

VIA E-MAIL and USPS

April 11, 2018

Dr. James R. Wilbanks  
Retirement Administrator  
Mendocino County Employees' Retirement Association  
625-B Kings Court  
Ukiah, CA 95482

**Re: Illustrations of Employer Contribution Rates, Unfunded Actuarial Accrued Liabilities, and Funded Percentages under Different Market Return Scenarios and under an Alternative Set of Economic Assumptions**

Dear James:

As requested, we have developed illustrations of the aggregate employer contribution rates, unfunded actuarial accrued liabilities (UAAL), and funded percentages for MCERA under four different market return scenarios, and a fifth sensitivity analysis under an alternative set of economic assumptions. For comparison, the illustrations also include a baseline projection if all actuarial assumptions from the June 30, 2017 valuation, including the 7% market return assumption, were to be met.

The requested market return scenarios are as follows:

- **Baseline:** Rate of return equal to 7% for all years
- **Scenario 1:** Rate of return equal to 0% for 2017/2018, then 7% per year thereafter
- **Scenario 2:** Rate of return equal to 14% for 2017/2018, then 7% per year thereafter
- **Scenario 3:** Rate of return equal to 7% for 2017/2018, -20% for 2018/2019, then 7% per year thereafter
- **Scenario 4:** Rate of return equal to 5% for 2017/2018 through 2024/2025, then 7% per year thereafter

With exception of the market returns modeled above, our results for these scenarios have been prepared using the 7.00% assumed investment return, 3.00% assumed inflation rate, and all other actuarial assumptions approved by the Board for use in the June 30, 2017 valuation.

As requested for Scenario 5, we have also prepared the results under an alternative set of economic assumptions based on a 6.50% investment return and a 2.75% inflation rate as if those assumptions were hypothetically approved instead by the Board in the June 30, 2017 valuation. In preparing Scenario 5 results, we assume the fund would earn 6.50% market return for all years and all other actuarial assumptions would be met. This projection has been prepared in order to study how sensitive the projection results are to changes in economic assumptions, based on the results of the June 30, 2017 valuation.

Our projection results are provided in the following exhibits:

- Exhibit 1A compares the projected employer contribution rates under the Baseline Scenario versus Scenarios 1 - 4.
- Exhibit 1B compares the projected employer contribution rates under the Baseline Scenario versus Scenario 5.
- Exhibit 2A compares the projected UAAL and funded percentages under the Baseline Scenario versus Scenarios 1 - 4.
- Exhibit 2B compares the projected UAAL and funded percentages under the Baseline Scenario versus Scenario 5.

### SUMMARY OF RESULTS

Based on the Board’s funding policy, investment gains or losses, after going through the 5-year asset smoothing method, are amortized over separate 18-year periods. Under the Baseline Scenario, net deferred asset gains/losses that were not yet recognized in the June 30, 2017 valuation would be fully recognized by June 30, 2021. With the additional investment gains or losses we have been asked to study under Scenarios 1 - 4, it would take more time for those additional gains or losses to be recognized under MCERA’s 5-year asset smoothing method. With the exception of Scenario 4, all investment gains or losses we have modeled would be fully recognized by June 30, 2023.

A summary of the current employer (ER) contribution rates and UAAL as of June 30, 2017 under the Baseline Scenario compared with the ER contribution rates and UAAL as of June 30, 2023 under the Baseline Scenario and Scenarios 1 – 4 is captured in the following table. Results for all years included in our projection are shown in the attached Exhibits 1A and 2A.

|                           | <b>Baseline</b> | <b>Baseline</b> | <b>Scenario 1</b> | <b>Scenario 2</b> | <b>Scenario 3</b> | <b>Scenario 4</b> |
|---------------------------|-----------------|-----------------|-------------------|-------------------|-------------------|-------------------|
| Valuation Date (6/30)     | <b>2017</b>     | <b>2023</b>     | <b>2023</b>       | <b>2023</b>       | <b>2023</b>       | <b>2023</b>       |
| ER Rate<br>(% of payroll) | 34.9%           | 32.5%           | 37.0%             | 28.1%             | 49.9%             | 37.6%             |
| UAAL<br>(\$ in millions)  | \$204           | \$184           | \$223             | \$144             | \$343             | \$231             |

