Pension Plan for Non-Teaching Employees of the School Boards of Nova Scotia

Actuarial Valuation as at December 31, 2015 for Funding Purposes

Report prepared September 2016

Registration number: Nova Scotia and Canada Revenue Agency #0694778

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Introduction

This report presents the results of the actuarial valuation as at December 31, 2015 of the Pension Plan for Non-Teaching Employees of the School Boards of Nova Scotia ("Plan") which is sponsored by the Nova Scotia School Boards Association ("NSSBA"). Along with the NSSBA, a number of school boards (collectively, the "Employers") participate in the Plan.

The NSSBA retained the services of Morneau Shepell Ltd ("Morneau Shepell") to perform this actuarial valuation. The last complete valuation that was filed with the Nova Scotia Department of Finance, Pension Regulation Division and the Canada Revenue Agency was performed as at December 31, 2014.

This report was prepared for the NSSBA, the Nova Scotia Department of Finance, Pension Regulation Division and the Canada Revenue Agency for the following purposes:

- to determine the funded status of the Plan on the going-concern basis;
- to determine the funded status of the Plan on both solvency and hypothetical wind-up bases;
- to estimate the employer contributions required under the Plan during the period from this valuation date up to the next valuation in accordance with the Nova Scotia *Pension Benefits Act*; and
- to provide the information and the actuarial opinion required by the Nova Scotia *Pension Benefits Act* and the *Income Tax Act* (Canada).

The solvency and hypothetical wind-up bases have been updated to reflect market conditions as at the valuation date. In addition, changes were made to the actuarial assumptions on the going-concern basis.

Terms of Engagement

This report takes into account discussions with the client on the terms of engagement.

Restriction on use of this report

This report was prepared for the NSSBA. It will also be filed with the Nova Scotia Department of Finance and Treasury Board, Pension Regulation Division, and the Canada Revenue Agency. This report and any of its content may not be distributed, published, made available or relied upon by any other person, without the express written permission of Morneau Shepell, unless and only to the extent otherwise provided by applicable law.

Section 1 – Actuarial Opinion

This opinion is given with respect to the Pension Plan for Non-Teaching Employees of the School Boards of Nova Scotia, registration number 0694778 (Nova Scotia). We performed a valuation of the Plan as at December 31, 2015, based on the Plan provisions and data as at that date.

The NSSBA has confirmed that, between December 31, 2015 and the date of this valuation report, no subsequent events, modifications or extraordinary changes to the membership or the Plan that would materially affect the results of this actuarial valuation have occurred, except as indicated in this report.

We hereby certify that, in our opinion, as at December 31, 2015:

- The Plan is fully funded on the going-concern basis. The actuarial value of assets exceeds the actuarial liabilities by $541,000.
- According to the solvency test required under the Nova Scotia *Pension Benefits Act*, the Plan is not solvent. On the solvency basis, the actuarial liabilities exceed the value of assets by $50,044,000. In accordance with subsection 85(2)(d) of the Regulations of the Nova Scotia *Pension Benefits Act*, the Plan is exempt from making any special payments in respect of solvency deficiencies.
- The solvency concern ratio of the Plan, as defined under the Nova Scotia *Pension Benefits Act*, is equal to 0.719. Because this ratio is below 0.85 and the Plan is exempt from solvency funding as described above, in accordance with the Regulations of the Nova Scotia *Pension Benefits Act*, the next actuarial valuation of the Plan must be performed at a date no later than December 31, 2016.
- The Plan assets would have been less than the actuarial liabilities by $53,430,000 if the Plan had been wound up on the valuation date.
- The transfer ratio of the Plan, as defined under the Nova Scotia *Pension Benefits Act*, is equal to 0.706. The participating employers may have to make additional contributions if Plan members transfer the commuted value of their accrued benefits out of the Plan. The Plan actuary should be consulted on this matter as to how and when.
- The residual normal cost (i.e. normal cost less employee required contributions) is equal to 6.92% of payroll.
- For 2016, there are no amortization payments required and the minimum total employer contribution is equal to 6.92% of payroll. The estimated employee contribution and employer contributions for normal cost and amortization payments for 2016 are shown in the following table:

Table 1.1 – Estimated Employee Contributions and Residual Normal Cost and Minimum Annual Amortization Payments

Plan year	Employee contributions	Residual normal cost	Minimum amortization payment	Total Employer contribution
	$	$	$	$
2016	3,960,000	3,205,000	0	3,205,000

We note that the Employer matches employee contributions, and that the Employer contribution is therefore greater than the minimum amount required. Amortization payments above the minimum required are acceptable but they cannot exceed $53,430,000 plus interest in aggregate. The Plan actuary should be consulted if the amortization payments in any year are greater than the minimum required.

These contributions conform to the eligibility requirements of the *Income Tax Act* (Canada) if contributed within the fiscal year or remitted within 120 days after the end of the fiscal year. They also conform to the Nova Scotia *Pension Benefits Act*. This Act requires that the current service employer contributions and the employee contributions be remitted to the fund monthly, within 30 days of the month to which they pertain. It also requires that amortization payments be made at least monthly.

In our opinion, for the purposes of this report:

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

This report has been prepared, and our opinion given, in accordance with accepted actuarial practice in Canada.

The assumptions that form the going-concern basis used in this report were reasonable at the time this actuarial valuation report was prepared and contributions were determined.

This actuarial valuation was performed in accordance with the going-concern and solvency standards prescribed under the Nova Scotia *Pension Benefits Act*.

The calculations in the actuarial valuation report have been prepared in accordance with subsection 147.2(2) of the *Income Tax Act* (Canada).

