

**College of the Redwoods
Actuarial Study of
Retiree Health Liabilities Under GASB 74/75
Roll-forward Valuation
Valuation Date: June 30, 2017
Measurement Date: June 30, 2018**

*Prepared by:
Total Compensation Systems, Inc.*

Date: March 19, 2019

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**College of the Redwoods
Actuarial Study of Retiree Health Liabilities**

PART I: EXECUTIVE SUMMARY

A. Introduction

College of the Redwoods engaged Total Compensation Systems, Inc. (TCS) to analyze liabilities associated with its current retiree health program as of June 30, 2018 (the measurement date). This valuation report is based on an earlier GASB 75 valuation as of June 30, 2017. We used standard actuarial “roll-forward” methodology to estimate the Total OPEB Liability (TOL) as of the measurement date. The numbers in this report are based on the assumption that they will first be used to determine accounting entries for the fiscal year ending June 30, 2019. If the report will first be used for a different fiscal year, the numbers may need to be adjusted accordingly.

This report does not reflect any cash benefits paid unless the retiree is required to provide proof that the cash benefits are used to reimburse the retiree’s cost of health benefits. Costs and liabilities attributable to cash benefits paid to retirees are reportable under applicable Governmental Accounting Standards Board (GASB) Standards.

This actuarial study is intended to serve the following purposes:

- To provide information to enable College of the Redwoods to manage the costs and liabilities associated with its retiree health benefits.
- To provide information to enable College of the Redwoods to communicate the financial implications of retiree health benefits to internal financial staff, the Board, employee groups and other affected parties.
- To provide information needed to comply with Governmental Accounting Standards Board Accounting Standards 74 and 75 related to "other postemployment benefits" (OPEB's).

Because this report was prepared in compliance with GASB 74 and 75, College of the Redwoods should not use this report for any other purpose without discussion with TCS. This means that any discussions with employee groups, governing Boards, etc. should be restricted to the implications of GASB 74 and 75 compliance.

We calculated the following estimates separately for active employees and retirees. As requested, we also separated results by the following employee classifications: Certificated, Classified and Management. We estimated the following:

- the total liability created. (The actuarial present value of total projected benefit payments or APVPBP)
- ten years of projected benefit payments.
- the "total OPEB liability (TOL)." (The TOL is the portion of the APVPBP attributable to employees’ service prior to the measurement date.)
- the “net OPEB liability” (NOL). For plans funded through a trust, this represents the unfunded portion of the liability.
- the service cost (SC). This is the value of OPEB benefits earned for one year of service.

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- deferred inflows and outflows of resources attributable to the OPEB plan.
- “OPEB expense.” This is the amount recognized in accrual basis financial statements as the current period expense. The OPEB expense includes service cost, interest and certain changes in the OPEB liability, adjusted to reflect deferred inflows and outflows. This amount may need to be adjusted to reflect any contributions received after the Measurement Date.
- Amounts to support financial statement Note Disclosures and Required Supplementary Information (RSI) schedules.

We summarized the data used to perform this study in Appendix A. No effort was made to verify this information beyond brief tests for reasonableness and consistency.

All cost and liability figures contained in this study are estimates of future results. Future results can vary dramatically and the accuracy of estimates contained in this report depends on the actuarial assumptions used. Service costs and liabilities could easily vary by 10 - 20% or more from estimates contained in this report.

B. General Findings

We estimate the "pay-as-you-go" cost of providing retiree health benefits in the year beginning July 1, 2018 to be \$693,419 (see Section IV.A.). The “pay-as-you-go” cost is the cost of benefits for current retirees.

For current employees, the value of benefits "accrued" in the year beginning July 1, 2018 (the service cost) is \$286,394. This service cost would increase each year based on covered payroll. Had College of the Redwoods begun accruing retiree health benefits when each current employee and retiree was hired, a substantial liability would have accumulated. We estimate the amount that would have accumulated at June 30, 2018 to be \$5,995,498. This amount is called the "Total OPEB Liability" (TOL).

Based on the information we were provided, the OPEB Expense for the fiscal year ending June 30, 2019 is \$494,666 excluding beginning and ending contributions after the measurement date.

We based all of the above estimates on employees as of July, 2017. Over time, liabilities and cash flow will vary based on the number and demographic characteristics of employees and retirees.

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C. Description of Retiree Benefits

Following is a description of the current retiree benefit plan:

	<u>Faculty</u>	<u>Classified</u>	<u>Management</u>
Applies to employees hired	Before 1/1/2008	Before 7/1/06	Before 9/1/2006*
Benefit types provided	Medical, dental and vision	Medical, dental and vision	Medical, dental and vision
Duration of Benefits	Six years, but not beyond age 65**	Six years, but not beyond age 65	To age 70
Required Service	10 years	10 years	10 years
Minimum Age	55	55	55
Dependent Coverage	Yes	Yes	Yes
College Contribution %	100%	100%	100%***
College Cap	None	None	Post-65 Benefits limited to a cumulative College contribution of \$13,500

*Board members must have first served before 1/1/1995.

**Certificated employees hired prior to 9/1/1994 receive benefits to age 70. Beyond age 65, 70% of premiums are covered to a maximum of \$13,500

***Post-65 Premium costs are paid at 70%.

D. Recommendations

It is outside the scope of this report to make specific recommendations of actions College of the Redwoods should take to manage the liability created by the current retiree health program. Total Compensation Systems, Inc. can assist in identifying and evaluating options once this report has been studied. The following recommendations are intended only to allow the District to get more information from this and future studies. Because we have not conducted a comprehensive administrative audit of College of the Redwoods’s practices, it is possible that College of the Redwoods is already complying with some or all of our recommendations.