Once all of the unfunded actuarial accrued liability has been amortized, the employer contribution rates would converge to the normal cost rate, which is shown in the baseline projection as of June 30, 2039 (i.e., 18 amortization years after the last deferred asset gain/loss layer from the June 30, 2017 valuation is recognized in the June 30, 2021 valuation). At that time, about 98% of total projected payroll would cover the CalPEPRA tiers.

The impact of the alternative economic assumptions set as of June 30, 2017 (i.e., Scenario 5) is summarized in the following table. Results for all projected years are included in the attached Exhibits 1B and 2B.

|   | <b>Baseline</b> | <b>Scenario 5</b> | <b>Difference</b> |
|---|-----------------|-------------------|-------------------|
| Investment Return   | 7.00%           | 6.50%             | -0.50%            |
| Inflation Rate  | 3.00%           | 2.75%             | -0.25%            |
| Employer Rate<br>(% of payroll)   | 34.9%           | 37.9%             | 3.0%              |
| UAAL<br>(\$ in millions)  | \$204           | \$224             | \$20              |
| Funded Ratio  | 69.9%           | 67.9%             | -2.0%             |
| <i>For Informational<br/>Purposes:<br/>Aggregate Employee Rate<br/>(% of payroll)</i> | 9.8%            | 10.4%             | 0.6%              |

#### **ASSUMPTIONS AND METHODS**

- After June 30, 2017, projected payroll for each of the General, Safety, and Probation membership groups is assumed to grow by the payroll increase assumption of 3.50% (or 3.25% for Scenario 5) per year. For each membership group, the difference between the total payroll growing at 3.50% (or 3.25% for Scenario 5) per year and the closed group “shrinking” payroll as members retire, withdraw, etc. is assumed to be made up by the payroll from new members hired after June 30, 2017 in General Tier 4, Safety Tier 3, and Probation Tier 3.

Over time, the aggregate normal cost rate for the Association will gradually shift towards the lower aggregate normal cost rate for General Tier 4, Safety Tier 3, and Probation Tier 3 adopted by the employer as a result of CalPEPRA. The enclosed projections reflect this shift in the normal cost rate over the projection period.

- The projections reflect the 12-month delay in implementing the contribution rates determined as of the prior June 30 valuation date.

- Unless otherwise noted and detailed above, these projections use the same assumptions, methodology, and plan provisions from the June 30, 2017 actuarial funding valuation, and were projected forward using generally accepted actuarial methods.
- The Contingency Reserve is assumed to be 1% of the Market Value of Assets at the beginning of each fiscal year. The amount is subtracted from the Actuarial Value of Assets to determine the Valuation Value of Assets (which is then used to determine the employer contribution rates).

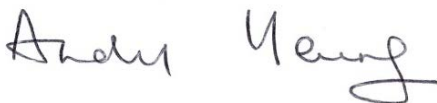
#### **OTHER CONSIDERATIONS**

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.

The undersigned is a member of the American Academy of Actuaries and is qualified to render the actuarial opinion contained herein.

Please let us know if you have any questions regarding this letter or the enclosures.

