

March 28, 2018

## CONFIDENTIAL

New Brunswick Teachers' Pension Plan Board of Trustees  
c/o Mr. Larry Jamieson, Chair  
440 King Street  
York Tower, Suite 581  
Fredericton, NB E3B 5H8

**RE: New Brunswick Teachers' Pension Plan  
Cost Certificate as at August 31, 2017**

Dear Mr. Jamieson:

As required under subsection 14(2) of the Teachers' Pension Plan Act, SNB 2014 ("TPPA"), we have prepared below a cost certificate as at August 31, 2017 of the New Brunswick Teachers' Pension Plan ("NBTPP" or "Plan").

The New Brunswick Teachers' Pension Act ("Former TPA") was repealed and replaced with the NBTPP effective July 1, 2014. The most recent actuarial valuation of the Plan was carried out as at August 31, 2016. The detailed results of the actuarial valuation can be found in our *Actuarial Valuation Report As At August 31, 2016* prepared in April 2017 and filed with the Superintendent of Pensions. The next actuarial valuation of the Plan is to be conducted no later than August 31, 2019, being the Plan year end date falling no later than three years after the most recent valuation date. In the meantime, the legislation requires that cost certificates be prepared annually at each Plan year-end.

This cost certificate is the first one following the August 31, 2016 funding valuation of the Plan and is conducted as at August 31, 2017 for the NBTPP Board of Trustees ("Trustees"). It is suitable for filing with the Superintendent of Pensions in accordance with the requirements of subsection 14(2) of the TPPA.

The cost certificate outlines:

- The extrapolated financial position of the Plan as at August 31, 2017 on the funding basis required under Section 17 of the TPPA;
- The estimated normal cost for benefits to accrue over the plan year following August 31, 2017, and estimated Teacher and Employer contributions requirements for the same period in accordance with the terms of the Plan; and
- A review of any action or actions that may be required by the Board of Trustees under the terms of the Funding Policy for the NBTPP further to the results found in the cost certificate.

## Actuarial Methods and Assumptions

The actuarial methods and assumptions underlying the extrapolation of the funding liability to August 31, 2017 are the same as the ones used in the funding valuation of the Plan as at August 31, 2016. No changes to the methods and assumptions are suggested at this time. The methods and assumptions are summarized in Appendix 1 to this cost certificate. The methods and assumptions are discussed in detail in our *Actuarial Valuation Report As At August 31, 2016* prepared in April 2017.

The membership data and Plan terms are also summarized in our *Actuarial Valuation Report As At August 31, 2016* prepared in April 2017, and are not repeated in this cost certificate.

## Approach

The extrapolation uses the funding liability and the total normal cost found in the *Actuarial Valuation Report As At August 31, 2016* dated April 2017. The total funding liability as at August 31, 2016 is \$5,188.7M. The total normal cost as a percent of payroll for the period from September 1, 2016 to August 31, 2017 is 16.91% of payroll.

Actual Teachers and Employer contributions for the period from September 1, 2016 to August 31, 2017 are used to determine the covered payroll for the period, and in turn estimate the cost of accruing benefits for the period using the normal cost percentages found above. Actual benefit payments for the period are also used to reduce the actuarial liability as benefits are paid out.

## Assets

The actual contributions and benefit payments for the period September 1, 2016 to August 31, 2017 were provided to us by Vestcor Investment Management Corporation ("VIMC") in unaudited financial statements for the Plan for the period in question.