- We recommend that College of the Redwoods maintain an inventory of all benefits and services provided to retirees – whether contractually or not and whether retiree-paid or not. For each, College of the Redwoods should determine whether the benefit is material and subject to GASB 74 and/or 75.
- We recommend that College of the Redwoods conduct a study whenever events or contemplated actions significantly affect present or future liabilities, but no less frequently than every two years, as required under GASB 74/75.
- Under GASB 75, it is important to isolate the cost of retiree health benefits. College of the Redwoods should have all premiums, claims and expenses for retirees separated from active employee premiums, claims, expenses, etc. To the extent any retiree benefits are made available to retirees over the age of 65 – *even on a retiree-pay-all basis* – all premiums, claims and expenses for post-65 retiree coverage should be segregated from those for pre-65 coverage. Furthermore, College of the Redwoods should arrange for the rates or prices of all retiree benefits to be set on what is expected to be a self-sustaining basis.

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- College of the Redwoods should establish a way of designating employees as eligible or ineligible for future OPEB benefits. Ineligible employees can include those in ineligible job classes; those hired after a designated date restricting eligibility; those who, due to their age at hire cannot qualify for District-paid OPEB benefits; employees who exceed the termination age for OPEB benefits, etc.
- Several assumptions were made in estimating costs and liabilities under College of the Redwoods's retiree health program. Further studies may be desired to validate any assumptions where there is any doubt that the assumption is appropriate. (See Appendices B and C for a list of assumptions and concerns.) For example, College of the Redwoods should maintain a retiree database that includes – in addition to date of birth, gender and employee classification – retirement date and (if applicable) dependent date of birth, relationship and gender. It will also be helpful for College of the Redwoods to maintain employment termination information – namely, the number of OPEB-eligible employees in each employee class that terminate employment each year for reasons other than death, disability or retirement.

E. Certification

The actuarial information in this report is intended solely to assist College of the Redwoods in complying with Governmental Accounting Standards Board Accounting Statements 74 and 75 and, unless otherwise stated, fully and fairly discloses actuarial information required for compliance. Nothing in this report should be construed as an accounting opinion, accounting advice or legal advice. TCS recommends that third parties retain their own actuary or other qualified professionals when reviewing this report. TCS's work is prepared solely for the use and benefit of College of the Redwoods. Release of this report may be subject to provisions of the Agreement between College of the Redwoods and TCS. No third party recipient of this report product should rely on the report for any purpose other than accounting compliance. Any other use of this report is unauthorized without first consulting with TCS.

This report is for fiscal year July 1, 2018 to June 30, 2019, using a measurement date of June 30, 2018. The calculations in this report have been made based on our understanding of plan provisions and actual practice at the time we were provided the required information. We relied on information provided by College of the Redwoods. Much or all of this information was unaudited at the time of our evaluation. We reviewed the information provided for reasonableness, but this review should not be viewed as fulfilling any audit requirements. Information we relied on is listed in Appendix A.

All costs, liabilities, and other estimates are based on actuarial assumptions and methods that comply with all applicable Actuarial Standards of Practice (ASOPs). Each assumption is deemed to be reasonable by itself, taking into account plan experience and reasonable future expectations.

This report contains estimates of the Plan's financial condition only as of a single date. It cannot predict the Plan's future condition nor guarantee its future financial soundness. Actuarial valuations do not affect the ultimate cost of Plan benefits, only the timing of Plan contributions. While the valuation is based on individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. Determining results using alternative assumptions (except for the alternate discount and trend rates shown in this report) is outside the scope of our engagement.

Future actuarial measurements may differ significantly from those presented in this report due to factors such as, but not limited to, the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the measurement methodology (such as the end of an amortization period or

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additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. We were not asked to perform analyses to estimate the potential range of such future measurements.

The signing actuary is independent of College of the Redwoods and any plan sponsor. TCS does not intend to benefit from and assumes no duty or liability to other parties who receive this report. TCS is not aware of any relationship that would impair the objectivity of the opinion.

On the basis of the foregoing, I hereby certify that, to the best of my knowledge and belief, this report is complete and has been prepared in accordance with generally accepted actuarial principles and practices and all applicable Actuarial Standards of Practice. I am a member of the American Academy of Actuaries and meet the Qualification Standards to render this actuarial opinion.

Respectfully submitted,



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PART II: BACKGROUND

A. Summary

Accounting principles provide that the cost of retiree benefits should be “accrued” over employees' working lifetime. For this reason, the Governmental Accounting Standards Board (GASB) issued in June of 2015 Accounting Standards 74 and 75 for retiree health benefits. These standards apply to all public employers that pay any part of the cost of retiree health benefits for current or future retirees (including early retirees), whether they pay directly or indirectly (via an “implicit rate subsidy”),

B. Actuarial Accrual

To actuarially accrue retiree health benefits requires determining the amount to expense each year so that the liability accumulated at retirement is, on average, sufficient (with interest) to cover all retiree health expenditures without the need for additional expenses. There are many different ways to determine the annual accrual amount. The calculation method used is called an “actuarial cost method.”

The actuarial cost method mandated by GASB 75 is the “entry age actuarial cost method”. Under this method, there are two components of actuarial cost – a “service cost” (SC) and the “Total OPEB Liability” (TOL). GASB 75 allows certain changes in the TOL to be deferred (i.e. deferred inflows and outflows of resources).

The service cost can be thought of as the value of the benefit earned each year if benefits are accrued during the working lifetime of employees. Under the entry age actuarial cost method, the actuary determines the annual amount needing to be expensed from hire until retirement to fully accrue the cost of retiree health benefits. This amount is the service cost. Under GASB 75, the service cost is calculated to be a level percentage of each employee’s projected pay.

