NOVA SCOTIA PUBLIC SERVICE LONG TERM DISABILITY PLAN

ACTUARIAL VALUATION AS AT DECEMBER 31, 2014

Prepared March 2015

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Executive Summary

This report has been prepared at the request of the Board of Trustees (the "Board") of the Nova Scotia Public Service Long-term Disability Plan Trust Fund (the "Plan"). The Board has retained Morneau Shepell to perform an actuarial valuation of the Plan as at December 31, 2014. The main purposes of the valuation are to assess the financial position of the Plan and to determine whether current premium levels are adequate.

The results of the valuation are summarized below.

Funding Position as at Dec. 31, 2014

Item	Amount
Net Assets Available for Benefits (market value)	$145,746,000
Total Liabilities	$76,027,000
Funding Margin	$69,719,000

The Plan's total liabilities of $76,027,000 have been calculated using a discount rate of 3.0%. The liabilities include both active in-force claims as of the valuation date and allowance for claims incurred before the valuation date but not yet reported or adjudicated. It also includes a provision for future administrative expenses on claims incurred as of the valuation date equal to 8.5% of expected benefit payments. This provision is meant to cover all future expenses on claims incurred as of the valuation date independent of the ongoing operation of the Plan. This approach is a departure from the previous valuation where a liability was established only to cover future rehabilitation expenses on incurred claims, with the balance of expenses being allocated to current year premiums. This enhancement of the future administrative expense liability is in accordance with emerging actuarial best practices for plans of this type. It adds $6.0 million to the Plan's liability.

The Plan's funding margin of $69,719,000 represents an $11.1 million improvement over the funding margin that existed at the time of the last valuation (December 31, 2012). The main reasons for this improvement in funding position are investment returns in 2013 and 2014 greater than expected, and positive experience gains on claims active at the last valuation. The improvement is somewhat tempered by an increase in the liability due to the new approach for future administrative expenses, as mentioned above.

We have estimated the cost of providing ad hoc indexing at December 31, 2015 and December 31, 2016 to be $2,093,000. If adopted, this ad hoc indexing would provide inflation protection to claimants for CPI increases from the later of 24 months on claim or December 31, 2014, to December 31, 2016. It would lower the Plan's funding margin to $67,626,000.

We have also estimated the cost of new claims for the 2015 disability year to be $13.7 million, excluding a margin for adverse deviation. This estimate is based on the Plan's new claim cost experience from 2010 to 2014. The Plan's current premium levels are expected to be sufficient to cover the best-estimate cost of new claims provided there are no significant changes in Plan benefits or membership. To the extent that Plan premiums collected are different than the actual cost of new claims, there will be a gain or loss to the Plan's funded position.

As the Plan's funding position has improved in recent years there has been a shift to identifying and managing Plan risks going forward rather than focusing mainly on improving the Plan's finances. As part of this process, the Board has recently developed a plan-specific funding policy. This policy was adopted in April 2014. The goal of the policy is to define an appropriate level of funding margin for the Trust that constitutes a reasonable, prudent contingency reserve.

The policy is based on the major risks for the Plan and its actual operations. It was developed assuming that the Plan is an ongoing entity so it explicitly considers the relationship between premium revenue and expected claim costs in addition to the risk of deterioration in the experience for in-force and new LTD claims. The focus of the contingency reserve is to preserve the stability of Plan benefits and premiums. In particular, a fully funded contingency reserve should be able to withstand reasonably adverse experience for up to five years without having to initiate premium or benefit changes. The objective for the Plan is to maintain a fully funded contingency reserve.

In addition to the new funding policy, the Board continues to monitor the adequacy of the Plan's surplus level using standard insurance industry targets and to analyze the match between the Plan's assets and liabilities. On all three measures the Plan appears to be in a solid financial position. In particular:

- Application of the funding policy shows that the Plan's contingency reserve is 165% funded;
- Application of insurance industry targets shows that the Plan has over three times the standard required capital amount; and
- Cash flow projections show a good match between asset income from the Plan's liability-hedging portfolio (in-flows) and expected benefit payments (out-flows).

More background on each of these measures and their results is given in Section 4 (Risk Oversight) of our report.

We continue to recommend that the careful monitoring and prudent financial management that has helped the Plan achieve its current secure financial position be maintained so that members can continue to enjoy the protection and security provided by a fiscally sound disability program.

Introduction

This report has been prepared at the request of the Board of Trustees (the “Board”) of the Nova Scotia Public Service Long-term Disability Plan Trust Fund (the “Plan”). The Board has retained Morneau Shepell to perform an actuarial valuation of the Plan as at December 31, 2014 (the “valuation date”). The previous valuation of the Plan was performed as at December 31, 2012.

The purposes of this actuarial valuation are:

- to determine the funded position of the Plan as at December 31, 2014;
- to estimate the cost of new long-term disability claims incurred after December 31, 2014 until the date of the next actuarial valuation (scheduled for December 31, 2016); and
- to provide additional information regarding surplus levels, projected cash flows and related analysis to assist in the prudent oversight of Plan operations.

Certain results from the actuarial valuation will also be used for financial reporting purposes by the Plan in accordance with its accounting standards.

The valuation was performed in accordance with Terms of Engagement signed by management of the Plan and Morneau Shepell. The Terms of Engagement confirm the purposes of the valuation, and describe the methodology and assumptions to be used. To the best of our knowledge, we are not aware of any subsequent events between the valuation date and the date of this report that would have a material impact on the Plan’s liabilities.

This report is organized as follows:

- Section 1 contains our Actuarial Statement of Opinion;
- Section 2 outlines the Plan’s financial position as at the valuation date along with the major items contributing to its change since the last valuation;
- Section 3 contains our estimate of the cost of new claims for the Plan;
- Section 4 reviews the results of key risk oversight processes used by the Plan to assess its surplus adequacy and asset-liability mismatch risk; and
- Our concluding comments are given in Section 5.

Various appendices are attached to this report that present more detail on the methodology, data and results of the calculations.

Section 1 – Statement of Actuarial Opinion

We have completed an actuarial valuation of the benefit liabilities of the Nova Scotia Public Service Long-term Disability Plan Trust Fund (the "Plan") as at December 31, 2014 (the "valuation date"). Details of the data, actuarial assumptions, valuation methods, and results are included in the actuarial valuation report as at the valuation date, of which this statement forms part. The valuation reflects our understanding of the provisions of the Plan, and its associated policies and procedures as of the date of this report. To the best of our knowledge, there have been no subsequent events as of the date of this report that would have a material impact on this valuation.

Our estimate of the liabilities for the Plan is $76,027,000. This figure includes both active in-force claims as of the valuation date and allowance for claims incurred before the valuation date but not yet reported or adjudicated. It also includes a provision for future administrative expenses on claims incurred as of the valuation date. It does not include a provision for ad hoc indexing for the next two calendar years. If the cost of ad hoc indexing for the next two calendar years is included, it increases the estimated liabilities for the Plan to $78,120,000. In addition, the Plan's current premium levels are expected to be sufficient to cover our best estimate cost of new claims incurred between now and the next valuation, provided that there are no significant changes to Plan membership or benefits in the interim.

In our opinion:

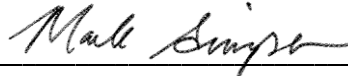
- the data on which the valuation is based are sufficient and reliable for the purpose of the valuation;
- the assumptions are appropriate for the purpose of this valuation; and
- the methods employed in the valuation are appropriate for the purpose of the valuation.

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

Emerging experience, differing from the assumptions used in this valuation, will give rise to gains or losses which will be revealed in future actuarial valuations of the Plan. The next full actuarial valuation of the Plan is scheduled for December 31, 2016.

The undersigned are available to respond to any comments or questions regarding this report.

Respectfully submitted,



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March, 2015

Section 2 – Financial Position

Actuarial Balance Sheet as at December 31, 2014

The financial position of the Plan as at December 31, 2014 is presented in the table below (all figures are in $1,000's). Results are shown with the ad hoc indexing separately identified. The net market value of assets figures were obtained from the Plan's financial statements. For reference, the results from the last valuation as at December 31, 2012 (the "previous valuation") are also shown.