Sincerely,

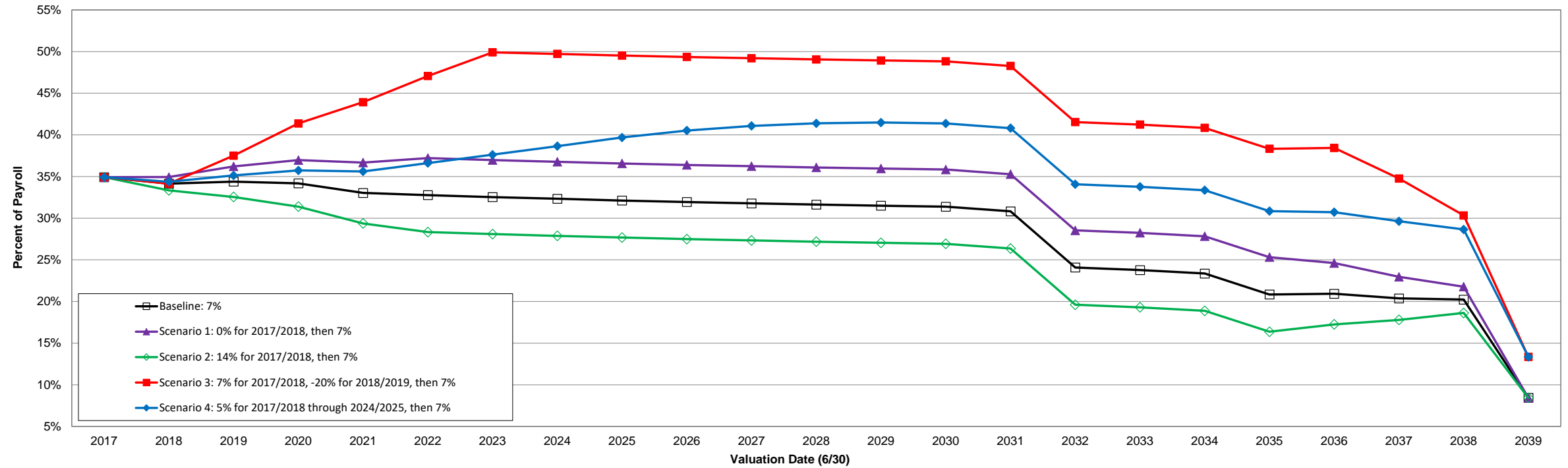


Andy Yeung

JRC/bqb  
Enclosures

# Mendocino County Employees' Retirement Association

## Exhibit 1A: Projected Employer Rates Under Different Market Return Scenarios

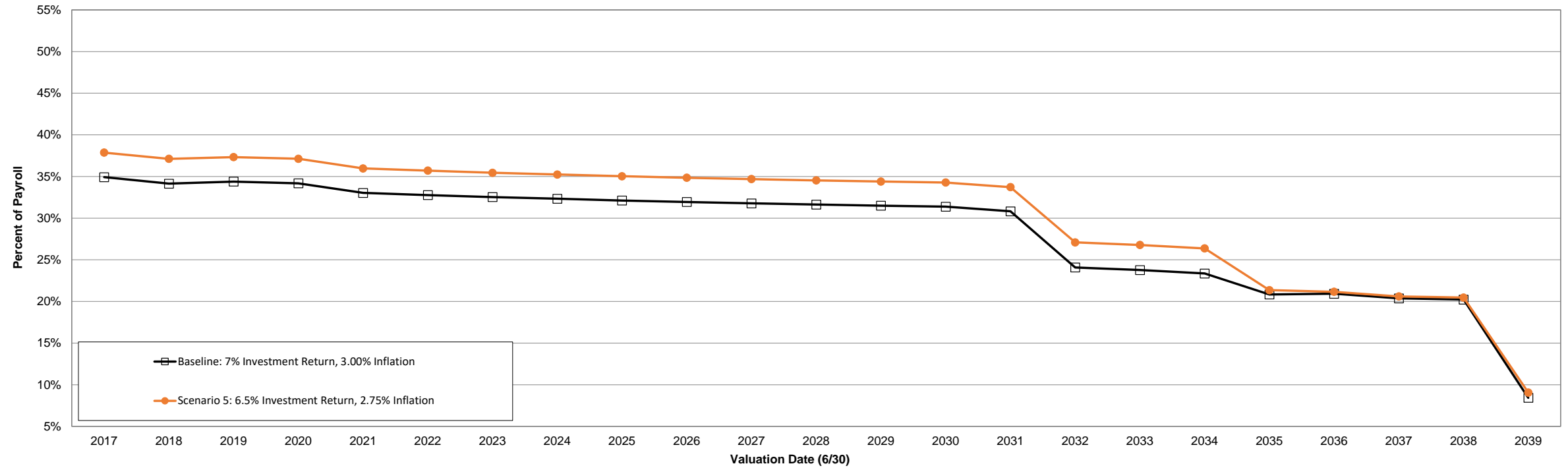


| Valuation Date (6/30)  | 2017  | 2018  | 2019  | 2020  | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  | 2031  | 2032  | 2033  | 2034  | 2035  | 2036  | 2037  | 2038   | 2039   |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
| <b>Baseline: 7%</b>  | 34.9% | 34.1% | 34.4% | 34.2% | 33.0% | 32.8% | 32.5% | 32.3% | 32.1% | 31.9% | 31.8% | 31.6% | 31.5% | 31.4% | 30.8% | 24.1% | 23.8% | 23.4% | 20.8% | 20.9% | 20.4% | 20.2%  | 8.4%   |
| <b>Scenario 1: 0% for 2017/2018, then 7%</b>                     | 34.9% | 34.9% | 36.2% | 37.0% | 36.7% | 37.2% | 37.0% | 36.8% | 36.6% | 36.4% | 36.2% | 36.1% | 36.0% | 35.8% | 35.3% | 28.5% | 28.2% | 27.8% | 25.3% | 24.6% | 23.0% | 21.8%  | 8.4%   |
