



Office of the Superintendent of
Financial Institutions Canada

Bureau du surintendant des
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Office of the Chief Actuary

Bureau de l'actuaire en chef



ACTUARIAL REPORT

on the Pension Plan for the

PUBLIC SERVICE OF CANADA

as at 31 March 2014

Office of the Chief Actuary

Office of the Superintendent of Financial Institutions Canada

12th Floor, Kent Square Building

255 Albert Street

Ottawa, Ontario

K1A 0H2

Facsimile: **613-990-9900**

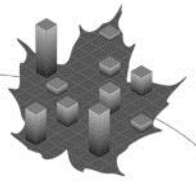
E-mail: **oca-bac@osfi-bsif.gc.ca**

Web site: **www.osfi-bsif.gc.ca**

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29 September 2015

The Honourable Tony Clement, P.C., M.P.
President of the Treasury Board
Ottawa, Canada
K1A 0R5

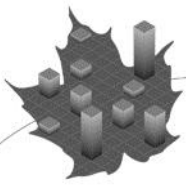
Dear Minister:

Pursuant to section 6 of the *Public Pensions Reporting Act*, I am pleased to submit the report on the actuarial review as at 31 March 2014 of the pension plan for the Public Service of Canada. This actuarial review is in respect of pension benefits and contributions which are defined by Parts I, III and IV of the *Public Service Superannuation Act*, the *Special Retirement Arrangements Act* and the *Pension Benefits Division Act*.

Yours sincerely,

A handwritten signature in black ink that reads "Jean-Claude Ménard". The signature is written in a cursive, flowing style.

Jean-Claude Ménard, F.S.A., F.C.I.A.
Chief Actuary
Office of the Chief Actuary



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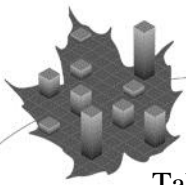
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I. Executive Summary

This actuarial report on the pension plan for the Public Service of Canada (PS pension plan) was made pursuant to the *Public Pensions Reporting Act* (PPRA).

This actuarial valuation is as at 31 March 2014 and is in respect of pension benefits and contributions defined by Parts I, III and IV of the *Public Service Superannuation Act* (PSSA), the *Special Retirement Arrangements Act* (SRAA), which covers the Retirement Compensation Arrangement (RCA), and the *Pension Benefits Division Act* (PBDA).

The previous actuarial report was prepared as at 31 March 2011. The date of the next periodic review is scheduled to occur no later than 31 March 2017.

A. Purpose of Actuarial Report

The purpose of this actuarial valuation is to determine the state of the Public Service Superannuation Account, Pension Fund and Retirement Compensation Arrangements Accounts, as well as to assist the President of the Treasury Board in making informed decisions regarding the financing of the government's pension benefit obligation.

B. Valuation Basis

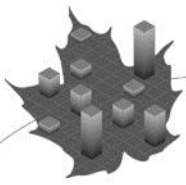
The *Jobs and Growth Act, 2012* (S.C. 2012, c. 31) received Royal Assent on 14 December 2012. Division 23 of Part 4 of the *Jobs and Growth Act, 2012* (S.C. 2012, c. 31) amends the *Public Service Superannuation Act* by increasing the pensionable age by five years for contributors entering the plan on or after 1 January 2013, and by gradually increasing the maximum share of the current service cost contribution for contributors from 40% to 50%.

There have been no other changes to the plan provisions since the previous valuation. This report is based on pension benefit provisions enacted by legislation, summarized in Appendices 1 and 2.

The financial data on which this valuation is based are composed of invested assets that the government has earmarked for the payment of benefits for service since 1 April 2000 (the Pension Fund); the Superannuation Account established to track the government's pension benefit obligations for service prior to 1 April 2000; and the RCA Account for benefits in excess of those that can be provided under the *Income Tax Act* limits for registered pension plans. These pension assets and account balances are summarized in Appendix 3. The membership data provided by the Department of Public Works and Government Services Canada (PWGSC) is summarized in Appendix 4.

The valuation was prepared using accepted actuarial practices in Canada. The valuation methodology, shown in Appendix 5, is based on the methodology of the Actuarial Report as at 31 March 2011, with modifications to account for the two separate groups of members (pre-2013 and post-2012, hereinafter referred to as Group 1 and Group 2, respectively, as described in Appendix 1).

All actuarial assumptions used in this report are best-estimate assumptions. They are, individually and in aggregate, reasonable for the purposes of the valuation at the date of this report.



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Actuarial assumptions used in the previous report were revised based on economic trends and demographic experience. Additional best-estimate demographic assumptions were required for Group 2 contributors to account for the deferral of the immediate pension by five years. A complete description of the assumptions is shown in Appendices 6 to 8. Table 1 presents a summary of the ultimate economic assumptions used in this report and a comparison with those used in the previous report.

Table 1 Ultimate Best-Estimate Economic Assumptions

	31 March 2014	31 March 2011
Assumed level of inflation	2.0%	2.3%
Real increase in average pensionable earnings	0.9%	1.2%
Real rate of return on the Pension Fund	4.1%	4.1%
Real projected yield on the Superannuation Account	2.8%	2.7%

C. Main Findings

The proposed amounts to be credited to (or debited from) the accounts and the Pension Fund are shown on a calendar year basis in this section, beginning with calendar year 2016, which is the first calendar year that follows the expected tabling of this report. Valuation results on a plan year¹ basis are shown in Section II.

1) Superannuation Account (Service prior to 1 April 2000)

As at 31 March 2014, the balance of the Superannuation Account is \$96,530 million and the actuarial liability for service prior to 1 April 2000² is \$97,211 million. The resulting shortfall is \$681 million.

In accordance with the PSSA, the actuarial shortfall could be amortized over a maximum period of 15 years beginning on 31 March 2016. If the shortfall is amortized over the maximum period, 15 equal annual credits of \$65 million could be made to the Superannuation Account. The time, manner and amount of such credits are to be determined by the President of the Treasury Board.

2) Pension Fund (Service since 1 April 2000)

a) Current Service Cost³

The estimated PSSA total current service cost, borne jointly by the contributors and the government, is \$4,339 million for calendar year 2016. The estimated member⁴ contributions are \$2,024 million and the estimated government contributions are \$2,315 million for calendar year 2016. The Pension Fund administrative expenses are \$48 million (included in the total current service cost) for calendar year 2016.

Table 2 shows the projected current service cost, the projected current service cost expressed as a percentage of the expected pensionable payroll⁵ and the ratio of

¹ Any reference to a given plan year in this report should be taken as the 12-month period ending 31 March of the given year.

² The actuarial liability for service prior to 1 April 2000 refers to the actuarial liability for service accrued prior to that date except for service elections since 1 April 2000 that are deemed to be service accrued since that date.

³ Also called normal cost.

⁴ Any reference to *member* in this report should be read as *contributor* as defined in the PSSA.

⁵ Pensionable payroll means the aggregate of pensionable earnings of all contributors with less than 35 years of service.



government current service cost to contributor current service cost for the three calendar years following the expected tabling of this report. Tables 3 and 4 show the same results for Group 1 and Group 2, respectively.

Projected current service costs shown in these tables are based on the member contribution rates shown in Appendix 1.

Table 2 PSSA Current Service Cost on a Calendar Year Basis

Calendar Year	Current Service Cost (% of pensionable payroll)			Current Service Cost (\$ millions)			Ratio of Government to Contributor Current Service Cost
	Contributors	Government	Total	Contributors	Government	Total	
2016	9.49	10.86	20.35	2,024	2,315	4,339	1.14
2017	9.93	10.23	20.16	2,196	2,264	4,460	1.03
2018	9.95	10.04	19.99	2,295	2,316	4,611	1.01

Table 3 PSSA Current Service Cost on a Calendar Year Basis – Group 1

Calendar Year	Current Service Cost (% of pensionable payroll)			Current Service Cost (\$ millions)			Ratio of Government to Contributor Current Service Cost
	Contributors	Government	Total	Contributors	Government	Total	
2016	9.66	11.10	20.76	1,812	2,081	3,893	1.15
2017	10.17	10.51	20.68	1,881	1,945	3,826	1.03
2018	10.26	10.37	20.63	1,877	1,898	3,775	1.01

Table 4 PSSA Current Service Cost on a Calendar Year Basis – Group 2

Calendar Year	Current Service Cost (% of pensionable payroll)			Current Service Cost (\$ millions)			Ratio of Government to Contributor Current Service Cost
	Contributors	Government	Total	Contributors	Government	Total	
2016	8.21	9.08	17.29	212	234	446	1.10
2017	8.67	8.81	17.48	315	319	634	1.01
2018	8.76	8.76	17.52	418	418	836	1.00

b) Financial Position and Amortization of Actuarial Surplus (Deficit)

As at 31 March 2014, the actuarial value of the assets in respect of the Pension Fund is \$63,151 million and the actuarial liability is \$66,775 million, resulting in an actuarial deficit of \$3,624 million.

In accordance with the PSSA, the actuarial deficit can be amortized over a period of up to 15 years, such that the amount that, in the opinion of the President of the Treasury Board will, at the end of the fifteenth fiscal year following the tabling of the report, or at the end of the shorter period that the President of the Treasury Board may determine, together with the amount that the President of the Treasury Board estimates will be to the credit of the Pension Fund at that time, meet the cost of the benefits payable in respect of pensionable service after 1 April 2000.

Taking into account the actuarial smoothing adjustment, the actuarial deficit of \$3,624 million could be amortized with 15 equal annual payments of \$340 million, beginning on 31 March 2016. If the actuarial smoothing adjustment of \$6,243 million is not taken into account in the determination of the amortization payments, this would result in an actuarial surplus of



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\$2,619 million, and no special payments would be required beginning on 31 March 2016. However, the final time, manner and amount of any special payments are to be determined by the President of the Treasury Board.

c) Non-permitted Actuarial Surplus

If there exists, in the opinion of the President of the Treasury Board, a non-permitted actuarial surplus¹ in the Pension Fund, no further government contributions are permitted. Future member contributions to the Fund may also be reduced in a manner determined by the Treasury Board or the non-permitted actuarial surplus may be paid out of the Pension Fund and into the Consolidated Revenue Fund. The results of this valuation do not indicate the existence of a non-permitted actuarial surplus as at 31 March 2014.

3) RCA No. 1 Account

As at 31 March 2014, the balance of the RCA No. 1 Account is \$2,061 million and the actuarial liability is \$2,073 million, resulting in a shortfall of \$12 million.

In accordance with the SRAA and based on half the yield projected on the Superannuation Account shown in Appendix 6, the actuarial shortfall could be amortized over a maximum period of 15 years beginning 31 March 2016. If the shortfall is amortized over the maximum period, 15 equal annual credits of \$1 million could be made to the RCA No.1 Account. The time, manner and amount of such credits are to be determined by the President of the Treasury Board.

The estimated total current service cost with respect to the RCA No. 1 Account, borne jointly by the contributors and the government, is \$99 million for calendar year 2016 and is estimated to be \$104 million and \$110 million for the following two calendar years. Table 5 also shows the projected current service cost as a percentage of expected pensionable payroll and the ratio of government current service cost to contributor current service cost for the three calendar years following the expected tabling of this report.

Table 5 RCA No. 1 Current Service Cost on a Calendar Year Basis

Calendar Year	Current Service Cost (% of pensionable payroll)			Current Service Cost (\$ millions)			Ratio of Government to Contributor Current Service Cost
	Contributors	Government	Total	Contributors	Government	Total	
2016	0.06	0.40	0.46	13	86	99	6.6
2017	0.06	0.41	0.47	13	91	104	7.0
2018	0.06	0.42	0.48	14	96	110	6.9

¹ A non-permitted actuarial surplus exists when the amount by which the actuarial value of assets exceeds liabilities for service since 1 April 2000 is greater than the lesser of (a) and (b), where:

(a) is 20% of the amount of liabilities for service since 1 April 2000, and

(b) is the greater of (i) and (ii) where:

(i) is twice the estimated amount, for the calendar year following the date of that report, of the total of

(A) the current service cost contributions that would be required of contributors, and

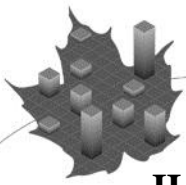
(B) the current service cost contributions that would be required of the government, and

(ii) is 10% of the amount of liabilities for service since 1 April 2000.

**4) RCA No. 2 Account**

As at 31 March 2014, the balance of the RCA No. 2 Account is \$1,464 million and the actuarial liability is \$1,593 million resulting in a shortfall of \$129 million.

In accordance with the SRAA and based on half the yield projected on the Superannuation Account shown in Appendix 6, the actuarial shortfall could be amortized over a maximum period of 15 years beginning 31 March 2016. If the shortfall is amortized over the maximum period, after taking into account the credit of \$8.0 million scheduled to be made on 31 March 2015, beginning on 31 March 2016, 15 equal annual credits of \$10 million could be made to the RCA No. 2 Account. The time, manner and amount of such credits are to be determined by the President of the Treasury Board.



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II. Valuation Results

This report is based on the pension benefit provisions enacted by legislation, summarized in Appendices 1 and 2, and the financial and membership data, summarized in Appendices 3 and 4, respectively. The valuation was prepared using accepted actuarial practices, methods and assumptions summarized in Appendices 5 to 8. Emerging experience that differs from the corresponding assumptions will result in gains or (losses) to be revealed in subsequent reports.

Projections of the financial positions of the Superannuation Account and the Pension Fund are shown in Appendices 9 and 10, respectively.

A. PSSA – Financial Position

Beginning on 1 April 2000, member and government contributions to the PS pension plan are no longer credited to the Public Service Superannuation Account. Rather, they are credited to the Public Service Pension Fund, and the total amount of contributions net of benefits paid and administrative expenses is transferred to the Public Sector Pension Investment Board (PSPIB) and invested in the financial markets. The valuation results of this section show the financial position for both PSSA financing arrangements as at 31 March 2014. The results of the previous valuation are also shown for comparison.

Table 6 State of the Superannuation Account
(Service prior to 1 April 2000)
(\$ millions)

	31 March 2014	31 March 2011
Recorded Account balance	96,424	95,782
Present value of prior service contributions	106	145
Total	96,530	95,927
Actuarial Liability		
Active contributors	23,369	29,860
Non-active contributors	99	733
Retirement pensioners	64,135	53,296
Termination with no option	-	96
Disability pensioners	2,659	2,334
Surviving dependents	6,273	6,083
Outstanding payments	30	-
Administrative expenses	646	628
Pension Modernization Cost	-	27
Total Actuarial Liability	97,211	93,057
Actuarial Excess/(Shortfall)	(681)	2,870

In accordance with the PSSA, the actuarial shortfall of \$681 million could be amortized over a maximum period of 15 years beginning on 31 March 2016. If the shortfall is amortized over the maximum period, 15 equal annual credits of \$65 million could be made to the Superannuation Account. The time, manner and amount of such credits are to be determined by the President of the Treasury Board.

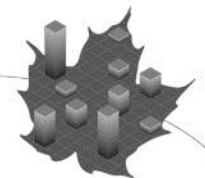


Table 7 Balance Sheet – Pension Fund
(Service Since 1 April 2000)
(\$ millions)

	31 March 2014	31 March 2011
Assets		
Market value of assets	68,668	42,530
Actuarial smoothing adjustment	(6,243)	(765)
Present value of prior service contributions	726	660
Total actuarial value of assets	63,151	42,425
Actuarial Liability		
Active contributors	47,494	36,912
Non-active contributors	58	449
Retirement pensioners	17,703	8,814
Termination with no option	-	38
Disability pensioners	936	458
Surviving dependents	381	165
Outstanding payments	203	-
Pension Modernization Cost	-	13
Total Actuarial Liability	66,775	46,849
Actuarial Surplus/(Deficit)	(3,624)	(4,424)

In accordance with the PSSA, the actuarial deficit could be amortized over a maximum period of 15 years beginning on 31 March 2016. Taking into account the actuarial smoothing adjustment and the credit of \$435 million scheduled to be made on 31 March 2015, the actuarial deficit of \$3,624 million could be amortized with 15 equal annual payments of \$340 million, beginning on 31 March 2016. If the actuarial smoothing adjustment of \$6,243 million is not taken into account in the determination of the amortization payments, this would result in an actuarial surplus of \$2,619 million, and no special payments would be required beginning on 31 March 2016.

The actuarial smoothing adjustment of \$6,243 million will disappear over the next five years as the unrecognized investment gains are gradually recognized.



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B. PSSA – Reconciliation of the Changes in Financial Position

Table 8 shows the reconciliation of the changes in the financial positions of the Superannuation Account and the Pension Fund. Explanations of the elements largely responsible for the changes follow the table.

Table 8 Reconciliation of PSSA Financial Position
(\$ millions)

	Superannuation Account Actuarial Excess/(Shortfall)	Pension Fund Actuarial Surplus/(Deficit)
As at 31 March 2011	2,870	(4,424)
Recognized investment gains as at 31 March 2011	-	765
Retroactive changes to the population data	(50)	294
Expected interest on initial financial position	513	(594)
Net experience gains and (losses)	98	8,014
Revision of actuarial assumptions	(4,063)	(1,546)
Change in the present value of administrative expenses	(83)	-
Change in the benefit provisions	(19)	(145)
Change in the present value of prior service contributions	53	255
Unrecognized investment gains as at 31 March 2014	-	(6,243)
As at 31 March 2014	(681)	(3,624)

1) Recognized Investment Gains as at 31 March 2011

An actuarial asset valuation method that minimizes the impact of short-term fluctuations in the market value of assets was used in the previous valuation report, causing the actuarial value of the Pension Fund assets to be \$765 million less than their market value.

2) Retroactive Changes to the Population Data

The population data maintained by PWGSC is constantly subject to retroactive changes such as new bargaining agreements. The population data as at 31 March 2014 also reflects changes associated with the plan administrator's implementation of a new pension administration system that required a migration of the old system data.

3) Expected Interest on Initial Financial Position

After factoring in the retroactive changes to the population data, the expected interest to 31 March 2014 on the Superannuation Account actuarial excess of \$2,820 million as at 31 March 2011 amounted to \$513 million. After recognizing the retroactive changes to the population data and the recognized investment gains, the expected interest to 31 March 2014 on the resulting Pension Fund actuarial deficit of \$3,365 million as at 31 March 2011 amounted to \$594 million. These amounts of interest were based on the Superannuation Account and Pension Fund yields projected in the previous report for the three-year intervalation period.



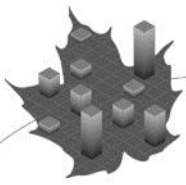
4) Experience Gains and (Losses)

Since the previous valuation, experience gains and (losses) have increased the Superannuation Account actuarial excess as at 31 March 2011 by \$98 million and have decreased the Pension Fund actuarial deficit as at 31 March 2011 by \$8,014 million. The experience gain and (loss) items having the most significant effect are shown in Table 9.

Table 9 Experience Gains and (Losses)
(\$ millions)

	Superannuation Account	Pension Fund
Demographic experience (i)		
New members	(60)	(89)
Retirements	(610)	(250)
Non-disabled pensioner terminations	52	75
Deaths with an annuity	(6)	2
Terminations with an annuity	28	121
Non-disabled pensioner deaths	(110)	(9)
Deaths with a return of contributions or a transfer value	(10)	(4)
Terminations with a return of contributions or a transfer value	(32)	134
Disabilities with an annuity	(29)	(60)
Disabled pensioner deaths	5	0
Widow(er) deaths	51	1
Total	(721)	(79)
Investment earnings (ii)	(168)	7,123
Promotional and seniority increases (iii)	552	216
Cost/contributions difference (iv)	19	201
Pension indexation (v)	825	180
Expected/actual disbursements (vi)	(142)	(60)
YMPE increases	(7)	(10)
Administrative expenses	(7)	6
Pension Benefit Division	(41)	(29)
Outstanding payments	(30)	(203)
Amounts credited on basis of actuarial valuation	0	895
Miscellaneous	(182)	(226)
Experience Gains and (Losses)	98	8,014

- (i) The net impact of the demographic experience increased the Superannuation Account actuarial liabilities by \$721 million and the Pension Fund actuarial liabilities by \$79 million. These increases in liability were largely due to the more than expected retirements with immediate annuity or annual allowance during the intervaluation period.
- (ii) The rates of interest credited to the Superannuation Account were in aggregate smaller than the corresponding projected Account yields in the previous valuation; consequently the experience loss was \$168 million. The financial markets returned less than expected for plan year 2012, showing a 3.0% return;



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however, the markets rebounded during plan years 2013 and 2014 with returns of 10.7% and 16.3% compared to expected returns of 5.5% and 5.7%. Consequently, the Pension Fund experienced an investment gain of \$7,123 million over the three-year intervaluation period.