The recommendations and opinions are given exclusively from a financial viewpoint. This valuation report does not constitute a legal opinion on the rights and duties of the Plan administrator, the NSSBA and participating employers or the members over the pension fund.

Actuarial valuation results are only estimates. Actuarial valuations are performed based on assumptions and methods that are in accordance with sound actuarial principles. Emerging experience differing from these assumptions may result in gains or losses, which may affect future contribution levels. These gains or losses will be revealed in future actuarial valuations.

The next actuarial valuation will have to be performed not later than as at December 31, 2016.

The undersigned are available to provide supplementary information and explanation, as appropriate, concerning this report.

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September 2016

Section 2 – Going-Concern Funded Status

Going-Concern Funded Status

The funded status of the Plan on the going-concern basis is determined by comparing the actuarial value of the assets to the actuarial liabilities. The actuarial liabilities are based on the benefits earned up to the valuation date assuming the Plan continues indefinitely.

Table 2.1 – Going-Concern Funded Status

	December 31, 2015	December 31, 2014
	$000	$000
Going-concern assets		
Market value	127,823	117,389
Asset smoothing adjustment	0	(6,936)
Contributions receivable	773	739
Total	128,596	111,192
Going-concern liabilities		
Active members	84,743	81,720
Deferred, disabled, and other inactive members	4,887	3,928
Retired members and beneficiaries	38,153	31,620
Additional voluntary contributions	272	351
Total	128,055	117,619
Assets less liabilities on the going-concern basis	541	(6,427)
Less prior year credit balance (PYCB)	0	0
Actuarial surplus (unfunded liability)	541	(6,427)
Funding Ratio	100.4%	94.5%

Figures may not add due to rounding

The going-concern statement of financial position shown above identified a going-concern surplus of $541,000. As such, special payments are no longer required (details in Section 4 of this report).

In addition to the above, the assets in the Defined Contribution fund as of December 31, 2015 total $3,341,000.

Changes Since the Previous Valuation

Changes since the previous valuation are discussed below. The financial impact of these changes is in the section entitled "Reconciliation of Going-Concern Financial Position".

Changes in Plan Provisions

The Regulations to the Nova Scotia *Pension Benefits Act* were amended with effect on June 1, 2015 and the impact of these changes has been reflected in this valuation report. Please refer to Appendix E for a summary of the Plan provisions at the date of the valuation.

Changes in Actuarial Basis

The changes to the actuarial assumptions described below have been made since the last valuation.

- The going-concern interest rate was reduced from 5.60% to 5.50% per annum.

Changes in Actuarial Method

The changes to the actuarial valuation methods described below have been made since the last valuation.

- The asset valuation method was changed from the use of 5-year smoothing to the market value basis.

Reconciliation of Going-Concern Funded Status

The table below describes the change in the Plan's going-concern funded status since the last valuation:

Table 2.2 – Reconciliation of Going-Concern Funded Status

	$000	$000
Actuarial surplus (unfunded liability) as at December 31, 2014		(6,427)
Remove asset smoothing adjustment at December 31, 2014		6,936
Expected changes in funded status:		
Interest on surplus (unfunded liability)	29	
Contributions in excess of current service cost with interest	1,011	
Total		1,040
Expected surplus (unfunded liability) as at December 31, 2015		1,549
Actuarial gains (losses) due to the following factors:		
Investment return on actuarial value of assets	(1,020)	
Termination experience	(141)	
Retirement experience	611	
Member mortality	229	
Data	(137)	
Salary experience	1,540	
Other factors	(264)	
Total		818
Actuarial gains (losses) due to assumption changes:		
Discount rate	(1,826)	
Total		(1,826)
Actuarial surplus (unfunded liability) as at December 31, 2015		541

Figures may not add due to rounding

The main sources of gain relate to continued positive retirement experience, total contributions in excess of the amount required to fund the accrual of service, positive salary experience, and the change from a smoothed value of assets to a market value of assets.

The main sources of loss relate to negative investment experience and the impact of the decrease in the discount rate.

Sensitivity Analysis on the Going-Concern Basis

The table below illustrates the effect of 1% decrease in the discount rate on the going-concern actuarial liabilities. With the exception of the discount rate, all other assumptions and methods used for this valuation were maintained.

Table 2.3 – Sensitivity of Actuarial Liabilities on the Going-Concern Basis

	December 31, 2015	Discount rate 1% lower
	$000	$000
Actuarial liabilities		
Active members	84,743	100,903
Retired members and beneficiaries	38,153	42,060
Deferred, disabled, and other inactive members	4,887	5,592
Additional voluntary contributions	272	272
Total	128,055	148,827
Increase in actuarial liabilities		20,772

Figures may not add due to rounding

Section 3 – Solvency and Hypothetical Wind-Up Funded Status

Solvency Funded Status

A solvency valuation is a hypothetical valuation prescribed by the Nova Scotia *Pension Benefits Act*. As the Plan is exempt from the solvency funding requirements of the Regulations to the Nova Scotia *Pension Benefits Act*, the main purposes of the Plan's solvency valuation centre around the determination of the Plan's transfer ratio (as part of the determination of whether a Plan can transfer 100% of a terminating member's commuted value) and the determination of whether the Plan has "solvency concerns" (which itself will determine whether the next valuation is due within one year or three years of the valuation date).

A solvency valuation may differ from the valuation required on plan wind-up. For more detail on the estimated funded position if the Plan were to wind up, please see the **Hypothetical Wind-Up Funded Status** details later in this section.