| <b>Scenario 2: 14% for 2017/2018, then 7%</b>                    | 34.9% | 33.3% | 32.6% | 31.4% | 29.4% | 28.3% | 28.1% | 27.9% | 27.7% | 27.5% | 27.3% | 27.2% | 27.0% | 26.9% | 26.4% | 19.6% | 19.3% | 18.9% | 16.4% | 17.3% | 17.8% | 18.6%  | 8.4%   |
| <b>Scenario 3: 7% for 2017/2018, -20% for 2018/2019, then 7%</b> | 34.9% | 34.1% | 37.5% | 41.4% | 43.9% | 47.1% | 49.9% | 49.7% | 49.5% | 49.4% | 49.2% | 49.1% | 48.9% | 48.8% | 48.3% | 41.5% | 41.2% | 40.8% | 38.3% | 38.4% | 34.8% | 30.3%* | 13.3%* |
| <b>Scenario 4: 5% for 2017/2018 through 2024/2025, then 7%</b>   | 34.9% | 34.4% | 35.1% | 35.7% | 35.6% | 36.6% | 37.6% | 38.7% | 39.7% | 40.5% | 41.1% | 41.4% | 41.5% | 41.4% | 40.8% | 34.1% | 33.8% | 33.4% | 30.9% | 30.7% | 29.6% | 28.7%  | 13.4%* |

\* The employer contribution rates for Scenarios 3 and 4 will converge to the normal cost rate once all of the UAAL has been amortized. For Scenario 3, this date is June 30, 2041, and for Scenario 4, June 30, 2047.

