North Orange County Community College District

Actuarial Study of Retiree Health Liabilities As of October 1, 2014

Prepared by:
Total Compensation Systems, Inc.

Date: November 18, 2014

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North Orange County Community College District

Actuarial Study of Retiree Health Liabilities

PART I: EXECUTIVE SUMMARY

A. Introduction

North Orange County Community College District engaged Total Compensation Systems, Inc. (TCS) to analyze liabilities associated with its current retiree health program as of October 1, 2014 (the valuation 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, 2015. If the report will first be used for a different fiscal year, the numbers will 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 Governmental Accounting Standards Board (GASB) Standards 25/27.

This actuarial study is intended to serve the following purposes:

- To provide information to enable North Orange County CCD to manage the costs and liabilities associated with its retiree health benefits.
- To provide information to enable North Orange County CCD 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 43 and 45 related to "other postemployment benefits" (OPEB's).

Because this report was prepared in compliance with GASB 43 and 45, as appropriate, North Orange County CCD 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 43 and 45 compliance.

This actuarial report includes several estimates for North Orange County CCD's retiree health program. In addition to the tables included in this report, we also performed cash flow adequacy tests as required under Actuarial Standard of Practice 6 (ASOP 6). Our cash flow adequacy testing covers a twenty-year period. We would be happy to make this cash flow adequacy test available to North Orange County CCD in spreadsheet format upon request.

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

- the total liability created. (The actuarial present value of total projected benefits or APVTPB)
- the fifteen year "pay-as-you-go" cost to provide these benefits.
- the "actuarial accrued liability (AAL)." (The AAL is the portion of the APVTPB attributable to employees' service prior to the valuation date.)

- the amount necessary to amortize the UAAL over a period of 19 years.
- the annual contribution required to fund retiree benefits over the working lifetime of eligible employees (the "normal cost").
- The Annual Required Contribution (ARC) which is the basis of calculating the annual OPEB cost and net OPEB obligation under GASB 43 and 45.

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. Normal 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 October 1, 2014 to be $4,626,684 (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 October 1, 2014 (the normal cost) is $4,280,282. This normal cost would increase each year based on covered payroll. Had North Orange County CCD 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 to be $120,824,968. This amount is called the "actuarial accrued liability” (AAL). The remaining unamortized balance of the initial unfunded AAL (UAAL) is $153,384,773. This leaves a “residual” AAL of ***negative*** $32,559,805.

We calculated the annual cost to amortize the residual unfunded actuarial accrued liability using a 4.5% discount rate. We used an open 19 year amortization period. The current year cost to amortize the residual unfunded actuarial accrued liability is ***negative*** $2,020,303.

Combining the normal cost with both the initial and residual UAAL amortization costs produces an annual required contribution (ARC) of $11,867,872. The ARC is used as the basis for determining expenses and liabilities under GASB 43/45. The ARC is used in lieu of (rather than in addition to) the “pay-as-you-go” cost.

We based all of the above estimates on employees as of September, 2014. Over time, liabilities and cash flow will vary based on the number and demographic characteristics of employees and retirees.

C. Description of Retiree Benefits

Following is a description of the current retiree benefit plan:

	Certificated Management	*Certificated*	*Classified*	*Classified Management*
Benefit types provided	Medical only	Medical only	Medical only	Medical only
Duration of Benefits	Lifetime	Lifetime	Lifetime	Lifetime
Required Service	15 years*	15 years*	15 years*	15 years*
Minimum Age	55**	50	50	50
Dependent Coverage	Surviving spouses under certain conditions	Surviving spouses under certain conditions	Surviving spouses under certain conditions	Surviving spouses under certain conditions
District Contribution %	100%	100%	100%	100%
District Cap	None	None	None	None

*Permanent employees hired after May 1, 1994 and employed less than 100% receive lifetime medical for the cumulative pro-rata equivalent of 15 years of credited service or 20 years of service, whichever occurs sooner.
**Subject to applicable retirement system

D. Recommendations

It is outside the scope of this report to make specific recommendations of actions North Orange County CCD should take to manage the substantial 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 North Orange County CCD's practices, it is possible that North Orange County CCD is already complying with some or all of our recommendations.

- We recommend that North Orange County CCD inventory all benefits and services provided to retirees – whether contractually or not and whether retiree-paid or not. For each, North Orange County CCD should determine whether the benefit is material and subject to GASB 43 and/or 45.