The service cost is determined using several key assumptions:

- The current *cost of retiree health benefits* (often varying by age, Medicare status and/or dependent coverage). The higher the current cost of retiree benefits, the higher the service cost.
- The “*trend*” rate at which retiree health benefits are expected to increase over time. A higher trend rate increases the service cost. A “cap” on District contributions can reduce trend to zero once the cap is reached thereby dramatically reducing service costs.
- *Mortality rates* varying by age and sex. (Unisex mortality rates are not often used as individual OPEB benefits do not depend on the mortality table used.) If employees die prior to retirement, past contributions are available to fund benefits for employees who live to retirement. After retirement, death results in benefit termination or reduction. Although higher mortality rates reduce service costs, the mortality assumption is not likely to vary from employer to employer.
- *Employment termination rates* have the same effect as mortality inasmuch as higher termination rates reduce service costs. Employment termination can vary considerably between public agencies.
- The *service requirement* reflects years of service required to earn full or partial retiree benefits. While a longer service requirement reduces costs, cost reductions are not usually substantial unless the service period exceeds 20 years of service.

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- **Retirement rates** determine what proportion of employees retire at each age (assuming employees reach the requisite length of service). Retirement rates often vary by employee classification and implicitly reflect the minimum retirement age required for eligibility. Retirement rates also depend on the amount of pension benefits available. Higher retirement rates increase service costs but, except for differences in minimum retirement age, retirement rates tend to be consistent between public agencies for each employee type.
- **Participation rates** indicate what proportion of retirees are expected to elect retiree health benefits if a significant retiree contribution is required. Higher participation rates increase costs.
- The **discount rate** estimates investment earnings for assets earmarked to cover retiree health benefit liabilities. The discount rate depends on the nature of underlying assets for funded plans. The rate used for a funded plan is the real rate of return expected for plan assets plus long term inflation assumption. For an unfunded plan, the discount rate is based on an index of 20 year General Obligation municipal bonds. For partially funded plans, the discount rate is a blend of the funded and unfunded rates.

The assumptions listed above are not exhaustive, but are the most common assumptions used in actuarial cost calculations. If all actuarial assumptions are exactly met and an employer expensed the service cost every year for all past and current employees and retirees, a sizeable liability would have accumulated (after adding interest and subtracting retiree benefit costs). The liability that would have accumulated is called the Total OPEB Liability (TOL). The excess of TOL over the value of plan assets is called the Net OPEB Liability (NOL). Under GASB 74 and 75, in order for assets to count toward offsetting the TOL, the assets have to be held in an irrevocable trust that is safe from creditors and can only be used to provide OPEB benefits to eligible participants.

The total OPEB liability (TOL) can arise in several ways - e.g., as a result of plan changes or changes in actuarial assumptions. TOL can also arise from actuarial gains and losses. Actuarial gains and losses result from differences between actuarial assumptions and actual plan experience.

Under GASB 74 and 75, a portion of actuarial gains and losses can be deferred as follows:

- Investment gains and losses can be deferred five years
- Experience gains and losses can be deferred over the expected average remaining service lives (EARSLS) of plan participants. In calculating the EARSLS, terminated employees (primarily retirees) are considered to have a working lifetime of zero. This often makes the EARSLS quite short.
- Liability changes resulting from changes in economic and demographic assumptions are also deferred based on the average working lifetime
- Liability changes resulting from plan changes, for example, cannot be deferred.

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PART III: LIABILITIES AND COSTS FOR RETIREE BENEFITS

A. Introduction.

The liability for OPEB benefits was calculated in the valuation as of June 30, 2017 and the methodology used was described in our GASB 75 valuation report dated October 9, 2018. In Part III, we show the tables included in our October 9, 2018 valuation report and provide details of our roll-forward valuation.

We summarized actuarial assumptions used for this study in Appendix C.

B. Liability for Retiree Benefits.

Below is the actuarial present value of projected benefit payments (APVPBP) table presented in our October 9, 2018 valuation report.

Actuarial Present Value of Projected Benefit Payments at June 30, 2017

	<i>Total</i>	<i>Certificated</i>	<i>Classified</i>	<i>Management</i>
Active: Pre-65	\$5,234,660	\$2,655,360	\$1,693,227	\$886,073
Post-65	\$53,973	\$23,843	\$0	\$30,130
Subtotal	\$5,288,633	\$2,679,203	\$1,693,227	\$916,203
Retiree: Pre-65	\$2,571,825	\$599,282	\$1,049,780	\$922,763
Post-65	\$71,460	\$22,642	\$0	\$48,818
Subtotal	\$2,643,285	\$621,924	\$1,049,780	\$971,581
Grand Total	\$7,931,918	\$3,301,127	\$2,743,007	\$1,887,784
Subtotal Pre-65	\$7,806,485	\$3,254,642	\$2,743,007	\$1,808,836
Subtotal Post-65	\$125,433	\$46,485	\$0	\$78,948

C. Cost to Prefund Retiree Benefits

1. Service Cost

Below is the service cost table included in our October 9, 2018 valuation report. This service cost is used in calculating the OPEB expense.

Service Cost Year Beginning July 1, 2017

	<i>Total</i>	<i>Certificated</i>	<i>Classified</i>	<i>Management</i>
# of Employees	91	47	31	13
Per Capita Service Cost				
Pre-65 Benefit	N/A	\$3,243	\$2,638	\$4,015
Post-65 Benefit	N/A	\$0	\$0	\$0
First Year Service Cost				
Pre-65 Benefit	\$286,394	\$152,421	\$81,778	\$52,195
Post-65 Benefit	\$0	\$0	\$0	\$0
Total	\$286,394	\$152,421	\$81,778	\$52,195

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2. Total OPEB Liability (TOL) and Net OPEB Liability (NOL)

The table below shows the TOL included in the October 9, 2018 valuation report. This TOL is used as the beginning of year TOL to roll forward the TOL to June 30, 2018.