# Mendocino County Employees' Retirement Association

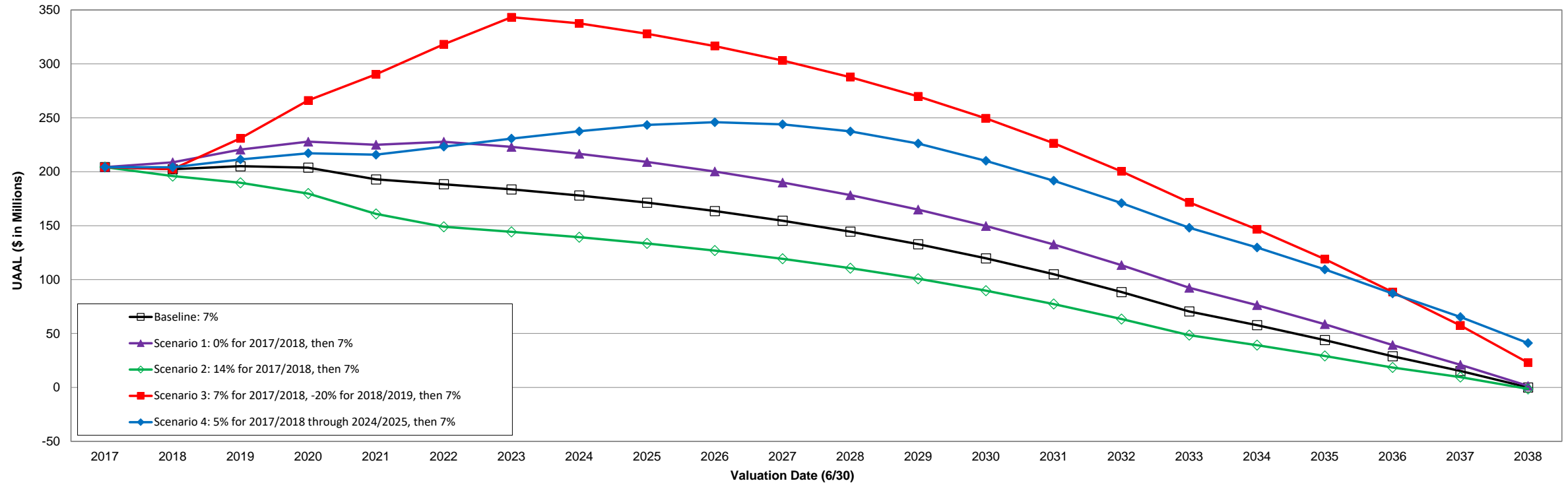
**Exhibit 1B: Sensitivity of Projected Employer Rates Under Two Alternative Sets of Economic Assumptions**



| Valuation Date (6/30)                                      | 2017  | 2018  | 2019  | 2020  | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  | 2031  | 2032  | 2033  | 2034  | 2035  | 2036  | 2037  | 2038  | 2039 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| <b>Baseline: 7% Investment Return, 3.00% Inflation</b>     | 34.9% | 34.1% | 34.4% | 34.2% | 33.0% | 32.8% | 32.5% | 32.3% | 32.1% | 31.9% | 31.8% | 31.6% | 31.5% | 31.4% | 30.8% | 24.1% | 23.8% | 23.4% | 20.8% | 20.9% | 20.4% | 20.2% | 8.4% |
| <b>Scenario 5: 6.5% Investment Return, 2.75% Inflation</b> | 37.9% | 37.1% | 37.3% | 37.1% | 36.0% | 35.7% | 35.5% | 35.2% | 35.0% | 34.9% | 34.7% | 34.5% | 34.4% | 34.3% | 33.7% | 27.1% | 26.8% | 26.4% | 21.4% | 21.2% | 20.6% | 20.5% | 9.1% |

# Mendocino County Employees' Retirement Association

**Exhibit 2A: Projected Unfunded Actuarial Accrued Liability (UAAL)  
Under Different Market Return Scenarios  
(\$ in Millions)**