- We recommend that North Orange County CCD 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 43/45.

- We recommend that the District communicate the magnitude of these costs to employees and include employees in discussions of options to control the costs.

- Under GASB 45, it is important to isolate the cost of retiree health benefits. North Orange County CCD 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, North Orange County CCD should arrange for the rates or prices of all retiree benefits to be set on what is expected to be a self-sustaining basis.

- North Orange County CCD 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 North Orange County CCD'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, North Orange County CCD 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 North Orange County CCD 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.

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 2004 Accounting Standards 43 and 45 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).

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."

Under most actuarial cost methods, there are two components of actuarial cost - a "normal cost" and amortization of something called the "unfunded actuarial accrued liability." Both accounting standards and actuarial standards usually address these two components separately (though alternative terminology is sometimes used).

The normal cost can be thought of as the value of the benefit earned each year if benefits are accrued during the working lifetime of employees. This report will not discuss differences between actuarial cost methods or their application. Instead, following is a description of a commonly used, generally accepted actuarial cost method permitted under GASB 43 and 45. This actuarial cost method is called the "entry age normal" method.

Under the entry age normal 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 normal cost. Under GASB 43 and 45, normal cost can be expressed either as a level dollar amount or a level percentage of payroll.

The normal 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 normal cost.

- The ***"trend" rate*** at which retiree health benefits are expected to increase over time. A higher trend rate increases the normal cost. A "cap" on District contributions can reduce trend to zero once the cap is reached thereby dramatically reducing normal 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 normal 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 normal 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.

- ***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 normal 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 example, employer funds earning money market rates in the county treasury are likely to earn far less than an irrevocable trust containing a diversified asset portfolio including stocks, bonds, etc. A higher discount rate can dramatically lower normal costs. GASB 43 and 45 require the interest assumption to reflect likely *long term* investment return.

The assumptions listed above are not exhaustive, but are the most common assumptions used in actuarial cost calculations. The actuary selects the assumptions which - taken together - will yield reasonable results. It's not necessary (or even possible) to predict individual assumptions with complete accuracy.

If all actuarial assumptions are exactly met and an employer expensed the normal 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 actuarial accrued liability or AAL. The excess of AAL over the ***actuarial value of plan assets*** is called the *unfunded* actuarial accrued liability (or UAAL). Under GASB 43 and 45, in order for assets to count toward offsetting the AAL, 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 actuarial accrued liability (AAL) can arise in several ways. At inception of GASB 43 and 45, there is usually a substantial UAAL. Some portion of this amount can be established as the "transition obligation" subject to certain constraints. UAAL can also increase as the result of operation of a retiree health plan - e.g., as a result of plan changes or changes in actuarial assumptions. Finally, AAL can arise from actuarial gains and losses. Actuarial gains and losses result from differences between actuarial assumptions and actual plan experience.

Under GASB 43 and 45, employers have several options on how the UAAL can be amortized as follows:

- The employer can select an amortization period of 1 to 30 years. (For certain situations that result in a reduction of the AAL, the amortization period must be at least 10 years.)

- The employer may apply the same amortization period to the total combined UAAL or can apply different periods to different components of the UAAL.

- The employer may elect a “closed” or “open” amortization period.

- The employer may choose to amortize on a level dollar or level percentage of payroll method.

PART III: LIABILITIES AND COSTS FOR RETIREE BENEFITS

A. Introduction.

We calculated the actuarial present value of projected benefits (APVPB) separately for each employee. We determined eligibility for retiree benefits based on information supplied by North Orange County CCD. We then selected assumptions for the factors discussed in the above Section that, based on plan experience and our training and experience, represent our best prediction of future plan experience. For each employee, we applied the appropriate factors based on the employee's age, sex and length of service.

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

B. Medicare

The extent of Medicare coverage can affect projections of retiree health costs. The method of coordinating Medicare benefits with the retiree health plan's benefits can have a substantial impact on retiree health costs. We will be happy to provide more information about Medicare integration methods if requested.

C. Liability for Retiree Benefits.

For each employee, we projected future premium costs using an assumed trend rate (see Appendix C). To the extent North Orange County CCD uses contribution caps, the influence of the trend factor is further reduced.