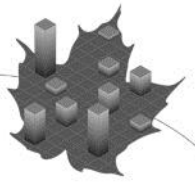
- (iii) Lower than expected promotional salary increases resulted in a decrease of \$552 million in the Superannuation Account actuarial liabilities and a decrease of \$216 million in the Pension Fund actuarial liabilities.
- (iv) Higher than expected contributions, mostly from the higher than anticipated number of new entrants, resulted in an increase of \$19 million in the Superannuation Account actuarial excess as at 31 March 2011 and a decrease of \$201 million in the Pension Fund actuarial deficit as at 31 March 2011 .
- (v) The January 2012 and 2013 pension benefit indexation rates were lower than the projected pension indexing by 1.5% and 0.6% respectively, which resulted in an \$825 million increase in the Superannuation Account actuarial excess as at 31 March 2011. The impact on the Pension Fund actuarial deficit as at 31 March 2011 was a decrease of \$180 million.
- (vi) Greater than anticipated pension payments resulted in a decrease of \$142 million in the Superannuation Account actuarial excess as at 31 March 2011 and an increase of \$60 million in the Pension Fund actuarial deficit as at 31 March 2011.

5) Revision of Actuarial Assumptions

Actuarial assumptions were revised based on economic trends and demographic experience as described in Appendices 6 and 7. This revision has increased the Superannuation Account actuarial liabilities by \$4,063 million and increased the Pension Fund actuarial liabilities by \$1,546 million. The impact of these revisions is shown in Table 10 with the most significant items discussed thereafter.

Table 10 Revision of Actuarial Assumptions
(\$ millions)

Assumption	Superannuation Account	Pension Fund
Economic assumptions		
Pension indexation	2,261	1,889
Increase in average pensionable earnings	446	2,143
Rates of return	(6,414)	(5,304)
Total	(3,707)	(1,272)
Pensioner mortality rates	(742)	(381)
Survivor mortality rates	677	123
Mortality improvement factors	(472)	(213)
Age difference between spouses	194	65
Seniority and promotional salary increases	22	165
Disabled pensioner mortality rates	(31)	(19)
Proportion married at death	(10)	25
Other items	6	(39)
Net impact of revision	(4,063)	(1,546)



The net impact of the revision of the assumptions is largely attributable to the changes in economic assumptions as well as the new longevity improvement factors.

The following revisions were made to the economic assumptions used in the previous report:

- ultimate level of inflation decreased from 2.3% to 2.0%;
- ultimate real increase in average earnings decreased from 1.2% to 0.9%;
- ultimate real projected yield on the Superannuation and RCA Accounts increased from 2.7% to 2.8%;
- real new money rates and real rates of return are lower over the first seven years of the projection than assumed in the previous valuation (see Appendix 6 for more information).

Details of the changes in economic assumptions are described in Appendix 6.

6) Change in the Present Value of Administrative Expenses

The previous report annual administrative expense assumption of 0.4% of total pensionable payroll is increased to 0.5% in this report. This increase is based on an analysis of the trend in administrative expenses charged to both the Superannuation Account and the Pension Fund over the last five years.

For plan year 2015, 60% of total administrative expenses are being charged to the Superannuation Account; it is assumed that the proportion charged to the Superannuation Account will continue to reduce at the rate of 2.8% per year as in the previous report. The additional 0.1% of annual administrative expenses resulted in a decrease of \$83 million of the Superannuation Account actuarial excess as at 31 March 2011.

7) Change in the Benefit Provisions

This represents changes to the liabilities as of 31 March 2014 due to the introduction of the Group 2 benefit provisions.

8) Change in the Present Value of Prior Service Contributions

The expected total government cost is shown in Table 24 on page 23. The government is expected to make additional contributions in excess of the current service cost for members' expected prior service elections. The change in the present value of prior service contributions corresponds to members' elections since the last report where the members opted to pay for these elections by instalments. Members' prior service elections paid through instalments have the effect of increasing the Superannuation Account total balance by \$53 million and the Pension Fund assets by \$255 million.

9) Unrecognized Investment Gains

The actuarial asset valuation method described in the 31 March 2011 valuation report, the role of which is to minimize the impact of short-term fluctuations in the market value of assets, was also used for this valuation. For this valuation, the



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method resulted in an actuarial value of assets that is \$6,243 million less than the market value of the Pension Fund assets as at 31 March 2014.

C. PSSA – Cost Certificate

1) Current Service Cost

The details of the current service cost for plan year 2015 and reconciliation with the 2012 current service cost are shown below.

Table 11 Current Service Cost for Plan Year 2015
(\$ millions)

Member required contributions	1,698
Government current service cost	2,486
Total current service cost	4,184
Expected pensionable payroll	20,410
Total current service cost as % of expected pensionable payroll	20.50%

Table 12 Reconciliation of PSSA Current Service Cost
(% of pensionable payroll)

For plan year 2012	19.76
Expected current service cost change	0.50
Change in demographics	(0.15)
Changes in assumptions	
Economic assumptions	0.32
Pensioner mortality rates	0.11
Seniority and promotional salary increases	(0.09)
Mortality improvement factors	0.07
Survivor mortality rates	(0.04)
Other items	0.02
For plan year 2015	20.50

2) Projection of Current Service Costs

The current service cost is borne jointly by the plan members and the government. The member contribution rates have been changed since the last valuation. They are as shown in Table 13. Contribution rates beyond 2018 are assumed to be such that the government share of the current service cost contribution is 50%. The contribution rates shown after calendar year 2016 are estimates and subject to change.

Table 13 Member Contribution Rates

Calendar year	Group 1		Group 2	
	Below YMPE	Above YMPE	Below YMPE	Above YMPE
2014	7.50%	9.80%	6.62%	7.89%
2015	8.15%	10.40%	7.05%	8.54%
2016	9.05%	11.04%	7.86%	9.39%
2017	9.55%	11.68%	8.40%	9.98%
2018	9.53%	11.62%	8.41%	9.97%



Current service costs on a plan year basis, expressed in dollar amount as well as in percentage of the projected pensionable payroll, are shown in Table 14. The member contributions and government current service costs are also shown on a calendar year basis in the Executive Summary. Tables 15 and 16 show the same results for Group 1 and Group 2, respectively. The decrease in the portion of the current service cost borne by the government from plan year 2015 to plan year 2017 mainly reflects increased member contribution rates.

Table 14 Projection of Current Service Cost on a Plan Year Basis

Plan Year	\$ Millions			Percentage of Pensionable Payroll			Portion Borne by the Government
	Contributors	Government	Total	Contributors	Government	Total	
2015	1,698	2,486	4,184	8.32	12.18	20.50	59.4%
2016	1,868	2,402	4,270	8.96	11.52	20.48	56.3%
2017	2,075	2,287	4,362	9.66	10.65	20.31	52.4%
2018	2,237	2,256	4,493	10.01	10.10	20.11	50.2%
2019	2,315	2,335	4,650	9.93	10.02	19.95	50.2%

Table 15 Projection of Current Service Cost on a Plan Year Basis – Group 1

Plan Year	\$ Millions			Percentage of Pensionable Payroll			Portion Borne by the Government
	Contributors	Government	Total	Contributors	Government	Total	
2015	1,617	2,369	3,986	8.40	12.31	20.71	59.4%
2016	1,724	2,226	3,950	9.10	11.74	20.84	56.3%
2017	1,841	2,033	3,874	9.86	10.89	20.75	52.5%
2018	1,896	1,915	3,811	10.28	10.38	20.66	50.2%
2019	1,872	1,892	3,764	10.25	10.36	20.61	50.3%

Table 16 Projection of Current Service Cost on a Plan Year Basis – Group 2

Plan Year	\$ Millions			Percentage of Pensionable Payroll			Portion Borne by the Government
	Contributors	Government	Total	Contributors	Government	Total	
2015	81	117	198	6.99	10.06	17.05	59.0%
2016	144	176	320	7.59	9.27	16.86	55.0%
2017	234	254	488	8.35	9.04	17.39	52.0%
2018	341	341	682	8.75	8.75	17.50	50.0%
2019	443	443	886	8.77	8.77	17.54	50.0%

3) Pension Fund Administrative Expenses

Based upon the assumptions described in section B of Appendix 7, the Pension Fund administrative expenses are included in the total current service costs. As in the previous report, the expected administrative expenses exclude the PSPIB operating expenses, as these are recognized implicitly through a decrease in the real rate of return. The total administrative expenses are estimated to be as follows:

Table 17 Pension Fund Administrative Expenses

Plan Year	(\$ millions)
2015	41.2
2016	45.1
2017	49.4
2018	54.5
2019	60.1



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The Superannuation Account administrative expenses have been capitalized and are shown as a liability in the balance sheet.

4) Contributions for Prior Service Elections

Based on the valuation data and the assumptions described in section B of Appendix 7, member and government contributions for prior service elections were estimated as follows.

Table 18 Estimated Contributions for Prior Service
(\$ millions)

Plan Year	Superannuation Account		Pension Fund	
	Contributors	Government	Contributors	Government
2015	14	13	83	105
2016	10	10	82	97
2017	7	7	82	90
2018	5	5	81	87
2019	3	3	81	87

D. Sensitivity of Valuation Results to Variations in Longevity Improvement Factors

This valuation assumes that the current mortality rates applicable to members of the Public Service pension plan will improve over time. This assumption is based on the longevity improvement assumption¹ contained in the 26th Actuarial Report on the Canada Pension Plan. Table 19 measures the effect on the plan year 2015 current service cost and the liabilities for service prior to 1 April 2000 and for service since that date, under various longevity improvement assumptions. The current longevity improvement assumption is described in Table 62 of Appendix 7.

Table 19 Sensitivity of Valuation Results to Variations in Longevity Improvement Factors

Longevity improvement factors	Current Service Cost as a percentage of pensionable payroll		Actuarial Liability (\$ millions)				Age 65 Life Expectancy in 2014 (Age nearest in years)	
	2015	Effect	Service prior to April 2000		Service since April 2000		Male	Female
			Effect	Effect	Effect	Effect		
Current basis	20.50	None	97,211	None	66,775	None	21.6	23.8
- if 0%	19.65	(0.85)	93,582	(3,629)	64,385	(2,390)	20.3	22.7
- if ultimate 50% higher	20.78	0.28	98,135	924	67,506	731	21.9	24.1
- if ultimate 50% lower	20.33	(0.17)	96,867	(344)	66,375	(400)	21.5	23.6
- if kept at 2015 level	21.17	0.67	99,353	2,142	68,525	1,750	22.6	24.5

E. Sensitivity of Valuation Results to Variations in Key Economic Assumptions

The information required by statute, which is presented in the main report, has been derived using best-estimate assumptions regarding future demographic and economic trends. The key best-estimate assumptions, i.e. those for which changes within a reasonable range have the most significant impact on the long-term financial results, are described in Appendices 6 and 7. Both the length of the projection period and the

¹ In this report, 'longevity improvement assumption' is equivalent to 'mortality improvement assumption' discussed in the 26th Actuarial Report on the Canada Pension Plan.



number of assumptions required ensure that actual future experience will almost certainly not develop precisely in accordance with the best-estimate assumptions. Individual sensitivity tests have been performed, projecting the pension plan’s financial status using alternative assumptions.

Table 20 measures the effect on the plan year 2015 current service cost and the liabilities for service prior to 1 April 2000 and for service since that date, when key economic assumptions are varied by one percentage point per annum.

Table 20 Sensitivity of Valuation Results to Variations in Key Economic Assumptions

Assumption(s) Varied	Current Service Cost (%)		Actuarial Liability (\$ millions)			
	2015	Effect	Service prior to April 2000		Service since April 2000	
				Effect		Effect
None (i.e. current basis)	20.50	None	97,211	None	66,775	None
Investment yield						
- if 1% higher	16.34	(4.16)	86,200	(11,011)	55,750	(11,025)
- if 1% lower	26.18	5.68	110,775	13,564	81,302	14,527
Inflation						
- if 1% higher	23.25	2.74	108,317	11,106	75,193	8,418
- if 1% lower	18.25	(2.25)	87,866	(9,345)	59,805	(6,970)
Salary, YMPE and MPE						
- if 1% higher	22.57	2.07	97,937	726	70,599	3,824
- if 1% lower	18.73	(1.77)	96,534	(677)	63,428	(3,347)
All economic assumptions						
- if 1% higher	20.07	(0.43)	95,919	(1,291)	65,430	(1,345)
- if 1% lower	20.95	0.45	98,540	1,329	68,167	1,392

The differences between the results above and those shown in the valuation can also serve as a basis for approximating the effect of other numerical variations in a key assumption to the extent that such effects are linear.



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F. RCA – Financial Position

This section shows the financial position of the RCA accounts as at 31 March 2014. The results of the previous valuation are also shown for comparison.

Table 21 State of the RCA No. 1 Account
(\$ millions)

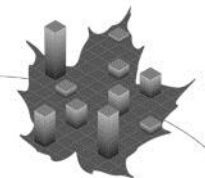
	31 March 2014	31 March 2011
RCA No.1 recorded account balance	1,040	837
Refundable tax	1,019	811
Present value of prior service contributions	2	-
Total	2,061	1,648
Actuarial Liability		
Pensionable excess earnings		
• Active contributors	1,104	729
• Pensioners	589	386
Survivor Allowance		
• Active contributors	153	155
• Pensioners	193	289
Former deputy heads	34	22
Total Actuarial Liability	2,073	1,581
Actuarial Excess/(Shortfall)	(12)	67

The sum of the recorded balance of the RCA No. 1 Account, the refundable tax and the present value of prior service cost contributions as at 31 March 2014 is \$2,061 million, which falls short of the actuarial liability of \$2,073 million by \$12 million. In accordance with the SRAA and based on half the yield projected on the Superannuation Account shown in Appendix 6, the actuarial shortfall could be amortized over a maximum period of 15 years beginning 31 March 2016. If the shortfall is amortized over the maximum period, 15 equal annual credits of \$1 million could be made to the RCA No.1 Account. The time, manner and amount of such credits are to be determined by the President of the Treasury Board.

Table 22 State of the RCA No. 2 Account
(\$ millions)

	31 March 2014	31 March 2011
RCA No.2 Recorded Account Balance	730	783
Refundable tax	734	785
Total	1,464	1,568
Actuarial Liability	1,593	1,664
Actuarial Excess/(Shortfall)	(129)	(96)

Since the last valuation as at 31 March 2011, the RCA No. 2 Account actuarial shortfall of \$96 million has increased by \$33 million to reach \$129 million as at 31 March 2014. In accordance with the SRAA and based on half the yield projected on the Superannuation Account shown in Appendix 6, the actuarial shortfall could be amortized over a maximum period of 15 years beginning 31 March 2016. If the shortfall is amortized over the maximum period, after taking into account the credit of \$8.0 million scheduled to be made on 31 March 2015, beginning on 31 March 2016,



15 equal annual credits of \$10 million could be made to the RCA No. 2 Account. The time, manner and amount of such credits are to be determined by the President of the Treasury Board.

G. RCA No. 1 Current Service Cost

The projected current service cost, which is borne jointly by the members and the government, increased by 0.08% to 0.46% of pensionable payroll in this valuation for plan year 2015 from 0.38% of pensionable payroll calculated in the previous actuarial report.

The RCA No. 1 current service cost is estimated to be 0.46% of pensionable payroll for plan years 2015 and 2016, increasing to 0.47% for plan year 2017.

Table 23 shows the estimated RCA No. 1 current service cost for the next three plan years.

Table 23 RCA No. 1 – Current Service Cost
(\$ millions)

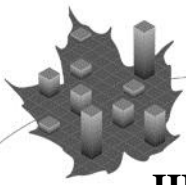
	Plan Year		
	2015	2016	2017
Total current service cost			
Pensionable excess earnings	78.1	80.6	84.1
Survivor allowance	14.7	14.9	15.4
Former deputy heads	<u>0.5</u>	<u>0.4</u>	<u>0.4</u>
Total	93.3	95.9	99.9
Member contributions			
Pensionable excess earnings	10.8	11.8	12.7
Former deputy heads	<u>0.1</u>	<u>0.1</u>	<u>0.1</u>
Total	10.9	11.9	12.8
Government current service cost	82.4	84.0	87.1
Current service cost as % of total pensionable payroll	0.46%	0.46%	0.47%

H. Summary of Estimated Government Costs

Table 24 summarizes the estimated total government costs on a plan year basis.

Table 24 Estimated Government Cost
(\$ millions)

Plan Year	Current Service Cost		Minimum Special Credits			Total Prior Service Contributions	Total Government Cost
	Pension Fund	RCA No. 1	Superannuation Account	RCA No. 1	RCA No. 2		
2015	2,486	82	-	-	8	118	2,694
2016	2,402	84	65	1	10	107	2,669
2017	2,287	87	65	1	10	97	2,547



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III. Actuarial Opinion

In our opinion, considering that this report was prepared pursuant to the *Public Pensions Reporting Act*,

- the valuation input data on which the valuation is based are sufficient and reliable for the purposes of the valuation;
- the assumptions that have been used are, individually and in aggregate, appropriate for the purposes of the valuation;
- the methods employed are appropriate for the purposes of the valuation; and
- this report has been prepared, and our opinions given, in accordance with accepted actuarial practice in Canada.

In particular, this report was prepared in accordance with the Standards of Practice (General Standards and Practice-Specific Standards for Pension Plans) published by the Canadian Institute of Actuaries.

To the best of our knowledge, after discussion with the Department of Public Works and Government Services Canada and the Treasury Board of Canada Secretariat, there were no subsequent events between the valuation date and the date of this report that would have a material impact on the results of this valuation.

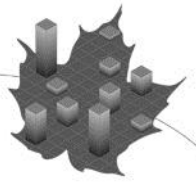
The payment of accrued pension benefits being the responsibility of the government, the likelihood of the plan being wound-up and its obligation not being fulfilled is practically nonexistent. Further, the legislation does not define the benefits payable upon wind-up. Therefore, a hypothetical wind-up valuation has not been performed.

Daniel Hébert, F.S.A., F.C.I.A.
Senior Actuary

Jean-Claude Ménard, F.S.A., F.C.I.A.
Chief Actuary

Ottawa, Canada

29 September 2015



Appendix 1 – Summary of Pension Benefit Provisions

The government has been providing its employees with a pension plan since 1870. Pensions for members of the Public Service are provided primarily under the *Public Service Superannuation Act* (PSSA) as enacted in 1954 and modified thereafter. Benefits are also provided to public servants under the *Special Retirement Arrangements Act*. Benefits may be modified in accordance with the *Pension Benefits Division Act* if there is a breakdown of a spousal union.

Changes since the last valuation

The previous valuation report was based on the pension benefit provisions as they stood as at 31 March 2011. The amended plan provisions as a result of Division 23 of Part 4 of the *Jobs and Growth Act, 2012* (S.C. 2012, c. 31) are summarized in this Appendix, and replace those presented in the previous valuation report. All other provisions remain unchanged from the valuation report as at 31 March 2011. Division 23 of Part 4 of the *Jobs and Growth Act, 2012* (S.C. 2012, c. 31) amends the plan provisions in respect of the following:

- **Group 1 vs. Group 2 Contributors**

Effective 1 January 2013, contributors will be classified as either Group 1 or Group 2. Existing members who were required to contribute prior to 1 January 2013 will be classified as Group 1. New members required to contribute on or after 1 January 2013 will be classified as Group 2. However, members of the PS pension plan who are employees of the Correctional Service of Canada (CSC) will pay the same contribution rates as Group 1 contributors regardless of their date of hire.

- **Retirement Age**

The pensionable age for Group 2 contributors is five years older than for Group 1 contributors, so that a Group 2 contributor can opt for an immediate annuity at age 65, while a Group 1 contributor is eligible at age 60. The summary description of benefits below details the eligibility requirements for all forms of retirement benefits for Group 1 and Group 2 contributors.

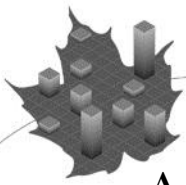
- **Contribution Rates**

Effective 1 January 2013, member contribution rates will be determined separately for Group 1 and Group 2. These rates will be limited such that the total amount of contributions for each group does not exceed 50% (increased from 40% in effect at 31 March 2011) of the current service cost of that group. The contribution rates for calendar years 2014 to 2018 are given in the summary of pension benefit provisions below. The contribution rates shown after calendar year 2016 are estimates and subject to change.

Summary of Pension Benefit Provisions

Summarized in this Appendix are the pension benefits, as amended by Division 23 of Part 4 of the *Jobs and Growth Act, 2012* (S.C. 2012, c. 31), provided under the PSSA registered provisions, which are in compliance with the *Income Tax Act*. The portion of the benefits in excess of the *Income Tax Act* limits for registered pension plans is provided under the retirement compensation arrangements described in Appendix 2.

The legislation shall prevail if there is a discrepancy between it and this summary.



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A. Membership

Subject to the exceptions mentioned in the next paragraph, membership in the plan is compulsory for all full-time and part-time employees working 12 or more hours per week (except those who were grandfathered as at 4 July 1994) in the Public Service. This includes all positions in any department or portion of:

- the executive government of Canada;
- the Senate and the House of Commons;
- the Library of Parliament; and
- any board, commission or corporation listed in a Schedule to the Act, as well as those designated as contributors by the President of the Treasury Board either individually or as members of a class for persons engaged as seasonal employees and some others.

