

THREE: APPENDICES

MISCELLANEOUS ASSUMPTIONS

continued

TRS Salary Bonus

What is the TRS Salary Bonus Assumption and How Do We Use it?

The Teachers' Retirement System (TRS) Salary Bonus assumption reflects the expectation of higher future salaries due to an increasing proportion of teachers obtaining a National Board (NB) certification through the National Board for Professional Teaching Standards (NBPTS). NB certified teachers receive an annual bonus (base bonus) that is included in pensionable compensation. We model the expected impact of those bonuses on average salary by adding an additional temporary rate to our General Salary Growth (GSG) assumption for TRS. When the proportion of TRS members receiving these bonuses reaches our long-term expected percent, this assumption will no longer be necessary. Please see the **Service-Based Salary Increase** section for more information about salary growth.

NB certified teachers who work at any one of the specified "challenging schools" receive an additional annual bonus (CS bonus) that is also included in pensionable compensation.

High-Level Takeaways

Based on our analysis and information from the Office of Superintendent of Public Instruction (OSPI), we continue to expect the proportion of TRS members receiving the base and CS bonus will increase over the next few years. However, we anticipate fewer bonus recipients in the future than our old assumptions for three main reasons:

1. OSPI historical and projected data falls short of our old expectations for the number of bonuses awarded.
2. There have been recent changes to the NB certification process that may impact the number of teachers who obtain and maintain their credentials.
3. There may be less incentive for teachers to earn a NB certification given the recent compensation adjustments through collective bargaining.

We expect the proportion of teachers receiving this bonus will reach our long-term expected percent by the next demographic experience study in six years. Once this percentage is reached, all of the general pay increases due to increased participation in NB certification will be reflected in our data. As a result, we will review updated data from OSPI but may not produce a section in the next report if we deem the assumption is no longer needed.

Data and Assumptions

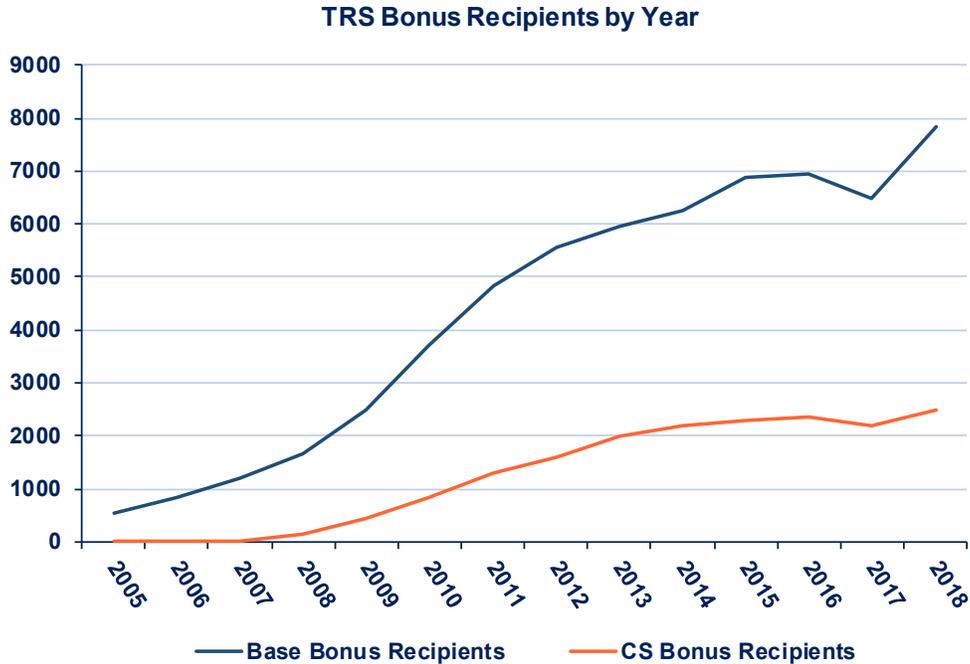
We received data from OSPI on historical and projected headcounts from 2005-2023 of NB certified bonus recipients and how many of those teachers worked in a CS. We compared these counts to our historical valuation data on the total active TRS population from 2005-2018.

Below is a graph of the base and CS bonuses allocated from 2005 to 2018.

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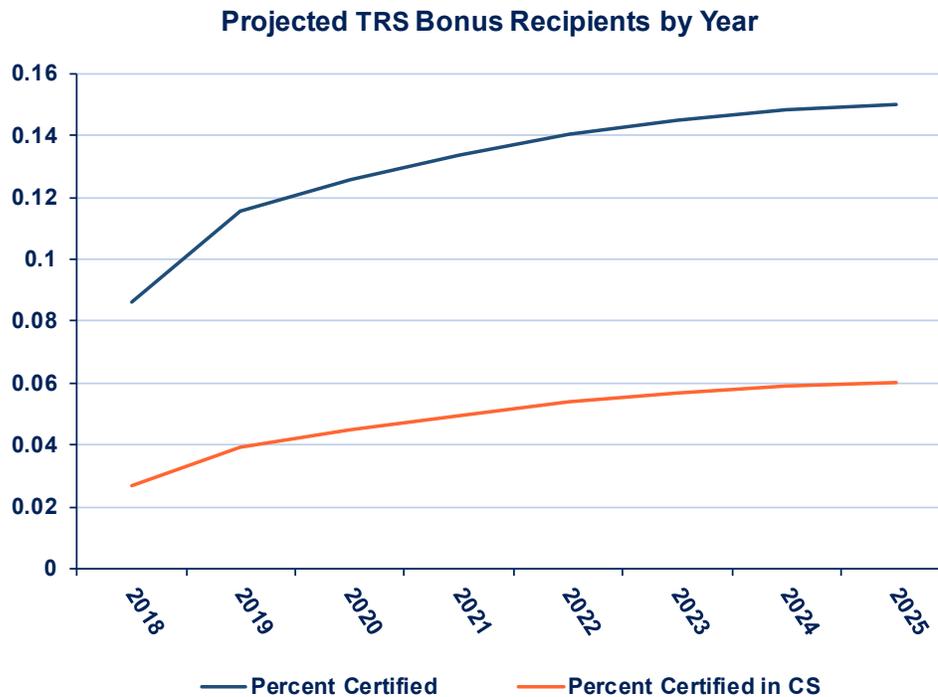
As directed by [RCW 28A.405.415](#), the base bonus was \$5,000 in the 2007-2008 school year. In recent years, the base bonus has increased annually for inflation. For the 2018-2019 school year, the base bonus was \$5,397 and the CS bonus was a flat \$5,000 with no inflation adjustment. Newly certified teachers receive 60 percent of the annual bonuses in the first year.