Table 3.1 – Solvency Funded Status

	December 31, 2015	December 31, 2014
	$000	$000
Solvency assets		
Market value of assets	127,823	117,389
Contributions receivable	773	739
Provision for expenses	(500)	(500)
Total	128,096	117,628
Solvency liabilities[1]		
Active members	120,865	114,203
Deferred and inactive members	7,161	6,204
Retired members and beneficiaries	49,842	40,680
Additional voluntary contributions	272	351
Total	178,140	161,438
Assets less liabilities on the solvency basis	(50,044)	(43,810)
Plus solvency asset adjustment[2]	0	4,357
Less solvency liability adjustment	0	0
New solvency surplus (deficiency)	(50,044)	(39,453)
Solvency concern ratio	71.9%	75.6%

1. *As permitted by the Nova Scotia legislation, the solvency liability excludes grow-in rights*
2. *Present value of scheduled going-concern payments due in the next 5 years*

We note that the main reason for the increase in the solvency deficiency was a decline in market interest rates and the removal of the present value of future going concern special payments from the balance sheet as a result of the improved going concern funded status.

The solvency liabilities of the Plan exclude the value of grow-in rights. Grow-in rights represent the additional benefits payable on Plan wind-up to Plan members where age and service total at least 55 at the date of Plan wind-up. For these individuals, their pension rights (in terms of, for example, eligibility for a pension or the calculation of unreduced retirement date) are based on the assumption that the service with the employer continues beyond the Plan wind-up date. In this case, grow-in benefits affect the date on which some members may retire with an unreduced pension.

While the Nova Scotia *Pension Benefits Act* requires the identification of any solvency deficiency, the Plan is exempt from funding such deficiencies under subsection 85(2)(d) of the Regulations of the Nova Scotia *Pension Benefits Act*.

In addition to the above, the assets in the Defined Contribution fund as of December 31, 2015 total $3,341,000.

Solvency Concern Ratio

The solvency concern ratio is equal to the ratio of solvency assets to the solvency liabilities as indicated in Table 3.1.

As the solvency concern ratio as at December 31, 2015 is less than 85%, paragraph 55(2) of the Regulations to the Nova Scotia *Pension Benefits Act* requires the next actuarial valuation of the Plan to be no later than December 31, 2016.

Solvency Asset Adjustment

As defined under the Nova Scotia *Pension Benefits Act*, the solvency asset adjustment represents the sum of:

a) the present value of amortization payments established at the preceding valuation, adjusted to take into account the current going-concern valuation, and due to be paid during the prescribed period following the valuation date.

b) an amount by which the value of the solvency assets are adjusted as a result of applying an averaging method that stabilises short-term fluctuations in the market value of the Plan assets calculated over a period of not more than five years.

Part a) of the solvency asset adjustment as at December 31, 2015 as defined above is zero because there are no special payments required as a result of the current going-concern surplus and the Plan being exempt from funding solvency deficiencies.

Part b) of the solvency asset adjustment as at December 31, 2015 as defined above is zero because the solvency assets are not adjusted by an averaging method.

Solvency Liability Adjustment

The solvency liability adjustment is the amount by which the value of the solvency liabilities are adjusted as a result of using solvency valuation discount rates that are the average of rates applicable over a period of not more than five years. As at December 31, 2015, the solvency liability adjustment is zero because the solvency liability discount rates are not averaged over any period.

Hypothetical Wind-Up Funded Status

Because certain grow-in benefits were excluded from the solvency liability, if the Plan had been liquidated as at December 31, 2015 and assuming that the asset liquidation value had been equal to the market value, the hypothetical wind-up funded status would have been different from the solvency funded status.

Table 3.2 – Hypothetical Wind-Up Funded Status

	December 31, 2015	December 31, 2014
	$000	$000
Hypothetical wind-up assets		
Market value of assets	127,823	117,389
Contributions receivable	773	739
Provisions for expenses	(500)	(500)
Total	128,096	117,628
Hypothetical wind-up liabilities		
Active members	124,181	117,188
Deferred and inactive members	7,231	6,366
Retired members and beneficiaries	49,842	40,680
Additional voluntary contributions	272	351
Total	181,526	164,585
Assets less liabilities on the hypothetical wind-up basis	(53,430)	(46,957)
Transfer ratio	70.6%	N/A

Figures may not add due to rounding

Transfer Ratio

The transfer ratio is equal to the ratio of the assets (less any prior year's credit balance) to the liabilities on the hypothetical wind-up basis as indicated in Table 3.2. As noted above, the transfer ratio as at December 31, 2015 was 70.6%.

Sensitivity Analysis on the Solvency Basis

The table below illustrates the effect on the actuarial liabilities of using discount rates 1% lower than those used for the solvency valuation. All other assumptions and methods, as used in this valuation, were maintained.

Table 3.3 – Sensitivity of Actuarial Liabilities on the Solvency Basis

	December 31, 2015	Discount rates 1% lower
	$000	$000
Actuarial liabilities		
Active members	120,865	144,248
Deferred and inactive members	7,161	8,503
Retired members and beneficiaries	49,842	56,108
Additional voluntary contributions	272	272
Total	178,140	209,131
Increase in actuarial liabilities		30,991

Incremental Cost on the Solvency Basis

The incremental cost on the solvency basis represents the present value of the expected aggregate change in the solvency liabilities from December 31, 2015 to December 31, 2016, adjusted for expected benefit payments in the inter-valuation period. This incremental cost is $12,188,000 as at December 31, 2015.

Section 4 – Normal Cost and Amortization Payments

Normal Cost

The table below summarizes the estimated going-concern cost of pension benefits being earned in the twelve-month period after the valuation date (the normal cost) for the Plan's Defined Benefit provision.