The main groups of persons employed in the Public Service to which the Act does not apply are:

- part-time employees working less than 12 hours per week;
- persons locally engaged outside Canada;
- employees of some Crown corporations, boards or commissions covered by their own pension plans; and
- seasonal employees, and some others, unless designated as contributors by the President of the Treasury Board.

Since the previous valuation no entities have left the plan.

B. Contributions

1. Members

Different contribution rates apply to Group 1 and Group 2 contributors. The expected rates are consistent with the government objective of moving to a 50:50 employer to employee current service cost sharing ratio.

During the first 35 years of pensionable service, members contribute according to the rates shown in Table 25.

Table 25 Member Contribution Rates

Calendar year	Group 1		Group 2	
	Below YMPE	Above YMPE	Below YMPE	Above YMPE
2014	7.50%	9.80%	6.62%	7.89%
2015	8.15%	10.40%	7.05%	8.54%
2016	9.05%	11.04%	7.86%	9.39%
2017	9.55%	11.68%	8.40%	9.98%
2018	9.53%	11.62%	8.41%	9.97%

Rates beyond 2018 are assumed to be such that the government share of the current service cost contribution is 50%. The contribution rates shown after calendar year 2016 are estimates and subject to change.



After 35 years of pensionable service, members contribute only 1% of pensionable earnings.

In order to keep their rights to an early retirement benefit, “deemed operational” members of CSC contribute 0.62% of total earnings during a calendar year in addition to the above contribution rates.

2. Government

a) Current Service

The government determines the normal monthly contribution as the amount which, when combined with the required contributions by members in respect of current service and expected interest earnings, is sufficient to cover the cost, as estimated by the President of the Treasury Board, of all future payable benefits that have accrued in respect of pensionable service during that month and the Pension Fund administrative expenses incurred during that month.

b) Elected Prior Service

The government matches member contributions made to the Superannuation Account for prior service elections; however, it makes no contributions if the member is paying the double rate.

Government credits to the Pension Fund in respect of elected prior service are as described for current service; however, the government contributes only a portion of the member contribution if the member is paying the double rate. The percentage varies depending on the government contribution where a member is paying the single rate.

c) Actuarial Excess and Surplus

The *Public Sector Pension Investment Board Act* (S.C. 1999, c. 34), which received Royal Assent on 14 September 1999, gives the government the authority to:

- debit the excess of the balance of the Superannuation Account over the actuarial liability subject to limitations, and
- deal with any actuarial surplus, subject to limitations, in the Pension Fund as they occur, either by reducing employee and/or employer contributions or by making withdrawals.

d) Actuarial Shortfall and Deficit

In accordance with the PSSA, if an actuarial shortfall is identified through a triennial statutory actuarial valuation, the actuarial shortfall can be amortized over a period of up to 15 years, such that the amount that in the opinion of the President of the Treasury Board will, at the end of the fifteenth fiscal year following the tabling of that report or at the end of the shorter period that the President of the Treasury Board may determine, together with the amount that the President of the Treasury Board estimates will be to the credit of the Superannuation Account at that time, meet the cost of the benefits payable in respect of pensionable service prior to April 2000.



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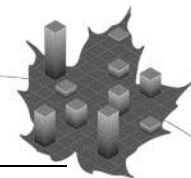
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Similarly, if an actuarial deficit is identified through a triennial statutory actuarial valuation, the actuarial deficit can be amortized over a period of up to 15 years, such that the amount that in the opinion of the President of the Treasury Board will, at the end of the fifteenth fiscal year following the tabling of that report or at the end of the shorter period that the President of the Treasury Board may determine, together with the amount that the President of the Treasury Board estimates will be to the credit of the Pension Fund at that time, meet the cost of the benefits payable in respect of pensionable service since April 2000.

C. Summary Description of Benefits

The objective of the PS pension plan is to provide an employment earnings–related lifetime retirement pension to eligible members. Benefits to members in case of disability and to the spouse and children in case of death are also provided.

Subject to coordination with the pensions paid by the Canada Pension Plan (CPP) or the Quebec Pension Plan (QPP), the initial rate of retirement pension is equal to 2% of the highest average of annual pensionable earnings over any period of five consecutive years, multiplied by the number of years of pensionable service not exceeding 35. Once in pay, the pension is indexed annually with the Consumer Price Index. Such indexation also applies to deferred pensions during the deferral period. Detailed notes on the following overview are provided in the following section.

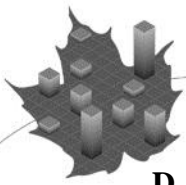


Contributor's Type of Termination	Benefit
With less than two years of service¹	Return of contributions
With two or more years of service¹; and	
• Disability	Immediate annuity
• Death leaving no surviving spouse or eligible children	Minimum benefit
• Death leaving surviving spouse and/or eligible children	Survivor allowance(s)
• Leaving prior to age 45, except for death or disability	
– Actual operational service between 20 and 25 years	Actual operational service annual allowance ²
– Actual operational service 25 years or more	Immediate annuity
– Otherwise	Deferred annuity or transfer value
• Leaving at ages 45 to 49, except for death or disability, and	
– Deemed operational service 20 years or more	Deemed operational service annual allowance ³
– Actual operational service between 20 and 25 years	Actual operational service annual allowance ²
– Actual operational service 25 years or more	Immediate annuity
– Otherwise	Deferred annuity or transfer value
• Leaving at age 50 or over, except for death or disability, and	
– Deemed operational service between 20 and 25 years	Deemed operational service annual allowance ³
– Deemed operational service 25 years or more	Immediate annuity
– Actual operational service between 20 and 25 years	Actual operational service annual allowance ²
– Actual operational service 25 years or more	Immediate annuity
– Otherwise, but Group 1, age 60 or over, or age 55 or over and service 30 years or more	Immediate annuity
– Otherwise, but Group 2, age 65 or over, or age 60 or over and service 30 years or more	Immediate annuity
– Otherwise	Deferred annuity or annual allowance
Deferred and Immediate Pensioner's Type of Termination	Benefit
• Group 1 disability before age 60 while entitled to a deferred annuity or an annual allowance	Immediate annuity
• Group 2 disability before age 65 while entitled to a deferred annuity or an annual allowance	Immediate annuity
• Death leaving no eligible survivor	Minimum benefit
• Death leaving eligible survivor(s)	Survivor allowance(s)

¹ Thresholds are determined using total pensionable service, including operational service.

² Based on actual operational service only. Additional non-operational and/or deemed operational service, if any, results in the applicable non-operational benefit and/or deemed operational benefit (see Note 10).

³ Based on deemed operational service only. Additional non-operational service, if any, results in the applicable non-operational benefit (see Note 9).



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D. Explanatory Notes

1. Pensionable Earnings

Pensionable earnings means the annual employment earnings (excluding overtime but including pensionable allowances such as bilingual bonuses) of a contributor.

Pensionable payroll means the aggregate pensionable earnings of all contributors with less than 35 years of pensionable service.

2. Indexation

a) Level of Indexation Adjustments

All immediate and deferred annuities (pensions and allowances) are adjusted every January to the extent warranted by the increase, as at 30 September of the previous year, in the 12-month average Consumer Price Index relative to the corresponding figure one year earlier. If the indicated adjustment is negative, annuities are not decreased for that year; however, it is carried-forward and the next positive adjustment is diminished accordingly.

b) First Indexation Adjustment

Indexation adjustments accrue from the end of the month in which employment terminates. The first annual adjustment following termination of employment is prorated accordingly.

c) Commencement of Indexation Payments

The indexation portion of a retirement, disability or survivor pension normally starts being paid when the pension is put into pay. However, regarding an operational service retirement pension, indexation payments start only when the pensioner is either

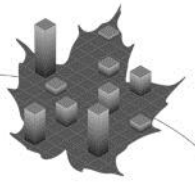
- at least 55 years old, provided the sum of age and pensionable service is at least 85; or
- at least 60 years old.

3. Pensionable Service, Actual Operational Service and Deemed Operational Service

Pensionable service of a contributor includes any period of service in the Public Service for which the contributor has been required to contribute or has elected to contribute, if eligible to do so, and such other types of service for which the contributor has elected to make the required special contributions to the Public Service Superannuation Account or Pension Fund. Pensionable service is limited to 35 years.

Actual operational service refers to CSC employees working in federal correctional facilities, parole offices and community correctional centres. More specifically, operational service is defined as service by a person employed by CSC whose principal place of work is not: the national headquarters or a regional headquarters of CSC; the offices of the CSC Commissioner; or a regional CSC Staff College or any other institution that provides similar training to CSC employees.

Deemed operational service refers to CSC employees in operational service for one or more periods totalling at least 10 years, who then cease to be engaged in operational



service but continue to be employed by CSC and elect to continue to accumulate operational service and contribute an additional 0.62% of earnings.

4. Return of Contributions

Return of contributions means the payment of an amount equal to the accumulated current and prior service contributions paid or transferred by the contributor into the plan. Interest is credited quarterly on returned contributions in accordance with the investment return on the Pension Fund.

5. Immediate Annuity

Immediate annuity means an unreduced pension that becomes payable immediately upon a pensionable retirement or pensionable disability. The annual amount is equal to 2% of the highest average of annual pensionable earnings of the contributor over any period of five¹ consecutive years, multiplied by the number of years of pensionable service not exceeding 35. For contributors with periods of part-time pensionable service, earnings used in the five-year average are based on a full 37.5-hour workweek but the resulting average is multiplied by the proportion of a full workweek averaged by the contributor over the entire period of pensionable service.

When a pensioner attains age 65 or becomes entitled to a disability pension from the CPP or the QPP, the annual pension amount is reduced by a percentage of the *indexed CPP annual pensionable earnings*² (or, if lesser, the indexed five-year¹ pensionable earnings average on which the immediate annuity is based), *multiplied by the years of CPP pensionable service*³. The applicable percentage (it was 0.7% before 1 January 2008) depends on the year the pensioner attains age 65 or becomes entitled to a disability pension. The following table shows the applicable percentage:

	Calendar Years				
	2008	2009	2010	2011	2012+
Coordination Percentage	0.685%	0.670%	0.655%	0.640%	0.625%

Annuities are payable at the end of month until the month in which the pensioner dies or until the disabled pensioner recovers from disability (the last payment would then be pro-rated). Upon the death of the pensioner, either a survivor allowance (Note 13) or a residual death benefit (Note 14) may be payable.

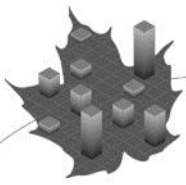
6. Deferred Annuity

Deferred annuity means an annuity that normally becomes payable to a former Group 1 contributor who reaches age 60 or a former Group 2 contributor who reaches age 65. The annual payment is determined as for an immediate annuity (Note 5) but is also adjusted to reflect the indexation (Note 2) from the date of termination to the commencement of benefit payments.

¹ If the number of years of pensionable service is less than five, then the averaging is over the entire period of pensionable service.

² *Indexed CPP annual pensionable earnings* means the average of the YMPE, as defined in the CPP, over the five calendar years leading up to and including the one in which pensionable service terminated, increased by indexation proportionate to that accrued in respect of the immediate annuity.

³ *Years of CPP pensionable service* mean the number of years of PSSA pensionable service after 1965 or after attaining age 18, whichever is later, but not exceeding 35.



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The deferred annuity of a former Group 1 contributor becomes an immediate annuity during any period of disability beginning before age 60. If the disability ceases before age 60, the immediate annuity reverts to the original deferred annuity unless the pensioner elects an annual allowance (Notes 8, 9 and 10) that is the prescribed actuarial equivalent to the deferred annuity. Similarly, the deferred annuity of a former Group 2 contributor becomes an immediate annuity during any period of disability beginning before age 65, and reverts back to the original deferred annuity if the disability ceases before age 65, unless the pensioner elects an annual allowance as described above.

7. Transfer Value

A member who, at his date of termination of pensionable service, is under age 50 and a former Group 1 contributor, or is under age 55 and a former Group 2 contributor, and is eligible for a deferred annuity may elect to transfer the commuted value of his benefit, determined in accordance with the regulations, to

- a locked-in Registered Retirement Savings Plan of the prescribed kind; or
- another pension plan registered under the *Income Tax Act*; or
- a financial institution for the purchase of a locked-in immediate or deferred annuity of the prescribed kind.

8. Annual Allowance For Members

For a Group 1 member, *annual allowance* means an annuity payable immediately on retirement or upon attaining age 50, if later. The amount of the allowance is equal to the amount of the deferred annuity to which the member would otherwise be entitled, reduced by 5% for each year between 60 and the age when the allowance becomes payable. However, if the member is at least 50 years old at termination, and has at least 25 years of pensionable service¹, then the difference is reduced (subject to the above as a maximum) to the greater of

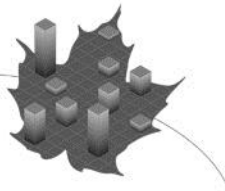
- 55 minus the age, and
- 30 minus the number of years of pensionable service¹.

For a Group 2 member, the eligibility age is increased by 5 years, so that *annual allowance* means an annuity payable immediately on retirement or upon attaining age 55 if later. The amount of the allowance is equal to the amount of the deferred annuity to which the member would otherwise be entitled, reduced by 5% for each year between 65 and the age when the allowance becomes payable. However, if the member is at least 55 years old at termination, and has at least 25 years of pensionable service¹, then the difference is reduced (subject to the above as a maximum) to the greater of

- 60 minus the age, and
- 30 minus the number of years of pensionable service¹.

The Treasury Board can waive all or part of the reduction for Group 1 contributors who are involuntarily retired at ages 55 and over with at least 10 years of Public Service

¹ For privatized members who elected not to transfer their PSSA benefits to their new employer's pension plan, service (including any operational) with the new employer is included.



employment, or for Group 2 contributors who are involuntarily retired at ages 60 and over with at least 10 years of Public Service employment.

When a Group 1 member in receipt of an annual allowance becomes disabled before reaching age 60, or a Group 2 member in receipt of an annual allowance becomes disabled before reaching age 65, the annual allowance becomes an immediate annuity adjusted in accordance with the regulations to take into account the amount of any annual allowance received prior to becoming disabled.

9. Deemed Operational Service - Immediate Annuity and Annual Allowance

A deemed operational service immediate annuity differs from an immediate annuity (Note 5) only in that it is available as early as age 50 with 25 years of operational service.

A deemed operational service annual allowance differs from an annual allowance (Note 8) in two ways. Firstly it is available as early as age 45 with 20 years of operational service. Secondly the reduction factor is 5% multiplied by the greater of

- 50 minus the age, and
- 25 minus the years of operational service.

The foregoing operational service-related benefits are calculated in relation to both deemed and actual operational service only. Additional non-operational service results in the applicable non-operational benefit where any thresholds or reductions are based on total pensionable service, including operational service.

10. Actual Operational Service - Immediate Annuity and Annual Allowance

An actual operational service immediate annuity differs from an immediate annuity (Note 5 and Note 9) only in that it is available when the member has accrued 25 years of actual operational service.

An actual operational service annual allowance differs from other annual allowances (Note 8 and Note 9) in two ways. Firstly it is available as soon as 20 years of actual operational service is accrued. Secondly the reduction factor is 5% multiplied by

- 25 minus the years of actual operational service.

The foregoing operational service-related benefits are calculated in relation to actual operational service only. Additional non-operational service results in the applicable non-operational benefit where any thresholds or reductions are based on total pensionable service, including operational service. Also, additional deemed operational service results in the applicable deemed operational benefit where any thresholds or reductions are based on operational pensionable service.

11. Eligible Surviving Spouse

Eligible surviving spouse means the surviving spouse (includes a common-law or same-sex partner recognized under the plan) of a contributor or pensioner except if:

- the contributor or pensioner died within one year of commencement of the spousal union, unless the Treasury Board is satisfied that the health of the contributor or



pensioner at the time of such commencement justified an expectation of surviving for at least one year; or

- the pensioner married after ceasing to be a contributor, unless after such marriage the pensioner either:
 - became a contributor again, or
 - made an optional survivor benefit election within 12 months following marriage to accept a reduced pension so that the new spouse would be eligible for a survivor benefit. This reduction is reversed if and when the new spouse predeceases the pensioner or the spousal union is terminated for reason other than death.

12. Eligible Surviving Children

Eligible surviving children includes all children of the contributor or pensioner who are under age 18, and any child of the contributor or pensioner who is age 18 or over but under 25, in full-time attendance at a school or university, having been in such attendance substantially without interruption since he or she reached age 18 or the contributor or pensioner died, whichever occurred later.

13. Annual Allowance for Eligible Survivor(s)

Annual allowance means, for the eligible surviving spouse and children of a contributor or pensioner, an annuity that becomes payable immediately upon the death of that individual. The amount of the allowance is determined with reference to a basic allowance that is equal to 1% of the highest average of annual pensionable earnings of the contributor over five consecutive years, multiplied by the number of years of pensionable service not exceeding 35.

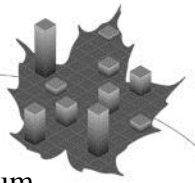
The annual allowance for a spouse is equal to the basic allowance unless the spouse became eligible as a result of an optional survivor benefit election, in which case it is equal to the percentage of the basic allowance specified by the pensioner making the election.

The annual allowance for an eligible surviving child is equal to 20% of the basic allowance, subject to a reduction if there are more than four eligible surviving children in the same family. The allowance otherwise payable to an eligible surviving child is doubled if the child is an orphan.

Survivor annual allowances are not integrated with the CPP or the QPP and are payable in equal monthly instalments in arrears until the end of the month in which the survivor dies or otherwise loses eligibility. If applicable, a residual benefit (Note 14) is payable to the estate upon the death of the last survivor.

14. Minimum and Residual Death Benefits

If a contributor or a pensioner dies leaving no eligible survivor, the lump sum normally paid is the excess of five times the annual amount of the immediate annuity to which the contributor would have been entitled, or the pensioner was entitled, at the time of death, less any pension payments already received. Indexation adjustments are excluded from these calculations.



The same formula is used to determine the residual death benefit, which is the lump sum payable upon the death of an eligible survivor but also subtracting all amounts (excluding indexation adjustments) already paid to the survivor.

15. Division of Pension with Former Spouse

In accordance with the *Pension Benefits Division Act*, upon the breakdown of a spousal union (including common-law), a lump sum can be debited by court order or by mutual consent from the accounts and/or the Fund, as the case may be, to the credit of the former spouse of a contributor or pensioner. The maximum transferable amount is half the value, calculated as at the transfer date, of the retirement pension accrued by the contributor or pensioner during the period of cohabitation. If the member's benefits are not vested, the maximum transferable amount corresponds to half the member's contributions made during the period subject to division, accumulated with interest at the rate applicable on a refund of contributions. The accrued benefits of the contributor or pensioner are then reduced accordingly.



Appendix 2 – Retirement Compensation Arrangement Benefit Provisions

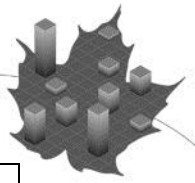
Retirement compensation arrangements (RCAs) are prefunded arrangements not subject to the benefit limitations of registered pension plans and therefore are less tax-advantaged as the fund must transfer a 50% refundable tax to the Canada Revenue Agency (CRA) immediately. Under the PSSA RCA a debit is made from the RCA Account such that in total roughly half the recorded balance in the Account is held as a tax credit (CRA refundable tax). This Appendix describes the Public Service pension benefits financed through retirement compensation arrangements (RCA No. 1 and RCA No. 2) rather than through the registered PSSA provisions that have a material impact on this valuation

Effective 15 December 1994, RCA No. 1 was established pursuant to the *Special Retirement Arrangements Act* (SRAA) to provide for all pension benefits in excess of those that may, in accordance with the *Income Tax Act* (ITA) restrictions on registered pension plans, be paid under the PSSA registered provisions.

Effective 1 April 1995, RCA No. 2 was established by the RCA regulations as a program for certain Public Service employees declared surplus before 1 April 1998 as part of the downsizing initiative. Participation was limited to individuals between ages 50 and 54 who met the conditions specified in the regulations. RCA No. 2 pays the difference between a pension unreduced for early retirement and the reduced pension payable in accordance with the PSSA. It is financed entirely by the government.

The following benefits have been provided under RCA No. 1 since 20 November 1997, unless otherwise indicated, to the extent that they are in excess of the ITA limit.