Total OPEB Liability (TOL) and Net OPEB Liability (NOL) as of June 30, 2017

	<i>Total</i>	<i>Certificated</i>	<i>Classified</i>	<i>Management</i>
Active: Pre-65	\$3,664,775	\$1,952,992	\$1,170,505	\$541,278
Active: Post-65	\$53,973	\$23,843	\$0	\$30,130
Subtotal	\$3,718,748	\$1,976,835	\$1,170,505	\$571,408
Retiree: Pre-65	\$2,571,825	\$599,282	\$1,049,780	\$922,763
Retiree: Post-65	\$71,460	\$22,642	\$0	\$48,818
Subtotal	\$2,643,285	\$621,924	\$1,049,780	\$971,581
Subtotal: Pre-65	\$6,236,600	\$2,552,274	\$2,220,285	\$1,464,041
Subtotal: Post-65	\$125,433	\$46,485	\$0	\$78,948
Total OPEB Liability (TOL)	\$6,362,033	\$2,598,759	\$2,220,285	\$1,542,989
Fiduciary Net Position as of June 30, 2017	\$0			
Net OPEB Liability (NOL)	\$6,362,033			

In order to determine the June 30, 2018 NOL, we used a “roll-forward” technique for the TOL. The FNP is based on the actual June 30, 2018 FNP. The following table shows the results of the roll-forward.

Changes in Net OPEB Liability as of June 30, 2018

	<i>TOL</i>	<i>FNP</i>	<i>NOL</i>
Balance at June 30, 2017	\$6,362,033	\$0	\$6,362,033
Service Cost	\$286,394	\$0	\$286,394
Interest on TOL	\$232,200	\$0	\$232,200
Employer Contributions	\$0	\$789,420	(\$789,420)
Employee Contributions	\$0	\$0	\$0
Assumption Changes	(\$95,709)	\$0	(\$95,709)
Expected Investment Income	\$0	\$0	\$0
Investment Gains/Losses	\$0	\$0	\$0
Administrative Expense	\$0	\$0	\$0
Expected Benefit Payments	(\$789,420)	(\$789,420)	\$0
Actual minus Expected Benefit Payments	\$0	\$0	\$0
Other	\$0	\$0	\$0
Net Change during 2017-18	(\$366,535)	\$0	(\$366,535)
Balance at June 30, 2018 *	\$5,995,498	\$0	\$5,995,498

* May include a slight rounding error.

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3. Preliminary OPEB Expense

Changes in the NOL arising from certain sources are recognized on a deferred basis. The deferral history for College of the Redwoods is shown in Appendix F. The following table summarizes the beginning and ending balances for each deferral item. The current year expense reflects the change in deferral balances for the measurement year.

Deferred Inflow/Outflow Balances Fiscal Year Ending June 30, 2019

	<i>Beginning Balance</i>	<i>Ending Balance</i>
Experience Gains/Losses	\$0	\$0
Assumption Changes	\$0	(\$71,781)
Investment Gains/Losses	\$0	\$0
Deferred Balances	\$0	(\$71,781)

The following table shows the reconciliation between the change in the NOL and the OPEB expense.

Preliminary OPEB Expense Fiscal Year Ending June 30, 2019

	<i>Beginning Balance</i>	<i>Ending Balance</i>	<i>Change</i>
Net OPEB Liability (NOL)	\$6,362,033	\$5,995,498	(\$366,535)
Deferred Balances	\$0	(\$71,781)	(\$71,781)
Change in Net Position	\$6,362,033	\$6,067,279	(\$294,754)
Employer Contributions			\$789,420
Actual minus Expected Benefit Payments*			\$0
Other			\$0
OPEB Expense			\$494,666

* Counts as contribution.

Under GASB 74 and 75, OPEB expense includes service cost, interest cost, change in TOL due to plan changes; all adjusted for deferred inflows and outflows. Following is the OPEB expense for the fiscal year ending June 30, 2019. The OPEB expense shown below is considered to be preliminary because it does not reflect beginning or ending deferred outflows for contributions after the measurement date.

Preliminary OPEB Expense Fiscal Year Ending June 30, 2019

	<i>Total</i>
Service Cost	\$286,394
Interest on Total OPEB Liability (TOL)	\$232,200
Employee Contributions	\$0
Recognized Experience Gains/Losses	\$0
Recognized Assumption Changes	(\$23,928)
Expected Investment Income	\$0
Recognized Investment Gains/Losses	\$0
Contributions After Measurement Date*	\$0
Liability Change Due to Benefit Changes	\$0
Administrative Expense	\$0
OPEB Expense**	\$494,666

* Should be added by College of the Redwoods if reporting date is after the measurement date.

** May include a slight rounding error.

The above OPEB expense does not include an estimated \$789,420 in employer contribution.

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4. Contributions After the Measurement Date

The above OPEB expense includes all deferred inflows and outflows except any contributions after the measurement date. Contributions from July 1, 2018 to June 30, 2019 minus prior contributions after the measurement date should also be reflected in OPEB expense. June 30, 2019 deferred outflows should include contributions from July 1, 2018 to June 30, 2019.

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PART IV: "PAY AS YOU GO" FUNDING OF RETIREE BENEFITS

We used the actuarial assumptions shown in Appendix C to project the District's ten year retiree benefit outlay, including any implicit rate subsidy. Because these cost estimates reflect average assumptions applied to a relatively small number of employees, estimates for individual years are certain to be *inaccurate*. However, these estimates show the size of cash outflow.