Table 4.1 – Normal Cost

	As at December 31, 2015		As at December 31, 2014	
	$000	% of payroll	$000	% of payroll
Normal cost	7,165	15.47	6,947	15.08
Less employee contributions	3,960	8.55	3,936	8.55
Residual normal cost	3,205	6.92	3,011	6.53

With respect to the Plan's Defined Contribution provision, both the members and the employers are required to contribute 5.0% of earnings.

Reconciliation of Normal Cost

The factors contributing to the change in the Defined Benefit normal cost are shown below:

Table 4.2 – Reconciliation of Normal Cost

	% of payroll
Normal cost as at December 31, 2014	15.08
Change due to membership experience	0.14
Change due to discount rate	0.31
Change due to salary experience	(0.06)
Normal cost as at December 31, 2015	15.47

Figures may not add due to rounding

Sensitivity Analysis on the Going-Concern Basis

The table below illustrates the effect on the normal cost of using a discount rate 1% lower than the one used for the going-concern valuation. All other assumptions and methods, as used in this valuation, were maintained.

Table 4.3 – Sensitivity of Normal Cost on the Going-Concern Basis

	As at December 31, 2015		Discount rate 1% lower	
	$000	% of payroll	$000	% of payroll
Normal cost	7,165	15.47	8,913	19.25
Increase in normal cost			1,748	3.78

Amortization Payments

The following schedule shows the amortization payment schedule outlined in the previous valuation report:

Table 4.4 – Amortization Payments - Previous Valuation

Nature of liability or deficiency	Start date	End date	Annual amortization payment	Balance going-concern
	mm-dd-yyyy	mm-dd-yyyy	$	$
Going-concern unfunded liability	01-01-2013	12-31-2018	1.68% of payroll	6,220,000
	01-01-2019	12-31-2027	0.98% of payroll	
Going-concern unfunded liability	01-01-2015	12-31-2029	0.04% of payroll	207,000

The Plan has a solvency deficiency of $50,044,000 as of December 31, 2015. In accordance with Section 85(2)(d) of the Regulations to the Nova Scotia *Pension Benefits Act*, the NSSBA is not required to fund the solvency deficiency going forward. As such, there is no solvency special payments schedule.

In addition, there are no going concern special payments required in 2016 as the actuarial value of the assets exceeds the actuarial liabilities on a going concern basis.

Transfer Deficiency Payments

The transfer ratio of the Plan is defined as the hypothetical wind-up assets less the prior year's credit balance divided by the liabilities on the hypothetical wind-up basis.

Because the transfer ratio is less than 100%, it is necessary to ensure that paying the full commuted value of pension entitlements of a terminating member does not impair the funded status of remaining members.

Section 137 and 138 of the Regulations to the Nova Scotia *Pension Benefits Act* gives the Employers the following three options when the transfer ratio of a pension plan is less than 100%.

a) The full commuted value of pension entitlements of a terminating member may be paid if the Employers immediately remit extra contributions equal to the transfer deficiency to the pension fund. For each terminating member, the transfer deficiency is equal to 29.4% of the commuted value of the benefit.

b) If the aggregate of all transfer deficiencies for all transfers made since the valuation date does not exceed 5% of the assets of the Plan, then the full commuted value of pension entitlements of a terminating member can be paid.

c) The transfer deficiency for the member can be withheld initially and then paid with interest, within 5 years, once additional funding equal to the transfer deficiency has been paid into the Plan.

Total Contributions

The following table summarizes the estimated minimum required contributions for the Defined Benefit provision of the Plan.

Table 4.5 – Minimum Contribution Requirement in 2016

	Minimum Required Contribution in 2016	
	$	% of payroll
Normal cost	7,165,000	15.47
Annual amortization payment	0	0
Total contributions	7,165,000	15.47

As shown in the above table, the minimum total required contributions as a percentage of payroll for 2016 is 15.47%.

The required employee contributions are 8.5% of earnings up to the YMPE and 11.0% of earnings above the YMPE, subject to the maximum allowable under the *Income Tax Act*. Total projected employee contributions are equal to 8.55% of payroll, or $3,960,000 in 2016.

According to the Plan provisions, the Employers are required to contribute any amounts, in excess of employee contributions, required to fund the benefits under the Plan. Since inception of the Plan, the Employers and the employees have been contributing the same percentage of pay, and the total expected contribution in 2016 is equal to 17.10% of payroll. This amount exceeds the minimum required contribution in respect of normal cost.

The maximum 2016 contribution permitted under the *Income Tax Act* is $60,595,000. It constitutes the total normal cost of $7,165,000 and the wind-up shortfall of $53,430,000. The total contributions remitted to the Plan in 2016 are not allowed to exceed this amount.

With respect to the Defined Contribution provision, both the members and the employers are required to contribute 5.0% of earnings.

Appendix A – Going-Concern Actuarial Basis

Asset Valuation Method

The actuarial value of the assets used to determine the going-concern funded status is the market value of assets. This is a change from the previous valuation in which the actuarial value of assets used smoothing of investment gains and losses relative to the going-concern discount rate over a 5-year period.

Actuarial Cost Method

The actuarial liabilities and the normal cost on the going-concern basis were calculated using the projected accrued benefit (or projected unit credit) actuarial cost method.

The actuarial liabilities are equal to the actuarial present value of benefits earned by members for services prior to the valuation date, taking into account the assumptions as indicated hereafter.

The normal cost is equal to the actuarial present value of benefits expected to be earned by members in the year following the valuation date. The residual normal cost is the excess of the normal cost over employees' required contributions.

The valuation method for determining the actuarial liabilities and the normal cost is the same as the one used in the last valuation.

The ratio of the total normal cost to the covered payroll for the period will tend to stabilize over time if the demographic characteristics of the active members remain stable. All other things being equal, an increase in the average age of the active members will result in an increase in this ratio.