We multiplied each year's projected cost by the probability that premium will be paid; i.e. based on the probability that the employee is living, has not terminated employment and has retired. The probability that premium will be paid is zero if the employee is not eligible. The employee is not eligible if s/he has not met minimum service, minimum age or, if applicable, maximum age requirements.

The product of each year's premium cost and the probability that premium will be paid equals the expected cost for that year. We discounted the expected cost for each year to the valuation date October 1, 2014 at 4.5% interest.

Finally, we multiplied the above discounted expected cost figures by the probability that the retiree would elect coverage. A retiree may not elect to be covered if retiree health coverage is available less expensively from another source (e.g. Medicare risk contract) or the retiree is covered under a spouse's plan.

For any current retirees, the approach used was similar. The major difference is that the probability of payment for current retirees depends only on mortality and age restrictions (i.e. for retired employees the probability of being retired and of not being terminated are always both 1.0000).

We added the APVPB for all employees to get the actuarial present value of total projected benefits (APVTPB). The APVTPB is the estimated present value of all future retiree health benefits for all **current** employees and retirees. The APVTPB is the amount on October 1, 2014 that, if all actuarial assumptions are exactly right, would be sufficient to expense all promised benefits until the last current employee or retiree dies or reaches the maximum eligibility age.

Actuarial Present Value of Total Projected Benefits at October 1, 2014

	Total	*Certificated Management*	*Certificated*	*Classified*	*Classified Management*	*Other*
Active: Pre-65	$21,672,673	$772,261	$9,726,063	$10,067,802	$1,106,547	$0
Post-65	$74,398,359	$2,987,443	$37,184,003	$30,633,460	$3,593,453	$0
Subtotal	$96,071,032	$3,759,704	$46,910,066	$40,701,262	$4,700,000	$0
Retiree: Pre-65	$2,293,843	$11,480	$364,224	$1,742,296	$28,578	$147,265
Post-65	$52,086,858	$586,357	$24,586,774	$20,889,910	$680,446	$5,343,371
Subtotal	$54,380,701	$597,837	$24,950,998	$22,632,206	$709,024	$5,490,636
Grand Total	$150,451,733	$4,357,541	$71,861,064	$63,333,468	$5,409,024	$5,490,636
Subtotal Pre-65	$23,966,516	$783,741	$10,090,287	$11,810,098	$1,135,125	$147,265
Subtotal Post-65	$126,485,217	$3,573,800	$61,770,777	$51,523,370	$4,273,899	$5,343,371

The APVTPB should be accrued over the working lifetime of employees. At any time much of it has not been “earned” by employees. The APVTPB is used to develop expense and liability figures. To do so, the APVTFB is divided into two parts: the portions attributable to service rendered prior to the valuation date (the past service liability or actuarial accrued liability under GASB 43 and 45) and to service after the valuation date but prior to retirement (the future service liability).

The past service and future service liabilities are each funded in a different way. We will start with the future service liability which is funded by the normal cost.

D. Cost to Prefund Retiree Benefits

1. Normal Cost

The average hire age for eligible employees is 36. To accrue the liability by retirement, the District would accrue the retiree liability over a period of about 25 years (assuming an average retirement age of 61). We applied an "entry age normal" actuarial cost method to determine funding rates for active employees. The table below summarizes the calculated normal cost.

Normal Cost Year Beginning October 1, 2014

	Total	*Certificated Management*	*Certificated*	*Classified*	*Classified Management*
# of Employees	1161	46	491	564	60
Per Capita Normal Cost					
Pre-65 Benefit	N/A	$1,061	$1,134	$864	$941
Post-65 Benefit	N/A	$3,656	$3,374	$2,064	$2,367
First Year Normal Cost					
Pre-65 Benefit	$1,149,356	$48,806	$556,794	$487,296	$56,460
Post-65 Benefit	$3,130,926	$168,176	$1,656,634	$1,164,096	$142,020
Total	$4,280,282	$216,982	$2,213,428	$1,651,392	$198,480

Accruing retiree health benefit costs using normal costs levels out the cost of retiree health benefits over time and more fairly reflects the value of benefits "earned" each year by employees. This normal cost would increase each year based on covered payroll.

2. Amortization of Unfunded Actuarial Accrued Liability (UAAL)

If actuarial assumptions are borne out by experience, the District will fully accrue retiree benefits by expensing an amount each year that equals the normal cost. If no accruals had taken place in the past, there would be a shortfall of many years' accruals, accumulated interest and forfeitures for terminated or deceased employees. This shortfall is called the actuarial accrued liability (AAL). We calculated the AAL as the APVTPB minus the present value of future normal costs.