The reconciliation of assets for the period from September 1, 2016 to August 31, 2017, as provided by VIMC, is as follows:

Table 1 – Reconciliation of Assets

|  | September 1, 2016 to August 31, 2017 |
|--|--------------------------------------|
|  | \$M                                  |
| Market value of assets at September 1, 2016  | \$5,481.7                            |
| <b>Receipts</b>  |                                      |
| Teachers' contributions  | 64.2                                 |
| Employer contributions   | 75.0                                 |
| Investment income plus realized and unrealized capital appreciation and depreciation | 270.7                                |
| <b>Total receipts</b>  | <b>409.9</b>                         |
| <b>Disbursements</b>   |                                      |
| Pensions paid and refunds  | (285.6)                              |
| Expenses (fees)  | (9.5)                                |
| <b>Total disbursements</b>   | <b>(295.1)</b>                       |
| Market value of assets as at August 31, 2017   | \$5,596.5                            |
| Investment return on market value of assets (net of expenses charged to the fund)    | 4.8%                                 |

Note: The market value of assets as at August 31, 2017 shown above is taken from unaudited financial statements prepared by VIMC and may not include all amounts receivable and payable. The net impact of such outstanding receivables and payables is deemed not to be material for the purposes of this cost certificate based on prior years' level of such amounts.

## Extrapolated Funding Liability

The result of the extrapolation of the funding liability to August 31, 2017 using the approach described above, and Teachers and Employer contributions and benefit payments found in the asset reconciliation above, is presented in Table 2 below.

Table 2 – Extrapolated Funding Liability as at August 31, 2017

|   | \$M       |
|---|-----------|
| Funding liability as at August 31, 2016   | \$5,188.7 |
| Normal cost for period from September 1, 2016 to August 31, 2017<br>(16.91% of payroll) | \$106.3   |
| Benefit payments for period from September 1, 2016 to August 31, 2017                   | (\$285.6) |
| Interest on above components  | \$298.3   |
| Extrapolated funding liability as at August 31, 2017                                    | \$5,307.7 |

## Extrapolated Funding Valuation Funded Status

The extrapolated funding valuation funded status is determined by comparing the fair market value of the assets to the extrapolated funding liability as at August 31, 2017. The resulting extrapolated funded status as at August 31, 2017, along with the funded status in the last valuation report as at August 31, 2016, is found in Table 3 below.

Table 3 – Extrapolated Funding Valuation Funded Status

|  | August 31, 2017 | August 31, 2016 |
|--|-----------------|-----------------|
|  | \$M             | \$M             |
| Market value of assets   | \$5,596.5       | \$5,481.7       |
| Extrapolated funding liability   | \$5,307.7       | \$5,188.7       |
| Extrapolated funding valuation excess (unfunded liability)   | \$288.8         | \$293.0         |
| Extrapolated Termination Value Funded Ratio (subsection 17(7) of TPPA) or Extrapolated Closed Group Funded Ratio (section 1 of TPPA) | 105.4%          | 105.6%          |

## Extrapolated Normal Cost and Contributions

We estimate the normal cost and contributions to the Plan for the year following August 31, 2017 to be as follows, based on the payroll figure established for the above extrapolation and projected for the period from September 1, 2017 to August 31, 2018:

Table 4 – Extrapolated Normal Cost and Contributions

|   | Extrapolation for Year following August 31, 2017 |                           |
|---|--|---------------------------|
|   | \$M <sup>1</sup>                                 | % of payroll <sup>2</sup> |
| A. Funding valuation normal cost                            | 109.2  | 16.91                     |
| B. Contributions:   |  |                           |
| Teachers  | 67.8   | 10.50                     |
| Employer initial contributions                              | 62.9   | 9.75                      |
| Employer temporary schedule 1 (for 5 years after 1-7-2014)  | 4.8  | 0.75                      |
| Employer temporary schedule 2 (for 10 years after 1-7-2014) | 4.8  | 0.75                      |
| Employer temporary schedule 3 (for 15 years after 1-7-2014) | 4.8  | 0.75                      |
| Total   | 145.3  | 22.50                     |
| C. Excess contributions (B. – A.)                           | 36.1   | 5.59                      |
| Estimated annual payroll for year following August 31, 2017 | \$645.6  |                           |

<sup>1</sup> Contribution amounts are calculated using the estimated annual payroll for the year following August 31, 2017, adjusted for members working on less than full-time basis. Total may not add up exactly due to rounding.