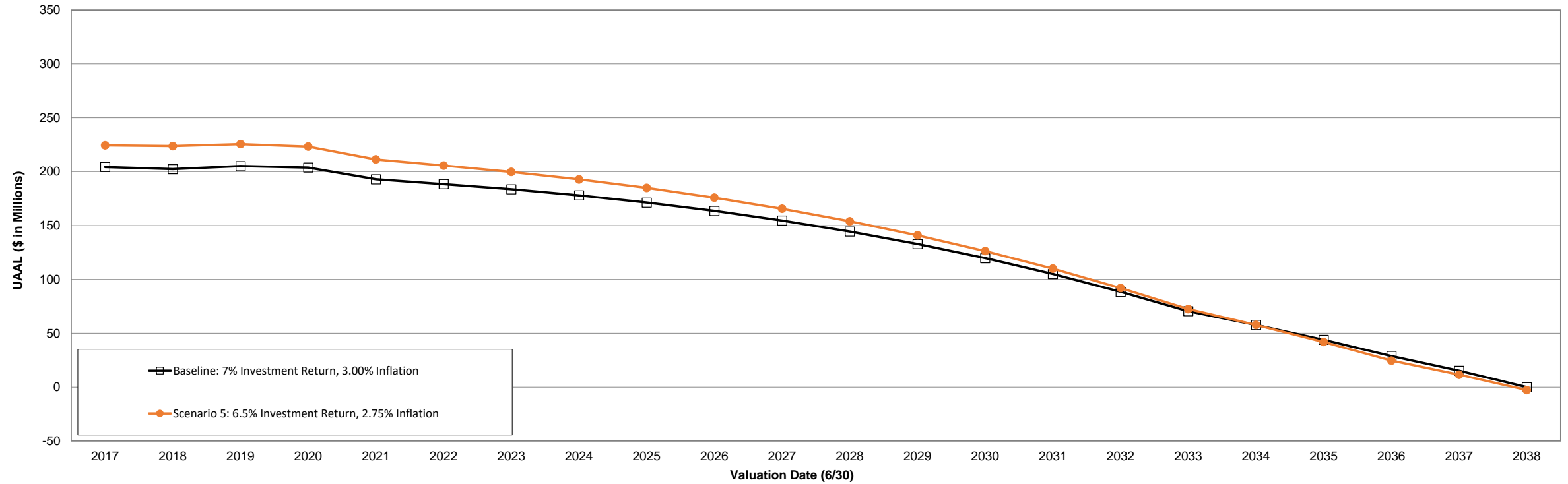


| Valuation Date (6/30)  | 2017  | 2018  | 2019  | 2020  | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  | 2031  | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|
| <b>Baseline: 7%</b>  | \$204 | \$202 | \$205 | \$204 | \$193 | \$188 | \$184 | \$178 | \$171 | \$164 | \$155 | \$144 | \$133 | \$120 | \$105 | \$88 | \$70 | \$58 | \$44 | \$29 | \$15 | \$0  |
| <b>Scenario 1: 0% for 2017/2018, then 7%</b>                     | 204   | 209   | 221   | 228   | 225   | 228   | 223   | 217   | 209   | 200   | 190   | 178   | 165   | 150   | 133   | 113  | 92   | 76   | 59   | 39   | 21   | 1    |
| <b>Scenario 2: 14% for 2017/2018, then 7%</b>                    | 204   | 196   | 190   | 180   | 161   | 149   | 144   | 139   | 134   | 127   | 119   | 111   | 101   | 90    | 77    | 63   | 49   | 39   | 29   | 18   | 10   | -1   |
| <b>Scenario 3: 7% for 2017/2018, -20% for 2018/2019, then 7%</b> | 204   | 202   | 231   | 266   | 290   | 318   | 343   | 338   | 328   | 317   | 303   | 288   | 270   | 250   | 226   | 200  | 172  | 147  | 119  | 88   | 58   | 23   |
| <b>Scenario 4: 5% for 2017/2018 through 2024/2025, then 7%</b>   | 204   | 204   | 211   | 217   | 216   | 223   | 231   | 238   | 243   | 246   | 244   | 237   | 226   | 210   | 192   | 171  | 148  | 130  | 109  | 87   | 65   | 41   |