Benefit	PSSA Registered Provisions limit
Survivor allowance for service from 1 January 1992 onward (see Note 13 of Appendix 1)	<p><u>Pre-retirement death</u></p> <ul style="list-style-type: none"> • Maximum spouse allowance is two-thirds of greater of A and B; and • Maximum aggregate dependants’ allowance is the greater of A and B, where <ul style="list-style-type: none"> A is the amount of member annuity earned to date of death, and B is the hypothetical amount of member annuity earned to age 65 where the average annual salary is limited to 1.5 times the average YMPE <p><u>Post-retirement death</u></p> <p>The amount of spouse allowance is limited in any year to a maximum of two-thirds the retirement benefit that would have been payable to the member in that year.</p>



Benefit	PSSA Registered Provisions limit
<p>Minimum lump sum death benefit (see Note 14 of Appendix 1)</p>	<p><u>Pre-retirement death</u> The amount of pre-retirement death benefit if the member has no eligible dependants is limited to the greater of the member contributions with interest and the present value of the member's accrued benefits on the day prior to death.</p> <p><u>Post-retirement death</u> If the member has no eligible dependants at retirement, then the minimum death benefit is limited to the member contributions with interest.</p>
<p>Continued benefit accrual for former deputy heads (provided since 15 December 1994 for service since then)</p>	<p>This entire benefit is outside the registered plan limit.</p> <p>Deputy heads ceasing employment under age 60 may elect to be deemed full-time employees absent from the Public Service on leave without pay up to age 60.</p>
<p>Elective service for service prior to 1 January 1990</p>	<p>The amount of lifetime retirement benefits for each such year of service is limited to two-thirds of the defined benefit limit (i.e. \$2,818.89 for calendar year 2015) for the year in which the lifetime retirement benefits commence to be paid.</p> <p>For years subsequent to the commencement year of lifetime retirement benefits, this amount can be adjusted to reflect increases in the Consumer Price Index.</p>
<p>Excess pensionable earnings (provided since 15 December 1994 for service since then)</p>	<p>The highest average of pensionable earnings is subject to a prescribed yearly maximum that varies by calendar year and the registered plan's benefit formula. The calendar year 2015 Maximum Pensionable Earnings is \$157,700.</p>



Appendix 3 – Assets, Accounts and Rates of Return

A. Assets and Account Balances

The government has a statutory obligation to fulfill the pension promise enacted by legislation to members of the Public Service. Since 1 April 2000, the government has earmarked invested assets (the Pension Fund) to meet the cost of pension benefits.

With respect to the unfunded portion of the PS pension plan, accounts were established to track the government's pension benefit obligations, such as the Superannuation Account for service prior to 1 April 2000, and the RCA No. 1 and No. 2 Accounts for benefits in excess of those that can be provided under the *Income Tax Act* limits for registered pension plans.

1. Public Service Superannuation Account

PSSA member contributions, government costs and benefits earned up to 31 March 2000 are tracked entirely through the Public Service Superannuation Account, which forms part of the Accounts of Canada.

The Superannuation Account was credited with all PSSA member contributions and government costs prior to 1 April 2000, as well as with prior service contributions and costs for elections made prior to 1 April 2000 and for periods before 1 April 2000 but credited after that date. It is charged with both the benefit payments made in respect of service earned under the Superannuation Account and the allocated portion of the plan administrative expenses.

The Superannuation Account is credited with interest earnings as though net cash flows were invested quarterly in 20-year Government of Canada bonds issued at prescribed interest rates and held to maturity. No formal debt instrument is issued to the Superannuation Account by the government in recognition of the amounts therein. Interest is credited every three months on the basis of the average yield for the same period on the combined Superannuation Accounts of the Public Service, Canadian Forces and RCMP pension plans.



Table 26 Reconciliation of Balances in Superannuation Account
(\$ millions)

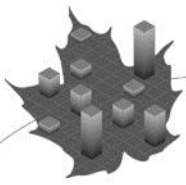
Plan Year	2012	2013	2014	2012-2014
Public Accounts opening balance	95,782	96,442	96,648	95,782
INCOME				
Interest earnings	5,585	5,318	5,062	15,965
Employer contributions	21	19	17	57
Member contributions	26	23	21	70
Transfers received	-	1	-	1
Actuarial liability adjustments	-	-	-	-
<i>Subtotal</i>	<i>5,632</i>	<i>5,361</i>	<i>5,100</i>	<i>16,093</i>
EXPENDITURES				
Annuities	4,813	4,998	5,163	14,974
Pension divisions	25	24	30	79
Return of contributions	-	-	-	-
Pension transfer value payments	32	38	45	115
Transfers to other pension plans	13	10	11	34
Minimum benefits	12	14	17	43
Administrative expenses	77	71	58	206
<i>Subtotal</i>	<i>4,972</i>	<i>5,155</i>	<i>5,324</i>	<i>15,451</i>
Public Accounts closing balance	96,442	96,648	96,424	96,424

Since the last valuation, the Account balance has grown by \$0.6 billion (a 0.7% increase) to reach \$96.4 billion as at 31 March 2014.

2. Public Service Pension Fund

Since 1 April 2000, PSSA contributions (except for prior service elections made prior to 1 April 2000) have been credited to the Pension Fund. The Pension Fund is invested in the financial markets with a view to achieving maximum rates of return without undue risk.

The Pension Fund has been credited with all PSSA contributions since 1 April 2000, as well as with prior service contributions in respect of elections made since that date. The Pension Fund is also credited with the net investment returns generated by the capital assets managed by PSPIB. It is debited with both the benefit payments made in respect of service earned and prior service elections made since 1 April 2000 and the allocated portion of the plan administrative expenses.



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Table 27 Reconciliation of Balances in Pension Fund
(\$ millions)

Plan Year	2012	2013	2014	2012-2014
Opening balance	42,528	47,270	56,034	42,528
INCOME				
Investment earnings	1,273	5,097	9,150	15,520
Employer contributions	2,774	2,719	2,762	8,255
Member contributions	1,564	1,635	1,774	4,973
Transfers received	77	135	95	307
Actuarial liability adjustments	-	435	435	870
<i>Subtotal</i>	<i>5,688</i>	<i>10,021</i>	<i>14,216</i>	<i>29,925</i>
EXPENDITURES				
Annuities	723	908	1,145	2,776
Pension divisions	14	20	28	62
Return of contributions	8	19	13	40
Pension transfer value payments	128	224	301	653
Transfers to other pension plans	30	39	49	118
Minimum benefits	7	9	11	27
Administrative expenses	36	38	35	109
<i>Subtotal</i>	<i>946</i>	<i>1,257</i>	<i>1,582</i>	<i>3,785</i>
Closing balance	47,270	56,034	68,668	68,668

Since the last valuation, the Fund balance has increased by \$26.1 billion (a 61% increase) to reach \$68.7 billion as at 31 March 2014.

3. Public Service RCA No. 1 Account

The amount in the RCA No. 1 Account is composed of the recorded balance in the Retirement Compensation Arrangements Account, which forms part of the Accounts of Canada, and a tax credit (CRA refundable tax). Each calendar year, a debit is made from the RCA Account such that in total roughly half the recorded balance in the Account is held as a tax credit (CRA refundable tax).

No formal debt instrument is issued to the RCA No. 1 Account by the government in recognition of the amounts therein. Interest earnings are credited every three months on the basis of the average yield for the same period on the combined Superannuation Accounts of the Public Service, Canadian Forces and RCMP pension plans.



Table 28 Reconciliation of Balances in RCA No.1 Account
(\$ millions)

Plan Year	2012	2013	2014	2012-2014
Public Accounts opening balance	837.4	910.2	975.3	837.4
INCOME				
Interest earnings	51.9	52.9	54.1	158.9
Employer contributions	99.6	90.4	97.1	287.1
Member contributions	11.3	10.6	12.6	34.5
Transfers received	0.0	0.1	0.0	0.1
Actuarial liability adjustments	0.0	0.0	0.0	0.0
<i>Subtotal</i>	<i>162.8</i>	<i>154.0</i>	<i>163.8</i>	<i>480.6</i>
EXPENDITURES				
Annuities	17.9	20.6	26.1	64.6
Pension divisions	0.1	0.3	0.9	1.3
Return of contributions	0.0	0.0	0.0	0.0
Pension transfer value payments	0.4	0.7	0.3	1.4
Transfers to other pension plans	1.0	0.2	1.7	2.9
Minimum benefits	0.1	0.2	0.2	0.5
Transfer to Canada Post Corporation	0.0	0.0	0.0	0.0
Amount transfer to CRA	70.5	66.9	69.7	207.1
<i>Subtotal</i>	<i>90.0</i>	<i>88.9</i>	<i>98.9</i>	<i>277.8</i>
Public Accounts closing balance	910.2	975.3	1,040.2	1,040.2
Refundable tax	882.0	948.8	1,018.5	1,018.5

Since the last valuation, the Account balance has grown by \$202.8 million (a 24% increase) to reach \$1,040.2 million as at 31 March 2014 and the refundable tax has increased by \$207.1 million (a 26% increase) to reach \$1,018.5 million.

4. Public Service RCA No. 2 Account

The amount in the RCA No. 2 Account is composed of the recorded balance in the Retirement Compensation Arrangements Account, which forms part of the Accounts of Canada, and a refundable tax. Each calendar year, a debit is made from the RCA Account such that in total roughly half the recorded balance in the Account is held as a tax credit (CRA refundable tax).

No formal debt instrument is issued to the RCA No. 2 Account by the government in recognition of the amounts therein. Interest earnings are credited every three months on the basis of the average yield for the same period on the combined Superannuation Accounts of the Public Service, Canadian Forces and RCMP pension plan.



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Table 29 Reconciliation of Balances in RCA No.2 Account
(\$ millions)

Plan Year	2012	2013	2014	2012-2014
Public Accounts opening balance	783.1	766.2	749.3	783.1
INCOME				
Interest earnings	44.7	41.4	38.3	124.4
Actuarial liability adjustments	6.2	8.0	8.0	22.2
<i>Subtotal</i>	<i>50.9</i>	<i>49.4</i>	<i>46.3</i>	<i>146.6</i>
EXPENDITURES				
Annuities	82.9	84.0	84.7	251.6
Amount transfer to CRA	(15.1)	(17.7)	(18.9)	(51.7)
<i>Subtotal</i>	<i>67.8</i>	<i>66.3</i>	<i>65.8</i>	<i>199.9</i>
Public Accounts closing balance	766.2	749.3	729.8	729.8
Refundable tax	770.3	752.6	733.8	733.8

Since the last valuation, the Account balance decreased by \$53.3 million (a 6.8% reduction) to \$729.8 million as at 31 March 2014 and the refundable tax has decreased by \$51.7 million (a 6.6% reduction) to \$733.8 million.

B. Rates of Interest (Return)

The rates of interest in respect of the Superannuation Account were calculated using the foregoing entries. The Account yields are based on book values since the notional bonds are deemed to be held to maturity. The results were computed using the dollar-weighted approach and assume that cash flows occur in the middle of the plan year (except for actuarial liability adjustments, which occur on 31 March). The Fund rates of return are those from the PSPIB 2014 Annual Report.

Table 30 Rates of Interest (Return)

<u>Plan Year</u>	<u>Superannuation Account</u>	<u>Pension Fund</u>
2012	6.0%	3.0%
2013	5.7%	10.7%
2014	5.4%	16.3%

C. Sources of Asset Data

The Superannuation Account, RCA No. 1 Account, RCA No. 2 Account and Pension Fund entries shown in Section A above were taken from the Public Accounts of Canada and the financial statements of the Public Sector Pension Investment Board.



Appendix 4 – Membership Data

A. Sources of Membership Data

The valuation input data required in respect of contributors (both active and non-active), pensioners and survivors are extracted from master computer files maintained by the Superannuation Directorate of the Department of Public Works and Government Services Canada. The Compensation Systems Branch of that department is responsible for the extraction of the data.

The main valuation data file supplied by the Superannuation Directorate contained the historical status information on all members up to 31 March 2014.

B. Validation of Membership Data

1. Status-Related Tests

The following status tests were performed on the main valuation data file:

- a consistency check that a status could be established for each record of a member. The status of a member may change over time but at a given point in time it can be only one of the following: contributor, outstanding termination, pensioner, deceased leaving an eligible survivor;
- a consistency check of the changes in status of a member during the intervaluation period; e.g.
 - if a contributor record indicated that the member retired, then a corresponding pensioner record should exist; and
 - if a contributor or pensioner record indicated that the member died leaving an eligible survivor, then a corresponding survivor record should exist;
- a reconciliation between the status of members as at 31 March 2014 from the current valuation data and the status of the members as at 31 March 2011 from the previous valuation data; and
- a comparison of the valuation data as at 31 March 2014 with the membership shown in the Report on the Administration of the *Public Service Superannuation Act* for the fiscal year ending 31 March 2014.

2. Benefit-Related Tests

Consistency tests were performed to ensure that all information required to value the member benefits based on individual statuses as at 31 March 2014 was included by verifying that

a) For Active Members

- the pensionable service was reasonable in relation to the attained age; and
- the salary was included and, if not, the average salary rate based on the age, service and gender of that member was used.



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b) For Pensioners and Survivors in Receipt of an Annuity

- the amount of the annuity, including indexation, was included; and
- the benefits were indexed up to 1 January 2015.

c) For Outstanding Terminations

- the lump sum payment was recognized

d) For Adjustments to Status and Benefit Data

- appropriate adjustments were made to the basic data, after consulting with the data providers, based on the omissions and discrepancies identified by the tests described herein, as well as other additional tests.

C. Membership Data

Tables 31 to 35 show the detailed reconciliation of membership data since the last valuation. Detailed membership data upon which this valuation is based are shown in Appendix 12.

Table 31 Reconciliation of Contributors

	Participating Accruing		Participating Non-accruing		Total Participating	Non-Participating Non-Accruing		
	Male	Female	Male	Female		Male	Female	Total
As at 31 March 2011	137,107	174,734	3,250	2,022	317,113	475	546	1,021
Data corrections	(481)	(887)	(175)	(47)	(1,590)	(8)	(9)	(17)
New contributors								-
New entrants	18,674	22,210	44	1	40,929	-	-	-
Rehired cash-outs	6,370	9,901	6	2	16,279	-	-	-
Rehired pensioners	<u>2,788</u>	<u>3,783</u>	<u>18</u>	<u>8</u>	<u>6,597</u>	-	-	-
Subtotal	27,832	35,894	68	11	63,805	-	-	-
Changes of								
Participating accruing	-	-	2,499	2,544	5,043	470	679	1,149
Participating non-accruing	(2,499)	(2,544)	-	-	(5,043)	82	25	107
Non-participating non-accruing	<u>(470)</u>	<u>(679)</u>	<u>(82)</u>	<u>(25)</u>	<u>(1,256)</u>	=	=	=
Subtotal	(2,969)	(3,223)	2,417	2,519	(1,256)	552	704	1,256
ROC or TV	(13,669)	(18,994)	(65)	(1)	(32,729)	(285)	(482)	(767)
Pensionable terminations								
Disability	(712)	(1,528)	(13)	(26)	(2,279)	(1)	(2)	(3)
Deferred annuity (DA)	(6,733)	(9,062)	(32)	(27)	(15,854)	(32)	(73)	(105)
Death (no survivors)	(177)	(236)	(13)	(4)	(430)	(4)	(7)	(11)
Death (with survivors)	(418)	(295)	(18)	(5)	(736)	(8)	-	(8)
Annuity (IA/AA) ¹	<u>(11,706)</u>	<u>(14,019)</u>	<u>(2,980)</u>	<u>(2,864)</u>	<u>(31,569)</u>	<u>(213)</u>	<u>(146)</u>	<u>(359)</u>
Subtotal	(19,746)	(25,140)	(3,056)	(2,926)	(50,868)	(258)	(228)	(486)
As at 31 March 2014	128,074	162,384	2,439	1,578	294,475	476	531	1,007

¹ IA refers to Immediate Annuity while AA means Annual Allowance.



Table 32 Reconciliation of Pensioners

	Deferred Annuity or Deferred Annual Allowance			Disability Annuity			IA/AA ¹		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Retirement Pensioners	4,924	6,302	11,226	6,040	7,290	13,330	104,145	66,239	170,384
Deemed Pensioners	3,059	4,058	7,117	36	33	69	815	646	1,461
As at 31 March 2011	7,983	10,360	18,343	6,076	7,323	13,399	104,960	66,885	171,845
Data corrections	(4,422)	(5,939)	(10,361)	168	128	296	(594)	(172)	(766)
New entrants from									
Contributor	6,797	9,162	15,959	726	1,556	2,282	14,899	17,029	31,928
Transfer status to									
Contributor	(2,403)	(3,316)	(5,719)	(1)	(2)	(3)	(402)	(473)	(875)
Deferred annuitant	(8)	(22)	(30)	-	-	-	-	-	-
Disabled annuitant	-	-	-	8	22	30	1,284	1,619	2,903
Pensioner (IA/AA)	<u>(1,284)</u>	<u>(1,619)</u>	<u>(2,903)</u>	-	-	-	-	-	-
Subtotal	(3,695)	(4,957)	(8,652)	7	20	27	882	1,146	2,028
Terminations									
Cash paid out	(674)	(818)	(1,492)	-	-	-	(8)	(7)	(15)
Death (no survivors)	(5)	(4)	(9)	(408)	(385)	(793)	(4,852)	(3,756)	(8,608)
Death (with survivors)	<u>(25)</u>	<u>(14)</u>	<u>(39)</u>	<u>(394)</u>	<u>(157)</u>	<u>(551)</u>	<u>(5,888)</u>	<u>(955)</u>	<u>(6,843)</u>
Subtotal	(704)	(836)	(1,540)	(802)	(542)	(1,344)	(10,748)	(4,718)	(15,466)
As at 31 March 2014	5,959	7,790	13,749	6,175	8,485	14,660	109,399	80,170	189,569

¹ IA refers to Immediate Annuity while AA means Annual Allowance.



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Table 33 Reconciliation of Spouse Survivors

	Widows	Widowers	Total
As at 31 March 2011	48,601	5,039	53,640
Data corrections	(550)	34	(516)
New from contributors	404	287	691
New from pensioners	6,285	1,126	7,411
Spouse deaths	(8,887)	(818)	(9,705)
As at 31 March 2014	45,853	5,668	51,521

Table 34 Reconciliation of Survivors – Children/Students

	Children	Students	Total
As at 31 March 2011	736	505	1,241
Data corrections	(75)	132	57
New from contributors	312	97	409
New from pensioners	62	63	125
Termination of benefits	(181)	(661)	(842)
Eligible as student	(123)	123	-
As at 31 March 2014	731	259	990

Table 35 Reconciliation of Pensioners with ERI Benefits

	Male	Female	Total
As at 31 March 2011	6,461	4,111	10,572
Data corrections	28	32	60
Pensioner deaths	(229)	(107)	(336)
Transfer to contributors	(4)	(3)	(7)
As at 31 March 2014	6,256	4,033	10,289



Appendix 5 – PSSA Valuation Methodology

A. Plan Assets

1. Public Service Superannuation Account

The balance of the Superannuation Account forms part of the Accounts of Canada. The underlying notional bond portfolio described in Appendix 3 is shown at the book value.

The only other Superannuation Account–related amount consists of the discounted value of future member contributions and government credits in respect of prior service elections. The discounted value of future member contributions was calculated using the projected Superannuation Account yields. The government is assumed to match these future member contributions when paid at a single rate but it makes no contributions if the member is paying the double rate.

2. Public Service Pension Fund

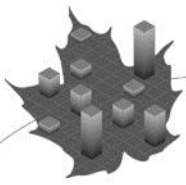
For valuation purposes, an adjusted market value method is used to determine the actuarial value of assets in respect of the Pension Fund. The method is unchanged from the previous valuation.

Under the adjusted market value method, the difference between the observed investment returns during a given plan year and the expected investment returns for that year based on the previous report assumptions, subject to a 10% corridor, is spread over five years. As a result, the actuarial value of assets is a five-year smoothed market value where the appreciation of investment gains or (losses) is recognized at the rate of 20% per year. The value produced by this method is related to the market value of the assets but is more stable than the market value.

The only other Pension Fund–related asset consists of the discounted value of future member contributions and government credits in respect of prior service elections¹. The discounted value of future member contributions was calculated using the assumed rates of return on the Pension Fund. The government is assumed to contribute in the same proportion as for the PSSA current service cost when member contributions are paid at the single rate, but it is assumed to contribute only a portion of the member contribution if the member is paying the double rate. The percentage varies depending on the government contribution where a member is paying the single rate.

The actuarial value of the assets, determined as at 31 March 2014, under the adjusted market value method is \$63,151 million and was determined as follows:

¹ As defined in Appendix 1B.2.b) Elected Prior Service.



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Table 36 Actuarial Value of Pension Fund Assets
(\$ millions)

Plan Year	2010	2011	2012	2013	2014
Actual net investment return (A)	5,458	5,047	1,273	5,097	9,150
Expected investment return (B)	1,593	2,141	2,433	2,699	3,292
Investment gains (losses) (A-B)	3,866	2,907	(1,160)	2,398	5,858
Gains (losses) recognized immediately	-	-	-	-	-
Investment gains (losses) to be amortized	3,866	2,907	(1,160)	2,398	5,858
Unrecognized percentage	0%	20%	40%	60%	80%
<i>Unrecognized investment gains (losses)</i>	-	581	(464)	1,439	4,687
Market value as at 31 March 2014					68,668
Plus					
Present value of prior service contributions					726
Less					
Total unrecognized investment gains (losses)					6,243
Actuarial value as at 31 March 2014					63,151

B. Actuarial Cost Method

As benefits earned in respect of current service will not be payable for many years, the purpose of an actuarial cost method is to assign costs over the working lifetime of the members.