	December 31, 2012	December 31, 2014
Market Value of Assets		
Net Fund Value	$127,804	$145,746
Total Assets	**$127,804**	**$145,746**
Actuarial Liabilities		
Present Value of benefits in respect of:		
> Claims currently in payment	$58,275	$60,609
> Claims incurred but not reported or approved (IBNR)	8,563	9,462
> Future admin expenses on claims currently in payment	450	5,956
Total Liabilities	**$67,288**	**$76,027**
Funding Margin / (Deficiency)	**$60,516**	**$69,719**
Funded Percentage	**189.9%**	**191.7%**
> Cost of ad hoc indexing for 2 years	1,868	2,093
Total Liabilities Including ad hoc Indexing	**$69,156**	**$78,120**
Funding Margin / (Deficiency) Including ad hoc Indexing	**$58,648**	**$67,626**
Funded Percentage Including ad hoc Indexing	**184.8%**	**186.6%**

The assumptions and methods used to calculate the liability figures in the above table are outlined in Appendix A – Actuarial Basis. As well, the data on which the calculations are based is described in more detail in Appendix B. Finally, Appendix C shows a reconciliation of the Plan's net market value of assets figure from the previous valuation to the current valuation.

Reconciliation of Financial Position

The following table shows a reconciliation of the change in the financial position of the Plan from December 31, 2012 to December 31, 2014 (all figures are in $1,000's):

Funding Margin as at December 31, 2012		**$58,648**
Interest on funding margin at 3.00% for two years	3,572	
Gain due to investment rate of return higher than assumed	10,948	
Loss due to new claim costs in excess of premiums	(2,226)	
Experience gain on claims incurred as at December 31, 2012	4,357	
Liability increase due to revisions to future admin liability valuation	(5,956)	
Other sources of gain (loss)	376	
Funding Margin at December 31, 2014, prior to ad hoc indexing		**$69,719**
Cost of ad hoc indexing for 2015 and 2016	(2,093)	
Funding Margin as at December 31, 2014, after ad hoc indexing		**$67,626**

Description of Changes in Financial Position

Overall, the Plan's funding position improved by $11.1 million since the previous valuation. This improvement results from a combination of several gain and loss items.

> As at December 31, 2012 the Plan had a funding margin of $58.6 million. Even if the assumptions used in the previous valuation had been exactly realized, the Plan's funding margin would have grown due to investment income earned by the existing margin amount. A 3.0% rate of return earned for two years would have increased funding margin by $3.6 million.

> The previous valuation assumed that the Trust assets would earn 3.00% per annum, net of investment-related expenses. Actual investment returns (net of investment expenses) over the past two years have been higher than assumed, as shown below:

Period	**Return**
2013	7.58%
2014	6.61%
2013-2014 average	7.09%

The Trust's better than expected investment performance has resulted in a gain of $10.9 million over the two year period.

- The calculated cost of new long-term disability claims incurred since the previous valuation (including associated expenses thereon) has marginally exceeded the premiums (including EI rebates) collected over this time period. This shortfall in revenue has reduced the Plan's funding position by $2.2 million.

- There has been a significant experience gain on claims in existence as at the previous valuation. Since 2002, significant focus has been placed on controlling claims costs and a number of targeted initiatives have been conducted towards this end (i.e. assessing potential for increased incomes by electing early retirement as compared to continuing on LTD, restructuring of rehabilitation program, etc.). These efforts have contributed towards gains being generated by better experience in claims termination rates for claims active at December 31, 2012 ($4.0 million). As well, lower levels of CPI have resulted in benefit amounts less than expected at the prior valuation and thus have produced a small gain ($0.8 million). These gains are somewhat tapered by a small experience loss resulting from more claims than provided for in the Incurred But Not Reported liability ($0.5 million). The net experience gain on claims incurred as at December 31, 2012 is $4.4 million.

- As discussed in Appendix A, the Plan has updated its approach to recognizing liabilities for future administrative expenses. In accordance with emerging best practices, the Plan has decided to recognize a liability that provides for future claims management expenses and rehabilitation expenses on claims incurred as of the valuation date, along with the general administrative fee. The establishment of a more comprehensive future administrative expense liability reduces the Plan's funding margin by $6.0 million.

The "Other sources of gain (loss)" in the table above represent the net of all other factors plus any imprecision in the attribution analysis. The net impact allocated here is a gain of $0.4 million.

Overall, these factors combined to produce a net improvement in funding margin since the previous valuation of $11.1 million. We note that this excess is almost entirely accounted for by the $10.9 million gain from better than expected investment returns (i.e. other claims-related factors essentially net to $0).

We have estimated the cost of providing ad hoc indexing for calendar years 2015 and 2016 to be $2.093 million. This estimate is based on an assumed inflation rate of 2.25% per annum for 2015 and 2016. Please note that this ad hoc indexing is available only to claimants who have reached their "change of disability definition date" (24 months after the elimination period) by the indexation date. There is currently no guarantee of benefit increases in recognition of future inflation beyond January 1, 2015.

Sensitivity Analysis

A sensitivity analysis was completed on the Plan's liability (not including ad-hoc indexing). Specifically, the liabilities were calculated using a discount rate that is 1.0% below the valuation discount rate (i.e. using a discount rate of 2.0%). The results are shown in the table below.

Discount Rate	Liability	Percent Change
2.0%	79,911,000	5.1%

A discount rate of 2.0% increases liabilities by $3,884,000 to $79,911,000. Consequently, the Plan's funding margin would be reduced to $65,835,000 if this rate were used for the valuation.

Section 3 – Cost of New Claims

Our of the primary purposes of the actuarial valuation is to estimate the cost of new long-term disability claims incurred after the valuation date until the date of the next actuarial valuation (scheduled for December 31, 2016). This is necessary to assess whether current premium levels are sufficient to support the cost of new claims expected in the future and their associated administrative expenses.

The assumptions and methods used to estimate the cost of new claims are described in Appendix A. The results of our analysis are summarized below. The figures presented do not consider potential ad hoc indexing for 2015 and 2016 since new claims incurred in 2015 and 2016 will not be eligible for those indexing adjustments even if they are approved.

Estimated Cost of New Claims Excluding Administrative Expenses (in $ millions)	
Year	**Total Costs***
2010	11.037
2011	13.001
2012	11.728
2013	14.892
2014	13.732
Average	**12.878**

* *Figures adjusted to 2014 exposure levels*

Inspection of the results in the above table show that the cost of new claims varies from year to year. We have used an average of the results for the previous five disability years as a best-estimate of the expected cost of new claims going forward. We believe that this is a reasonable approach for estimating the expected cost of new claims. However, the volatility of the results in above table show that the actual cost of new claims for a future disability year could be higher or lower than our best-estimate.

Based on the above table, the estimated average cost of new claims for the period 2010 to 2014 is $12.9 million in 2014 dollars. This figure does not include any provision for administrative expenses. In order to incorporate administrative expenses, the following adjustments were made:

- An 8.5% loading ($1.1 million) was applied to the estimated cost of new claims for to allow for future administrative expenses on those claims
- $1.2 million was added in order to provide for current year administrative costs
- $1.8 million was subtracted in order to account for expected EI rebates

The assumed current year administrative costs and EI rebates are based on the Plan's recent financial history. These adjustments result in an estimated cost of new claims including expenses of $13.4 million. Applying an assumed inflation rate of 2.25% suggests a reasonable best estimate of the cost of new claims for 2015 is $13.7 million.

The Plan collected premiums of $13.6 million in 2014. Applying the same 2.25% inflation assumption to the 2014 premiums collected by the Plan gives an estimate for the Plan's 2015 premiums of $13.9 million.

For 2015, premiums are expected to be marginally ($0.2 million) greater than the cost of new claims including a provision for expenses. However, this is based on a best estimate new claims cost and does not include any provision for adverse deviation. If a 10% provision for adverse deviation is included, the projected claims cost for 2015 becomes $15.1 million. The projected premium revenue of $13.9 million is less than the $15.1 million "padded" expected cost for 2015 disabilities. Thus, the estimated 2015 premium income is sufficient to cover the expected cost of 2015 claims and expenses, but does not provide any margin for adverse deviation. If there are no significant changes to the covered workforce or to the terms of the Plan, then we expect that the Plan's current premium levels should be sufficient until the next valuation.