The initial UAAL was amortized using level percent, closed 30 year amortization. The District can amortize the remaining or residual UAAL over many years. The table below shows the annual amount necessary to amortize the UAAL over a period of 19 years at 4.5% interest. (Thirty years is the longest amortization period allowable under GASB 43 and 45.) GASB 43 and 45 allow amortizing the UAAL using either payments that stay the same as a dollar amount, or payments that are a flat percentage of covered payroll over time. The figures below reflect level percent, open 19 year amortization.

Actuarial Accrued Liability as of October 1, 2014

	Total	*Certificated Management*	*Certificated*	*Classified*	*Classified Management*	*Other*
Active: Pre-65	$13,658,363	$449,838	$6,181,894	$6,299,615	$727,016	$0
Post-65	$52,785,904	$1,876,437	$26,639,008	$21,631,681	$2,638,778	$0
Subtotal	$66,444,267	$2,326,275	$32,820,902	$27,931,296	$3,365,794	$0
Retiree: Pre-65	$2,293,843	$11,480	$364,224	$1,742,296	$28,578	$147,265
Post-65	$52,086,858	$586,357	$24,586,774	$20,889,910	$680,446	$5,343,371
Subtotal	$54,380,701	$597,837	$24,950,998	$22,632,206	$709,024	$5,490,636
Subtot Pre-65	$15,952,206	$461,318	$6,546,118	$8,041,911	$755,594	$147,265
Subtot Post-65	$104,872,762	$2,462,794	$51,225,782	$42,521,591	$3,319,224	$5,343,371
Grand Total	$120,824,968	$2,924,112	$57,771,900	$50,563,502	$4,074,818	$5,490,636
Unamortized Initial UAAL	$153,384,773					
Plan assets at 9/30/14	$0					
Residual UAAL	($32,559,805)					
Residual UAAL Amortization at 4.5% over 19 Years	($2,020,303)					

3. Annual Required Contributions (ARC)

If the District determines retiree health plan expenses in accordance with GASB 43 and 45, costs include both normal cost and one or more components of UAAL amortization costs. The sum of normal cost and UAAL amortization costs is called the Annual Required Contribution (ARC) and is shown below.

Annual Required Contribution (ARC) Year Beginning October 1, 2014

	Total
Normal Cost	$4,280,282
Initial UAAL Amortization	$9,607,893
Residual UAAL Amortization	($2,020,303)
ARC	$11,867,872

The normal cost remains as long as there are active employees who may some day qualify for District-paid retiree health benefits. This normal cost would increase each year based on covered payroll.

4. Other Components of Annual OPEB Cost (AOC)

Expense and liability amounts may include more components of cost than the normal cost plus amortization of the UAAL. This applies to employers that don't fully fund the Annual Required Contribution (ARC) through an irrevocable trust.

- The annual OPEB cost (AOC) includes assumed interest on the net OPEB obligation (NOO). The annual OPEB cost also includes an amortization adjustment for the net OPEB obligation. (It should be noted that there is no NOO if the ARC is fully funded through a qualifying "plan".)

- The net OPEB obligation equals the accumulated differences between the (AOC) and qualifying "plan" contributions.

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

We used the actuarial assumptions shown in Appendix C to project fifteen year cash flow under the retiree health program. Because these cash flow estimates reflect average assumptions applied to a relatively small number of employees, estimates for individual years are **certain** to be ***in***accurate. However, these estimates show the size of cash outflow.

The following table shows a projection of annual amounts needed to pay the District share of retiree health premiums.