As in the previous valuation, the projected accrued benefit actuarial cost method (also known as the projected unit credit method) was used to determine the current service cost and actuarial liability. Consistent with this cost method, pensionable earnings are projected up to retirement using the assumed annual increases in average pensionable earnings (including seniority and promotional increases). The yearly maximum salary cap and other benefit limits under the *Income Tax Act* described in Appendix 2 were taken into account to determine the benefits payable under the PSSA and those payable under the RCA No. 1.

1. Current Service Costs

Under the projected accrued benefit actuarial cost method, the current service cost, also called the normal cost, computed in respect of a given year is the sum of the value, discounted in accordance with the actuarial assumptions for the Pension Fund, of all future payable benefits considered to accrue in respect of that year of service. The Pension Fund administrative expenses are also included in the total current service cost.

Under this method, the current service cost for an individual member will increase each year as the member approaches retirement. However, all other things being equal, the current service cost for the total population, expressed as a percentage of total pensionable payroll, can be expected to remain stable as long as the average age and service of the total population remain constant. This is true to the extent that the plan population is mature and stable.



In general, and once determined, the contribution required by members will constitute a higher or lower portion of the actual current service cost of each member based on the age of the member. For a mature and stable population, a younger member will pay a higher portion of their actual current service cost, while a member close to retirement will pay a lower portion of their actual current service cost. This creates a subsidy from younger to older members.

With the implementation of Division 23 of Part 4 of the *Jobs and Growth Act, 2012* (S.C. 2012, c. 31), the average current service cost for Group 2 members will be lower than the corresponding average current service cost for Group 1 members because the pension entitlement for Group 2 members is postponed by five years, that is, the immediate annuity is available at age 65 rather than at age 60. However, based on the definition of the projected unit credit cost method, there is still the need to have younger members (Group 2) subsidizing older members (Group 1) in order to properly fund the accrual of benefits, even though the benefits accruing for each group are different. Consequently, the determination of the current service cost for each group is still based on the projected unit credit cost method, with a small variant that will respect the spirit of the projected unit credit cost method.

The current service costs for Group 1 and Group 2 were determined as follows:

- i) The current service cost and member contribution percentage were determined for Group 1 contributors based on the total Public Service population (i.e., Group 1 and Group 2) and on the benefits available to Group 1 members. The result effectively levels the current service cost of Group 1 contributors since members of Group 2 are treated as though they are entitled to pre-2013 retirement benefits. Determining the cost in this fashion avoids too large an increase in the average cost of Group 1 contributors since their average age is expected to increase because there will be no new entrants to the Group 1 population.
- ii) An amount equal to the excess of the actual current service cost for Group 1 contributors over the average current service cost of the combined Group 1 and Group 2 population determined in i) above was determined.
- iii) The excess amount determined in ii) above was then added to the current service cost for Group 2, which was determined based on the Group 2 population and the benefits available to Group 2 contributors. Member contribution rates for Group 2 contributors were determined based on this increased current service cost amount, effectively providing the subsidy from younger to older members fundamental to the projected unit credit cost method.

This modified cost method respects the fundamental attributes of the projected unit credit cost method and provides an appropriate allocation of the cost between Group 1 and Group 2 contributors.

For a given year, the government current service cost is the total current service cost reduced by the members' contributions during the year.

2. Actuarial Liability

The actuarial liability with respect to contributors corresponds to the value, discounted in accordance with the actuarial assumptions, of all future payable benefits accrued as at



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the valuation date in respect of all previous service. For pensioners and survivors, the actuarial liability corresponds to the value, discounted in accordance with the actuarial assumptions, of future payable benefits.

3. Actuarial Excess/(Shortfall) and Surplus/(Deficit)

It is very unlikely that the actual experience will develop precisely in accordance with the assumptions that underlie the actuarial estimates. Thus a balancing item must be calculated under this cost method to estimate the necessary adjustments. Adjustments may also be necessary if the terms of the pension benefits enacted by legislation are modified or if assumptions need to be updated.

The actuarial excess/(shortfall) or surplus/(deficit) is the difference between the account balance or the total value of assets and the actuarial liability. A new actuarial shortfall/deficit may be amortized over a period not exceeding 15 years through special credits/payments and the disposition of any actuarial excess/surplus is defined in the PSSA.

4. Government Contributions

The recommended government contribution corresponds to the sum of:

- the government current service cost;
- the government contributions for prior service; and
- as applicable, special credits/payments in respect of a shortfall/deficit or as the case may be, debits when an actuarial surplus exists.

C. Projected Yields

The projected rates of return (shown in Appendix 6) assumed for computing the present value of accrued benefits to be credited to the Superannuation Account are the projected annual yields on the combined book value of the Superannuation Accounts of the Public Service, Canadian Forces and RCMP pension plans.

The projected Account yields were determined by an iterative process involving the following:

- the combined notional bond portfolio of the three Superannuation Accounts as at the valuation date;
- the assumed future new money interest rates (also shown in Appendix 6);
- the expected future benefits payable in respect of all pension entitlements accrued up to 31 March 2000;
- the expected future contributions for prior service elections made up to 31 March 2000; and
- the expected future administrative expenses,

taking into account that each quarterly interest credit to a Superannuation Account is calculated as if the principal at the beginning of a quarter remains unchanged during the quarter.



The projected rates of return (shown in Appendix 6) assumed for computing the present value of the benefits accrued or accruing to be credited to the Pension Fund were developed on the basis that the Fund holds a diversified mix of assets.

D. Membership Data

For valuation purposes, individual data on each member were used.

The member data shown in Appendices 4 and 12 were provided as at 31 March 2014. This valuation is based on the member data as at the valuation date.

The information in respect of the contributions for elected prior service was provided as at 31 March 2014. Future member contributions in respect of elected prior service take into account only the payment streams that were in effect at 31 March 2014. Only payments due after 31 March 2014 were included.



Appendix 6 – PSSA Economic Assumptions

The payment of accrued pension benefits is the responsibility of the government, therefore the likelihood of the plan being wound-up and its obligation not being fulfilled is practically nonexistent. Consequently, all of the assumptions used in this report are best-estimate assumptions, i.e., they reflect our best judgement of the future long-term experience of the plan and do not include a margin.

A. Inflation-Related Assumptions

1. Level of Inflation

Price increases, as measured by changes in the Consumer Price Index (CPI), tend to fluctuate from year to year. In 2011, the Bank of Canada and the Government renewed their commitment to keep inflation between 1% and 3% until the end of 2016. Therefore, a price increase rate of 2.0% is assumed for plan years 2015 and thereafter. The ultimate rate of 2.0% is 0.3% lower than the assumed rate in the previous valuation.

2. Increase in Pension Factor

The year's pension indexing factor is required in the valuation process by virtue of its role in maintaining the purchasing power of pensions. It was derived by applying the indexation formula described in Appendix 1, which relates to the assumed Consumer Price Index increases over successive 12-month periods ending on 30 September.

B. Employment Earnings Increases

1. Increase in the Year's Maximum Pensionable Earnings (YMPE)

The YMPE is required in the valuation process because the plan is coordinated with the Canada Pension Plan and the Quebec Pension Plan. The assumed increase in the YMPE for a given calendar year is derived, in accordance with the Canada Pension Plan, to correspond to the increase in the average weekly earnings (AWE), as calculated by Statistics Canada, over successive 12-month periods ending on 30 June. The AWE, and thus the YMPE, is deemed to include a component for seniority and promotional increases. The YMPE is equal to \$53,600 for calendar year 2015. Future increases in the YMPE correspond to the assumed real¹ increase in the AWE plus assumed increases in the CPI.

The real-wage differential is developed taking into account historical trends, a possible labour shortage, and an assumed moderate economic growth for Canada. Thus, a real-wage differential of 0.2% is assumed for 2016, and is assumed to gradually increase to the ultimate assumption of 1.1% by 2020. The ultimate real-wage differential assumption combined with the ultimate price increase assumption results in an assumed annual increase in nominal wages of 3.1% in 2020 and thereafter. Thus, the ultimate rate of increase for the YMPE is 3.1%, resulting from a 1.1% increase in the real AWE and a 2.0% increase in the CPI.

¹ Note that all of the real rates presented in this report are actually differentials, i.e. the difference between the effective annual rate and the rate of increase in prices. This differs from the technical definition of a real rate of return, which, for example in the case of the ultimate Fund assumption would be 4.0% (derived from 1.061/1.020) rather than 4.1%.



2. Increase in Average Pensionable Earnings

Average pensionable earnings are applicable to plan members only, whereas the YMPE applies to the general working population in Canada. In addition, increases in average pensionable earnings are exclusive of seniority and promotional increases, which are considered under a separate demographic assumption. Thus, the annual increase in average pensionable earnings is assumed to be 0.2% lower than the corresponding increase in the YMPE. The ultimate increase in average pensionable earnings is 2.9%.

3. Increase in Maximum Pensionable Earnings (MPE)

Since the plan is coordinated with the Canada Pension Plan and the Quebec Pension Plan, the tax-related maximum pensionable earnings were derived from both the maximum annual pension accrual under a registered defined benefit plan and the YMPE. The maximum annual pension accrual of \$2,770.00 for 2014 will increase to \$2,818.89 for 2015, in accordance with Income Tax Regulations. Thereafter, the maximum annual pension accrual is assumed to increase in accordance with the assumed annual increase in the YMPE, which is the same as the assumed annual increase in the AWE.

Beginning with calendar year 2012, the coordination factor is 0.625%. The MPE is equal to \$157,700 for calendar year 2015.

C. Investment-Related Assumptions

1. New Money Rate

The new money rate is the nominal yield on 10-year-plus Government of Canada bonds and is set for each year in the projection period. The real yield on 10-year-plus federal bonds is equal to the new money rate less the assumed rate of inflation.

Recognizing recent experience, the real yield on 10-year-plus federal bonds is assumed to be 0.4% in plan year 2015 before increasing gradually to its ultimate level of 2.8% first attained in plan year 2022. This increase is consistent with the average of private sector forecasts. The real yield on 10-year-plus bonds is based on historical yields. The ultimate real yield is 0.1% higher than assumed in the previous valuation, which was 2.7%. The real new money rates over the first seven years of the projection are on average 1.1% lower than assumed in the previous valuation.

2. Projected Yields on Superannuation Account

These yields are required for the computation of present values of benefits to determine the liability for service prior to 1 April 2000. The methodology used to determine the projected yields on the Account is described in section C of Appendix 5. The methodology is unchanged from previous valuations. However, since the real projected yields are determined based on the real new money rates, they are projected to be lower than assumed in the previous valuation over the first 20 years of the projection.

3. Rate of Return on the Fund

The expected annual nominal rates of return on the Fund are required for the computation of present values of benefits to determine the liability for service since 1 April 2000 and the current service cost. The following sections describe how the rates of return on the Fund are determined.



a) Investment Strategy

Since 1 April 2000, assets resulting from transferred amounts equal to the government and member contributions, net of benefit payments and administration expenses, are invested in capital markets through the Public Sector Pension Investment Board (PSPIB). PSPIB invests funds to maximize returns without undue risk of loss according to the investment policy set and approved by its Board of Directors that takes into account the needs of contributors and beneficiaries, as well as financial market constraints. For the purpose of this report, the investments have been grouped into three broad categories: equities, fixed income securities and real return assets. Equities consist of Canadian, foreign developed market and emerging market equities. Fixed income securities consist of bonds which are usually a mix of federal, provincial, corporate and real return bonds. Real return assets include such categories as real estate and infrastructure. For presentation purposes, PSPIB includes real return bonds (also referred to as world inflation-linked bonds) as part of real return assets. However, for the purpose of this report, real return bonds are allocated to fixed income securities.

As at 31 March 2014, PSPIB assets consisted of 61% equity, 20% fixed income securities (including world inflation-linked bonds) and 19% real return assets. PSPIB has developed a long-term target Policy Portfolio (approved by its Board of Directors on 13 November 2013 and subject to an annual review), which consists of 54% equity, 18% fixed income securities and 28% real return assets. The Policy Portfolio asset mix weights represent long-term targets. Therefore, the initial asset mix is derived using the actual investments reported by PSPIB as at 31 March 2014.

PSPIB Policy Portfolio reflects long-term expectations. Considering the uncertainty related to those expectations, it is assumed that the asset mix of the Plan portfolio will converge slowly toward the Policy Portfolio, but without reaching the ultimate weights. For the purpose of this report, the ultimate asset mix is reached in plan year 2019 and consists of 55% equity, 20% fixed income securities and 25% real return assets. Net cash flows (contributions less expenditures, disregarding special payments) are expected to become negative during plan year 2030 and a portion of investment income will therefore be required to pay benefits. Changes to the assumed asset mix may be required in the future to reduce funding risks and to take into account the maturity of the plan.

Table 37 shows the assumed asset mix for each plan year throughout the projection period.



Table 37 Asset Mix
(in percentage)

Plan Year	Fixed Income Securities ¹	Cash	Canadian Equity	U.S. and Foreign Equity	Emerging Market Equity	Real Return Assets
2015	18	2	20	33	8	19
2016	18	2	20	32	8	20
2017	18	2	20	31	8	21
2018	18	2	20	29	8	23
2019	18	2	20	27	8	25
2020	18	2	20	27	8	25
2021	18	2	20	27	8	25
2022	18	2	20	27	8	25
2023+	18	2	20	27	8	25

b) Real Rates of Return by Asset Type

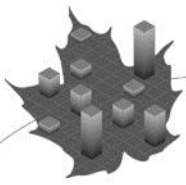
Real rates of return are required in order to discount benefits payable in the future for the determination of the actuarial liability and current service cost. They are assumed for each year of the projection period and for each of the main asset categories in which Pension Fund assets are invested. All real rates of return described in this section are shown before reduction for assumed investment expenses. Subsection c) describes how the returns are adjusted for investment expenses.

In addition, the assumed real rate of return for each asset class includes an allowance for rebalancing and diversification to take into account the beneficial effect of reduced volatility that comes from diversification within a portfolio. If the expected rates of return for each asset class were not increased to reflect their respective share of this allowance, then the expected long-term portfolio rate of return calculated as the weighted average rate of return of each asset class would be underestimated.

The real rates of return were developed by looking at historical returns (expressed in Canadian dollars) and adjusting the returns upward or downward to reflect expectations that differ from the past. Future currency variations will impact the real rates of return over the projection period, creating gains and (losses). However, as the projection period is long, these gains and (losses) are expected to offset each other over time. Hence, it is assumed that currency variations will not have an impact on the long-term real rates of return.

With the exception of fixed income securities and cash, real rates of return for all asset classes are generally assumed to be constant for the entire projection period. The current context of extremely low yields and the general expectations that yields will increase over the coming years are reflected in the expected fixed income securities' short-term real rates of return. A constant real rate of return is assumed for more volatile asset classes, reflecting the difficulty to predict yearly market returns.

¹ For presentation purposes, PSPIB includes real return bonds as part of real return assets. However, for the purpose of this report, real return bonds are allocated to fixed income securities.



Fixed Income Securities

PSPIB currently has 20% of its portfolio invested in fixed income securities, including Canadian fixed income, world government bonds, world inflation-linked bonds and cash. It is assumed that the proportion invested in fixed income securities will remain at 20% of Pension Fund assets for the entire projection period.

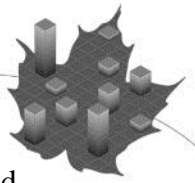
It is assumed that, excluding cash, fixed income securities consist of 45% federal bonds, 15% provincial bonds, 15% corporate bonds and 25% inflation-linked bonds.

The assumed real yield on 10-year-plus federal bonds is 0.8% at the beginning of plan year 2015, and is expected to decrease in plan year 2015 before increasing to an ultimate of 2.8% at the end of plan year 2021. This increase in real yield is consistent with the average private sector forecasts. The initial spreads over the 10-year-plus federal bond real yield are assumed to be 95 basis points for long-term provincial bonds and 140 basis points for corporate bonds. These spreads are higher than the historical average and reflect the current economic environment. The ultimate spreads for provincial and corporate bonds are assumed to be 55 basis points and 90 basis points, respectively, and are reached at the end of plan year 2020. Corporate bond spreads are net of the expected default rate. Real return bonds, on the other hand, usually have a lower real yield than 10-year-plus federal bonds, since the real return is guaranteed and will not vary with inflation. Thus, the spread on inflation-linked bonds is assumed to be 10 basis points initially and will reach its ultimate value of -20 basis points at the end of plan year 2020.

In the previous report, it was assumed that fixed income securities would consist of long-term bonds only. However, since the current PSPIB policy portfolio is not only composed of long-term bonds, but of bonds of all duration (universe), it is assumed that fixed income securities are composed of universe bonds for the entire projection period. Since bonds with shorter duration are less affected by an increase in yield, this results in slightly higher fixed income rates of return over the first few years than it would have been assuming long-term bonds. However, the assumed real rate of return of the fixed income securities once bond yields have stabilized is lower than the corresponding assumed real rate of return of the last report (2.7% instead of 3.3% before investment expenses).

Due to their shorter duration, the yield on universe bonds is lower than the yield on long-term bonds. The spread between the 10-year-plus federal bonds and the universe of federal bonds is assumed to decrease from 105 basis points at the beginning of plan year 2015 to 50 basis points at the beginning of plan year 2021. Spreads between universe federal bonds and universe provincial, or universe corporate bonds are assumed to be similar to spreads between long-term bonds.

The expected real rates of return for individual bonds take into account the coupons and market value fluctuations due to the expected movement of their respective yield rates. As the economy continues to strengthen (following the 2008-2009 economic downturn), the 10-year-plus federal bond yield is assumed to reach its low point at the end of plan year 2015 and then to increase between plan years 2016 and 2021 and to stabilize at the end of plan year 2021. Therefore, bond returns are quite low for the first seven years of the projection. The assumed ultimate real rate of return



for 10-year-plus federal bonds is 2.8% starting in plan year 2022. An ultimate fixed income real rate of return of 2.7% is assumed for 2022 and thereafter.

Equity

Currently, the assets of the pension fund are mostly invested in equity, specifically in developed world equity and emerging markets equity. In the derivation of the real rates of return for these equity investments, consideration was given to the long-term equity risk premiums for these equity classes. The rates of return also include dividends from the equities and market value fluctuations. No distinction is made between realized and unrealized capital gains.

Consistent with the assumption that risk taking must be rewarded, equity returns are developed by adding an equity risk premium to the long-term federal bond real rate of return. The historical equity risk premium over bonds for 23 countries, representing almost 90% of global stock market value, for the 114-year period starting in 1900 was 3.3% (3.5% for Canada)¹. Historical equity risk premiums were higher than expected due to several non-repeatable factors (mainly diversification and globalization). As a result, the long-term expected equity risk premium is assumed to be lower than what was realized in the past 114 years. However, the equity risk premium is assumed to be higher from year two to year seven of the projection, reflecting assumed low bonds return over the same period, before reaching its ultimate rate of 2.2% for Canadian and foreign developed markets. The equity risk premium for emerging market equities is expected to be 100 basis points higher than for Canadian and foreign developed market equities, reflecting the additional risk inherent with investments in emerging countries.

As described in the previous section, the 10-year-plus federal bond real rate of return is set at 2.8% for plan years 2022 and thereafter. The real rates of return are thus projected at 5.0% for developed market equities and 6.0% for emerging markets equities.

Real Return Assets

Real return assets such as real estate and infrastructure are considered to be a hybrid of corporate bonds and equity. If these assets are considered to behave 75% like corporate bonds and 25% like developed market equities, then the assumed return should be composed of 75% of the return on corporate bonds and 25% of the return on developed market equities. In the last report, these assets were assumed to behave 40% like fixed income securities and 60% like developed market equities. The methodology has been improved following discussion with PSPIB to better reflect the perceived debt/equity nature of those assets. Considering the inherent difficulties in modelling short-term returns for volatile assets, real return assets are projected at 3.9% throughout the projection period.

Table 38 summarizes the assumed real rates of return by asset type throughout the projection period, prior to reduction for investment expenses.

¹ Source: Elroy Dimson, Paul Marsh and Mike Staunton, Credit Suisse Global Investment Returns Yearbook 2014.



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Table 38 Real Rate of Return by Asset Type
(in percentage)

Plan Year	Fixed Income Securities	Cash	Canadian Equity	U.S. and Foreign Equity	Emerging Market Equity	Real Return Assets
2015	2.3	(1.1)	5.0	5.0	6.0	3.9
2016	(3.3)	(1.4)	5.0	5.0	6.0	3.9
2017	(3.4)	(0.8)	5.0	5.0	6.0	3.9
2018	(3.0)	(0.3)	5.0	5.0	6.0	3.9
2019	(0.9)	0.2	5.0	5.0	6.0	3.9
2020	(0.7)	0.5	5.0	5.0	6.0	3.9
2021	0.8	0.8	5.0	5.0	6.0	3.9
2022+	2.7	1.0	5.0	5.0	6.0	3.9

c) Investment Expenses

Over the last three plan years, PSPIB's operating and asset management expenses have averaged 0.59% of average net assets. It is assumed that going forward PSPIB investment expenses will average 0.60% of average net assets. The majority of those investment expenses were incurred through active management decisions.