Given the plan's strong current funding position, the absence of a margin in the current level of contributions is not of significant immediate concern. In addition, assuming a 3% investment return, the current $69.7 million funding margin will generate additional income to the Trust of about $2.1 million each year that could help to offset any deficiency in premium levels. Finally, the Board has recently adopted a funding policy that considers the balance between expected new claim costs and premium levels and guides the Plan's response to premium shortfalls/margins. The new funding policy is discussed in more detail in the next section.

Section 4 – Risk Oversight

As the Plan's funding position has improved in recent years there has been a shift to identifying and managing Plan risks going forward rather than focusing only on addressing the Plan's immediate financial challenges (as was required a decade ago). As part of this shift in focus, the Board has been reviewing its major risk exposures and identifying strategies for managing these risks. This section of the report discusses the Plan's formal risk oversight tests and reviews their results.

As part of its risk oversight functions, the Board of Trustees regularly assesses the adequacy of the Plan's funding levels and the match between Trust assets and liabilities. In particular, the Board reviews:

- The Trust's funding level in comparison to a general target surplus requirement based on insurance company standards in Canada;
- The Trust's funding level in comparison to a plan-specific target contingency reserve; and
- Projected benefit payments from the Trust in comparison to expected asset cash flows from the Trust's liability-hedging portfolio.

The first two tests are meant to assess the adequacy of the Trust's funding level. The last test is a measure of the Trust's exposure to asset-liability mismatch risk. The background and results of each of these tests are discussed in turn, below.

Target Surplus Levels – General Insurance Standards

With the Plan having attained a fully funded status (i.e. assets exceeding the estimated amount required to fund disability payments to current claimants), the Board has sought independent guidance regarding what an appropriate and healthy level of surplus for the Plan would be. Both stochastic and deterministic methods may be used to analyze this question. As an initial input to this process, we have compared the actual Plan surplus to the target level of surplus that the Office of the Superintendent of Financial Institutions (OSFI – the federal regulator of insurance companies) would require the Plan hold if it was assessed as an independent insurance company. This analysis is based on the Minimum Capital and Continuing Surplus Standards (MCCSR) that OSFI uses as part of its review of the continuing viability of insurance companies in Canada. While an imperfect standard, this does provide an independent, third-party basis to consider surplus levels.

The MCCSR standard establishes target surplus requirements based on the amount and nature of both the liability promise itself and the assets held to secure the commitment. Larger liability promises that are fixed for an extended period of time require higher surplus levels than those with shorter duration that may be more flexible should circumstances deteriorate. Highly secure asset investments that generate cash payments that match well against the expected payments to plan beneficiaries require modest levels of surplus while more volatile investments which do not match up well against the payments to disabled claimants generate higher required surplus levels.

Details of the calculation of the target MCCSR level for the Plan are included in Appendix D. Our MCCSR calculations assume that $98.8 million of the Plan's assets are invested in a fixed income liability-hedging portfolio (i.e. 130% of the Plan's liabilities of $76.0 million), with the remaining Plan assets invested in the return-generating portfolio, with both portfolios invested consistently with their strategic asset allocation.

OSFI's normal supervisory standard for total capital ratios is 150%. If a company's total capital ratio falls below this level, it is subject to increase supervision and potential intervention by OSFI. As a result, 150% target is the practical minimum capital for insurance companies in Canada. Based on this minimum, the total MCCSR for the Plan is estimated to be $22.0 million ($10.1 million for asset / investment risk plus $11.9 million for claims / liability risk). The actual December 31, 2014 funding margin of $69.7 million is $47.7 million above, or over three times, the minimum target implied by MCCSR standards.

We note that the majority of the Plan's surplus requirement for asset risk is due to the return-generating portfolio. While the return-generating portfolio only amounts to roughly one-third of the Plan's assets, it is responsible for over 80% of the Plan's surplus requirement for asset risk. This is due to the portfolio's holding of equity investments, including global equities, which tend to produce more volatile year-to-year returns. The surplus requirement for asset risk is much lower on the liability-hedging portfolio owing to its holdings of investment grade, domestic bonds.

The Board has been tracking its MCCSR position since 2010. A history of the results of this analysis is presented below. The funding margin figures in the table below excluded the estimated impact of any future ad hoc indexing that may have subsequently been approved by Plan Sponsors. All dollar figures are in millions.

	Dec. 31, 2010	Dec. 31, 2012	Dec. 31, 2014
Funding Margin	$48.1	$60.5	$69.7
MCCSR Minimum Target Surplus (150%)	$21.9	$21.5	$22.0
Residual Surplus	$26.2	$39.0	$47.7
Ratio of Funding Margin to Target Surplus	220%	281%	317%

The MCCSR establishes a minimum target surplus based on general factors developed for the insurance industry as a whole. A plan-specific test reflecting the actual risks, operation and goals of the Plan follows next.

Target Surplus Levels – Plan Specific Analysis

In addition to the MCCSR test, the Board has recently developed and adopted a plan-specific funding policy. The goal of the policy is to define an appropriate level of funding margin for the Trust that constitutes a reasonable, prudent contingency reserve.

The policy is based on the major risks for the Plan and its actual operations. It was developed assuming that the Plan is an ongoing entity so it explicitly considers the relationship between premium revenue and expected claim costs in addition to the risk of deterioration in the experience for in-force and new LTD claims. The focus of the contingency reserve is to preserve the stability of Plan benefits and premiums. In particular, a fully funded contingency reserve should be able to withstand reasonably adverse experience for up to five years without having to initiate premium or benefit changes.

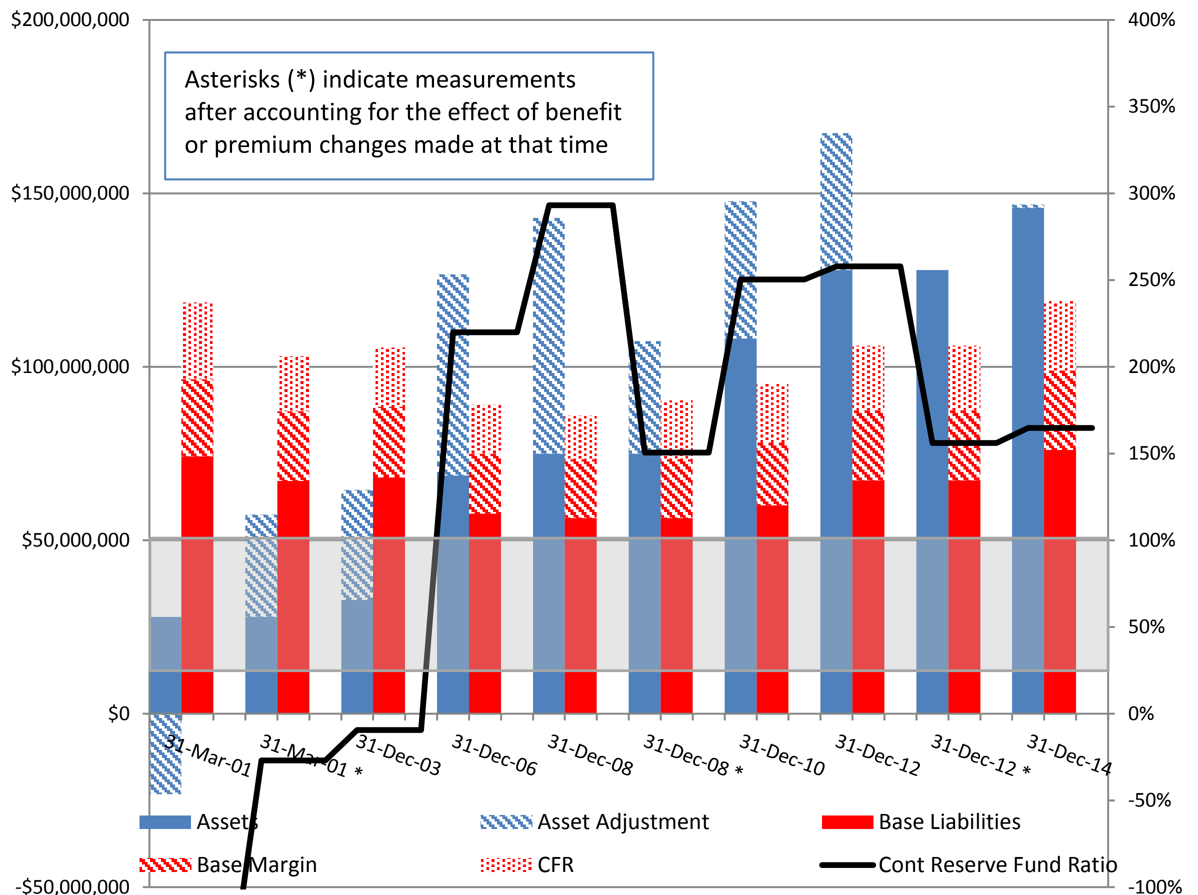
Details on the elements of the funding policy and the calculation of the target contingency reserve are given in Appendix E. A summary of the calculations as at December 31, 2014 are given in the table below.