Year Beginning October 1	*Total*	*Certificated Management*	*Certificated*	*Classified*	*Classified Management*	*Other*
2014	$4,626,684	$39,835	$2,207,568	$1,840,000	$48,295	$490,986
2015	$4,792,427	$49,793	$2,319,379	$1,882,449	$57,502	$483,304
2016	$5,116,737	$66,592	$2,523,509	$1,980,606	$78,425	$467,605
2017	$5,444,229	$81,009	$2,713,802	$2,100,076	$99,002	$450,340
2018	$5,727,647	$96,646	$2,869,085	$2,209,484	$117,189	$435,243
2019	$6,022,312	$108,684	$2,995,762	$2,358,097	$137,140	$422,629
2020	$6,312,815	$120,586	$3,109,010	$2,512,856	$164,975	$405,388
2021	$6,563,304	$129,158	$3,212,045	$2,643,098	$187,930	$391,073
2022	$6,842,237	$142,890	$3,327,205	$2,788,570	$207,381	$376,191
2023	$7,129,138	$162,816	$3,450,603	$2,922,028	$232,876	$360,815
2024	$7,363,493	$172,405	$3,551,537	$3,041,090	$253,470	$344,991
2025	$7,666,959	$177,792	$3,696,271	$3,186,959	$277,185	$328,752
2026	$7,960,579	$188,515	$3,847,162	$3,312,966	$299,700	$312,236
2027	$8,235,948	$204,467	$3,996,520	$3,416,663	$322,735	$295,563
2028	$8,458,501	$230,246	$4,118,693	$3,496,806	$333,945	$278,811

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 43/45 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.

We recommend North Orange County CCD 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. Following is a brief summary of the impact of some of the more critical assumptions.

1. Where actuarial assumptions differ from expected experience, our estimates could be overstated or understated. One of the most critical assumptions is the medical trend rate. The District may want to commission further study to assess the sensitivity of liability estimates to our medical trend assumptions. For example, it may be helpful to know how liabilities would be affected by using a trend factor 1% higher than what was used in this study. There is an additional fee required to calculate the impact of alternative trend assumptions.

2. We used an "entry age normal" actuarial cost method to estimate the actuarial accrued liability and normal cost. GASB allows this as one of several permissible methods under GASB45. Using a different cost method could result in a somewhat different recognition pattern of costs and liabilities.

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 North Orange County CCD to understand that the appropriateness of all selected actuarial assumptions and methods are North Orange County CCD'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 43 and 45, applicable actuarial standards of practice, North Orange County CCD's actual historical experience, and TCS's judgment based on experience and training.

ACTUARIAL METHODS AND ASSUMPTIONS:

ACTUARIAL COST METHOD: Entry age normal. The allocation of OPEB cost is based on years of service. We used the level percentage of payroll method to allocate OPEB cost over years of service.

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 present value of future benefits and present value of future normal 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 normal 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).

AMORTIZATION METHODS: We used a level percent, closed 30 year amortization period for the initial UAAL. We used a level percent, open 19 year amortization period for any residual UAAL.

SUBSTANTIVE PLAN: As required under GASB 43 and 45, 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 North Orange County CCD regarding practices with respect to employer and employee contributions and other relevant factors.

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.

INVESTMENT RETURN / DISCOUNT RATE: We assumed 4.5% per year. This is based on assumed long-term return on employer assets.. We used the "Building Block Method" as described in ASOP 27 Paragraph 3.6.2. Our assessment of long-term returns for employer assets is based on long-term historical returns for surplus funds invested pursuant to California Government Code Sections 53601 et seq.

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. This assumption applies only to the extent that either or both of the normal cost and/or UAAL amortization use the level percentage of payroll method. For purposes of applying the level percentage of payroll method, payroll increase must not assume any increases in staff or merit increases.

ACTUARIAL VALUE OF PLAN ASSETS (AVA): There were no plan assets on the valuation date.

NON-ECONOMIC ASSUMPTIONS:

Economic assumptions are set under the guidance of Actuarial Standard of Practice 35 (ASOP 35).

MORTALITY

Employee Type	*Mortality Tables*
Certificated	2009 CalSTRS Mortality
Classified	2009 CalPERS Mortality for Miscellaneous Employees

RETIREMENT RATES

Employee Type	*Retirement Rate Tables*
Certificated	2009 CalSTRS Retirement Rates
Classified	Hired before 1/1/2013: 2009 CalPERS Retirement Rates for School Employees Hired after 12/31/2012: 2009 CalPERS Retirement Rates for Miscellaneous Employees 2%@60 adjusted to minimum retirement age of 52
Classified Management	Hired before 1/1/2013: 2009 CalPERS Retirement Rates for School Employees Hired after 12/31/2012: 2009 CalPERS Retirement Rates for Miscellaneous Employees 2%@60 adjusted to minimum retirement age of 52

VESTING RATES

Employee Type	*Vesting Rate Tables*
Certificated Management	100% at 15 Years of Service*
Certificated	100% at 15 Years of Service for full-time*
Classified	100% at 15 Years of Service for full-time*
Classified Management	100% at 15 Years of Service*

*Permanent employees hired after May 1, 1994 and employed less than 100% receive lifetime medical for the cumulative pro-rata equivalent of 15 years of credited service or 20 years of service, whichever occurs sooner.