The active management objective is to generate returns in excess of those from the policy portfolio, after reduction for additional expenses. Thus, the additional returns from a successful active management program should equal at least the cost incurred to pursue active management. In eight of the past ten years, PSPIB's additional returns from active management exceeded related expenses. For the purpose of this valuation, it is assumed that additional returns due to active management will equal additional expenses related to active management. Those expenses are assumed to be the difference between total investment expenses of 0.6% and the assumed expenses of 0.2% that would be incurred for passive management of the portfolio considering that part of the portfolio is invested in real estate and infrastructure.

The next section shows the overall rate of return on the fund net of investment expenses.



d) Overall Rate of Return on assets of the Pension Fund

The best-estimate rate of return on total assets is derived from the weighted average assumed rate of return on all types of assets, using the assumed asset mix proportions as weights. The best-estimate rate of return is further increased to reflect additional returns due to active management and reduced to reflect all investment expenses. The ultimate real rate of return is developed as follows:

	<u>Nominal</u>	<u>Real</u>
Weighted average rate of return	6.3%	4.3%
Additional returns due to active management	0.4%	0.4%
Expected investment expenses		
Expenses due to passive management	(0.2%)	(0.2%)
Additional expenses due to active management	<u>(0.4%)</u>	<u>(0.4%)</u>
Total expected investment expenses	(0.6%)	(0.6%)
Net rate of return	6.1%	4.1%

The resulting nominal and real rates of return for each projection year are as follows:

Table 39 Rates of Return on Assets in Respect of the Pension Fund
(in percentage)

Plan Year	Nominal	Real
2015	6.1	4.1
2016	5.0	3.0
2017	5.0	3.0
2018	5.1	3.1
2019	5.4	3.4
2020	5.5	3.5
2021	5.8	3.8
2022	6.1	4.1
2023+	6.1	4.1
2015-2019	5.3	3.3
2015-2024	5.6	3.6

It is assumed that the ultimate real rate of return on investments will be 4.1%, net of all investment expenses. This is unchanged from the previous valuation. The real rates of return over the first seven years of the projection are on average 0.5% lower than assumed in the previous valuation. The real rate of return on assets takes into account the assumed asset mix as well as the assumed real rate of return for all categories of assets. The nominal returns projected for the Pension Fund are simply the sum of the assumed level of inflation and the real return.



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4. Transfer Value Real Interest Rate

Committed values are calculated in accordance with the Standards of Practice published by the Canadian Institute of Actuaries. In particular, the real interest rates to be used for the computation of commuted values as at a particular date are as follows:

First 10 years: $r_7 + 0.90\%$

After 10 years: $r_L + 0.5 \times (r_L - r_7) + 0.90\%$

Where

$$r_7 = r_L \times (i_7/i_L)$$

r_L is the long-term real-return Government of Canada bond yield, annualized

i_L is the long-term Government of Canada benchmark bond yield, annualized and

i_7 is the 7-year Government of Canada benchmark bond yield, annualized

The obtained rates of interest are rounded to the next multiple of 0.10%.

For example, for plan year 2017, the assumed real rates of interest are 1.7% for the first 10 years and 2.1% thereafter. The rates are derived from the assumed CPI increase, the assumed 10-year-plus Government of Canada benchmark bond yield which corresponds to the new money rate in this valuation and the assumed spreads¹ between the new money rate and the long-term real-return Government of Canada bond yield, the long-term Government of Canada benchmark bond yield and the 7-year Government of Canada benchmark bond yield.

Table 40 shows the assumed transfer value real interest rates used in this report:

Table 40 Transfer Value
(As a percentage)

Plan Year	r_L	i_L	i_7	r_7	Real Interest Rates	
					First 10 Years	After 10 Years
2015	0.61	2.54	1.69	0.40	1.30	1.60
2016	0.45	2.35	1.49	0.28	1.40	1.70
2017	1.09	3.12	2.29	0.80	1.70	2.10
2018	1.70	3.84	3.04	1.35	2.20	2.80
2019	2.03	4.22	3.44	1.65	2.50	3.10
2020	2.27	4.51	3.74	1.88	2.80	3.40
2021	2.48	4.75	3.98	2.08	3.00	3.60
2022+	2.56	4.85	4.08	2.16	3.10	3.70

¹ The spreads for the first year are based on the October 2014 actual spreads of 22, 12 and -73 basis points between 10-year-plus Government of Canada bond yield and the bonds underlying r_L , i_L and i_7 respectively. The ultimate spreads of -20, 5 and -70 basis points, starting in fiscal year 2022, are based on the average spreads over the last 10 years. An interpolation reflecting the variation in new money rates is applied for intermediate years.



5. Summary of Economic Assumptions

The economic assumptions used in this report are summarized in the Table 41.

Table 41 Economic Assumptions¹
(As a percentage)

Plan Year	Inflation		Employment Earning Increases			Interest		
	CPI Increase ²	Pension Indexing ³	YMPE ³	Average Pensionable Earnings ⁴	Maximum Pensionable Earnings ^{3,5}	New Money Rate	Projected Yield on Account	Projected Return on Fund
2015	2.0	1.7	2.1	1.9	1.8	2.4	5.1	6.1
2016	2.0	2.0	2.2	2.0	2.2	2.5	4.8	5.0
2017	2.0	2.0	2.4	2.2	2.4	3.0	4.5	5.0
2018	2.0	2.0	2.7	2.5	2.7	3.7	4.3	5.1
2019	2.0	2.0	2.9	2.7	2.9	4.1	4.2	5.4
2020	2.0	2.0	3.1	2.9	3.1	4.4	4.1	5.5
2021	2.0	2.0	3.1	2.9	3.1	4.7	3.9	5.8
2022	2.0	2.0	3.1	2.9	3.1	4.8	3.9	6.1
2023	2.0	2.0	3.1	2.9	3.1	4.8	3.8	6.1
2024	2.0	2.0	3.1	2.9	3.1	4.8	3.8	6.1
2025	2.0	2.0	3.1	2.9	3.1	4.8	3.7	6.1
2030	2.0	2.0	3.1	2.9	3.1	4.8	3.7	6.1
2035	2.0	2.0	3.1	2.9	3.1	4.8	4.2	6.1
2040+	2.0	2.0	3.1	2.9	3.1	4.8	4.8	6.1

For the period ending December 2013, the following table was prepared based on the Canadian Institute of Actuaries Report on Canadian Economic Statistics 1924-2013.

Period of Years Ending 2013	15	25	50
Level of Inflation	2.0%	2.1%	4.1%
Real Increases in Average Earnings	0.6%	0.5%	0.9%
Real Yield on Long-Term Canada Bonds	2.4%	3.7%	3.3%
Real Return on Long-Term Canada Bonds	3.9%	6.7%	3.7%
Average Real Return on Diversified Portfolios	4.4%	6.2%	4.3%

¹ Bold figures denote actual experience.

² Assumed to be effective during Plan Year.

³ Assumed to be effective as at 1 January.

⁴ Assumed to occur throughout the plan year. Exclusive of seniority and promotional increases.

⁵ Calendar year 2015 Maximum Pensionable Earnings is \$157,700.



Appendix 7 – PSSA Demographic and Other Assumptions

A. Demographic Assumptions

Given the size of the population subject to the PSSA, the plan’s own experience, except where otherwise noted, was deemed to be the best model to determine the demographic assumptions. Assumptions from the previous valuation were updated to reflect past experience to the extent it was deemed credible.

As described in Appendix 1, the implementation of Division 23 of Part 4 of the *Jobs and Growth Act, 2012* (S.C. 2012, c. 31) resulted in different plan provisions for new contributors after 1 January 2013 (Group 2 contributors) than for existing contributors (Group 1 contributors), in particular, those provisions concerning retirement age. For Group 1 contributors, the plan provisions remain unchanged. Group 2 contributors are expected to behave differently in accordance with the new provisions.

1. Seniority and Promotional Salary Increases

Seniority means length of service within a classification, and promotion means moving to a higher paid classification.

The experience of the last three years compares closely to the assumptions reported in the last valuation report. Partial credibility was given to the experience from 1 April 2011 to 31 March 2014. For males with 0-8 years of service and 9-30 years of service the assumption is respectively on average the same as and 2% higher than the rates shown in the previous valuation report. For females in the same service ranges, the assumption was on average 1% lower and 6% lower than the rates shown in the previous valuation report.

Table 42 Sample of Assumed Seniority and Promotional Salary Increases
(Percentage of annual earnings)

Completed Years of Pensionable Service	Male	Female
0	5.4	5.6
1	4.9	5.0
2	4.4	4.4
3	3.9	3.8
4	3.5	3.4
5	3.1	3.0
6	2.9	2.8
7	2.6	2.6
8	2.4	2.4
9	2.2	2.2
10	2.1	2.0
15	1.5	1.6
20	1.3	1.4
25	1.1	1.2
30	0.9	1.0



2. New Contributors

It was assumed that the distribution of new participants by age and sex would be the same as that of participants with less than one year of service at the valuation date. The assumed percentage increase in the number of contributors for each plan year is shown in Table 43.

Table 43 Assumed Annual Increases in Number of Contributors

Plan Year	Percentage
2015	(1.4)
2016	(1.0)
2017	0.6
2018	0.6
2019+	0.6

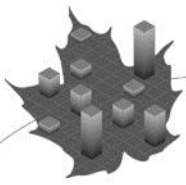
The initial salary of new members in a given age-sex cell in plan year 2015 is assumed to be the same as the corresponding experience in plan year 2014 with an economic salary increase for plan year 2015. Initial salary is assumed to increase in future years in accordance with the assumption for average earnings increases.

3. Pensionable Retirement

For Group 1 contributors and the operational service group, the assumed rates of pensionable retirement remain unchanged from the previous valuation.

For Group 2 contributors below age 65, a new retirement assumption was developed to reflect the fact that retirement eligibility ages are older for those members. Retirement rates between the ages of 49 and 53 were replaced by the withdrawal rates for the corresponding ages previously defined for Group 1 contributors, since the annual allowance benefit is not available for Group 2 contributors before age 55. The Group 1 retirement rates between the ages of 49 and 59 were used as the basis for the Group 2 retirement rates between the ages of 54 and 64. These retirement rates were further increased to account for the additional retirement rates between the ages of 59 and 64 for Group 2, with the objective of having equal probability of survival as an active contributor to age 65, for a contributor age 54 from either Group 1 or Group 2.

The intervaluation experience with respect to the retirement assumption was not accounted for in changing the assumption since that experience reflects the recent downsizing of the Public Service workforce, which should not be reflected in the new assumption.



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Tables 44 to 48 provide sample rates of pensionable retirement.

Table 44 Sample of Assumed Rates of Retirement – Main Group 1 – Male
(Per 1,000 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	1	2	10	20	29	30	35
50	50	42	13	7	9	12	52
55	74	65	23	21	233	182	478
60	122	117	98	131	247	217	409
65	235	212	244	247	287	279	405
70	435	344	327	583	318	600	386

Table 45 Sample of Assumed Rates of Retirement – Main Group 1 – Female
(Per 1,000 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	1	2	10	20	29	30	35
50	52	54	15	11	13	16	20
55	89	84	32	39	283	223	400
60	105	106	134	199	281	254	318
65	207	212	282	312	370	325	306
70	299	307	268	347	299	244	282

Table 46 Sample of Assumed Rates of Retirement – Main Group 2 – Male
(Per 1,000 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	1	2	10	20	29	30	35
55	52	45	17	11	9	12	52
60	86	82	58	59	251	182	478
65	235	212	244	247	287	279	405
70	435	344	327	583	318	600	386

Table 47 Sample of Assumed Rates of Retirement – Main Group 2 – Female
(Per 1,000 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	1	2	10	20	29	30	35
55	55	58	21	18	13	16	20
60	108	111	79	102	313	223	400
65	207	212	282	312	370	325	306
70	299	307	268	347	299	244	282

¹ Expressed in completed years calculated at the beginning of the plan year.



Table 48 Sample of Assumed Rates of Retirement – Operational Service Group
(Per 1,000 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	1	2	10	19	20	30	35
34-47	-	-	-	4	4	70	-
48	-	-	-	10	5	112	-
50	43	34	12	11	12	147	85
55	124	95	41	41	38	227	559
60	114	112	116	163	165	236	364
65	221	212	263	283	280	302	356

4. Disability Retirement

The disability incidence rate assumptions were revised to reflect the intervaluation experience. By age 60, a Group 1 contributor is eligible to receive a fully unreduced annuity hence disability rates are not required for ages above 59. A Group 2 contributor, however, can potentially take a disability retirement until age 65, thus the disability rate assumption for Group 2 contributors includes ages 59 to 64. The assumed disability incidence rates for males were on average 11% higher than in the previous valuation. The assumed disability incidence rates for females were on average 24% higher than in the previous valuation.

It is assumed that 75% of future new disability pensioners will receive a C/QPP disability pension at the onset of disability. This is unchanged from the previous valuation.

Table 49 Sample of Assumed Rates of Pensionable Disability
(Per 1,000 individuals)

Age Last Birthday ¹	Group 1		Group 2	
	Male	Female	Male	Female
25	0.11	0.05	0.11	0.05
35	0.38	1.00	0.38	1.00
45	1.57	2.90	1.57	2.90
55	4.53	8.09	4.53	8.09
58	6.16	9.12	6.16	9.12
59	-	-	7.29	10.29
60	-	-	8.81	11.54
61	-	-	10.69	12.79
62	-	-	12.76	13.92
63	-	-	14.68	14.79

5. Withdrawal

Withdrawal means ceasing to be employed for reasons other than death or retirement with an immediate annuity or an annual allowance.

For Group 1 contributors and the operational service group, the assumed rates of withdrawal remain unchanged from the previous valuation.

¹ Expressed in completed years calculated at the beginning of the plan year.



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For Group 2 contributors up to age 43, the assumed withdrawal rates are also unchanged from the previous valuation. Withdrawal rates at ages 44 to 48 were determined on the basis that the same member behaviour should be observed during the five years prior to the lock-in of the pension benefit as for Group 1 contributors. The lock-in age is defined as the age at which the accrued pension can no longer be commuted, that is the transfer value of the accrued pension is no longer an available option to members upon termination. For Group 1 contributors, lock-in occurs at the attainment of age 50; for Group 2 contributors it occurs at age 55.

The intervaluation experience with respect to the withdrawal assumption was not accounted for in changing the assumption since that experience reflects the recent downsizing of the Public Service workforce, which should not be reflected in the new assumption.

Tables 50 to 55 provide a sample of the assumed rates of withdrawal.

Table 50 Sample of Assumed Rates of Withdrawal – Main Group 1 – Male
(Per 1,000 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	0	1	5	10	20	25	30
20	305	299	35	-	-	-	-
25	124	108	28	20	-	-	-
30	99	82	27	12	-	-	-
35	88	74	23	12	6	-	-
40	82	69	23	14	6	7	-
45	84	68	17	13	5	4	2
48	93	72	17	14	7	4	5
50	125	-	-	-	-	-	-
55	134	-	-	-	-	-	-
60	209	-	-	-	-	-	-

Table 51 Sample of Assumed Rates of Withdrawal – Main Group 1 – Female
(Per 1,000 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	0	1	5	10	20	25	30
20	290	283	45	-	-	-	-
25	113	97	22	15	-	-	-
30	98	80	19	7	-	-	-
35	94	76	21	12	5	-	-
40	96	79	23	15	7	9	-
45	111	87	22	14	6	4	4
48	128	99	24	17	9	8	4
50	159	-	-	-	-	-	-
55	182	-	-	-	-	-	-
60	228	-	-	-	-	-	-

¹ Expressed in completed years calculated at the beginning of the plan year.



Table 52 Sample of Assumed Rates of Withdrawal – Main Group 2 – Male
(Per 1,000 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	0	1	5	10	20	25	30
20	305	299	35	-	-	-	-
25	124	108	28	20	-	-	-
30	99	82	27	12	-	-	-
35	88	74	23	12	6	-	-
40	82	69	23	14	6	7	-
45	93	68	19	12	5	4	3
48	107	68	19	12	5	4	3
50	125	68	17	13	5	4	2
53	131	72	17	14	7	4	5
55	134	-	-	-	-	-	-

Table 53 Sample of Assumed Rates of Withdrawal – Main Group 2 – Female
(Per 1,000 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	0	1	5	10	20	25	30
20	290	283	45	-	-	-	-
25	113	97	22	15	-	-	-
30	98	80	19	7	-	-	-
35	94	76	21	12	5	-	-
40	96	79	23	15	7	9	-
45	111	83	21	16	6	5	6
48	128	83	21	16	6	5	6
50	159	87	22	15	6	5	6
53	166	94	24	17	8	7	4
55	182	-	-	-	-	-	-

Table 54 Sample of Assumed Rates of Withdrawal – Operational Group Actual
(Per 1,000 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service					
	0	1	5	10	15	18
20	90	76	23	-	-	-
25	39	34	8	23	-	-
30	36	30	16	16	11	-
35	40	31	12	10	6	6
40	57	53	15	10	4	4
45	68	57	67	15	5	5
48	51	48	37	31	4	3
50	45	-	-	-	-	-
55	117	-	-	-	-	-
60	82	-	-	-	-	-

¹ Expressed in completed years calculated at the beginning of the plan year.



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Table 55 Sample of Assumed Rates of Withdrawal – Operational Group Deemed
(Per 1,000 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	0	1	5	10	20	25	30
20	90	76	23	-	-	-	-
25	39	34	8	23	-	-	-
30	36	30	16	16	-	-	-
35	40	31	12	10	6	-	-
40	57	53	15	10	4	6	-
45	68	57	67	15	-	-	-
48	51	48	37	31	-	-	-
50	45	-	-	-	-	-	-
55	117	-	-	-	-	-	-
60	82	-	-	-	-	-	-

6. Proportions of Terminating Contributors Opting for a Deferred Annuity

A Group 1 contributor with at least two years of service and less than 50 years of age upon termination can opt for a deferred annuity payable at age 60 or for the commuted value of the deferred annuity to age 60. A Group 2 contributor with at least two years of service, who is less than 55 years of age on retirement, can opt for a deferred annuity payable at age 65 or for the commuted value of the deferred annuity to age 65.

The assumption for the proportion of terminating contributors opting for a deferred annuity is tied to the withdrawal rate. The intervaluation experience was not reflected in the withdrawal rate assumption, thus neither was it reflected in the assumed proportion of terminating contributors electing a deferred annuity.

Tables 56 to 60 provide a sample of the proportions of terminating contributors opting for a deferred annuity.

Table 56 Sample of Proportions Opting for a Deferred Annuity – Main Group 1 – Male
(Per 100 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	1	5	10	15	20	25	30
20	4	-	-	-	-	-	-
25	13	50	-	-	-	-	-
30	16	50	41	-	-	-	-
35	15	48	50	37	-	-	-
40	16	43	40	34	48	-	-
45	15	45	55	41	50	46	-
48	15	50	55	36	36	30	11

¹ Expressed in completed years calculated at the beginning of the plan year.



Table 57 Sample of Proportions Opting for a Deferred Annuity – Main Group 1 – Female
(Per 100 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	1	5	10	15	20	25	30
20	11	26	-	-	-	-	-
25	15	51	17	-	-	-	-
30	19	55	37	17	-	-	-
35	19	52	44	32	14	-	-
40	20	52	45	38	33	17	-
45	18	61	47	43	41	37	11
48	21	58	46	42	39	32	30

Table 58 Sample of Proportions Opting for a Deferred Annuity – Main Group 2 – Male
(Per 100 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	1	5	10	15	20	25	30
20	4	-	-	-	-	-	-
25	13	50	-	-	-	-	-
30	16	50	41	-	-	-	-
35	15	48	50	37	-	-	-
40	16	43	40	34	48	-	-
45	16	43	56	40	42	38	-
50	15	45	55	41	50	46	-
53	15	50	55	36	36	30	11

Table 59 Sample of Proportions Opting for a Deferred Annuity – Main Group 2 – Female
(Per 100 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	1	5	10	15	20	25	30
20	11	26	-	-	-	-	-
25	15	51	17	-	-	-	-
30	19	55	37	17	-	-	-
35	19	52	44	32	14	-	-
40	20	52	45	38	33	17	-
45	20	49	48	42	42	41	3
50	16	53	48	43	42	41	8
53	21	58	46	42	39	32	30

¹ Expressed in completed years calculated at the beginning of the plan year.