Component		$ Millions
a. Assets		145.7
b. Asset Adjustment	1.0	
c. Adjusted Assets (a + b)		146.7
d. Base liabilities		76.0
e. Base Margin	22.8	
f. Claims Fluctuation Reserve	20.1	
g. Target Contingency Reserve (e + f)		42.9
h. Adjusted Funding Margin (c – d)		70.7
i. Residual Margin (h – g)		27.8
j. Contingency Reserve Funding Ratio (h / g)		165%

Based on the current valuation, current premiums levels are largely in line with expected new claim costs resulting in a negligible asset adjustment in the table above. Comparing the adjusted assets ($ 146.7 million) to the current estimate of base liabilities ($76.0 million) gives an adjusted funding margin of $70.7 million as at the valuation date. The funding policy indicates that $42.9 million of the margin is needed to fully fund the Plan's target contingency reserve. This leaves the Plan with $27.8 million of additional margin as at the valuation date and a contingency reserve funding ratio of 165%.

The Plan's funding policy determines a target contingency reserve for the Plan of $42.9 million, while the MCCSR calculation indicates a target surplus requirement of $22.0 million. The difference in the two measures is due to the differing purposes for which they were developed. The MCCSR is a standard for insurance companies in Canada based on an analysis of general risk factors for the insurance industry. The Plan's funding policy, on the other hand, is based on a specific analysis of the Plan's major risks, operations, and goals. In light of these differences, it may be helpful to view the target contingency reserve from the Plan's funding policy as the primary funding target, and the MCCSR target surplus as a minimum funding target level for the Plan.

While the new funding policy was approved by the Board in 2014, it is illustrative to consider how it would have operated historically. The following chart shows the application of the Board's funding policy to historical valuation results.



The chart above examines the operation of the funding policy over time and the contingency reserve funded ratio through time. It includes ten distinct points, as follows:

- March 31, 2001 – Premiums were less than the cost of new claims resulting in a negative asset adjustment. Including the contingency reserve, there is an overall funding shortfall of $114 million.
- March 31, 2001 * – This is an estimate of the Plan's March 31, 2001 financial position taking into account the premium adjustment and benefit changes implemented May 1, 2002. There is roughly a $70 million improvement in contingency reserve funding level due to these changes, predominantly due to increasing premiums substantially such that they are now higher than the cost of new claims thereby generating a positive asset adjustment.
- December 31, 2003 – Slight improvement in funding.
- December 31, 2006 – Large improvement in funding due to a combination of strong investment returns, reduced new claim costs (resulting in higher premium margins), and positive experience on in-force claims.
- December 31, 2008 – Continued improvement in funding primarily due to collecting premiums in excess of the cost of new claims.
- December 31, 2008 * – This is an estimate of the Plan's December 31, 2008 financial position taking into account the premium adjustment and benefit changes implemented January 1, 2009. The combined changes reduced the contingency margin funding level by about $40 million, primarily through lower premium revenue and a smaller asset adjustment.
- December 31, 2010 – Improvement in funding primarily due to investment returns higher than expected.
- December 31, 2012 – Slight improvement in funding.
- December 31, 2012 * – This is an estimate of the Plan's December 31, 2012 financial position taking into account the premium reduction implemented January 1, 2013. The reduction in premiums eliminated the entire asset adjustment and resulted in a decrease in contingency margin funding level of about $40 million.
- December 31, 2014 – Slight improvement in funding.

Projected Cash Flows

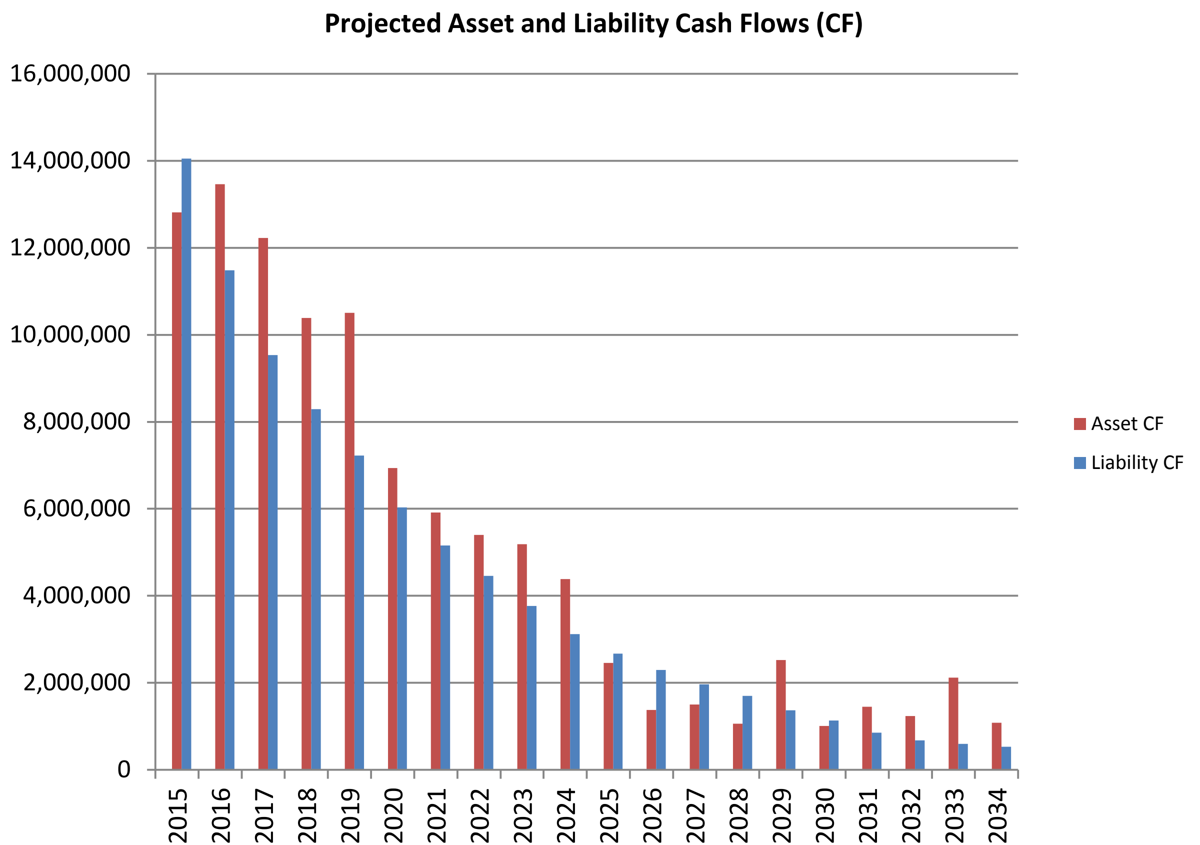
To provide further information to assist with the prudent operation of the Plan, we have analyzed the expected future cash flows for the Plan. In particular, we have compared the expected future benefit payments and under the Plan for disabilities incurred up to December 31, 2014 to the expected future income from the assets held in the Plan's liability-hedging portfolio.