For valuation purposes, to determine eligibility for benefits and for any other use, the age used is the age on the date of the nearest birthday.

Actuarial Assumptions

The main actuarial assumptions used in the going-concern valuation are summarized in the following table. Some assumptions used in this valuation are different from those used in the previous valuation. For comparison purposes, the assumptions used in the last valuation are also included in the table. All rates and percentages are annualized unless otherwise noted.

Table A.1 – Going-Concern Actuarial Assumptions

	December 31, 2015	December 31, 2014
Discount rate	5.50%	5.60%
Inflation	2.25%	2.25%
Salary increases	3.25%	3.25%
YMPE increases	3.00%	3.00%
Interest credited on employee contributions	4.00%	4.00%
Pre-retirement mortality	None	None
Post-retirement mortality	CPM-RPP2014Publ Table (Final) with generational projection using improvement scale CPM-B Sex distinct Size adjustment factors of 1.25 for males and 1.10 for females	CPM-RPP2014Publ Table (Final) with generational projection using improvement scale CPM-B Sex distinct Size adjustment factors of 1.25 for males and 1.10 for females
Termination	None	None
Retirement	Active members: 60% at age 60 40% at age 65 LTD members: 100% at age 65 Inactive and deferred: 100% at 60	Active members: 60% at age 60 40% at age 65 LTD members: 100% at age 65 Inactive and deferred: 100% at 60
% with eligible survivors	80%	80%
Difference in age between spouses	Male is 4 years older than female	Male is 4 years older than female
Asset methodology	Market value	5-year smoothing

Choice of Assumptions

The assumptions have been reviewed in light of current economic conditions.

Inflation rates

As stated in its monetary policy, the Bank of Canada aims to keep inflation at the 2% target, i.e. the midpoint of the 1% to 3% inflation-control target range. Given historical increases in consumer prices in Canada, the rates expected by the market, portfolio managers' expectations and the Bank of Canada policy, the expected rate of inflation of 2.25% was maintained for this valuation.

Margins and provision for adverse deviations

A margin for adverse deviation is required by the Terms of Engagement. A margin of 0.23% has been used which, using stochastic projections, is expected to result in the actual Plan returns exceeding the discount rate with a 55% probability.

Discount rate

The elements considered in the development of the discount rate assumption for going-concern purposes are summarized in the table below:

Table A.2 – Discount Rate

	%
Expected inflation	2.25
Expected real return	3.43
Value added for rebalancing and diversification effect	0.50
Value added for active management	0.05
Margin for adverse deviations	(0.23)
Expected expenses	(0.50)
Discount rate	5.50

The following table shows the expected real return by asset class for passive management. It should be noted that the return assumptions for bonds has been determined mainly (but not totally) on current market conditions while the return assumptions for equities are based more on long term expectations. In addition, the Plan Trustees elected to amend the Plan's investment policy to allocate 10% of the Canadian Equity portfolio to Real Estate, which was partially implemented in the fall of 2015, with the remainder expected to be implemented in the winter of 2016. Additionally, the decision to gradually lengthen the duration of the Canadian bond portfolio is currently being implemented based on a combination of pre-determined triggers relating to market bond yields and elapsed time. In October 2015, 40% of the Canadian Fixed Income Portfolio was allocated to long-bonds with an ultimate target of 60% to be reached no later than October 2016. The long-term allocations have been reflected in developing the long-term expected real return.

Table A.3 – Expected Real Return by Asset Class (Passive Management)

Asset classes	Target asset mix	Expected real return
	%	%
Canadian fixed income	30	1.02
Foreign fixed income	10	2.44
Canadian equity	20	5.30
US equity	15	4.55
International equity	15	4.95
Real estate	10	4.00
Expected average real return		3.43

Figures may not add due to rounding

Portfolio rebalancing will affect the portfolio's expected long-term return. In other words, realigning portfolio's weightings to the target determined in the investment policy from time to time will have an impact on the long-term return. The impact of portfolio rebalancing depends on its frequency, the weightings between asset classes, the level of diversification in the portfolio and the investment horizon. The expected return is also influenced by the level of diversification of the portfolio (this is independent of rebalancing). The expected impact of rebalancing and diversification on the portfolio's return (weighed average of returns of asset classes) was estimated on the basis of a log-normal distribution.

The discount rate has been adjusted to reflect fees related to asset management and plan administration.

Salary increases

The salary and YMPE increase assumption is unchanged from the previous valuation.

Appendix B – Solvency and Hypothetical Wind-Up Actuarial Basis

Asset Valuation Method

The actuarial value of the assets used to determine the solvency and hypothetical wind-up funded status is equal to the market value of assets, adjusted for amounts payable and receivable. This valuation method is the same as the one used in the last valuation.

Actuarial Cost Method

The solvency liabilities are determined using the accrued benefit (or unit credit) actuarial cost method. The solvency liabilities are equal to the actuarial present value of all benefits earned by members for services prior to the valuation date assuming the Plan is wound up on the valuation date, but excluding the value of grow-in rights. Grow-in rights represent the additional benefits payable on Plan wind-up where members whose age and service total at least 55. For these individuals, their pension rights (in terms of, for example, eligibility for a pension or the calculation of an unreduced retirement date) are based on the assumption that the service with the employer continues beyond the Plan wind-up date. In this case, grow-in benefits affect the date on which some members may retire with an unreduced pension. This method is the same as the one used in the last valuation.

For valuation purposes, to determine eligibility for benefits and for any other uses, the age used is the age on the date of the nearest birthday.