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Table 60 Sample of Proportions Opting for a Deferred Annuity – Operational Service Group
(Per 100 individuals)

Age Last Birthday ¹	Completed Years of Pensionable Service						
	1	5	10	15	20	25	30
20	17	52	-	-	-	-	-
25	17	52	33	-	-	-	-
30	21	57	33	33	-	-	-
35	22	72	43	34	27	-	-
40	24	56	44	34	32	33	-
45	22	73	43	39	38	33	22
48	24	55	42	43	37	31	24

7. Mortality

The mortality rates assumed for contributors, healthy pensioners and surviving spouses were derived by giving full credibility to the plan’s experience over the last three plan years. This is a change from the methodology used in the previous valuation where partial credibility was given to the projected mortality rate assumptions from the previous valuation.

Due to lack of disabled mortality experience over the three-year intervaluation period, the mortality rates for disabled pensioners were derived by giving equal credibility to the plan’s experience during that time and to the projected assumption from the previous valuation.

For contributors and healthy pensioners, the new base year assumed mortality rates decreased on average by 10% for males and 6% for females. In particular, between the ages of 40 and 50, rates were decreased on average by 18% for males and increased by 4% for females; between the ages of 70 and 80, rates were decreased by 16% for males and by 13% for females.

The assumed mortality rate for disability pensioners was decreased at almost all ages for both males and females. Between the ages of 30 and 80 the assumed mortality rates were decreased by an average of 10% for males and 12% for females.

For spouse survivors, there was an increase in the number of deaths reflected in the data as at 31 March 2011. The result is an increase in the assumed mortality rates at many ages. Overall, the assumed mortality rates for male spouse survivors were decreased on average by 3%, while the rates for female spouse survivors were increased on average by 1%. In particular, between the ages of 30 and 40, male rates decreased on average by 7%; between the ages of 55 and 65, male rates increased on average by 12%. The most significant changes for female spouse survivors occurred between the ages of 40 and 50, where rates decreased on average by 12%, and between the ages of 70 and 95 where rates increased on average by 11%.

Table 61 shows a sample of assumed rates of mortality.



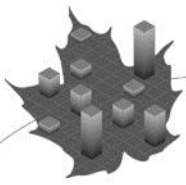
Table 61 Sample of Assumed Rates of Mortality
For Plan Year 2015
(Per 1,000 individuals)

Age Last Birthday ¹	Contributors and Retirement Pensioners		Disability Pensioners		Surviving Spouses	
	Male	Female	Male	Female	Male	Female
30	0.3	0.2	6.6	4.5	1.1	0.4
40	0.6	0.4	9.2	6.0	2.5	0.9
50	1.7	1.4	13.7	8.2	3.7	2.0
60	5.0	4.0	20.6	12.9	9.0	5.2
70	14.9	10.8	36.6	22.7	19.8	13.6
80	49.4	33.5	80.7	56.7	58.5	40.2
90	154.8	118.3	188.8	156.5	162.5	122.7
100	369.2	303.0	420.9	470.2	354.1	312.3
110	500.0	500.0	500.0	500.0	500.0	500.0

As shown in the 26th Actuarial Report on the Canada Pension Plan, life expectancy in Canada has been increasing constantly over the years. This trend is also observed in the PS pension plan population, as supported by analysis of past mortality experience. Mortality rates are reduced in the future in accordance with the same longevity improvement assumption used in the 26th Actuarial Report on the Canada Pension Plan. For both males and females, the improvement factors are higher than those used in the previous valuation except at advanced ages. Factors shown in the 26th Actuarial Report on the Canada Pension Plan are based on calendar years. These factors have been interpolated to obtain plan year longevity improvement factors.

The ultimate longevity improvement factors for plan years 2031 and thereafter were established by analysing the trend by age and sex of the Canadian experience over the period 1921 to 2009. Improvement factors for plan year 2016 are based on those experienced on average over the 15-year period from 1994 to 2009. After plan year 2016, the factors are assumed to reduce gradually to their ultimate level by plan year 2031.

¹ Expressed in completed years calculated at the beginning of the plan year.



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A sample of assumed longevity improvement factors is shown in Table 62.

Table 62 Sample of Assumed Longevity Improvement Factors
(applicable at the beginning of the plan year)

Age Last Birthday ¹	Initial and Ultimate Plan Year Mortality Reductions (%)			
	Male		Female	
	2016	2031+	2016	2031+
30	2.27	0.80	1.09	0.80
40	1.83	0.80	1.38	0.80
50	1.38	0.80	1.09	0.80
60	2.04	0.80	1.59	0.80
70	2.43	0.80	1.59	0.80
80	2.35	0.80	1.59	0.80
90	1.37	0.48	1.20	0.48
100	0.55	0.30	0.55	0.30
110+	0.20	0.23	0.20	0.23

Table 63 shows the calculated life expectancy for contributors and healthy pensioners based on the mortality assumptions described in this section.

Table 63 Life Expectancy of Contributors and Healthy Pensioners
(Years)

Age Nearest	As at 31 March 2014		As at 31 March 2030	
	Male	Female	Male	Female
60	26.2	28.5	27.1	29.4
65	21.6	23.8	22.5	24.6
70	17.3	19.4	18.1	20.1
75	13.2	15.2	14.0	15.9
80	9.7	11.3	10.4	11.9
85	6.9	8.1	7.4	8.6
90	4.8	5.7	5.1	6.0

In Table 64, life expectancies based on the mortality assumptions of the previous valuation are compared with those based on the mortality assumptions described in this section.

Table 64 Life Expectancy at Age 60 as at 31 March 2014
(Years)

	Current Report	Previous Report ²	Increase
Healthy Males	26.2	25.6	0.6
Healthy Females	28.5	28.0	0.5
Disabled Males	20.3	19.7	0.6
Disabled Females	23.5	22.9	0.6
Male Surviving Spouses	24.4	24.7	(0.3)
Female Surviving Spouses	27.2	28.0	(0.8)

¹ Expressed in completed years calculated at the beginning of the plan year.

² As at 31 March 2011.



8. Family Composition

The assumptions regarding spouse survivors were revised based on the intervaluation experience.

The assumptions regarding the probability of a member leaving, upon death, a spouse eligible for a survivor pension were marginally reduced between the ages of 30 and 80 for males, so that, on average, a male member was 1.8% less likely to leave a surviving spouse than was assumed in the previous valuation. For females, the probabilities were marginally increased for most ages between 30 and 50 and between 70 and 90, so that a female member was 0.5% more likely to leave a surviving spouse than was assumed in the previous valuation.

For male members at most ages in the 60's and 80's, the assumed surviving spouse age was increased slightly, so that, on average, surviving female spouses were assumed to be 0.3 years older than was assumed in the previous valuation. For female members at most ages from 25 to 45 and from 70 to 90, the assumed surviving spouse age was increased slightly, so that, on average, surviving male spouses were assumed to be 0.5 years older than was assumed in the previous valuation.

Table 65 Assumptions for Survivor Spouse Allowances¹

Age Last Birthday ¹	Male		Female	
	Probability of an Eligible Spouse at Death of Member	Spouse Age Difference	Probability of an Eligible Spouse at Death of Member	Spouse Age Difference
30	0.40	(1)	0.54	2
40	0.53	(2)	0.57	3
50	0.65	(2)	0.57	2
60	0.68	(3)	0.51	2
70	0.68	(3)	0.41	1
80	0.62	(4)	0.22	0
90	0.42	(6)	0.06	(3)
100	0.11	(9)	0.00	-

The assumptions regarding the number of eligible surviving children of a deceased contributor or pensioner who are under age 18, and between age 18 to 25 and are in full-time attendance at a school or university were derived by giving equal credibility to the plan's experience over the last three plan years and to the assumption from the previous valuation. This is the same methodology as was used in the previous report.

For male members between the ages of 24 and 36 and ages of 45 and 70, the average number children assumed to be eligible for a survivor allowance decreased on average by 8% and 1.5% respectively, while between the ages of 37 and 44, the average number of children was increased by an average of 4%.

For female members for ages below 30 and for ages between 46 and 60, the average number children assumed to be eligible for a survivor allowance decreased on average

¹ Survivor pensions are not payable if the deceased member has less than two years of pensionable service.



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by 1% and 2% respectively, while between ages of 31 and 45, the average number of children was increased by 3%.

The assumption regarding the average age of eligible children was derived by giving equal credibility to the plan's experience over the last three years and to the assumption from the previous valuation. In general, the average age of eligible children of a deceased contributor or pensioner was decreased on average by one year for both male and female members except for ages 79 to 85 for male where the average age of eligible children were decreased by an average of 2.5 years.

As in the previous valuation, to determine the value of pensions payable to eligible children, the rates of pension termination were assumed to be zero prior to age 17 and 16% per annum thereafter until expiry of the benefit on the 25th birthday.

The revision to family composition assumptions has a negligible impact on the valuation results.

Table 66 Assumptions for Survivor Child Allowances

Age Last Birthday at Death	Male		Female	
	Average Number of Children	Average Age of Children	Average Number of Children	Average Age of Children
30	0.61	2	0.69	3
40	1.00	9	0.87	11
50	0.61	15	0.33	16
60	0.09	18	0.02	19
70	0.01	18	0.00	21

B. Other Assumptions

1. Pension Benefits Division/Optional Survivor Benefit/Leave Without Pay

The division of pension benefits has almost no effect on the valuation results because the liability is reduced, on average, by approximately the amount paid to the credit of the former spouse. Consequently, no future pension benefits divisions were assumed in estimating the current service cost and liability. However, past pension benefits divisions were fully reflected in the liability. Two other provisions, namely the optional survivor benefit and the suspension of membership while on leave without pay, were also treated like pension benefits divisions for the same reason.

2. Minimum Post-Retirement Death Benefit

This valuation does not take into account the minimum death benefit described in Note 14 of Appendix 1D, with respect to deaths occurring after retirement. The resulting understatement of the accrued liability and current service cost is not material since the majority of the relatively few pensioners who die in the early years of retirement leave an eligible survivor.

3. Administrative Expenses

In the previous report, the PSPIB operating expenses were implicitly recognized through a reduction in the real return on the Fund. In this report, the operating expenses of the PSPIB are still recognized implicitly.



Administrative expenses are assumed to be 0.5% of pensionable payroll, an increase from 0.4% in the previous valuation. This assumption is supported by an analysis of the administrative expenses over the last three years, which also show that the proportions of total administrative expenses by plan year being charged to the Pension Fund is increasing at an annual rate of 2.8% in accordance with the assumption used in the previous report. Expenses expected to be debited to the Superannuation Account in the future have been capitalized and are shown as a liability on the balance sheet, whereas the expenses to the Pension Fund are shown on an annual basis as they occur.

4. Financing of Elected Prior Service

The assumed future government credits in respect of prior service elections vary according to the rate paid by the contributor (i.e. single or double) and the vehicle into which the contributions are deposited (i.e. Account or Fund). The government matches member contributions made to the Superannuation Account for prior service elections; however, it makes no contributions if the member is paying the double rate. Government credits to the Pension Fund in respect of elected prior service are as described for current service; however, the government contributes only a portion of the member contribution if the member is paying the double rate. The percentage varies depending on the government contribution where a member is paying the single rate.

5. Outstanding Terminations

Amounts paid from 1 April 2014 onward for terminations that occurred prior to that date were estimated from actual payments made using PWGSC historical information provided in 1 April 2015. After reviewing the information from PWGSC, the amount for outstanding terminations was marginal and consequently no amount for outstanding payments was set aside for this valuation.

6. Disability Incidence Rates for Pensioners Below Retirement Age

Deferred pensioners, Group 1 pensioners receiving an annual allowance while under age 60, and Group 2 pensioners receiving an annual allowance while under age 65 were assumed to have a 0% disability rate. The resulting understatement of liability and current service cost is negligible.

7. Recovery Rates for Disability Pensioners

No recoveries are assumed for disability pensioners. The resulting overstatement of liability and current service cost is negligible.

8. Sex of Surviving Spouses

The sex of each eligible surviving spouse is assumed to be the opposite of the deceased member's.



Appendix 8 – RCA Valuation Methodology and Assumptions

A. Valuation of the Account Balance

The balance of the RCA (RCA No. 1 and RCA No. 2) Accounts form part of the Accounts of Canada. There is also a tax credit (CRA refundable tax) with respect to the RCA.

Interest is credited every three months in accordance with the actual average yield on a book value basis for the same period on the combined Superannuation Accounts of the Public Service, Canadian Forces – Regular Force and RCMP pension plans. The actuarial value of the account balance is equal to the book value.

B. Valuation of Liabilities

Described in this Appendix are the liability valuation methodologies used and any differences in economic assumptions from those used in the PSSA valuation.

1. Terminally Funded RCA Benefits

The following RCA benefits are being terminally funded (i.e. not prefunded but on an occurrence basis):

- Early Retirement Incentive (ERI) program
- pre-retirement survivor benefits
- minimum death benefit
- elective service

Except for the now-closed ERI program, the above benefits are terminally funded because they are uncommon or of little financial significance. For example, the pre-retirement survivor benefit becomes payable only when the average salary is less than 1.4 times the YMPE. As well, the minimum death benefit is expected to occur only with deaths at younger ages, where the probability of death is small.

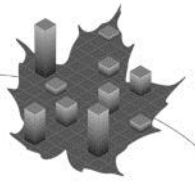
2. RCA No. 1 Post-Retirement Survivor Benefits

The limit on the amount of spousal annual allowance that can be provided under the PSSA decreases when the member's pension is reduced due to the CPP (or QPP) offset, which usually occurs at age 65.

This benefit was valued conservatively by assuming the plan limit is always coordinated with the CPP (or QPP). The liability overstatement is minor because the probability of the former contributor dying prior to age 65 is small. (This overstatement tends to be offset by the understatement of accrued liability caused by terminally funding the pre-retirement survivor benefit.) The projected accrued benefit cost method was used to estimate the liabilities and normal costs for this RCA No. 1 benefit.

3. RCA No. 1 Continued Benefit Accrual for Former Deputy Heads

All former deputy heads that have accrued or are accruing benefits are included. For those accruing benefits, it was assumed that they would cease to do so when first eligible to receive an immediate annuity.



4. RCA No. 1 Excess Pensionable Earnings

The projected accrued benefit cost method was used to estimate plan liability and current service costs for retirement benefits in excess of the Maximum Pensionable Earnings (MPE).

5. Administrative Expenses

To compute the liability and current service costs, no provision was made regarding the expenses incurred for the administration of either the RCA No. 1 Account or the RCA No. 2 Account. These expenses, which are not debited from the RCA Accounts, are borne entirely by the government and are commingled with all other government expenses.

C. Actuarial Assumptions

The valuation economic assumptions described in Appendix 6 were used without any modifications, except that the discount rate used to determine the liabilities with respect to the RCA No. 1 and the RCA No. 2, and the current service cost with respect to the RCA No. 1, is one-half of the yield projected on the combined Superannuation Accounts.

D. Valuation Data

The RCA No. 1 and RCA No. 2 pension benefits in payment were provided as at 31 March 2014. RCA No. 1 and RCA No. 2 benefits expected to be paid in respect of contributors and accrued spousal allowances of current retired members were all derived from the membership data described in Appendix 4 and shown in Appendix 12.



Appendix 9 – Public Service Superannuation Account Projection

Prior to 1 April 2000, the PSSA Superannuation Account tracked all government pension benefit obligations related to the PSSA. The Superannuation Account is now debited only with benefit payments made in respect of service earned before that date and administrative expenses; it is credited with prior service contributions related to elections made prior to 1 April 2000 and interest earnings.

The results of the following projection were computed using the account balances described in Appendix 3, the data described in Appendices 4 and 12, the methodology described in Appendix 5 and the assumptions described in Appendices 6 and 7.

The projection shows the expected cash flows and balance of the Superannuation Account if all assumptions are realized. Emerging experience that differs from the corresponding assumptions will result in gains or (losses) to be revealed in subsequent valuation reports.

Table 67 Superannuation Account Projection
(\$ millions)

Plan Year	Beginning Account Balance	Beginning Liability	Beginning Actuarial Excess/(Shortfall)	Special Credits at End of Plan Year	Net Payments ¹	Interest Earnings
2015	96,530	97,211	(681)	0	5,350	4,788
2016	95,968	96,683	(715)	65	5,385	4,479
2017	95,127	95,811	(684)	65	5,455	4,159
2018	93,896	94,546	(650)	65	5,516	3,920
2019	92,365	92,978	(613)	65	5,566	3,764
2020	90,628	91,202	(574)	65	5,606	3,602
2021	88,689	89,222	(533)	65	5,637	3,350
2022	86,467	86,955	(488)	65	5,659	3,263
2023	84,136	84,578	(442)	65	5,670	3,090
2024	81,621	82,015	(394)	65	5,671	2,995
2025	79,010	79,353	(343)	65	5,660	2,820
2026	76,235	76,526	(291)	65	5,636	2,717
2027	73,381	73,617	(236)	65	5,600	2,612
2028	70,458	70,639	(181)	65	5,550	2,505
2029	67,478	67,601	(123)	65	5,488	2,396
2030	64,451	64,514	(63)	65	5,414	2,285
2040	35,377	35,377	0	0	4,125	1,600
2050	13,843	13,843	0	0	2,188	613

¹ Benefit payments plus administrative expenses.



Appendix 10 – Public Service Pension Fund Projection

Starting 1 April 2000, the PSSA is financed through the Public Service Pension Fund. The Pension Fund is credited with employer and member contributions, investment earnings and with prior service contributions for elections since 1 April 2000. The Fund is debited with benefit payments made in respect of service earned since that date and administrative expenses.

The results of the following projection were computed using the data described in Appendices 4 and 12, the methodology described in Appendix 5 and the assumptions described in Appendices 6 and 7.

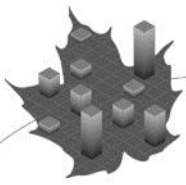
The projection shows the expected growth of the Pension Fund if all assumptions are realized. According to the projection, cash flows are expected to be positive until plan year 2030. Emerging experience that differs from the corresponding assumptions will result in gains or (losses) to be revealed in subsequent valuation reports.

Table 68 Pension Fund Projection
(\$ millions)

Plan Year	Expected Unrecognized Investment (Gains)/Losses	Present Value of Prior Service Contributions	Beginning Market Value of Assets	Contributions ¹	Payments ²	Investment Earnings	Special Payment at End of Plan Year	Beginning Actuarial Liabilities
2015	(6,243)	726	68,668	4,280	1,866	4,261	435	66,775
2016	(4,242)	671	75,778	4,355	1,831	3,851	0	73,236
2017	(2,823)	618	82,154	4,437	2,037	4,167	0	79,397
2018	(1,172)	572	88,722	4,563	2,282	4,582	0	85,750
2019	0	529	95,585	4,717	2,550	5,219	0	92,390
2020	0	488	102,972	4,886	2,841	5,719	0	99,535
2021	0	449	110,736	5,067	3,162	6,477	0	107,043
2022	0	412	119,118	5,272	3,510	7,319	0	115,149
2023	0	379	128,199	5,489	3,881	7,868	0	123,929
2024	0	350	137,676	5,711	4,273	8,441	0	133,093
2025	0	323	147,555	5,940	4,685	9,039	0	142,645
2026	0	299	157,848	6,180	5,117	9,661	0	152,595
2027	0	278	168,571	6,435	5,570	10,309	0	162,958
2028	0	259	179,746	6,701	6,053	10,984	0	173,755
2029	0	243	191,378	6,975	6,574	11,686	0	184,989
2030	0	229	203,465	7,255	7,143	12,415	0	196,657
2040	0	141	342,806	10,191	15,496	20,752	0	330,226
2050	0	63	519,866	14,807	24,603	31,417	0	496,934

¹ Total current service cost with elected prior service contributions.

² Benefit payments and administrative expenses.



Appendix 11 – Uncertainty of Results

A. Introduction

The projected financial status of the Pension Fund depends on many demographic and economic factors, including new contributors, average earnings, inflation, level of interest rates and investment returns. The projected long-term financial status of the Pension Fund is based on best-estimate assumptions; the objective of this section is to present alternative scenarios. The alternatives presented illustrate the sensitivity of the long-term projected financial position of the Pension Fund to changes in the future economic outlook. In this appendix, any references, in sections B and C, to assets, liabilities, surplus/(deficit), annual special payments and service cost relate to the Pension Fund.

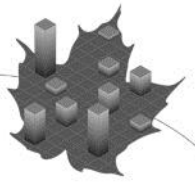
Section B examines the sensitivity of the Pension Fund to different asset allocations. Five alternative investment portfolios are described, along with the volatility of each portfolio and the resulting impact on the Pension Fund's funding ratio and current service cost. The impact of financial market volatility on the financial status of the Pension Fund is explored in section C, where severe one-time financial shocks are applied to three investment portfolios with the purpose of quantifying the impact on the financing ratio over the short term. Lastly, the impacts of prolonged low bond yields on the Superannuation Account and on the Pension Fund due to slower than expected economic growth are analyzed in section D.