The following table shows a projection of annual amounts needed to pay the District's share of retiree health costs, including any implicit rate subsidy, that was included in the October 9, 2018 valuation report.

<i>Year Beginning July 1</i>	<i>Total</i>	<i>Certificated</i>	<i>Classified</i>	<i>Management</i>
2017	\$789,420	\$204,597	\$362,378	\$222,445
2018	\$693,419	\$220,233	\$259,788	\$213,398
2019	\$700,756	\$210,161	\$279,637	\$210,958
2020	\$672,696	\$226,038	\$263,771	\$182,887
2021	\$603,927	\$263,495	\$184,762	\$155,670
2022	\$581,655	\$295,839	\$173,885	\$111,931
2023	\$556,076	\$289,129	\$136,975	\$129,972
2024	\$532,249	\$257,151	\$152,300	\$122,798
2025	\$577,963	\$298,980	\$138,423	\$140,560
2026	\$449,410	\$221,645	\$158,230	\$69,535

PART V: RECOMMENDATIONS FOR FUTURE VALUATIONS

To effectively manage benefit costs, an employer must periodically examine the existing liability for retiree benefits as well as future annual expected premium costs. GASB 74/75 require biennial valuations. In addition, a valuation should be conducted whenever plan changes, changes in actuarial assumptions or other employer actions are likely to cause a material change in accrual costs and/or liabilities.

Following are examples of actions that could trigger a new valuation.

- An employer should perform a valuation whenever the employer considers or puts in place an early retirement incentive program.
- An employer should perform a valuation whenever the employer adopts a retiree benefit plan for some or all employees.
- An employer should perform a valuation whenever the employer considers or implements changes to retiree benefit provisions or eligibility requirements.
- An employer should perform a valuation whenever the employer introduces or changes retiree contributions.
- An employer should perform a valuation whenever the employer forms a qualifying trust or changes its investment policy.
- An employer should perform a valuation whenever the employer adds or terminates a group of participants that constitutes a significant part of the covered group.

We recommend College of the Redwoods take the following actions to ease future valuations.

- We have used our training, experience and information available to us to establish the actuarial assumptions used in this valuation. We have no information to indicate that any of the assumptions do not reasonably reflect future plan experience. However, the District should review the actuarial assumptions in Appendix C carefully. If the District has any reason to believe that any of these assumptions do not reasonably represent the expected future experience of the retiree health plan, the District should engage in discussions or perform analyses to determine the best estimate of the assumption in question.

PART VI: APPENDICES

APPENDIX A: MATERIALS USED FOR THIS STUDY

We relied on the following materials to complete this study.

- We used paper reports and digital files containing employee demographic data from the District personnel records.
- We used relevant sections of collective bargaining agreements provided by the District.

APPENDIX B: EFFECT OF ASSUMPTIONS USED IN CALCULATIONS

While we believe the estimates in this study are reasonable overall, it was necessary for us to use assumptions which inevitably introduce errors. We believe that the errors caused by our assumptions will not materially affect study results. If the District wants more refined estimates for decision-making, we recommend additional investigation.

APPENDIX C: ACTUARIAL ASSUMPTIONS AND METHODS

Following is a summary of actuarial assumptions and methods used in this study. The District should carefully review these assumptions and methods to make sure they reflect the District's assessment of its underlying experience. It is important for College of the Redwoods to understand that the appropriateness of all selected actuarial assumptions and methods are College of the Redwoods's responsibility. Unless otherwise disclosed in this report, TCS believes that all methods and assumptions are within a reasonable range based on the provisions of GASB 74 and 75, applicable actuarial standards of practice, College of the Redwoods's actual historical experience, and TCS's judgment based on experience and training.

ACTUARIAL METHODS AND ASSUMPTIONS:

ACTUARIAL COST METHOD: GASB 74/75 require use of the entry age actuarial cost method.

Entry age is based on the age at hire for eligible employees. The attribution period is determined as the difference between the expected retirement age and the age at hire. The APVPBP and present value of future service costs are determined on an employee by employee basis and then aggregated.

To the extent that different benefit formulas apply to different employees of the same class, the service cost is based on the benefit plan applicable to the most recently hired employees (including future hires if a new benefit formula has been agreed to and communicated to employees). This greatly simplifies administration and accounting; as well as resulting in the correct service cost for new hires.

SUBSTANTIVE PLAN: As required under GASB 74 and 75, we based the valuation on the substantive plan. The formulation of the substantive plan was based on a review of written plan documents as well as historical information provided by College of the Redwoods regarding practices with respect to employer and employee contributions and other relevant factors.

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ECONOMIC ASSUMPTIONS:

Economic assumptions are set under the guidance of Actuarial Standard of Practice 27 (ASOP 27). Among other things, ASOP 27 provides that economic assumptions should reflect a consistent underlying rate of general inflation. For that reason, we show our assumed long-term inflation rate below.

INFLATION: We assumed 2.75% per year used for pension purposes. Actuarial standards require using the same rate for OPEB that is used for pension.

INVESTMENT RETURN / DISCOUNT RATE: We assumed 3.8% per year net of expenses. This is based on the Bond Buyer 20 Bond Index.

TREND: We assumed 4% per year. Our long-term trend assumption is based on the conclusion that, while medical trend will continue to be cyclical, the average increase over time cannot continue to outstrip general inflation by a wide margin. Trend increases in excess of general inflation result in dramatic increases in unemployment, the number of uninsured and the number of underinsured. These effects are nearing a tipping point which will inevitably result in fundamental changes in health care finance and/or delivery which will bring increases in health care costs more closely in line with general inflation. We do not believe it is reasonable to project historical trend vs. inflation differences several decades into the future.