We assume the long-term proportion of all teachers obtaining a NB certification is 15 percent and the portion of NB certified teachers working in CS is 40 percent (or rather, 6 percent of all teachers). For purposes of setting our TRS Salary Bonus assumption, we assume these long-term rates will be reached by the year 2025. Combining those percentages with our TRS active head counts, we projected the number of base and CS bonus recipients until the ultimate rates are expected to be reached, as illustrated below.

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General Methodology

Our approach to this analysis is intended to capture the expected growth in system salaries over and above our GSG and Service-Based Salary Assumptions due to new NBPTS bonuses not already in current salaries. We start by reviewing total plan average projected salaries over roughly the next 15 years based upon the current portion of the TRS population receiving the NB base bonus and CS bonus. Then we estimate how that average salary will increase when reflecting our ultimate assumption for the percentage of teachers who receive these bonuses and by when (as outlined in the **Analysis** sub-section below).

By comparing these projected average salaries with and without the additional bonuses, we are able to estimate the expected short-term increase to our GSG assumption for TRS. The structure of this assumption will be in the form of a select-and-ultimate table by year that trends to zero percent when we're expected to reach the ultimate NBPTS certified portion of teachers.

Based on the assumptions we made regarding the percentage of teachers who receive these bonuses, this **General Methodology** write-up illustrates how we translate those assumptions into a format we can apply in our valuation model.

Law Changes

Since the last study, no law changes have impacted our analysis of this assumption.

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Analysis and Results

Analysis

To help set the assumptions for the proportion of TRS members receiving base and CS bonuses, we examined the historical and projected data provided by OSPI.

As illustrated in the **Data** section above, there was recently a dip in the total NB bonuses awarded. Beginning in 2014, NBPTS began a three-year endeavor to revise their assessment process and consequently placed temporary restrictions on new certifications. Due to this revision, we see an influx of new certifications in 2015 accompanied by a drop in 2016 and 2017, and a similar increase in 2018. While we studied and considered this recent experience, due to the volatility we primarily focused our analysis on expectations for the future.

To inform our decision, we examined five years of projected NB bonus data provided by OSPI and compared it to our internal TRS population projections. Below is a summary of the data.

OSPI Projected Bonus Allocation				
Year	Base Number of Bonus Recipients	% of TRS Population	CS Bonus Recipients	% of Recipients in a CS
2019	8,696	11.6%	2,771	31.9%
2020	8,512	11.2%	2,987	35.1%
2021	8,693	11.3%	3,164	36.4%
2022	8,812	11.3%	3,309	37.6%
2023	9,002	11.4%	3,428	38.1%

We compared this data with our prior projections using our old assumptions. Previously we assumed 20 percent of teachers would ultimately receive a base bonus and 40 percent of those teachers would receive a CS bonus. Based on the data above and OSPI feedback, we believe our old assumptions are overestimating the future number of total teachers receiving a bonus. As such, we lowered our ultimate assumption of total TRS bonus recipients from 20 percent to 15 percent. We found our old assumption of 40 percent of bonus recipients working in CS continues to be reasonable.

Results

All-Plan Summary

Overall, we expect GSG to continue to increase in future years due to the NB bonuses. However, we expect these increases to be smaller than our old assumptions.

Given the current demographics and the size of the remaining TRS 1 active population (approximately 500 members at the end of Fiscal Year 2018), we found this assumption is no longer material for Plan 1. In addition, we don't expect any new TRS 1 members will go through the certification process. Therefore, we decided to remove the additional GSG increases for NB bonuses in TRS 1.

The following new rates will be added to the GSG assumption of 3.5 percent.

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Year	Assumed GSG Increase			
	Old Plan 1	Old Plan 2/3	New Plan 1	New Plan 2/3
2019	0.10%	0.10%	0.00%	0.09%
2020	0.09%	0.09%	0.00%	0.08%
2021	0.08%	0.08%	0.00%	0.06%
2022	0.08%	0.07%	0.00%	0.05%
2023	0.07%	0.07%	0.00%	0.04%
2024	0.06%	0.06%	0.00%	0.02%
2025	0.05%	0.05%	0.00%	0.01%
2026	0.04%	0.04%	0.00%	0.00%
2027	0.03%	0.03%	0.00%	0.00%
2028	0.02%	0.02%	0.00%	0.00%
2029	0.02%	0.02%	0.00%	0.00%
2030+	0.00%	0.00%	0.00%	0.00%