<sup>2</sup> Contribution rates shown here are the average rates for the Plan (actual Teachers contribution rates are 10.0% up to the YMPE and 11.7% above the YMPE and Employer contribution rates are 11.5% up to the YMPE and 13.2% above the YMPE) in effect for the extrapolation period.

## Review of Funding Policy Actions

In accordance with the annual process followed by the Board of Trustees under the Funding Policy for the Plan, the Board must consider its options for action based on the funded status of the Plan (NBTPP Funding Policy, Section VII - Annual Review, Subsection B. Application of Funding Policy, Bullet 6).

Such actions would be found under either Section IV – Funding Deficit Recovery Plan or Section V – Funding Excess Utilization Plan, depending on the level of the Closed Group Funded Ratio.

Section IV – Funding Deficit Recovery Plan of the Funding Policy requires the Board of Trustees to implement a Funding Deficit Recovery Plan when:

- the Closed Group Funded Ratio of the Plan falls below 100%; and
- any funding correction would exceed 1% of payroll when taking into account total contributions made in excess of normal cost over the next 15 years.

Given that the Closed Group Funded Ratio is in excess of 100%, the first condition above is not met, and therefore the Board of Trustees does not have to implement a Funding Deficit Recovery Plan on the basis of this cost certificate.

Section V – Funding Excess Utilization Plan of the Funding Policy describes the actions the Board of Trustees must take or consider when the Closed Group Funded Ratio exceeds 100%. In such cases, certain funding corrections applied in the past can be reversed. At this time, no past funding corrections have ever been applied.

The next step in the Funding Excess Utilization Plan calls for the buildup of a contingency reserve of up to 10% of the funding liability of the Plan. We understand that such contingency reserve is not meant to be held separate and apart from the Plan, but rather be interpreted as a “buffer” to be held within the Plan. In that sense, a contingency reserve of 10% of the funding liability of the Plan would be reached when the Closed Group Funded Ratio equals 110%. Until such time as such contingency reserve is achieved, the Board of Trustees is not in a position to implement further actions provided under Section V – Funding Excess Utilization Plan of the Funding Policy.

Based on the information reviewed above and the extrapolated Closed Group Funded Ratio of 105.4% calculated as at August 31, 2017, it is determined that the Funding Policy does not provide for immediate action to be taken by the Board of Trustees under either the Funding Deficit Recovery Plan or the Funding Excess Utilization Plan.

## **Update of Termination Value Funded Ratio**

The Termination Value Funded Ratio is used in calculating the value of lump sum payments payable from the Plan to Teachers who terminate employment before being eligible for an immediate pension and elect to receive a transfer outside the Plan.

The legislation does not require that the Termination Value Funded Ratio established at the last filed valuation of the Plan be changed until such time as a complete actuarial valuation of the Plan is conducted (unless it is believed that it has changed by more than 10%). It also does not prevent the Board of Trustees from updating the ratio at an earlier date.

In the past, the Board of Trustees adopted the extrapolated Termination Value Funded Ratio as at the date of each cost certificate for purposes of calculating lump sum payments from the Plan for Teachers with a termination date on or after the date each cost certificate was approved for filing by the Board of Trustees.

In order to follow the same practice, the Board of Trustees may wish to adopt the extrapolated Termination Value Funded Ratio as at August 31, 2017 for purposes of calculating lump sum payments from the Plan for Teachers with a termination date on or after the date this cost certificate is approved for filing.

This ensures that the most up-to-date information is taken into account in calculating such lump sum payments. Updating the ratio and the assumptions used in the calculation annually is also consistent with the process followed by other public service plans in the Province that use a similar approach to calculating lump sum transfers.