Actuarial Assumptions

The main actuarial assumptions used in the solvency and hypothetical wind-up valuations correspond to those prescribed by the applicable legislation.

These assumptions are summarized in the following table. For comparison purposes, the assumptions used in the last valuation are also included. All rates and percentages are annualized unless otherwise noted.

Table B.1 – Solvency and Hypothetical Wind-Up Actuarial Assumptions

	December 31, 2015	December 31, 2014
Discount rates (settlement by transfer of values)	2.10% for the first 10 years 3.70% thereafter	2.50% for the first 10 years 3.80% thereafter
Discount rates (settlement by purchase of annuities)	3.13%	2.82%
Member election	Members under age 50 are assumed to elect the commuted value of their benefits Members age 50 or over are assumed to elect to purchase an annuity from an insurance company	Members under age 50 are assumed to elect the commuted value of their benefits Members age 50 or over are assumed to elect to purchase an annuity from an insurance company
Salary increase	3.25%*	3.25%*
Pre-retirement mortality	None	None
Post-retirement mortality	CPM-RPP2014 Table (Final) with generational projection using improvement scale CPM-B Sex distinct	UP94 with generational projection using scale AA Sex distinct
Termination	None	None
Retirement	Age that maximizes the value of each member's benefits	Age that maximizes the value of each member's benefits
% with eligible survivors	80%	80%
Difference in age between spouses	Male is 4 years older than female	Male is 4 years older than female
Wind-up expenses	$500,000	$500,000
Asset methodology	Market value	Market value

** Used for calculation of solvency incremental cost.*

Termination Scenario

The termination scenario used in the solvency and hypothetical wind-up valuations includes the following assumptions:

- Plan wind-up would not result from employer insolvency.
- All assets could be realized at their reported market value.

This approach is the same as the one used in the last valuation.

Margin for Adverse Deviations

As specified by the Standards of Practice of the Canadian Institute of Actuaries, the solvency assumptions do not include a margin for adverse deviations.

Choice of Assumptions

Provision for Fees

Allowance has been made for administrative, actuarial and legal costs which would be incurred if the Plan were to be wound up, based on sufficient and reliable data. It is assumed that the wind-up date, the calculation date and the settlement date are coincident. Expenses related to the resolution of surplus and deficit issues are not taken into account. The amount of expenses is only an approximation and may differ significantly from real expenses incurred on plan wind-up, for example, in case of litigation, bankruptcy and eventual replacement by a third-party administrator.

Incremental Cost

The incremental cost on the solvency basis is based on the actuarial method and assumptions described below.

Actuarial Cost Method

The method used to calculate the incremental cost may be described as follows:

1. Present value of expected benefit payments between December 31, 2015 and December 31, 2016, discounted to December 31, 2015;

Plus

2. Projected solvency liabilities as at December 31, 2016, discounted to December 31, 2015;

Less

3. Solvency liabilities as at December 31, 2015.

The projected liabilities as at December 31, 2016 take into account:

- expected decrements and related changes in membership status between December 31, 2015 and December 31, 2016;
- accrual of service to December 31, 2016; and
- projection of pensionable earnings to December 31, 2016.

Actuarial Assumptions

The assumptions used to calculate the expected benefit payments in item 1. above and decrement probabilities, service accruals, projected changes in benefits and projected changes in the pensionable earnings in item 2. above correspond to those used in the going-concern valuation as at December 31, 2016.

The assumptions used to calculate the projected solvency liabilities as at December 31, 2016 in item 2. above correspond to those used for the solvency valuation as at December 31, 2015, taking into account the method of settlement applicable to each member as at December 31, 2016.

However, we assume that the discount rates remain at the levels applicable as at December 31, 2015 and that the select period is reset as at December 31, 2016 for discount rate assumptions that are select and ultimate.

We also assume that the standards of practice for the calculation of commuted values and the guidance for estimated annuity purchase costs in effect as at December 31, 2015 remain in effect as at December 31, 2016.

The projected solvency liabilities as at December 31, 2016 in item 2. above is calculated using the same postulated scenario as is used for the solvency valuation as at December 31, 2015.

No new entrants were considered between December 31, 2015 and December 31, 2016 as the impact on the incremental cost is not material.

Appendix C – Assets

Source of Information

All information pertaining to the assets has been extracted from the unaudited financial statements provided by the Plan custodian, Manulife Financial.

Tests have been performed to ensure that contributions, benefits payments and investment earnings were reasonable.

Statement of Net Assets (Market Value)

DB Provision

The following table shows the asset allocation as at December 31, 2015.

Table C.1 – Net Assets (Market Value)

	December 31, 2015
	$000
Invested assets (market value)	
Canadian Fixed Income	37,873
Foreign Fixed Income	12,539
Canadian Equity	31,398
US Equity	20,564
International Equity	19,837
Real Estate	5,612
Total invested assets	127,823

DC Provision

The assets in respect of the Defined Contribution Provision of the Plan were $3,341,000 as at December 31, 2015.

The following table shows the asset mix in the Defined Benefit provision as at December 31, 2015.

Table C.2 – Asset Mix by Asset Class

Asset classes	Asset mix	Target asset mix
	%	%
Canadian fixed income	29.6	30
Foreign fixed income	9.8	10
Canadian equity	24.6	20
US equity	16.1	15
International equity	15.5	15
Real estate	4.4	10
Total	100.0	100

Figures may not add due to rounding.

Changes in Net Assets

The following table shows changes affecting the assets during the intervaluation period, based on market values.