A financial security program can reduce its exposure to future changes in market interest rates by maintaining a close relationship between its required benefit payments and the income generated by its assts. For example, if the cash generated by the plan's assets is inadequate to cover the plan's

required benefit payments in a particular year, then the plan could be forced to sell assets to cover the shortfall. If market interest rates at that time were such that the investments had declined in value, this forced sale could generate losses for the plan. Conversely, if the cash generated by the plan's assets is more than its required benefit payments in a particular year, the plan would need to reinvest the excess cash. Should market interest rates be lower at the time of reinvestment, the program would earn a lower rate of return in future years. By maintaining a reasonably close match between cash inflows and benefit payment outflows, the level of interest rate risk faced by the program is significantly reduced.

The cash flows illustrated in the charts below were produced by projecting the cash inflows generated by assets in the Plan's liability-hedging portfolio and cash outflows resulting from disability claims incurred up to December 31, 2014. The projection period is 20 years. This analysis does not include either the impact of any premium receipts in future years nor does it account for the costs of claims incurred on or after January 1, 2015. Further details on the methodology used to project the cash flows can be found in Appendix F.

Projected Cash Flows – 10% in T-Bills, 90% in FTSE TMX Bond Universe



As the chart above illustrates, the Plan is expected to have positive total net cash flows over the next 20 years. This is not surprising given the liability-hedging portfolio is to hold assets equal to 130% of the Plan's current liabilities. It also shows that the liability-hedging portfolio provides a good match to expected liability cash flows over the next 20 years and, in particular, in the first 10 years when the majority (~85%) of the liability will be settled. While there is a slight shortfall projected for certain years, including year 1 of the projection, these may be funded at least partially with current premiums or from reinvestment of past excess cash flow. Overall, the projections do not indicate a significant need for asset sales to meet cash flow demands.

The long-term bonds in the FTSE TMX universe result in a duration for the liability-hedging portfolio that is slightly longer than the Plan's liabilities (6.7 years vs. 5.1 years). However, as the above chart illustrates, funding the liability-hedging portfolio to a level equal to 130% of Plan liabilities largely eliminates the potential for forced asset sales to make benefit payments, and provides a cushion for slight differences in duration.

Section 5 – Conclusions

The primary purpose of this valuation is to assist the Board of Directors in assessing the financial condition of the Plan. The results of the valuation show that the Plan is a secure program with an exceptionally strong funding position. In addition, the current premium levels are expected to be sufficient to cover the best-estimate cost of new disability claims, including expenses, under the current Plan terms and membership. Finally, the Board's risk oversight tests show that the Plan's funding margin is adequate using both industry and plan-specific standards, and cash flow projections show that there is a good match between liability-hedging portfolio assets and expected benefit payments. On all measures assessed (valuation, MCCSR, contingency reserve, asset and liability cash flow projections) the program is fiscally sound and well able to meet the commitments made to existing disability claimants.

We would suggest that the period between now and the next valuation (scheduled for December 31, 2016) be utilized to monitor and measure emerging claims trends. Such information will be useful when considering how to manage the balance between claims costs and premium levels and develop strategies to ensure the Plan continues to provide quality, secure protection to covered employees at a fair price.

Appendix A – Actuarial Basis

In determining the present value of the Plan's liabilities, it is necessary to make certain assumptions with respect to the factors that will affect these liabilities in the future. These assumptions, along with the methodologies used to calculate results, form the actuarial basis and are described below.

Assumptions

The main assumptions used for the valuation are listed in the table below. For reference, the assumptions used in the previous valuation have also been included. More details on the valuation assumption and their rationale are given following the table.

<table>
<tr><th>Item</th><th colspan="2">Dec. 31, 2014 Valuation</th><th colspan="2">Dec. 31, 2012 Valuation</th></tr>
<tr><td>Inflation</td><td colspan="2">2.25%</td><td colspan="2">2.25%</td></tr>
<tr><td>Discount Rate</td><td colspan="2">3.00%</td><td colspan="2">3.00%</td></tr>
<tr><td rowspan="9">Rates of Termination</td><td colspan="2">1987 GLTD Basic Tables modified for Plan historical experience</td><td colspan="2">1987 GLTD Basic Tables modified for Plan historical experience</td></tr>
<tr><td>Year on Claim</td><td>Scaling Factor</td><td>Year on Claim</td><td>Scaling Factor</td></tr>
<tr><td>1</td><td>50%</td><td>1</td><td>50%</td></tr>
<tr><td>2</td><td>150%</td><td>2</td><td>150%</td></tr>
<tr><td>3</td><td>325%</td><td>3</td><td>325%</td></tr>
<tr><td>4</td><td>200%</td><td>4</td><td>200%</td></tr>
<tr><td>5</td><td>150%</td><td>5</td><td>150%</td></tr>
<tr><td>6</td><td>125%</td><td>6</td><td>125%</td></tr>
<tr><td>7+</td><td>125%</td><td>7+</td><td>125%</td></tr>
<tr><td>Retirement Age</td><td colspan="2">Pre May 2002: Age 63
May 2002 to Dec. 2008: Age 60
Post Dec. 2008: Age 63 (those over 63 at time of disability get 2 years of benefits)</td><td colspan="2">Pre May 2002: Age 63
May 2002 to Dec. 2008: Age 60
Post Dec. 2008: Age 63 (those over 63 at time of disability get 2 years of benefits)</td></tr>
<tr><td>Future Admin Expense Liability</td><td colspan="2">8.5% of expected benefit payments</td><td colspan="2">$450,000 (future rehab expense only)</td></tr>
<tr><td>Acceptance Rate Pending CPPD</td><td colspan="2">70%</td><td colspan="2">70%</td></tr>
</table>

Inflation

The Bank of Canada has a target range for inflation of 1% to 3%. Actual experience over the last 20 years suggests a rate in the 2% to 3% range, while longer periods suggest a rate above 3%. Given the expected duration of benefits, we have used a 2.25% inflation assumption consistent with recent actual experience.

Discount Rate

The Plan's assets are partitioned into two accounts: a liability-hedging portfolio that is invested 100% in fixed income assets providing a reasonable match to the duration and cash flow profile of the LTD Plan liability, and a return-generating portfolio that is invested in a balanced fund. The target for the liability-hedging portfolio is to hold assets equal to 130% of the Plan's liabilities. Given the Plan's current liabilities of $76.0 million, this implies a target for the liability-hedging portfolio of $98.8 million, or 67.8% of Plan assets.

Per the Board's funding policy, the present value of expected future benefits will be calculated using the expected rate of return on the Plan's total assets (liability-hedging and return-generating portfolios combined) as the discount rate. Based on the expected split of Plan assets between the two portfolios, current fixed income yields, and expected future returns on the return-generating portfolio, we have estimated a discount rate of 3.0% per annum for the current valuation. This rate is net of expected investment-related expenses for the Plan.

This rate was calculated as a weighted average of the expected rates of return on the liability-hedging portfolio and the return-generating portfolio, using their relative proportion of the Plan assets as the weights. The expected rates of return on each of the two sub-portfolios are based on their individual strategic asset allocations and the outlook for the specific asset classes used. For assets in the return-generating portfolio we have used expected long-term rates of return given its role is to generate supplemental returns over time. For assets in the liability-hedging portfolio we have used current market yields as at the valuation date as the expected return to maintain a close match between measured liabilities and the market value of assets in the portfolio. Details on the calculation of the discount rate are provided below.

Calculation of Expected Return – Liability-Hedging Portfolio

Asset Classes	Target Allocation	Yield at Dec. 31, 2014
T-Bills	10.0%	0.92%
Bonds (Universe)	90.0%	2.23%
Total Nominal Return	**100.0%**	**2.10%**

Calculation of Expected Return – Return-Generating Portfolio

Asset Classes	Target Allocation	Expected Real Return (Low)	Expected Real Return (High)
T-Bills	5.0%	-0.55%	-0.05%
Bonds (Universe)	40.0%	0.65%	1.15%
Canadian Equity	30.0%	4.60%	5.10%
US Equity	12.5%	4.80%	5.30%
International Equity	12.5%	5.05%	5.65%
Total Real Return	100.0%	2.84%	3.36%
Expected Inflation		2.25%	2.25%
Value Added for Rebalancing & Diversification		0.40%	0.40%
Total Nominal Return		**5.49%**	**6.01%**

Discount Rate Components

Components	Allocation	Scenario A (Low)	Scenario B (High)
Liability-Hedging Portfolio	67.8%	2.10%	2.10%
Return-Generating Portfolio	32.2%	5.49%	6.01%
Expected Gross Return	100.0%	3.19%	3.36%
Investment-related Expenses		-0.30%	-0.30%
Expected Net Return		**2.89%**	**3.06%**

In our analysis of the return-generating portfolio, we have examined both a low and a high scenario. These scenarios represent a best-estimate of future returns developed by Morneau Shepell's Asset and Risk Management practice. The expected real returns were established by reviewing historical returns for various periods, current market conditions, and fund manager's long-term expectations.