## Subsequent Events

Effective January 1, 2018, amendments to the Pension Benefits Act and Regulation 2012-75 (the shared risk plans regulation) came into effect. Many of the amendments were either of a housekeeping nature, or amended sections of Regulation 2012-75 from which the NBTPP is exempted through the New Brunswick *Teachers' Pension Plan Act*. We do not believe that any of the changes that occurred on January 1, 2018 affect the extrapolation presented herein, and we are not aware of any other events or changes in Plan provisions or in legislation governing the Plan subsequent to August 31, 2017 which would materially affect the extrapolation.

## Opinion

In my opinion, for the purposes of the extrapolation of the funding valuation found in this cost certificate:

- The membership data on which the extrapolation is based are sufficient and reliable for the purposes of the extrapolation.
- The assumptions are appropriate for the purposes of the extrapolation.
- The methods employed in the extrapolation are appropriate for the purposes of the extrapolation.

This funding valuation cost certificate has been prepared, and our opinions given, in accordance with accepted actuarial practice in Canada.

The assumptions used under the funding valuation extrapolation were reasonable and consistent with the objectives of the Plan at the time this cost certificate was prepared.

Respectfully submitted,



Yves Plourde, FSA, FCIA

Peer reviewed by Conrad Ferguson, FSA, FCIA

## Appendix 1

Table A.1 – New Brunswick Teachers' Pension Plan Funding Valuation Actuarial Assumptions

|  | August 31, 2017  |       |
|--|--|-------|
| Discount rate  | 5.85% per annum  |       |
| Inflation  | 2.25% per annum  |       |
| Indexing of active members accrued pensions                                  | 100% of inflation <sup>(1)</sup>   |       |
| Indexing of retiree pensions and other inactive members accrued pension      | 75% of inflation <sup>(1)</sup>  |       |
| Salary increase for year following valuation (for normal cost purposes only) | 2.75%<br>plus merit and promotion  |       |
| YMPE increase for year following valuation (for normal cost purposes only)   | 2.75%  |       |
| Mortality  | CPM2014 Public Sector generational mortality using improvement scale CPM-B, adjusted by 0.90 for males and 0.90 for females<br>GAM71 for disabled members  |       |
| Spousal age difference   | Males 3 years older than females   |       |
| Retirement   | If unreduced retirement age <sup>(2)</sup> attained before 1.1.2019:<br>45% at 85 points<br>45% at 87 points<br>10% at 90 points<br>but not later than attainment of 35 years of service or age 60 |       |
|  | If unreduced retirement age <sup>(2)</sup> attained after 1.1.2019:<br>45% at 89 points<br>45% at 91 points<br>10% at 94 points<br>but not later than attainment of 37 years of service or age 62  |       |
| Disability<br>(Sample rates of disability)                                   | Age  | Rate  |
|  | 30   | 0.08% |
|  | 35   | 0.11% |
|  | 40   | 0.17% |
|  | 45   | 0.27% |
|  | 50   | 0.45% |
|  | 55   | 0.76% |
|  | 60   | 1.22% |
| Proportion of members married  | Active males: 80%<br>Active females: 70%<br>Deferred and pensioners: Varies by age   |       |

<sup>(1)</sup> Inflation is adjusted down by 0.15% per annum for purposes of indexing to take into account the impact of the 4.75% cap applied under the Plan for indexing purposes.

<sup>(2)</sup> Unreduced retirement age determined in accordance with the provisions of the Plan applicable to service before July 1, 2014.



## Market Value of Assets by Asset Class

The market value of the assets as at August 31, 2017 is \$5,596.5M. This figure was taken from unaudited financial statements prepared by Vestcor Investment Management Corporation as at August 31, 2017. A distribution of the market value of assets by the major asset classes, as provided by VIMC, is shown below:

Table A.2 – Market Value of Assets by Asset Class

| Asset Class              | As at August 31, 2017 |
|--------------------------|-----------------------|
|                          | (in \$M)              |
| Fixed income             | \$1,777.3             |
| Equities                 | 2,339.5               |
| Inflation linked assets  | 749.7                 |
| Alternative investments  | 729.7                 |
| Receivables and payables | 0.3                   |
| Total                    | \$5,596.5             |