COSTS FOR RETIREE COVERAGE

There was not sufficient information available to determine whether there is an implicit subsidy for retiree health costs. Based on ASOP 6, there can be justification for using "community-rated" premiums as the basis for the valuation where the insurer is committed to continuing rating practices. This is especially true where sufficient information is not available to determine the magnitude of the subsidy. However, North Orange County CCD should recognize that costs and liabilities in this report could change significantly if either the current insurer changes rating practices or if North Orange County CCD changes insurers.

Retiree liabilities are based on actual retiree costs. 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.

Employee Type	*Future Retirees Pre-65*	*Future Retirees Post-65*
Academic Management	$7,382	$4,788
Classified	$7,156	$4,290
Classified Management	$7,156	$4,290
Faculty	$7,382	$4,788

PARTICIPATION RATES

Employee Type	*<65 Non-Medicare Participation %*	*65+ Medicare Participation %*
Certificated	100%	100%
Classified	100%	100%

TURNOVER

Employee Type	*Turnover Rate Tables*
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.

APPENDIX D: DISTRIBUTION OF ELIGIBLE PARTICIPANTS BY AGE

ELIGIBLE ACTIVE EMPLOYEES

Age	*Total*	*Certificated Management*	*Certificated*	*Classified*	*Classified Management*	*Other*
Under 25	6	0	0	6	0	0
25-29	28	0	3	24	1	0
30-34	62	1	9	52	0	0
35-39	106	2	28	68	8	0
40-44	154	8	65	76	5	0
45-49	167	8	85	64	10	0
50-54	191	9	70	97	15	0
55-59	200	9	91	90	10	0
60-64	148	4	75	60	9	0
65 and older	99	5	65	27	2	0
Total	1161	46	491	564	60	0

ELIGIBLE RETIREES

Age	*Total*	*Certificated Management*	*Certificated*	*Classified*	*Classified Management*	*Other*
Under 50	0	0	0	0	0	0
50-54	1	0	0	1	0	0
55-59	24	0	5	18	0	1
60-64	69	1	14	47	2	5
65-69	159	5	70	57	6	21
70-74	171	0	69	88	0	14
75-79	177	0	98	58	1	20
80-84	154	0	83	47	0	24
85-89	100	0	55	35	0	10
90 and older	66	0	31	22	0	13
Total	921	6	425	373	9	108

APPENDIX E: CALCULATION OF GASB 43/45 ACCOUNTING ENTRIES

This report is to be used to calculate accounting entries rather than to provide the dollar amount of accounting entries. How the report is to be used to calculate accounting entries depends on several factors. Among them are:

1) The amount of prior accounting entries;

2) Whether individual components of the ARC are calculated as a level dollar amount or as a level percentage of payroll;

3) Whether the employer using a level percentage of payroll method elects to use for this purpose projected payroll, budgeted payroll or actual payroll;

4) Whether the employer chooses to adjust the numbers in the report to reflect the difference between the valuation date and the first fiscal year for which the numbers will be used.

To the extent the level percentage of payroll method is used, the employer should adjust the numbers in this report as appropriate to reflect the change in OPEB covered payroll. It should be noted that OPEB covered payroll should only reflect types of pay generating pension credits for plan participants. Please note that plan participants do not necessarily include all active employees eligible for health benefits for several reasons. Following are examples.

1) The number of hours worked or other eligibility criteria may differ for OPEB compared to active health benefits;

2) There may be active employees over the maximum age OPEB are paid through. For example, if an OPEB plan pays benefits only to Medicare age, any active employees currently over Medicare age are not plan participants;

3) Employees hired at an age where they will exceed the maximum age for benefits when the service requirement is met are also not plan participants.

Finally, GASB 43 and 45 require reporting covered payroll in RSI schedules regardless of whether any ARC component is based on the level percentage of payroll method. This report does not provide, nor should the actuary be relied on to report covered payroll.