The range above suggests that a valuation discount rate of 3.00% is reasonable.

Claims Termination

It has been assumed that disabled members would terminate from claim based on a modification of the 1987 GLTD Basic Tables for a 3 month elimination period (the GLTD tables). The GLTD tables provide termination rates based on sex, age at disability, and time on claim. The tables include monthly termination rates for the first 2 years and annual rates thereafter. The rates are given for 9 central ages at disability (i.e. 22, 27, 32, 37, 42, 47, 52, 57 and 62).

The modification applied for purposes of this valuation involves multiplying a factor by the base termination rates in the GLTD tables. The chosen factors are based on a detailed analysis of the Plan's actual termination experience completed during 2012.

Retirement Age

For disabilities occurring before May 1, 2002:

- We have assumed that all members would retire at age 63. The selection of age 63 is meant to represent the aggregate expected experience of the Plan. Individual claimants will retire prior to or after age 63 depending on their own length of service under the Public Service Pension Plan (PSPP), or other pension plan as applicable.

For disabilities occurring on or after May 1, 2002 but before January 1, 2009:

- As mentioned earlier, the Plan was changed effective May 1, 2002 so that disability coverage will end 100 days prior to the earlier of age 60 and accumulating 35 years of service. As a result, we have assumed that all such members will retire at age 60. If there are claimants who reach 35 years of service before age 60, then the Plan will realize a modest gain relative to the retirement assumption used.

For disabilities occurring on or after January 1, 2009:

- We have assumed that all members would retire at age 63. However, members who are over age 63 at the time of their disability, are assumed to stay on claim for 2 years. The selection of age 63 is meant to represent the aggregate expected experience of the Plan. Individual claimants will retire prior to or after age 63 depending on their own length of service under the Public Service Pension Plan (PSPP), or other pension plan as applicable.

Expenses

An implicit allowance has been made for investment related expenses as the discount rate of 3.0% is the expected rate of return on the Plan's assets net of investment-related expenses.

A liability for future administrative expenses on claims incurred as of the valuation date equal to 8.5% of expected benefit payments will be held in respect of claims incurred as of the valuation date. In the past, the Plan has held a future administrative expense liability in respect of future rehabilitation expenses for existing claims only. All other administrative expenses (excluding investment-related expenses), less EI rebates, were provided for in the current year premiums. For the current valuation, we have established an administrative expense liability that covers all future administrative expenses on incurred claims. The goal of this more inclusive approach is to establish a reserve capable of providing for all future administrative expenses on claims incurred as of the valuation date, independent of the on-going operation of the Plan. This approach is consistent with emerging actuarial best practices for benefit plans of this type.

The 8.5% provision is meant cover expenses related to ongoing claims management, the insurer's general fee and rehabilitation expenses. It is based on figures provided by Plan staff. While we do not have access to records that would allow us to independently verify this provision, based on a review of past financial statement and the operating costs of other similar programs, it is our opinion that this provision does not appear unreasonable.

Benefit Amount

The future benefits for current LTD claimants have been based on each member's net benefit as at the date of our data file (December 31, 2014), i.e. including all offsets in effect at that time. Additionally, we have assumed that pending CPP applications will be successful 70% of the time (consistent with the assumption in the most recent valuation and past experience for CPP claims pending) and have adjusted active claims liabilities for projected CPP recoveries from the date of disability forward. For disabilities occurring after January 1, 2009, we have assumed that, after three years on claim, the gross disability benefit payable increases from 65% to 70% of pre-disability income, in accordance with the terms of the Plan.

External Sources of Funding

While the majority of funding for the Plan is shared between the members and employer, the Plan also receives rebates from Employment Insurance (EI) on a regular basis. As well, the Plan realizes third party recoveries from time to time. As discussed below, we have assumed that EI rebates will continue and will be used to help cover current year administrative expenses (i.e. other than investment-related expenses) in the required premium calculation. We have not made any assumption regarding third party recoveries in the future and to the extent that they occur there would be a gain to the Plan.

Methodology

The methodologies used to calculate the liabilities based on the valuation assumptions are the same as those used for the previous valuation.

In-Force Claims

A liability was established for each disabled member in receipt of benefits as at the valuation date as the present value of expected future benefits taking into account probability of receiving each benefit payment based on the assumptions described above. As noted above, we have adjusted active claims liabilities for projected CPP recoveries from the date of disability to the valuation date.

The structure of the GLTD tables required that we rounded each claimant's duration at the valuation date to the nearest month. Further, the annual termination rates given for durations after two years were converted to equivalent monthly factors for the valuation projections. Finally, the rates for central age 62 were used for all claimants over age 60 at the time of their disability.

Incurred But Not Reported Claims

The liability for active claimants includes only those members in receipt of benefits as at the valuation date. We have therefore established a liability for Incurred But Not Reported claims (IBNR) for those claimants who were disabled as at the effective date of the valuation but either have not yet reported a claim or have reported a claim but have not yet been approved for benefits (i.e. are pending).

For the current valuation, we have updated the IBNR liability estimate based on the Plan's recent experience. We have based our current estimate on the Plan's actual IBNR claim experience since 2012. Specifically, we calculated

the cost (historical payments and future liability) for claims with dates of disability prior to December 31, 2012 which were not included in the previous valuation. The observed pattern and cost of IBNR claims from the 2012 valuation was then adjusted for changes in the volume of coverage to bring it to a basis consistent with the 2014 valuation.

Cost of New Claims

To determine an updated estimate of the cost of new claims, we proceeded as follows. For each calendar year beginning January 1, 2010 and ending December 31, 2014 (i.e. the most recent 5 calendar years), we determined the amount of funds that would have been sufficient to cover the costs (past and future) related to claims initiated in that particular year. Specifically, for claims that began in a particular calendar year, we discounted their corresponding benefit payments to the mid-point of the calendar in which the claims were made. We also discounted the applicable liability that was determined as at December 31, 2014 to the mid-point of the appropriate year. These calculations included the liability for incurred but not reported claims. The assumptions and methods used to calculate liabilities are the same as those described in this Appendix for the 2014 valuation.

In order to incorporate administrative expenses into the required premium calculation, the following adjustments were made:

- An 8.5% loading was applied to the estimated cost of new claims for to allow for future administrative expenses on those claims
- $1.2 million was added in order to provide for current year administrative costs
- $1.8 million was subtracted in order to account for expected EI rebates

The assumed current year administrative costs and EI rebates are based on the Plan's recent financial history.

Appendix B – Membership Data

The valuation date was obtained from the Plan's Disability Claims Manager (Manulife Financial) and was provided to us by Plan staff. There are two main data files required for the valuation. The first is a database of in-force claims which includes both benefit and offset amounts and claimant demographic information (gender, date of birth, date of disability, etc.). The second file is details on benefit payments by claim over the period January 1, 2013 to December 31, 2014. This second file is used in our cost of new disability claims and IBNR liability calculations.

We are not in a position to confirm that the data supplied is complete and accurate because we do not have access to independent records that would allow such verification. We do, however, apply checks of reasonableness, and have concluded that the data are sufficient and reliable for the purposes of the valuation.

The checks we applied were of three principal types, namely:

> To check the internal consistency of various data elements within each data set;

> To check the consistency of common or related data elements in different sets (including data supplied for the previous valuation or indexing calculations); and

> To check the consistency of various data elements with other separate information sources (e.g. data contained in the Plan's financial statements).

A few minor problems were identified and were resolved satisfactorily through provision of additional explanation or data by Manulife and Plan staff, as necessary.

