combined Enhanced County Safety Tier A & C | CG#8 Enhanced CCCFPD/East CCCFPD Safety Tier A | CG#10 Enhanced Moraga-Orinda FD Safety Tier A | CG#11 Enhanced San Ramon Valley FD Safety Tier A | CG#12 Non-Enhanced Rodeo-Hercules FPD Safety Tier A | Total Plan |
|---|---|---|---|---|---|---|
| Market Value of Assets (MVA)* | $927,300,632 | $586,572,933 | $105,273,822 | $167,056,819 | $16,529,771 | $4,462,581,971 |
| Projected Payroll for 2010 | $89,089,238 | $39,292,604 | $8,040,336 | $19,485,718 | $2,445,598 | $694,443,999 |
| Volatility Index (VI) = MVA/Payroll | 10.41 | 14.93 | 13.09 | 8.57 | 6.76 | 6.43 |
| Relative Volatility Index (VI) = CG VI / Total Plan VI | 1.62 | 2.32 | 2.04 | 1.33 | 1.05 | 1.00 |
| | | | | | | |
| Estimated Incremental Rate Change as of 12/31/2010 | 5.85% | 8.39% | 7.36% | 4.82% | 3.80% | 3.61% |
| Estimated Incremental Rate Change as of 12/31/2011 | 5.93% | 8.50% | 7.46% | 4.88% | 3.85% | 3.66% |
| Estimated Incremental Rate Change as of 12/31/2012 | 5.65% | 8.11% | 7.11% | 4.66% | 3.67% | 3.49% |
| Estimated Incremental Rate Change as of 12/31/2013 | 1.30% | 1.86% | 1.63% | 1.07% | 0.84% | 0.80% |
| Estimated Incremental Rate Change as of 12/31/2014 | -0.40% | -0.58% | -0.51% | -0.33% | -0.26% | -0.25% |
| | | | | | | |
| Cumulative Rate Change as of 12/31/2010 | 5.85% | 8.39% | 7.36% | 4.82% | 3.80% | 3.61% |
| Cumulative Rate Change as of 12/31/2011 | 11.78% | 16.89% | 14.82% | 9.70% | 7.65% | 7.27% |
| Cumulative Rate Change as of 12/31/2012 | 17.43% | 25.00% | 21.93% | 14.36% | 11.32% | 10.76% |
| Cumulative Rate Change as of 12/31/2013 | 18.73% | 26.86% | 23.56% | 15.43% | 12.16% | 11.56% |
| Cumulative Rate Change as of 12/31/2014 | 18.33% | 26.28% | 23.05% | 15.10% | 11.90% | 11.31% |

* Excludes Post Retirement Death Benefit reserve.

These rates do not include any employer subvention of member contributions or any member subvention of employer contributions.

M:\cccera.cli\val2010\special_studies\[Employer Rate Proj09.xls]Rate Change by CG useMV Exhibit

SEGAL

THE SEGAL COMPANY
100 Montgomery Street Suite 500 San Francisco, CA 94104-4308
T 415.263.8200 F 415.263.8290 www.segalco.com

John W. Monroe, ASA, MAAA, EA
Vice President & Associate Actuary
jmonroe@segalco.com

March 11, 2011

Ms. Marilyn Leedom
Chief Executive Officer
Contra Costa County Employees' Retirement Association
1355 Willow Way, Suite 221
Concord, CA 94520

**Re: Contra Costa County Employees' Retirement Association
Five-Year Projection of Employer Contribution Rate Changes
Based on Estimated 14% Market Value Investment Return for 2010**

Dear Marilyn:

As requested, we have updated our five-year projection of estimated employer contribution rate changes for CCCERA. This projection is derived from the December 31, 2009 actuarial valuation results and incorporates an estimated market value investment return of 14% for the 2010 calendar year. Key assumptions and methods are detailed below.

## Results

The estimated contribution rate changes shown on the next page apply to the recommended average employer contribution rate. For purposes of this projection, the rate changes are assumed to be from asset gains and losses that are funded as a level percentage of the Association's total active payroll base. The asset gains and losses are due to: (1) deferred gains and losses from the actuarial asset smoothing methodology; (2) losses due to investment income not earned on the difference between the Actuarial Value of Assets (AVA) and Market Value of Assets (MVA); and (3) contribution gains and losses which occur from delaying the implementation of new rates until 18 months after the actuarial valuation date.

The following table provides the year-to-year rate changes from each of the above causes and the cumulative rate change over the five-year projection period. To obtain the estimated average employer contribution rate at each successive valuation date, these cumulative rate changes should be added to the rates developed from the December 31, 2009 valuation. These rate changes become effective 18 months following the actuarial valuation date shown in the table.