Table C.3 – Reconciliation

	2015
	$000
Net assets – beginning of period	117,389
Increase in assets	
Contributions	
• Member	4,318
• Employer	4,314
• Total	8,632
Investment income	6,255
Total increase	14,888
Decrease in assets	
Benefits paid	
• Pensions in payment	2,676
• Transfer and refunds	1,208
• Total	3,884
Expenses	570
Total decrease	4,454
Net assets – end of period	127,823

Figures may not add up due to rounding.

Return on Assets

The annual rates of return achieved on assets, after investment management fees and other fees charged to the fund, are as follows:

Table C.4 – Return on Assets after Expenses

Year	Market Value Basis
	%
2013	13.75
2014	10.76
2015	4.75

Actuarial Value of Assets

The following shows the determination of the actuarial value of assets for the going-concern valuation as at December 31, 2015 in respect of the Defined Benefit Provision:

Table C.5 – Actuarial Value of Assets (DB Provision)

	$000
Market value of assets	127,823
Net amount in-transit	773
Actuarial value of assets	128,596

Figures may not add up due to rounding.

Appendix D – Membership Data

Description of Membership Data

Morneau Shepell maintains the data for the Plan as the designated third party administrator. The data was compiled as at December 31, 2015. We have taken the following steps to review the data to ensure sufficiency and reliability:

- individual benefit statements as at December 31, 2015 were distributed to the members who were requested to report any errors;
- the contributions and payments made since the previous valuation shown in the financial statements were compared with the equivalent values produced by the data;
- a reconciliation was prepared in order to follow the changes concerning some of the active and disabled members and vested members;
- basic data checks were performed to ensure that employee accounts, age, salary and service data were reasonable for the purposes of the valuation.

Summary of Membership Data

The following tables were prepared using data provided by the School Boards of Nova Scotia regarding its active members, retirees, and former members.

These tables show the following:

D.1 A summary of membership data

D.2 Changes in Plan membership

D.3 Distribution of active members according to age and service as at December 31, 2015

Table D.1 – Summary of Membership Data

	December 31, 2015	December 31, 2014
Active members		
Number	1,614	1,624
Average Age	51.9 years	51.8 years
Average Salary	$33,075	$32,951
Average Contributions with Interest:		
• Regular	$21,292	$19,794
• Past Service	$2,648	$3,330
• Total	$23,940	$23,124
Average Credited Service:		
• Regular	8.1 years	7.8 years
• Past Service	0.6 years	0.8 years
• Total	8.8 years	8.6 years
Disabled members		
Number	16	20
Average Age	53.2 years	53.1 years
Average Benefit	2,286	3,175
Inactive and deferred members		
Number	176	172
Average Age	52.0 years	50.3 years
Average Benefit	$2,266	$2,105
Retired members and beneficiaries		
Number	465	402
Average Age	68.0 years	67.8 years
Average Benefit	$6,294	$6,063

Table D.2 – Changes in Plan Membership

	DB Members					DC Members
	Actives	LTD	Deferred and Inactive	Pensioners	Total	Total
Members as at December 31, 2014	1,624	20	172	402	2,218	279
New members	106	—	—	—	106	12
Disability	(6)	6	—	—	—	—
Return to Active	10	(4)	(6)	—	—	—
Terminations:						
Deferred or pending	(34)	(4)	38	—	—	(4)
Refund or transfer	(26)	(1)	(17)	—	(44)	(6)
Death	(3)	—	(1)	(6)	(10)	—
Survivor	(1)	—	—	4	3	—
Retirements	(55)	(1)	(9)	65	—	(5)
Data corrections	(1)	—	(1)	—	(2)	1
Members as at December 31, 2015	1,614	16	176	465	2,271	277

[*] *Membership reconciliation of DC plan is provided by Manulife. Note that some individuals included in the DC members total also have a DB entitlement and are counted in the DB member statistics.*

Table D.3 – Age/Service Distribution for Active Members as at December 31, 2015

Age	Credited Service	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	Grand Total
15 - 19	Number	1							1
	Average 2015 Salary	<>							<>
20 - 24	Number	3							3
	Average 2015 Salary	<>							<>
25 - 29	Number	32							32
	Average 2015 Salary	39,264							39,264
30 - 34	Number	40	10	3					53
	Average 2015 Salary	34,003	29,926	48,641					34,062
35 - 39	Number	57	25	7	2				91
	Average 2015 Salary	32,105	34,248	43,861	<>				34,278
40 - 44	Number	67	59	26	2	2			156
	Average 2015 Salary	32,567	34,483	36,783	<>	<>			34,265
45 - 49	Number	94	70	43	15	6	1		229
	Average 2015 Salary	27,804	31,154	37,102	42,866	39,334	<>		<>
50 - 54	Number	108	96	95	35	11	8	3	356
	Average 2015 Salary	32,478	31,850	31,372	37,501	39,186	40,079	42,287	32,968
55 - 59	Number	69	80	107	49	11	4	7	327
	Average 2015 Salary	28,945	31,191	35,750	34,561	35,571	51,963	38,538	33,273
60 - 64	Number	36	59	80	46	12	9	7	249
	Average 2015 Salary	26,328	29,265	33,007	41,226	36,024	44,904	44,208	33,564
65+	Number	35	31	29	14	3	2	3	117
	Average 2015 Salary	25,123	27,545	31,553	33,307	50,905	<>	39,645	29,580
Total	Number	542	430	390	163	45	24	20	1,614
	Average 2015 Salary	30,793	31,405	34,272	38,044	38,945	43,534	41,251	33,075

Notes:

The age is computed at the nearest birthday.

Years of service means the number of years of credited service for pension plan purposes, fractional parts being rounded to the nearest integer.

Cells marked <> are not shown for confidentiality.