PAYROLL INCREASE: We assumed 2.75% per year. Since benefits do not depend on salary (as they do for pensions), using an aggregate payroll assumption for the purpose of calculating the service cost results in a negligible error.

FIDUCIARY NET POSITION (FNP): The following table shows the beginning and ending FNP numbers that were provided by College of the Redwoods.

Fiduciary Net Position as of June 30, 2018

	<u>06/30/2017</u>	<u>06/30/2018</u>
Cash and Equivalents	\$0	\$0
Contributions Receivable	\$0	\$0
Total Investments	\$0	\$0
Capital Assets	\$0	\$0
Total Assets	<u>\$0</u>	<u>\$0</u>
Benefits Payable	\$0	\$0
Fiduciary Net Position	<u>\$0</u>	<u>\$0</u>

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NON-ECONOMIC ASSUMPTIONS:

Economic assumptions are set under the guidance of Actuarial Standard of Practice 35 (ASOP 35). See Appendix E, Paragraph 52 for more information.

MORTALITY

<i>Participant Type</i>	<i>Mortality Tables</i>
Certificated	2009 CalSTRS Mortality
Classified	2014 CalPERS Active Mortality for Miscellaneous Employees

RETIREMENT RATES

<i>Employee Type</i>	<i>Retirement Rate Tables</i>
Certificated	2009 CalSTRS Retirement Rates
Classified	2009 CalPERS Retirement Rates for School Employees

SERVICE REQUIREMENT

<i>Employee Type</i>	<i>Service Requirement Tables</i>
Certificated	100% at 10 Years of Service
Classified	100% at 10 Years of Service

COSTS FOR RETIREE COVERAGE

Actuarial Standard of Practice 6 (ASOP 6) Section 3.7.7(c)(3) provides that unadjusted premium may be used as the basis for retiree liabilities if retiree premium rates are not subsidized by active premium rates. We evaluated active and retiree rates and determined that there is not likely to be a subsidy between active and retiree rates. Therefore, retiree liabilities are based on actual employer contributions. Liabilities for active participants are based on the first year costs shown below. Subsequent years' costs are based on first year costs adjusted for trend and limited by any District contribution caps.

<i>Participant Type</i>	<i>Future Retirees Pre-65</i>	<i>Future Retirees Post-65</i>
Certificated	\$21,338	\$1,110
Classified	\$21,466	
Management	\$21,466	\$1,110

PARTICIPATION RATES

<i>Employee Type</i>	<i><65 Non-Medicare Participation %</i>	<i>65+ Medicare Participation %</i>
Certificated	100%	100%
Classified	100%	100%

TURNOVER

<i>Employee Type</i>	<i>Turnover Rate Tables</i>
Certificated	2009 CalSTRS Termination Rates
Classified	2009 CalPERS Termination Rates for School Employees

SPOUSE PREVALENCE

To the extent not provided and when needed to calculate benefit liabilities, 80% of retirees assumed to be married at retirement. After retirement, the percentage married is adjusted to reflect mortality.

SPOUSE AGES

To the extent spouse dates of birth are not provided and when needed to calculate benefit liabilities, female spouse assumed to be three years younger than male.

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APPENDIX D: DISTRIBUTION OF ELIGIBLE PARTICIPANTS BY AGE

ELIGIBLE ACTIVE EMPLOYEES

<i>Age</i>	<i>Total</i>	<i>Certificated</i>	<i>Classified</i>	<i>Management</i>
Under 25	0	0	0	0
25-29	0	0	0	0
30-34	1	0	1	0
35-39	5	0	3	2
40-44	6	3	3	0
45-49	14	6	5	3
50-54	18	10	6	2
55-59	26	15	7	4
60-64	21	13	6	2
65 and older	0	0	0	0
Total	91	47	31	13

ELIGIBLE RETIREES

<i>Age</i>	<i>Total</i>	<i>Certificated</i>	<i>Classified</i>	<i>Management</i>
Under 50	0	0	0	0
50-54	0	0	0	0
55-59	8	2	2	4
60-64	31	8	16	7
65-69	4	2	0	2
70-74	0	0	0	0
75-79	0	0	0	0
80-84	0	0	0	0
85-89	0	0	0	0
90 and older	0	0	0	0
Total	43	12	18	13

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APPENDIX E: GASB 74/75 ACCOUNTING ENTRIES AND DISCLOSURES

This report does not necessarily include the entire accounting values. As mentioned earlier, there are certain deferred items that are employer-specific. The District should consult with its auditor if there are any questions about what, if any, adjustments may be appropriate.

GASB 74/75 include a large number of items that should be included in the Note Disclosures and Required Supplementary Information (RSI) Schedules. Many of these items are outside the scope of the actuarial valuation. However, following is information to assist the District in complying with GASB 74/75 disclosure requirements:

Paragraph 50: **Information about the OPEB Plan**

Most of the information about the OPEB plan should be supplied by College of the Redwoods. Following is information to help fulfill Paragraph 50 reporting requirements.

50.c: Following is a table of plan participants

	Number of Participants
Inactive Employees Currently Receiving Benefit Payments	43
Inactive Employees Entitled to But Not Yet Receiving Benefit Payments*	0
Participating Active Employees	91
Total Number of participants	134

*We were not provided with information about any terminated, vested employees

Paragraph 51: **Significant Assumptions and Other Inputs**

shown in Appendix C.

Paragraph 52: **Information Related to Assumptions and Other Inputs**

The following information is intended to assist College of the Redwoods in complying with the requirements of Paragraph 52.