Claims data at the current and previous valuation dates are summarized in the table below:

	December 31, 2012	December 31, 2014
Number of Active LTD Claims	562	534
Number of LTD Claims pre-May 2002	198	153
Average Age of Claimant	54.3	54.3
Average Bi-weekly Gross Benefit	$1,248	$1,317
Average Bi-weekly Net Benefit	$916	$964
Average Duration (months since disability)	100.5	101.1

A breakdown of the current active claimant population by benefit category is given below. Significant changes were made to the benefit provisions of the Plan on May 1, 2002 and again on January 1, 2009, resulting in three different sets of benefit provisions depending on a claimant's date of disability: Pre May 2002, May 2002 to December 2008, or Post December 2008. The information in the following table is broken down according to the benefit provisions applied to the current in-force claimant population. More information on the benefit provisions can be found in Appendix G or by referring to the official Plan document.

	Pre May 2002 Disabilities	May 2002 to Dec 2008 Disabilities	Post Dec 2008 Disabilities	Total
Number of Active Claims	153	99	282	534
Average Age	57.7	52.7	53.1	54.3
Average Bi-weekly Gross Benefit	$1,240	$1,263	$1,378	$1,317
Average Bi-weekly Net Benefit	$787	$824	$1,110	$964
Average Duration (months)	223.5	112.0	30.9	101.1

The next table shows a summary of the December 31, 2014 active claims by department. Note that the column on the far right shows the calculated actuarial liability for each subgroup. We observe that the Capital District Health Authority (which is closed to new Plan entrants) comprises the largest single liability pool.

Department Name	Number of Active LTD Claims	Number with CPP Offset	Number with Pending CPP Claim	Average Age (years)	Average Bi-weekly Gross Benefit	Average Bi-weekly Net Benefit	Total In-force Liability (000's)
Justice	70	48	9	53.4	$1,322	$991	8,355
Transportation and Infrastructure Renewal	64	41	3	58.0	$1,164	$870	4,517
Community Services	58	40	10	53.5	$1,507	$1,172	7,780
Service NS	31	20	6	49.6	$1,117	$828	4,197
Environment	18	13	0	54.7	$1,399	$1,044	2,040
Health and Wellness	15	12	2	52.5	$1,314	$936	1,661
Natural Resources	13	11	1	57.2	$1,224	$787	1,138
Education and Early Childhood Development	13	12	1	50.2	$1,330	$941	2,059
Agriculture	11	8	3	55.8	$1,613	$1,268	1,378
Economic, Rural Development and Tourism	11	8	2	52.9	$1,145	$849	941
All Other Nova Scotia Government	31	22	5	54.7	$1,682	$1,327	4,760
Subtotal for Nova Scotia Government Bodies	*335*	*235*	*42*	*54.2*	*$1,342*	*$1,010*	*38,827*
CDHA	115	104	1	54.9	$1,297	$863	13,502
NSCC	30	21	4	54.0	$1,081	$782	2,337
Cape Breton District Health Authority	11	9	1	57.2	$1,523	$1,139	1,100
Dalhousie University Faculty of Agriculture	10	6	2	53.3	$1,251	$933	1,007
All Other Departments	33	25	2	53.5	$1,295	$967	3,835
TOTAL	**534**	**400**	**52**	**54.3**	**$1,317**	**$964**	**60,609**

**Numbers may not add up exactly due to rounding*

The premium amounts paid in respect of 2014 (including EI rebates) is shown below for the largest employers in the Plan. Note that the total premiums paid for the Province of Nova Scotia are not split out by department. For reference, a list of departments included in the Province of Nova Scotia is also provided. The 2014 premium information was provided by the Plan's Auditor.

Participating Employer	2014 Paid Premiums and EI Rebates
Province of Nova Scotia	11,434,000
CDHA	1,234,000
NS Community College	799,000
NS Legal Aid	267,000
Dalhousie Agriculture College	233,000
Cape Breton District Health Authority	227,000
Guysborough Antigonish Strait Health Authority	135,000
Property Valuation Services Corp.	111,000
All Other Participating Employers	858,000
TOTAL	**15,298,000**

Departments Included Under the Province of Nova Scotia	
Aboriginal Affairs	Labour & Advanced Education
Agriculture	Legislative Services
Cape Breton Cabinet	NS Business Inc.
Chief Information Office	NS Pension Agency
Communications Nova Scotia	NS Police Complaint's Commission
Communities, Culture & Heritage	NS Securities Commission
Community Services	Natural Resources
Economic & Rural Development & Tourism	Office of the Auditor General
Education	Office of the Legislative Counsel
Energy	Office of the Ombudsman
Environment	Office of the Premier
Executive Council	Policy and Planning
Finance	Public Prosecution Service
Fisheries & Aquaculture	Public Service Commission
FOIPOP Review Office	Seniors
Health & Wellness	Service NS & Municipal Relations
Human Rights Commission	Trade Centre Limited
Intergovernmental Affairs	Transportation & Infrastructure Renewal
Justice	Treasury Board Office

Appendix C – Plan Assets

The custodian of Plan assets is CIBC Mellon. The assets are managed by Beutel Goodman.

The following shows the progress of the fund (in $1,000's) over the previous two calendar years, from January 1, 2013 to December 31, 2014, with investments shown at market value. This information was obtained from the Plan's financial statements.

Calendar Year	2013	2014
Opening Value ($1,000's) as at Jan. 1st	127,804	136,954
Plus		
> Premiums	13,215	13,627
> Investment Income	10,019	9,452
> EI Rebates	1,763	1,671
Less		
> Benefits paid (net of recoveries)	(13,027)	(13,365)
> Non-investment fees and expenses	(2,463)	(2,183)
> Investment management & custodian fees	(357)	(410)
Closing Value as at Dec. 31st	**136,954**	**145,746**

The breakdown of the net assets is as follows:

	December 31, 2012	December 31, 2014
Assets ($1,000's)		
> Investments, Market Value	125,250	144,567
> Cash	3,324	4,746
> Accounts Receivable	1,228	815
> Fixed Assets	21	14
Total Assets	**129,823**	**150,142**
Liabilities		
> Accounts Payable	(2,019)	(4,396)
> Other Current Liabilities	-	-
Total Liabilities	(2,019)	(4,396)
Net Fund Value	**127,804**	**145,746**

The investment asset of $144,567,000 at the valuation date is comprised of $91,937,000 in the liability-hedging portfolio and $52,630,000 in the return-generating portfolio.

The current net fund value as at December 31, 2014 of $145,746,000 represents a $17,942,000 increase from the net fund value of $127,804,000 at the date of the previous valuation on December 31, 2012. The Plan generated investment returns above the 3.0% discount rate assumed in the prior valuation during 2013 and 2014, achieving a net average annual rate of return equal to 7.1% over those two years.

Appendix D – MCCSR Calculation Details

Nova Scotia Public Service Long Term Disability Plan Trust Fund Surplus Adequacy Test as at Dec. 31, 2014 ($ millions)				
	Exposure	Factor	Requirement (120%)	Minimum (150%)
ASSET RISK				
Asset Default (C-1) & Currency Risk				
Liability-Hedging Portfolio				
Fixed Income Assets	98.8	1%	1.2	1.5
Return-Generating Portfolio				
Fixed Income Assets	21.1	1%	0.3	0.3
Canadian Equity	14.1	15%	2.5	3.2
Global Equity	11.7	23%	3.2	4.0
Total C-1	145.7		7.2	9.0
Interest Rate Change (C-3) Risk				
Liability	76.0	1%	0.9	1.1
Total Asset Risk (C3 + C1)			**8.1**	**10.1**
MORBIDITY RISK				
New Claims Risk				
Cost of New Claims (2015 estimate)	13.7	25%	4.1	5.1
Continuing Claims Risk				
Liability	76.0	6%	5.5	6.8
Total Morbidity Risk			**9.6**	**11.9**
MINIMUM REQUIRED SURPLUS				22.0
	Total Assets			145.7
	Total Liability			76.0
	Total Surplus			69.7
	Minimum Required Surplus			22.0
	Residual Surplus			47.7

Appendix E – Funding Policy Details

The funding policy establishes a target contingency reserve to cover the major financial risks to the Plan, other than investment risk. The Board has addressed investment risk by implementing a liability-hedging strategy with part of its investment assets. Excluding investment risk, an in-depth review of the Plan revealed its finances are most sensitive to the following:

- Risk that in-force claims stay on claim longer than expected (i.e. return to work or retire later than anticipated); and
- Risk that new claim costs (i.e. number of claims and/or average cost per claim) are higher than expected.