Appendix E – Summary of Plan Provisions

Defined Benefit Provision of the Plan

Introduction

The Pension Plan for the Non-Teaching Employees of the School Boards of Nova Scotia became effective April 1, 1992.

Eligibility for Membership

A full-time employee must join the Plan on the first day of the month coincident with or next following his date of hire.

A part-time employee may join the Plan on the first day of any month coincident with or next following the completion of 24 months of continuous service subject to having worked not less than 300 hours, or having employment earnings of not less than 35% of the YMPE, in each of the two immediately preceding calendar year.

Contributions

Since August 1, 2012, members are required to contribute 8.5% of earnings in excess of the YMPE and 11.0% in excess of YMPE, up to the maximum allowable contribution under the Income Tax Act. However, member contributions may not fund more than 50% of the pension benefit accrued by the member. Calculations to determine if there are “excess” member contributions are made on termination, retirement, or death.

Employers contribute such amounts as are necessary, based on the advice of the actuary, to provide the benefits under the Plan. In the past, employees and the employers have been contributing equal amounts to the Plan.

Retirement Date

Normal Retirement Date

The normal retirement date is the first day of the month coincident with or next following the member’s 60th birthday.

Optional Retirement Date

The optional retirement date is the first day of the month coincident with or next following the date on which the member attains age 55 and age plus Eligibility Service is greater than or equal to 80.

Early Retirement Date

If a member has been in the Plan for at least two years, the member may choose to retire as early as age 50.

Retirement Benefits

Normal Retirement

The normal retirement benefit is equal to:

a) 1.5% of a member's Best Average Earnings multiplied by Credited Service prior to January 1, 2002 plus;

b) 1.5% of a member's Best Average Earnings up to the average YMPE plus 2.0% of his Best Average Earnings in excess of his average YMPE multiplied by his Credited Service after December 31, 2001.

Where:

- *Best Average Earnings* means the annual average of each member's earnings during the best five consecutive years of credited service; and
- *Average YMPE* means the average of the annual YMPE in the year of retirement, termination or death, plus the four preceding years.

Early Retirement Pension

If a member retires early, the member will be entitled to a pension that is calculated the same way as for a normal retirement, with a reduction equal to the lesser of:

- ½% per month that the actual retirement date precedes the normal retirement date; and
- ½% per month for each month the actual retirement date precedes the date that he would have reached his optional retirement date based on continuous service at the actual retirement date.

Postponed Retirement Pension

A member may elect to postpone retirement. In that case, the member continues to contribute and accrue normal benefits.

Death

Death before Retirement

If a member dies before the normal retirement date, the member's spouse or beneficiary will receive a lump sum payment equal to 100% of the commuted value of the member's accrued pension.

Death after Retirement

The normal form of payment is a lifetime pension guaranteed for five years for members without a spouse. If a member has a spouse at date of retirement, then the normal form is a lifetime pension and payable after the member's death to the member's spouse for life in the amount of 60% of the amount being paid to the member.

Termination Benefits

If a member's employment terminates for reasons other than death or retirement, the Plan will pay a deferred pension based on the member's earnings, contributions, and credited service up to the date of termination.

Deferred pensions are payable commencing at the Normal Retirement Date, or at the Optional Retirement Date (based on the member's service at the date of termination). However, a member may elect to receive a reduced early retirement pension from age 50 or later.

If a member is entitled to a deferred pension, the member may, in lieu of the deferred pension, transfer the commuted value of that pension into another retirement vehicle in accordance with the applicable federal and provincial legislation.

Defined Contribution Provision of the Plan

Contributions

Employees are required to contribute 5.0% of their earnings and the Employer matches the employee contributions.

Retirement Dates

Normal Retirement Date

The normal retirement date is the first day of the month coincident with or next following the member's 60th birthday.

Early Retirement Date

If a member has been in the Plan for at least two years, the member may choose to retire as early as age 50.

Postponed Retirement Date

An active member may postpone retirement beyond the normal retirement date.

Benefits

Retirement, Termination and Death before Retirement

Upon retirement, termination of employment or death before retirement, the value of the member's account is payable, including contributions made by the Employer on the member's behalf and investment income.

Death

Death after Retirement

Upon death after retirement, the member's beneficiary will be entitled to benefits in accordance with the member's election upon retirement.

Appendix F – Employer Certification

With respect to the actuarial valuation report of the Pension Plan for Non-Teaching Employees of the School Boards of Nova Scotia as at December 31, 2015, we hereby confirm that to the best of our knowledge:

- the data regarding Plan members and beneficiaries provided to Morneau Shepell constitutes a complete and accurate description of the individuals entitled to benefits;
- copies of the official text of the Plan and all amendments to date were provided to Morneau Shepell and the summary of Plan provisions contained in this report is accurate; and
- there are no subsequent events nor any extraordinary changes to the membership other than those listed in this actuarial report on the Plan, which would materially affect the results.

Nova Scotia School Boards Association

Karen Budden

Signature

Karen Budden

Name (printed)

Finance & Office Manager

Title

November 21, 2016

Date

Morneau Shepell is the largest company in Canada offering human resources consulting and outsourcing services. The Company is the leading provider of Employee and Family Assistance Programs, as well as the largest administrator of pension and benefits plans. Through health and productivity, administrative, and retirement solutions, Morneau Shepell helps clients reduce costs, increase employee productivity, and improve their competitive position. Established in 1966, Morneau Shepell serves more than 20,000 clients, ranging from small businesses to some of the largest corporations and associations in North America. With approximately 3,600 employees in offices across North America, Morneau Shepell provides services to organizations across Canada, in the United States, and around the globe. Morneau Shepell is a publicly traded company on the Toronto Stock Exchange (TSX: MSI).