52.b: Mortality Assumptions Following are the tables the mortality assumptions are based upon. Inasmuch as these tables are based on appropriate populations, and that these tables are used for pension purposes, we believe these tables to be the most appropriate for the valuation.

Mortality Table	2009 CalSTRS Mortality
Disclosure	The mortality assumptions are based on the 2009 CalSTRS Mortality table created by CalSTRS. CalSTRS periodically studies mortality for participating agencies and establishes mortality tables that are modified versions of commonly used tables. This table incorporates mortality projection as deemed appropriate based on CalSTRS analysis.

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Mortality Table	2014 CalPERS Retiree Mortality for Miscellaneous Employees
Disclosure	The mortality assumptions are based on the 2014 CalPERS Retiree Mortality for Miscellaneous Employees table created by CalPERS. CalPERS periodically studies mortality for participating agencies and establishes mortality tables that are modified versions of commonly used tables. This table incorporates mortality projection as deemed appropriate based on CalPERS analysis.
Mortality Table	2014 CalPERS Active Mortality for Miscellaneous Employees
Disclosure	The mortality assumptions are based on the 2014 CalPERS Active Mortality for Miscellaneous Employees table created by CalPERS. CalPERS periodically studies mortality for participating agencies and establishes mortality tables that are modified versions of commonly used tables. This table incorporates mortality projection as deemed appropriate based on CalPERS analysis.

52.c: Experience Studies Following are the tables the retirement and turnover assumptions are based upon. Inasmuch as these tables are based on appropriate populations, and that these tables are used for pension purposes, we believe these tables to be the most appropriate for the valuation.

Retirement Tables

Retirement Table	2009 CalSTRS Retirement Rates
Disclosure	The retirement assumptions are based on the 2009 CalSTRS Retirement Rates table created by CalSTRS. CalSTRS periodically studies the experience for participating agencies and establishes tables that are appropriate for each pool.

Retirement Table	2009 CalPERS Retirement Rates for School Employees
Disclosure	The retirement assumptions are based on the 2009 CalPERS Retirement Rates for School Employees table created by CalPERS. CalPERS periodically studies the experience for participating agencies and establishes tables that are appropriate for each pool.

Turnover Tables

Turnover Table	2009 CalSTRS Termination Rates
Disclosure	The turnover assumptions are based on the 2009 CalSTRS Termination Rates table created by CalSTRS. CalSTRS periodically studies the experience for participating agencies and establishes tables that are appropriate for each pool.

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Turnover Table	2009 CalPERS Termination Rates for School Employees
Disclosure	The turnover assumptions are based on the 2009 CalPERS Termination Rates for School Employees table created by CalPERS. CalPERS periodically studies the experience for participating agencies and establishes tables that are appropriate for each pool.

For other assumptions, we use actual plan provisions and plan data.

52.d: The alternative measurement method was not used in this valuation.

52.e: NOL Using alternative trend assumptions The following table shows the Net OPEB Liability with a health care cost trend rate 1% higher and 1% lower than assumed in the valuation.

	Trend 1% Lower	Valuation Trend	Trend 1% Higher
Net OPEB Liability	\$5,711,248	\$5,995,498	\$6,291,473

Paragraph 53: Discount Rate

The following information is intended to assist College of the Redwoods to comply with Paragraph 53 requirements.

53.a: A discount rate of 3.8% was used in the valuation.

53.b: We assumed that all contributions are from the employer.

53.c: There are no plan assets.

53.d: The interest assumption reflects a municipal bond rate. We used the Bond Buyer 20 at June 30, 2018 and rounded the rate resulting in a rate of 3.800%.

53.e: Not applicable.

53.f: There are no plan assets.

53.g: The following table shows the Net OPEB liability with a discount rate 1% higher and 1% lower than assumed in the valuation.

	Discount Rate 1% Lower	Valuation Discount Rate	Discount Rate 1% Higher
Net OPEB Liability	\$6,268,070	\$5,995,498	\$5,734,238

Paragraph 55: Changes in the Net OPEB Liability

Please see reconciliation on page 9. Please see the notes for Paragraph 244 below for more information.

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Paragraph 56: Additional Net OPEB Liability Information

The following information is intended to assist College of the Redwoods to comply with Paragraph 56 requirements.

56.a: The valuation date is June 30, 2017.

 The measurement date is June 30, 2018.

56 b: We are not aware of a special funding arrangement.

56 c: The interest assumption changed from 3.500% to 3.8%.

56.d: There were no changes in benefit terms since the prior measurement date.

56.e: Not applicable

56.f: To be determined by the employer

56.g: To be determined by the employer

56.h: Other than contributions after the measurement, all deferred inflow and outflow balances are shown in Appendix F

56.i: Future recognition of deferred inflows and outflows is shown in Appendix F

Paragraph 57: Required Supplementary Information

57.a: Please see reconciliation on page 9. Please see the notes for Paragraph 244 below for more information.

57.b: These items are provided on page 9 for the current valuation, except for covered payroll, which should be determined based on appropriate methods.

57.c: 11 years.

57.d: We are not aware that there are any statutorily or contractually established contribution requirements.

Paragraph 58: Actuarially Determined Contributions

11 years.

Paragraph 244: Transition Option

Prior periods were not restated due to the fact that prior valuations were not rerun in accordance with GASB 75. It was determined that the time and expense necessary to rerun prior valuations and to restate prior financial statements was not justified.