Development of the policy involved modeling adverse scenarios in each of these risk factors and determining the amount of funds required to withstand the postulated adverse experience. The policy was designed such that the Plan can withstand reasonably adverse experience to its main risk factors for five years before having to respond (either through premium increases, suspension of benefit indexing, and/or benefit reductions). The policy assumes that the Plan will continue to operate as an ongoing entity and, as such, considers the balance between premium revenue and anticipated new claim costs going forward.

The policy contains three major components:

(1) Base Margin – This is designed to protect benefits payable to in-force claims, along with future ad hoc inflation increases, in the event that existing claims remain in receipt of benefits for longer than anticipated. In order to fund the estimated cost of an adverse change in claim duration, plus protect indexing of existing claims, the required Base Margin was determined to be equal to 30% of current base benefit liabilities (i.e. benefit liabilities excluding any amount for future indexation of benefits).

(2) Claims Fluctuation Reserve (CFR) – This is designed to protect against increasing new claims costs due to higher numbers of claims and/or increased average cost per claim. In order to withstand a 30% increase in claims costs for five years, the CFR was set equal to 150% of the most recent estimate of the new claim costs for the Plan (150% = 30% increase in costs per year for 5 years).

(3) Asset Adjustment – This is designed to adjust Trust assets for any margin or deficiency in Plan premiums versus anticipated claims costs over the next 5 years. The Asset Adjustment is five times the current annual premium margin or deficiency.

The Plan’s Target Contingency Reserve is determined as the sum of 1 and 2 above. Adjusted Assets are equal to the assets in the Trust Fund plus (or minus) the Asset Adjustment determined in 3. The Plan’s adjusted funding margin can be determined as Adjusted Assets less current plan base liabilities. Finally, the Plan’s Contingency Reserve Funded Ratio is equal to its adjusted funding margin divided by the Target Contingency Reserve.

A summary of Plan's funding policy results as at the valuation date are given in the table below.

Component		$ Millions
a. Expected New Claim Costs		13.4
b. Current Premiums		13.6
c. Assets		145.7
d. Asset Adjustment (5 x (b – a))	1.0	
e. Adjusted Assets (c + d)		146.7
f. Base liabilities		76.0
g. Base Margin (30% x f)	22.8	
h. Claims Fluctuation Reserve (1.5 x a)	20.1	
i. Target Contingency Reserve (g + h)		42.9
j. Adjusted Funding Margin (e – f)		70.7
k. Residual Margin (j – i)		27.8
l. Contingency Reserve Funding Ratio (j / i)		165%

Appendix F – Cash Flow Projection Methodology

The cash flows illustrated in Section 4 of this report were estimated by projecting the cash inflows generated by the assets in the Plan's liability-hedging portfolio and the expected cash outflows required to pay disability claims. The specific details of the projection methodology are as follows:

Asset Cash Flows (Inflows):

- Assumes a liability-hedging portfolio balance of $98.8 million (130% of Plan liabilities of $76.0 million)
- Do not incorporate any additional premiums paid in respect of coverage after December 31, 2014
- Assume that assets in the liability-hedging portfolio are invested according to their benchmark, that is 10% T-Bills and 90% FTSE TMX Universe Bond Index
- Are based on the characteristics (coupon, par value, maturity) of the actual bonds that make up the FTSE TMX Universe Bond Index

Liability Cash Flows (Outflows):

- Reflect total liabilities of $76.0 million as at December 31, 2014
- Do not incorporate any additional claims incurred after December 31, 2014
- Do not include any provision for future CPI indexing after January 1, 2015
- Assume that all other factors affecting future claims payments (i.e. claims termination rates, CPP disability approvals, etc.) are as assumed in the 2014 actuarial valuation

Appendix G – Summary of Plan Provisions

The following is a summary of the main provisions of the Plan. For an authoritative statement please review the official Plan document.

Eligibility and Level of Benefit

In order to qualify for LTD benefits, an employee must first be disabled to the extent of being unable to perform the regular duties of his occupation for 100 consecutive work days. Following completion of this elimination period:

If the disability occurred before May 1, 2002, an employee will be eligible to receive LTD benefits for up to 30 months as long as he continues to be unable to perform his own occupation. Thereafter, an employee continues to be eligible for LTD benefits, but not beyond age 65, provided he is unable to perform the duties of any occupation for which the employee is or may become suited through education, training, experience or rehabilitation, which occupation pays not less than 80% of the current rate of the position, class and step he held immediately prior to disability.

The bi-weekly LTD benefit is 70% of the employee's salary at time of disability, to a maximum of $2,000.

If the disability occurred after April 30, 2002, an employee will be eligible to receive LTD benefits for up to 24 months as long as he continues to be unable to perform his own occupation. Thereafter, an employee continues to be eligible for LTD benefits, but not beyond age 60, provided he is unable to perform the duties of any occupation for which the employee is or may become suited through education, training, experience or rehabilitation, which occupation pays not less than 75% of the current rate of the position, class and step he held immediately prior to disability.

The bi-weekly LTD benefit is 65% of the employee's salary at time of disability, to a maximum of $3,000.

Benefit Offsets

The benefits are reduced by:

1) the amount of disability benefit entitlement, excluding children's benefits, under the Canada Pension Plan at the date of disability;
2) the amount of benefits payable from any other group disability plan or pension plan, sponsored by the Employer;
3) 50% of the amount of income received from rehabilitative employment;
4) the amount of Workers' Compensation payments, except permanent partial disability awards;
5) the amount of benefits payable from any disability plan sponsored by any employer, since inception of this Plan;
6) the amount of benefits payable as a result of a disability which occurred at work and is deemed to be less than 70 percent compensable by the Workers' Compensation Board;

7) the amount of income received by an employee from self-employment as set out in guidelines made pursuant to this Plan;

8) the amount of earnings recovered through a legally enforceable cause of action against some other person or corporation.

Termination of Benefits

Benefits terminate on the earliest of:

1) the date the employee returns to work;

2) the date the employee ceases to qualify for LTD benefits, as defined under the Plan;

3) death;

4) attainment of age 65 for claims incurred before May 1, 2002 and the earlier of attaining age 60 and 35 years of service otherwise, and

5) upon the effective date of the employee's early retirement under the PSSP.

Termination of Employee's Coverage

Termination of coverage on or after May 1, 2002 for employees at work takes effect on the earliest of:

1) 100 working days prior to the end of the month in which the employee attains age 60;

2) The date the employee occupies a position that is not eligible for coverage in accordance with the terms of the Plan;

3) The date of the employee's termination or retirement from service.

Rehabilitation

The Plan makes provision for rehabilitation employment opportunities where deemed appropriate. For employees who qualify for rehabilitation employment, their LTD benefit will be reduced by 50% of their rehabilitation income. There is a further stipulation that where the total of LTD and any rehabilitation income exceeds the current rate of pay for the position and class held by the employee immediately prior to his date of disability, the LTD benefit shall be reduced in order that such total not exceed 100% of such rate of pay.

Other Benefits

While an employee is on LTD:

1) He continues to earn credited service under the Superannuation Plan; his employee contribution is deducted from his LTD benefit, and the employer's contribution is paid directly by the employer;

2) Coverage under the consolidated health care program will continue for employees who participated in the program at the commencement of their elimination period; the premiums for this program are paid by the employer; and

3) Premiums for the group life insurance plans are paid by the employer.

Appendix H – Employer Certification

With respect to the actuarial valuation report of the Nova Scotia Public Service Long Term Disability Plan as at December 31, 2014, we hereby confirm that to the best of our knowledge:

- the data regarding Plan members provided to Morneau Shepell constitutes a complete and accurate description of the information contained in our files;
- the summary of Plan assets contained in this report is accurate;
- 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;
- there are no subsequent events nor any extraordinary changes to the membership other that those listed in the December 31, 2014 actuarial report on the Plan, which would materially affect the results.

Nova Scotia Public Service

Signature

CEO

Title

May 6, 2015

Date