| Valuation Date (6/30)  | 2017  | 2018  | 2019  | 2020  | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  | 2031  | 2032  | 2033  | 2034  | 2035  | 2036  | 2037  | 2038   |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| <b>Baseline: 7%</b>  | 69.9% | 71.2% | 71.8% | 72.9% | 75.1% | 76.4% | 77.6% | 78.9% | 80.2% | 81.6% | 83.1% | 84.6% | 86.1% | 87.8% | 89.6% | 91.4% | 93.3% | 94.7% | 96.0% | 97.5% | 98.7% | 100.0% |
| <b>Scenario 1: 0% for 2017/2018, then 7%</b>                     | 69.9% | 70.3% | 69.7% | 69.7% | 70.9% | 71.4% | 72.8% | 74.3% | 75.9% | 77.5% | 79.2% | 80.9% | 82.8% | 84.7% | 86.8% | 89.0% | 91.2% | 92.9% | 94.7% | 96.5% | 98.2% | 99.9%  |
| <b>Scenario 2: 14% for 2017/2018, then 7%</b>                    | 69.9% | 72.1% | 73.9% | 76.1% | 79.2% | 81.3% | 82.4% | 83.5% | 84.6% | 85.7% | 86.9% | 88.2% | 89.5% | 90.9% | 92.3% | 93.8% | 95.4% | 96.4% | 97.4% | 98.4% | 99.2% | 100.1% |
| <b>Scenario 3: 7% for 2017/2018, -20% for 2018/2019, then 7%</b> | 69.9% | 71.2% | 68.2% | 64.6% | 62.5% | 60.1% | 58.2% | 60.0% | 62.2% | 64.4% | 66.8% | 69.2% | 71.8% | 74.6% | 77.5% | 80.5% | 83.7% | 86.4% | 89.3% | 92.2% | 95.1% | 98.1%  |
| <b>Scenario 4: 5% for 2017/2018 through 2024/2025, then 7%</b>   | 69.9% | 71.0% | 70.9% | 71.1% | 72.1% | 72.0% | 71.9% | 71.9% | 71.9% | 72.4% | 73.3% | 74.6% | 76.4% | 78.6% | 80.9% | 83.4% | 86.0% | 88.0% | 90.1% | 92.3% | 94.4% | 96.6%  |

# Mendocino County Employees' Retirement Association

**Exhibit 2B: Sensitivity of Projected Unfunded Actuarial Accrued Liability (UAAL)  
Under Two Alternative Sets of Economic Assumptions  
(\$ in Millions)**



| Valuation Date (6/30)                                      | 2017  | 2018  | 2019  | 2020  | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  | 2031  | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|
| <b>Baseline: 7% Investment Return, 3.00% Inflation</b>     | \$204 | \$202 | \$205 | \$204 | \$193 | \$188 | \$184 | \$178 | \$171 | \$164 | \$155 | \$144 | \$133 | \$120 | \$105 | \$88 | \$70 | \$58 | \$44 | \$29 | \$15 | \$0  |
| <b>Scenario 5: 6.5% Investment Return, 2.75% Inflation</b> | 224   | 224   | 226   | 223   | 211   | 206   | 200   | 193   | 185   | 176   | 166   | 154   | 141   | 126   | 110   | 92   | 72   | 58   | 42   | 25   | 12   | -3   |

| Funded Percentage  |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |        |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Valuation Date (6/30)                                      | 2017  | 2018  | 2019  | 2020  | 2021  | 2022  | 2023  | 2024  | 2025  | 2026  | 2027  | 2028  | 2029  | 2030  | 2031  | 2032  | 2033  | 2034  | 2035  | 2036  | 2037  | 2038   |
| <b>Baseline: 7% Investment Return, 3.00% Inflation</b>     | 69.9% | 71.2% | 71.8% | 72.9% | 75.1% | 76.4% | 77.6% | 78.9% | 80.2% | 81.6% | 83.1% | 84.6% | 86.1% | 87.8% | 89.6% | 91.4% | 93.3% | 94.7% | 96.0% | 97.5% | 98.7% | 100.0% |
| <b>Scenario 5: 6.5% Investment Return, 2.75% Inflation</b> | 67.9% | 69.0% | 69.7% | 70.9% | 73.2% | 74.6% | 76.0% | 77.4% | 78.9% | 80.4% | 81.9% | 83.6% | 85.3% | 87.1% | 89.0% | 91.0% | 93.1% | 94.6% | 96.2% | 97.8% | 99.0% | 100.2% |