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APPENDIX F: DEFERRED OUTFLOWS OF RESOURCES AND DEFERRED INFLOWS OF RESOURCES

EXPERIENCE GAINS AND LOSSES

Increase (Decrease) in OPEB Expense Arising from the Recognition of Effects of Experience Gains and Losses (Measurement Periods)

Measurement Period	Experience Gain/Loss	Original Recognition Period (Years)	Amounts Recognized in OPEB Expense through 2017	2018	Amounts to be Recognized in OPEB Expense after 2018	2019	2020	2021	2022	2023	Thereafter
2017-18	\$0	0	\$0	\$0	\$0						
Net Increase (Decrease) in OPEB Expense			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

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CHANGES OF ASSUMPTIONS

Increase (Decrease) in OPEB Expense Arising from the Recognition of Effects of Changes of Assumptions (Measurement Periods)

Measurement Period	Changes of Assumptions	Original Recognition Period (Years)	Amounts Recognized in OPEB Expense through 2017	2018	Amounts to be Recognized in OPEB Expense after 2018	2019	2020	2021	2022	2023	Thereafter
2017-18	(\$95,709)	4	\$0	(\$23,928)	(\$71,781)	(\$23,928)	(\$23,928)	(\$23,925)			
Net Increase (Decrease) in OPEB Expense			\$0	(\$23,928)	(\$71,781)	(\$23,928)	(\$23,928)	(\$23,925)	\$0	\$0	\$0

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INVESTMENT GAINS AND LOSSES

Increase (Decrease) in OPEB Expense Arising from the Recognition of Effects of Investment Gains and Losses (Measurement Periods)

Measurement Period	Investment Gain/Loss	Original Recognition Period (Years)	Amounts Recognized in OPEB Expense through 2017	2018	Amounts to be Recognized in OPEB Expense after 2018	2019	2020	2021	2022	2023	Thereafter
2017-18	\$0	0	\$0	\$0	\$0						
Net Increase (Decrease) in OPEB Expense			\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

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APPENDIX G: GLOSSARY OF RETIREE HEALTH VALUATION TERMS

Note: The following definitions are intended to help a *non-actuary* understand concepts related to retiree health valuations. Therefore, the definitions may not be actuarially accurate.

<u>Actuarial Cost Method:</u>	A mathematical model for allocating OPEB costs by year of service. The only actuarial cost method allowed under GASB 74/75 is the entry age actuarial cost method.
<u>Actuarial Present Value of Projected Benefit Payments:</u>	The projected amount of all OPEB benefits to be paid to current and future retirees discounted back to the valuation or measurement date.
<u>Deferred Inflows/Outflows of Resources:</u>	A portion of certain items that can be deferred to future periods or that weren't reflected in the valuation. The former includes investment gains/losses, actuarial gains/losses, and gains/losses due to changes in actuarial assumptions or methods. The latter includes contributions made to a trust subsequent to the measurement date but before the statement date.
<u>Discount Rate:</u>	Assumed investment return net of all investment expenses. Generally, a higher assumed interest rate leads to lower service costs and total OPEB liability.
<u>Fiduciary Net Position:</u>	Net assets (liability) of a qualifying OPEB "plan" (i.e. qualifying irrevocable trust or equivalent arrangement).
<u>Implicit Rate Subsidy:</u>	The estimated amount by which retiree rates are understated in situations where, for rating purposes, retirees are combined with active employees and the employer is expected, in the long run, to pay the underlying cost of retiree benefits.
<u>Measurement Date:</u>	The date at which assets and liabilities are determined in order to estimate TOL and NOL.
<u>Mortality Rate:</u>	Assumed proportion of people who die each year. Mortality rates always vary by age and often by sex. A mortality table should always be selected that is based on a similar "population" to the one being studied.
<u>Net OPEB Liability (NOL):</u>	The Total OPEB Liability minus the Fiduciary Net Position.
<u>OPEB Benefits:</u>	Other Post Employment Benefits. Generally medical, dental, prescription drug, life, long-term care or other postemployment benefits that are not pension benefits.
<u>OPEB Expense:</u>	This is the amount employers must recognize as an expense each year. The annual OPEB expense is equal to the Service Cost plus interest on the Total OPEB Liability (TOL) plus change in TOL due to plan changes minus projected investment income; all adjusted to reflect deferred inflows and outflows of resources.
<u>Participation Rate:</u>	The proportion of retirees who elect to receive retiree benefits. A lower

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participation rate results in lower service cost and a TOL. The participation rate often is related to retiree contributions.

Retirement Rate:

The proportion of active employees who retire each year. Retirement rates are usually based on age and/or length of service. (Retirement rates can be used in conjunction with the service requirement to reflect both age and length of service). The more likely employees are to retire early, the higher service costs and actuarial accrued liability will be.

Service Cost:

The annual dollar value of the “earned” portion of retiree health benefits if retiree health benefits are to be fully accrued at retirement.

Service Requirement:

The proportion of retiree benefits payable under the OPEB plan, based on length of service and, sometimes, age. A shorter service requirement increases service costs and TOL.

Total OPEB Liability (TOL):

The amount of the actuarial present value of projected benefit payments attributable to employees’ past service based on the actuarial cost method used.

Trend Rate:

The rate at which the employer’s share of the cost of retiree benefits is expected to increase over time. The trend rate usually varies by type of benefit (e.g. medical, dental, vision, etc.) and may vary over time. A higher trend rate results in higher service costs and TOL.

Turnover Rate:

The rate at which employees cease employment due to reasons other than death, disability or retirement. Turnover rates usually vary based on length of service and may vary by other factors. Higher turnover rates reduce service costs and TOL.

Valuation Date:

The date as of which the OPEB obligation is determined by means of an actuarial valuation. Under GASB 74 and 75, the valuation date does not have to coincide with the statement date, but can’t be more than 30 months prior.