The rate changes shown below represent the average rate for the aggregate plan.

| Rate Change Component | Valuation Date (12/31) | | | | |
|---|---|---|---|---|---|
| | 2010 | 2011 | 2012 | 2013 | 2014 |
| (1) Deferred (Gains)/Losses | 2.57% | 2.25% | 2.38% | -0.11% | -0.92% |
| (2) Loss of Investment Income on Difference Between AVA and MVA | 0.39% | 0.19% | 0.01% | -0.12% | -0.09% |
| (3) 18 Month Rate Delay | 0.41% | 0.44% | 0.34% | 0.31% | 0.11% |
| Incremental Rate Change | 3.37% | 2.88% | 2.73% | 0.08% | -0.90% |
| Cumulative Rate Change | 3.37% | 6.25% | 8.98% | 9.06% | 8.16% |

The rate change for an individual cost group or employer will vary depending primarily on the size of that group's assets and liabilities relative to its payroll. The ratio of the group's assets to payroll is sometimes referred to as the volatility index (VI). A higher VI results in more volatile contributions and can result from the following factors:

- More generous benefits
- More retirees
- Older workforce
- Shorter careers
- Issuance of Pension Obligation Bonds (POBs)

The attached exhibit shows the VI for CCCERA's cost groups along with the "relative VI" which is the VI for that specific cost group divided by the average VI for the aggregate plan. Using these ratios we have estimated the rate change due to these generally investment related net losses for each individual cost group by multiplying the rate changes shown above for the aggregate plan by the relative VI for each cost group. These estimated rate changes for each cost group are shown in the attached exhibit.

Note that because we have estimated the allocation of the rate changes across the cost groups, the actual rate changes by group may differ from those shown in the exhibit, even if the plan-wide average rate changes are close to those shown above.

**Key Assumptions and Methods**

The projection is based upon the following assumptions and methods:

- December 31, 2009 non-economic assumptions remain unchanged.
- December 31, 2009 retirement benefit formulas remain unchanged.
- December 31, 2009 1937 Act statutes remain unchanged.
- UAAL amortization method remains unchanged (i.e., 18-year layers, level percent of pay).
- December 31, 2009 economic assumptions remain unchanged, including the 7.75% investment earnings assumption.
- The 2010 estimated market investment return of 14% is based on information provided by CCCERA. We have assumed that returns of 7.75% are actually earned on a market value basis for each of the next four years after 2010.
- Active payroll grows at 4.25% per annum.
- Deferred investment gains and losses are recognized per the asset smoothing schedule prepared by the Association as of June 30, 2010. In addition, the estimated investment gain for the second half of 2010 is also recognized over a five-year period. They are funded as a level percentage of the Association's total active payroll base.
- Deferred investment gains are all applied directly to reduce the UAAL. Note that this assumption may not be entirely consistent with the details of the Board's Interest Crediting and Excess Earnings Policy.
- The VI used for these projections is based on the December 31, 2009 Actuarial Valuation and is assumed to stay constant during the projection period.
- All other actuarial assumptions used in the December 31, 2009 actuarial valuation are realized.
- No changes are made to actuarial methodologies, such as adjusting for the contribution rate delay in advance.

Finally, we emphasize that projections, by their nature, are not a guarantee of future results. The modeling projections are intended to serve as illustrations of future financial outcomes that are based on the information available to us at the time the modeling is undertaken and completed, and the agreed-upon assumptions and methodologies described herein. Emerging results may differ significantly if the actual experience proves to be different from these assumptions or if alternative methodologies are used. Actual experience may differ due to such variables as demographic experience, the economy, stock market performance and the regulatory environment.

Unless otherwise noted, all of the above calculations are based on the December 31, 2009 actuarial valuation results including the participant data and actuarial assumptions on which that valuation was based. That valuation and these projections were completed under the supervision of John Monroe, ASA, MAAA, Enrolled Actuary.

Please let us know if you have any questions.

Sincerely,

John Monroe

CZI/hy

cc: Rick Koehler

# Exhibit

## Contra Costa County Employees' Retirement Association

### Estimated Employer Rate Change by Cost Group (CG) Based on December 31, 2009 Valuation with Estimated 14% Market Value Return for 2010