GASB 45 Paragraph 26 specifies that the items presented as RSI "should be calculated in accordance with the parameters." The RSI items refer to Paragraph 25.c which includes annual covered payroll. Footnote 3 provides that when the ARC is based on covered payroll, the payroll measure may be the projected payroll, budgeted payroll or actual payroll. Footnote 3 further provides that comparisons between the ARC and contributions should be based on the same measure of covered payroll.

At the time the valuation is being done, the actuary may not know which payroll method will be used for reporting purposes. The actuary may not even know for which period the valuation will be used to determine the ARC. Furthermore, the actuary doesn’t know if the client will make adjustments to the ARC in order to use it for the first year of the biennial or triennial period. (GASB 45 is silent on this.) Even if the actuary were to know all of these things, it would be a rare situation that would result in knowing the appropriate covered payroll number

to report. For example, if the employer uses actual payroll, that number would not be known at the time the valuation is done.

As a result, we believe the proper approach is to report the ARC components as a dollar amount. It is the client's responsibility to turn this number into a percentage of payroll factor by using the dollar amount of the ARC (adjusted, if desired) as a numerator and then calculating the appropriate amount of the denominator based on the payroll determination method elected by the client for the appropriate fiscal year.

If we have been provided with payroll information, we are happy to use that information to help the employer develop an estimate of covered payroll for reporting purposes. However, the validity of the covered payroll remains the employer’s responsibility even if TCS assists the employer in calculating it.

APPENDIX F: 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.

Actuarial Accrued Liability: The amount of the actuarial present value of total projected benefits attributable to employees' past service based on the actuarial cost method used.

Actuarial Cost Method: A mathematical model for allocating OPEB costs by year of service.

Actuarial Present Value of Total Projected Benefits: The projected amount of all OPEB benefits to be paid to current and future retirees discounted back to the valuation date.

Actuarial Value of Assets: Market-related value of assets which may include an unbiased formula for smoothing cyclical fluctuations in asset values.

Annual OPEB Cost: This is the amount employers must recognize as an expense each year. The annual OPEB expense is equal to the Annual Required Contribution plus interest on the Net OPEB obligation minus an adjustment to reflect the amortization of the net OPEB obligation.

Annual Required Contribution: The sum of the normal cost and an amount to amortize the unfunded actuarial accrued liability. This is the basis of the annual OPEB cost and net OPEB obligation.

Closed Amortization Period: An amortization approach where the original ending date for the amortization period remains the same. This would be similar to a conventional, 30-year mortgage, for example.

Discount Rate: Assumed investment return net of all investment expenses. Generally, a higher assumed interest rate leads to lower normal costs and actuarial accrued liability.

Implicit Rate Subsidy: The estimated amount by which retiree rates are understated in situations where, for rating purposes, retirees are combined with active employees.

Mortality Rate: 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.

Net OPEB Obligation: The accumulated difference between the annual OPEB cost and amounts contributed to an irrevocable trust exclusively providing retiree OPEB benefits and protected from creditors.

Normal Cost: The dollar value of the "earned" portion of retiree health benefits if retiree health benefits are to be fully accrued at retirement.

OPEB Benefits:	Other PostEmployment Benefits. Generally medical, dental, prescription drug, life, long-term care or other postemployment benefits that are not pension benefits.
Open Amortization Period:	Under an open amortization period, the remaining unamortized balance is subject to a new amortization schedule each valuation. This would be similar, for example, to a homeowner refinancing a mortgage with a new 30-year conventional mortgage every two or three years.
Participation Rate:	The proportion of retirees who elect to receive retiree benefits. A lower participation rate results in lower normal cost and actuarial accrued liability. 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 vesting rates to reflect both age and length of service). The more likely employees are to retire early, the higher normal costs and actuarial accrued liability will be.
Transition Obligation:	The amount of the unfunded actuarial accrued liability at the time actuarial accrual begins in accordance with an applicable accounting standard.
Trend Rate:	The rate at which 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 normal costs and actuarial accrued liability.
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 normal costs and actuarial accrued liability.
Unfunded Actuarial Accrued Liability:	This is the excess of the actuarial accrued liability over assets irrevocably committed to provide retiree health benefits.
Valuation Date:	The date as of which the OPEB obligation is determined. Under GASB 43 and 45, the valuation date does not have to coincide with the statement date.
Vesting Rate:	The proportion of retiree benefits earned, based on length of service and, sometimes, age. (Vesting rates are often set in conjunction with retirement rates.) More rapid vesting increases normal costs and actuarial accrued liability.