| | CG#1 & CG#2 Combined Enhanced General Tier 1 & 3 | CG#3 Enhanced CCC Sanitary District Tier 1 | CG#4 Enhanced Housing Authority Tier 1 | CG#5 Enhanced CCCFPD Tier 1 | CG#6 Non-Enhanced District Tier 1 |
|---|---|---|---|---|---|
| Market Value of Assets (MVA)* | $2,447,785,160 | $148,760,234 | $28,810,562 | $31,258,412 | $3,233,626 |
| Projected Payroll for 2010 | $500,585,254 | $25,199,602 | $5,349,534 | $4,223,488 | $733,227 |
| Volatility Index (VI) = MVA/Payroll | 4.89 | 5.90 | 5.39 | 7.40 | 4.41 |
| Relative Volatility Index (VI) = CG VI / Total Plan VI | 0.76 | 0.92 | 0.84 | 1.15 | 0.69 |
| | | | | | |
| Estimated Incremental Rate Change as of 12/31/2010 | 2.56% | 3.10% | 2.82% | 3.88% | 2.31% |
| Estimated Incremental Rate Change as of 12/31/2011 | 2.19% | 2.65% | 2.41% | 3.32% | 1.98% |
| Estimated Incremental Rate Change as of 12/31/2012 | 2.08% | 2.51% | 2.29% | 3.14% | 1.87% |
| Estimated Incremental Rate Change as of 12/31/2013 | 0.06% | 0.07% | 0.07% | 0.09% | 0.05% |
| Estimated Incremental Rate Change as of 12/31/2014 | -0.68% | -0.83% | -0.75% | -1.04% | -0.62% |
| | | | | | |
| Cumulative Rate Change as of 12/31/2010 | 2.56% | 3.10% | 2.82% | 3.88% | 2.31% |
| Cumulative Rate Change as of 12/31/2011 | 4.75% | 5.75% | 5.23% | 7.20% | 4.29% |
| Cumulative Rate Change as of 12/31/2012 | 6.83% | 8.26% | 7.52% | 10.34% | 6.16% |
| Cumulative Rate Change as of 12/31/2013 | 6.89% | 8.33% | 7.59% | 10.43% | 6.21% |
| Cumulative Rate Change as of 12/31/2014 | 6.21% | 7.50% | 6.84% | 9.39% | 5.59% |

| | CG#7 & CG#9 Combined Enhanced County Safety Tier A & C | CG#8 Enhanced CCCFPD/East CCCFPD Safety Tier A | CG#10 Enhanced Moraga-Orinda FD Safety Tier A | CG#11 Enhanced San Ramon Valley FD Safety Tier A | CG#12 Non-Enhanced Rodeo-Hercules FPD Safety Tier A | Total Plan |
|---|---|---|---|---|---|---|
| Market Value of Assets (MVA)* | $927,300,632 | $586,572,933 | $105,273,822 | $167,056,819 | $16,529,771 | $4,462,581,971 |
| Projected Payroll for 2010 | $89,089,238 | $39,292,604 | $8,040,336 | $19,485,718 | $2,445,598 | $694,443,999 |
| Volatility Index (VI) = MVA/Payroll | 10.41 | 14.93 | 13.09 | 8.57 | 6.76 | 6.43 |
| Relative Volatility Index (VI) = CG VI / Total Plan VI | 1.62 | 2.32 | 2.04 | 1.33 | 1.05 | 1.00 |
| | | | | | | |
| Estimated Incremental Rate Change as of 12/31/2010 | 5.46% | 7.83% | 6.87% | 4.50% | 3.54% | 3.37% |
| Estimated Incremental Rate Change as of 12/31/2011 | 4.66% | 6.69% | 5.87% | 3.84% | 3.03% | 2.88% |
| Estimated Incremental Rate Change as of 12/31/2012 | 4.42% | 6.34% | 5.56% | 3.64% | 2.87% | 2.73% |
| Estimated Incremental Rate Change as of 12/31/2013 | 0.13% | 0.19% | 0.16% | 0.11% | 0.08% | 0.08% |
| Estimated Incremental Rate Change as of 12/31/2014 | -1.46% | -2.09% | -1.83% | -1.20% | -0.95% | -0.90% |
| | | | | | | |
| Cumulative Rate Change as of 12/31/2010 | 5.46% | 7.83% | 6.87% | 4.50% | 3.54% | 3.37% |
| Cumulative Rate Change as of 12/31/2011 | 10.12% | 14.52% | 12.74% | 8.34% | 6.57% | 6.25% |
| Cumulative Rate Change as of 12/31/2012 | 14.54% | 20.86% | 18.30% | 11.98% | 9.44% | 8.98% |
| Cumulative Rate Change as of 12/31/2013 | 14.67% | 21.05% | 18.46% | 12.09% | 9.52% | 9.06% |
| Cumulative Rate Change as of 12/31/2014 | 13.21% | 18.96% | 16.63% | 10.89% | 8.57% | 8.16% |

* Excludes Post Retirement Death Benefit reserve and is based on December 31, 2009 Actuarial Valuation.
** Based on December 31, 2009 Actuarial Valuation.

These rates do not include any employer subvention of member contributions or any member subvention of employer contributions.

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