B. Risk/Return Trade-off of Investment Policy

A major risk all pension plans face is funding risk – the risk that pension assets are insufficient to meet pension obligations. If funding deficiencies or surpluses continue for an extended period of time, risk is transferred from one generation to another and may ultimately take the form of an increase or a decrease in the contribution rate.

Historically, equities have shown greater volatility than fixed income instruments (such as bonds), volatility being a measure of the magnitude of fluctuation in returns. Similarly, long-term bonds have historically shown greater volatility than shorter fixed income instruments. For instance, in the fifty, twenty-five and ten years ending in 2013, the volatility (standard deviation) of Canadian equity returns (indicated by the S&P/TSX Total Return Index) was 16.4%, 17.0% and 18.9%, respectively, as given in the Canadian Institute of Actuaries' Report on Canadian Economic Statistics 1924 – 2013. This compares with the volatility of returns of long-term federal bonds (10+ years) of 10.5%, 9.9% and 8.6% and with the volatility of returns of medium-term federal bonds (5-10 years) of 7.5%, 7.0% and 5.5% over the same periods. Higher volatility of a security's returns implies a greater risk since the range of possible outcomes of returns widens. Hence, equities are viewed as being more risky than bonds and long-term bonds are viewed as more risky than medium- or short-term bonds.

Historically, the higher volatility of equities compared to bonds has also been rewarded with higher returns. This describes the key risk-reward relationship, whereby investors seek a higher level of return over the long term, or an equity risk premium, in exchange for assuming a higher level of risk. Nevertheless, over the short term, the potential for lower returns exists along with that for higher returns due to the higher level of volatility.



Investing in a greater proportion of equities requires assuming a higher level of risk and hence the possibility of realizing a wider range of returns. Conversely, investing in lower risk fixed income instruments will tend to produce lower returns. Further, by accepting lower returns with lower risk, investment objectives may not be achieved.

The PS pension plan represents a long-term obligation to pay pension benefits. Thus, a long-term approach must be taken to fund these obligations. Long-term Government of Canada bonds are considered risk-free¹ and their yields are considered low. The real yield on 10-year-plus federal bonds was around 0.8% in March 2014. This is significantly below the required real return on assets of 4.1% that is needed to sustain the plan at the current contribution rate.

By investing solely in risk-free long-term federal bonds, all funding risk could be eliminated with an excessive cost and at the detriment of current and future contributors, who would have to contribute more unless benefits were decreased. If the PSPIB were to switch from the current portfolio of fixed and variable income securities to a portfolio that consists only of long-term Government of Canada bonds, the current service cost of the plan would have to increase substantially in order to maintain the current funding status or benefits would have to be reduced. Neither of these is a desirable option.

The government created the PSPIB to invest amounts equal to contributions in excess of benefits and administrative expenses with respect to service since 1 April 2000 with the purpose of maximizing investment returns without undue risk of loss. The current service cost is less than it would have been if the investment policy had been restricted to long-term government bonds. Diversifying the portfolio into a mix of fixed and variable income securities accomplishes this.

The current service cost is reduced by investing in securities that offer a higher rate of return than risk-free long-term federal bonds, but that also have a higher degree of risk or volatility. That is, funds can be invested in a mix of investments, such as equities and bonds, with the expected rate of return equal to the yield required to meet the plan's funding requirements. By investing in riskier assets, investors hope to realize the equity risk premium as their reward for taking on additional risk. An equity risk premium is the difference between the expected return on risky assets (e.g. equities) and the expected return on a risk-free asset, such as the Government of Canada long-term bond mentioned above.

Of course, these higher returns are expected but not guaranteed, creating the very real possibility that the market will not perform as expected and liabilities will grow at a faster rate than investments for an extended period of time. This is known as market risk. Since investing solely in risk-free long-term federal bonds will not produce a return sufficient to maintain the plan at the status quo, it is necessary to take some risk in order to increase the probability of earning a sufficient return. Even if investment returns materialize as expected, other assumptions may not, causing liabilities to grow at a faster rate than assets. For example, salaries or inflation may increase at a higher rate than expected. The amount of risk assumed by the plan sponsor depends on many factors, including the current funding status and economic outlook, among other things. Thus, the investment policy must balance

¹ In this section, risk-free refers to the risk of default; a risk-free bond is still subject to volatility of returns due to changes in interest rates.



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the plan's desire for a high real rate of return with the sponsor's tolerance or capacity for taking risk.

Table 69 shows the impact that various asset mixes would have on the funding ratio and the long-term service cost, as well as their relative volatility.

Table 69 Impact of Various Investment Policies

Portfolio	Asset Mix		Real Rate of Return		1-year Standard Deviation	Funding Ratio as at 31 March 2014	Annual Special Payment (\$ millions)	Long-term Service Cost	
	Fixed Income	Equity	Real Return Assets	First 5 Years					Ultimate
#1	100% ¹	0%	0%	(3.1%)	2.8%	9.0%	60%	3,428	28.1%
#2	100% ²	0%	0%	(2.2%)	3.0%	8.4%	65%	2,910	26.6%
#3	75%	20%	5%	(0.1%)	3.2%	6.3%	76%	1,971	24.9%
#4	50%	35%	15%	1.4%	3.6%	8.2%	88%	991	22.4%
Best-Estimate	20%	55%	25%	3.3%	4.1%	11.6%	104%	0	19.8%
#5	0%	100%	0%	4.6%	4.6%	16.5%	118%	0	17.6%

The second last column of the previous table presents the annual special payments that would be required over the next 15 years if the investment policy were changed to reflect the asset mix of the alternative portfolio.

Although the riskiest portfolio (portfolio #5) leads to the highest expected return, the highest funding ratio and the lowest long-term service cost, its volatility is significantly higher which may lead to significant additional contribution requirements as illustrated in the next table. Table 70 presents the expected median and 10 percent downside real returns over the next 3 years, the resulting funding ratio, and the ensuing expected contributions assuming the plan is fully funded as at 31 March 2014 under each portfolio. It further assumes that the ultimate real rate of return applies for the full projection period (no select period with lower real rate of return).

¹ Nominal Long-Term Federal bonds only

² Portfolio of long-term bonds only (portfolios 3 to 5 and Best-Estimate use bond universe)

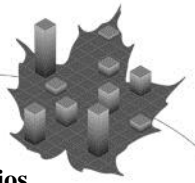


Table 70 Median and 10% Downside Returns, Funding Ratio and Contributions for Various Portfolios

Portfolio	Expected Average Annual Real Returns ¹ (2015-2017)			Funding Ratio (31 March 2017)		Contributions (2017-18) (% of pensionable payroll)		
	1-year Standard Deviation	Downside 10th Pct	Median	Downside 10th Pct	Median	Current Service Cost (downside and median)	Special Payments (downside)	Total (downside)
	#3	6.3%	(1.6%)	3.2%	88%	100%	24%	5%
#4	8.2%	(2.4%)	3.6%	85%	100%	22%	6%	28%
Best-Estimate	11.6%	(4.5%)	4.1%	79%	100%	20%	9%	29%
#5	16.5%	(7.8%)	4.6%	71%	100%	18%	12%	30%

Portfolio #1 is invested in 10-year-plus federal bonds. This portfolio does not result in a feasible scenario due to its prohibitive cost; however, its volatility is low when compared to the other portfolios considered.

Portfolio #2 is invested in a marketable bond portfolio consisting of long-term federal, provincial, corporate and real return bonds. This diversification increases the real rate of return and reduces the volatility compared to the first portfolio since the four bond asset categories are not perfectly correlated. Although this portfolio produces a higher real rate of return compared to portfolio #1, it is still not sufficient to ensure the plan remains fully funded while maintaining a lower current service cost. This is also a low risk, low return portfolio. Thus, a portfolio with greater diversification in variable income assets is required in order to keep funding cost to a lower level.

The following portfolios are diversified portfolios that combine equity and real return assets, such as real estate and infrastructure, with fixed-income securities of various terms. Fixed-income securities in the following portfolios have a shorter average maturity than portfolio #1 and portfolio #2, resulting in lower expected fixed-income return and volatility.

Portfolio #3 and portfolio #4 are more diversified than the first two portfolios and are invested 20% and 35%, respectively, in equity. This diversification combined with shorter fixed-income maturities increases the real rate of return earned on these portfolios and keeps their volatility comparable and even lower than the first two portfolios since the three broad asset categories are not perfectly correlated. These portfolios have lower expected current service cost and lower expected total downside risk than portfolio #1 and portfolio #2 due to their higher expected return and lower volatility. However, despite an increased real return and lower volatility risk, these portfolios are still not sufficient to maintain the current funded ratio. Thus, an increase in the plan’s current service cost would be required with both portfolios.

Portfolio #5 is considered riskier because it is invested entirely in equity, which has much more volatile returns than bonds. This portfolio is likely to result in higher than necessary returns, resulting in either an improvement to the plan’s funding ratio or a decrease to the current service cost. However, the volatility of this portfolio is quite high, resulting in total

¹ For illustration purposes, it is assumed that ultimate returns apply for the entire projection period. Annual returns are assumed to follow a normal distribution and are assumed to be independent between the years (no mean reversion).



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downside risk similar to portfolio #3 and greater than the best-estimate portfolio. By investing in a less risky portfolio, a reasonable current service cost can still be achieved along with lower volatility, and therefore, a lower probability of significant losses and large unforeseen additional contributions.

The best-estimate portfolio is invested 20% in fixed-income securities, 55% in equity and 25% in real return assets in the long-term, which is close to PSPIB's current long-term asset-mix objective. Such a portfolio produces an ultimate annual real return of 4.1% net of all investment expenses (assumed to total 0.20% of assets) with a standard deviation of 11.6%.

By observing the volatility of each of the portfolios in Table 69 and the downside risk in Table 70, it can be concluded that a certain degree of risk must be undertaken in order to earn a sufficient return. Thus, an asset allocation such as the best-estimate portfolio shows that an ultimate real return of 4.1% can be achieved with some degree of risk.

C. Financial Market Tail Events

This section focuses on the volatility present in the best-estimate portfolio and the extreme outcomes that could result. During plan year 2009, the nominal return on Plan assets was (22.7%) due to the economic slowdown. Such an event could be characterized as low probability (also referred to as a "tail event"). However, when these events do occur, the impact on the funding ratio is significant. This section analyzes the impacts that tail-event returns would have on the plan's funding ratio. To illustrate this, portfolio returns other than the best-estimate are assumed to occur in plan year 2017. Two alternative portfolios were selected from section B to show the potential variation in tail returns of a less risky (portfolio #4: 35% equity, 15% real estate and infrastructure, 50% fixed income) and a more risky (portfolio #5: 100% equity) portfolio in relation to the best-estimate portfolio.

It is assumed that the returns of the three portfolios follow a normal distribution. The long-term mean and annual standard deviation for each portfolio is given in Table 69. Returns at two probability levels were selected to analyze: 1/10 and 1/50. The probabilities of earning these returns can be thought of as once every 10 and 50 years, respectively. Since the normal distribution has two tails, a left tail and a right tail, both were examined. The left tail event is the occurrence of a nominal return such that the probability of earning that return or less is equal to 1/10 (or 1/50). The right tail event is the occurrence of a nominal return such that the probability of earning that return or more is equal to 1/10 (or 1/50).

For each portfolio a nominal return is calculated at the two probability levels. The nominal returns are given in Table 71.



Table 71 Tail-Event Portfolio Returns

Probability of return ¹	Tail	Portfolio 4: 35% Equities/ 50% Fixed Income/ 15% Real Estate & Infrastructure	Best-Estimate Portfolio: 55% Equities/ 20% Fixed Income/ 25% Real Estate & Infrastructure	Portfolio 5: 100% Equities
		Nominal Return	Nominal Return	Nominal Return
1/50	Left	(10.9%)	(17.1%)	(25.9%)
1/10	Left	(4.6%)	(8.1%)	(13.2%)
1/10	Right	16.5%	21.7%	29.1%
1/50	Right	22.8%	30.6%	41.9%

Table 72 shows the impact on the projected surplus/(deficit) as at 31 March 2017 (the expected date of the next actuarial review) if the nominal return for plan year 2017 happens to be equal to the returns presented in Table 71 for the best-estimate scenario. Following the various portfolio returns in plan year 2017, it is assumed that the return will revert back to its best-estimate value for plan year 2018.

Table 72 Sensitivity of the Projected Surplus/(Deficit) as at 31 March 2017
(\$ millions)

Assumption(s) Varied	Present Value of Prior Service Contributions	Market Value of Assets	Liability	Surplus/ (Deficit)	Annual Special Payments ²
None (i.e. current basis)	572	88,722	85,750	3,544	0
Investment return					
- Left Tail event at 1/50th probability	572	70,835	85,750	(14,343)	1,519
- Left Tail event at 1/10th probability	572	78,124	85,750	(7,054)	747
- Right Tail event at 1/10th probability	572	102,218	85,750	17,040	0
- Right Tail event at 1/50th probability	572	109,405	85,750	24,227	0

D. Impact of Prolonged Low Bond Yields

This section explores the consequences of slower than expected economic growth through a reduction in expected bond yields and variable income securities over the next 10 years. Current bond yields are much lower than their historical averages and, without stronger economic growth, might well remain low over the next few years. Over the last 15- and 50-year periods ending 31 December 2013, the average real yield of long-term Government of Canada bonds was 2.4% and 3.3%, respectively. This is much higher than the 0.8% real yield on long-term federal bonds as at March 2014. This section looks at the impact of prolonging the current period of low bond yields for another three years and reducing the ultimate long-term federal bond yield by 0.3%.

The best-estimate scenario assumes that the long-term federal bond real (nominal) yield reaches its ultimate value of 2.8% (4.8%) at the beginning of plan year 2022. This scenario

¹ The probability of earning the positive returns in the table corresponds to the probability that the annual return is greater than or equal to the indicated return. Similarly, the probability of earning a negative portfolio return corresponds to the probability of earning the indicated return or less.

² Equal annual special payments to amortize the deficit over the next 15 years starting 31 March 2019.



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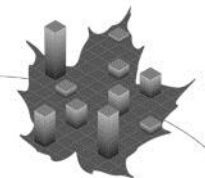
assumes that economic growth will remain weak over the next three years and moderate thereafter. Consequently, the long-term federal bond nominal yield would not increase above its current level before the fourth year of projection, and would reach its ultimate real (nominal) value of 2.5% (4.5%) in plan year 2025. As a result, the new money rate would also be affected and would reach its ultimate value later. In addition, returns for equities and real estate and infrastructure would also be lower for the entire projection period. Thus, returns would be 0.4% per year lower on average over the next 10 years and 0.3% lower than under the best-estimate scenario thereafter.

Table 73 shows the impact that such a scenario would have on the expected short-term investment returns and new money rate, as well as the impact on accrued liabilities and annual special credits/payments required to fund the Superannuation Account shortfall and the Pension Fund deficit.

Table 73 Impact on the Superannuation Account and the Pension Fund of Prolonged Low Bond Yields
(\$ millions)

<u>Superannuation Account</u>	<u>Best-Estimate</u>	<u>Low Bond Yields</u>	<u>Difference</u>
2015-2024 Average New Money Rate	4.2%	3.4%	(0.8%)
Ultimate New Money Rate	4.8%	4.5%	(0.3%)
Total Actuarial Liability	97,211	99,302	2,091
Actuarial Excess/(Shortfall)	(681)	(2,772)	(2,091)
Special Credits	65	262	197
<u>Pension Fund</u>	<u>Best-Estimate</u>	<u>Low Bond Yields</u>	<u>Difference</u>
2015-2024 Average Return Projected on Fund	5.6%	5.3%	(0.3%)
Ultimate Return Projected on Fund	6.1%	5.8%	(0.3%)
Total Actuarial Liability	66,775	70,443	3,668
Actuarial Surplus/(Deficit) based on Market Value	2,619	(1,049)	(3,668)
Special Payments	-	66	66

Prolonging low bond yields for an additional three years and reducing the ultimate long-term federal bond yield by 0.3% result in higher actuarial liability and higher special credits/payments for both the Superannuation Account and the Pension Fund.



Appendix 12 – Detailed Information on Membership Data

Table 74 Male Contributors (Main Group)
Number and Average Annual Earnings¹ as at 31 March 2014

Age ²	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	All Years of Service ²
To 24	1,719	40							1,759
	\$47,003	\$62,614							\$47,358
25-29	5,048	2,264	21						7,333
	\$59,843	\$68,908	\$76,287						\$62,689
30-34	4,602	6,628	1,647	20					12,897
	\$64,190	\$73,974	\$81,045	\$80,026					\$71,395
35-39	3,283	5,510	5,704	893	22				15,412
	\$68,243	\$76,737	\$86,608	\$89,582	\$93,930				\$79,350
40-44	2,395	4,089	5,239	2,960	978	91			15,752
	\$71,304	\$78,316	\$87,899	\$93,744	\$90,040	\$81,993			\$84,085
45-49	1,902	3,150	3,881	2,720	3,896	1,902	216		17,667
	\$72,869	\$78,572	\$86,362	\$92,791	\$93,501	\$84,715	\$90,743		\$85,961
50-54	1,564	2,478	3,178	2,187	3,763	4,413	3,284	267	21,134
	\$75,584	\$78,388	\$85,486	\$88,739	\$91,729	\$90,957	\$85,936	\$85,459	\$86,581
55-59	1,030	1,623	2,140	1,503	2,309	2,878	2,736	1,087	15,306
	\$76,717	\$79,449	\$85,140	\$86,749	\$89,290	\$93,052	\$92,620	\$82,644	\$87,401
60-64	455	818	1,037	694	942	989	1,011	887	6,833
	\$79,763	\$81,454	\$83,548	\$84,703	\$88,202	\$90,485	\$98,960	\$90,341	\$87,971
65+	170	269	350	208	295	242	286	462	2,282
	\$95,892	\$83,847	\$87,186	\$82,460	\$89,144	\$92,243	\$95,415	\$93,543	\$90,118
All Ages	22,168	26,869	23,197	11,185	12,205	10,515	7,533	2,703	116,375
	\$65,930	\$76,361	\$86,037	\$90,466	\$91,367	\$90,309	\$90,610	\$87,311	\$81,669

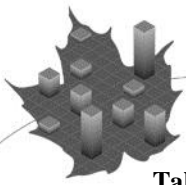
	31 March 2014	31 March 2011
Average age ² :	45.2 years	45.1 years
Average pensionable service ² :	13.6 years	12.6 years
Annualized pensionable payroll ³ :	\$9,504,228,923	\$9,675,709,960
Total PBDA ⁴ indexed reduction to basic annuity:	\$13,300,396	\$13,736,006
Total PBDA ⁴ indexed reduction adjustment:	\$2,726,203	\$3,017,159

¹ As defined in Note 1, section D of Appendix 1.

² Expressed in completed years calculated at the beginning of the plan year.

³ The aggregate pensionable earnings of all contributors with less than 35 years of pensionable service.

⁴ PBDA means the *Pension Benefits Division Act*.



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Table 75 Female Contributors (Main Group)
Number and Average Annual Earnings¹ as at 31 March 2014

Age ²	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	All Years of Service ²
To 24	2,184	36							2,220
	\$47,519	\$54,264							\$47,628
25-29	6,282	3,007	14						9,303
	\$59,181	\$65,904	\$64,815						\$61,363
30-34	5,325	8,261	2,240	29					15,855
	\$62,134	\$70,355	\$75,438	\$70,678					\$68,313
35-39	3,749	7,036	7,927	1,272	7				19,991
	\$63,152	\$71,370	\$80,490	\$81,448	\$91,103				\$74,093
40-44	2,983	5,372	6,762	3,865	1,486	91			20,559
	\$63,324	\$71,252	\$80,981	\$86,917	\$80,207	\$76,336			\$76,916
45-49	2,427	4,238	5,092	3,185	4,983	2,396	180		22,501
	\$61,759	\$67,554	\$77,690	\$83,414	\$85,263	\$78,126	\$81,952		\$76,630
50-54	2,024	3,472	4,392	2,851	4,112	4,640	3,964	360	25,815
	\$61,362	\$66,140	\$72,571	\$74,806	\$81,086	\$82,696	\$76,123	\$72,951	\$74,801
55-59	1,253	2,125	2,954	2,072	2,629	2,483	2,085	654	16,255
	\$63,657	\$65,408	\$70,685	\$73,412	\$76,508	\$81,590	\$83,342	\$72,275	\$74,096
60-64	519	892	1,300	885	1,052	815	573	411	6,447
	\$66,536	\$63,151	\$67,197	\$68,654	\$74,106	\$75,896	\$81,868	\$74,943	\$70,809
65+	128	218	312	219	262	197	151	146	1,633
	\$66,255	\$67,313	\$63,259	\$66,696	\$68,312	\$70,590	\$71,937	\$76,075	\$68,139
All Ages	26,874	34,657	30,993	14,378	14,531	10,622	6,953	1,571	140,579
	\$60,614	\$69,025	\$76,977	\$79,845	\$80,869	\$80,606	\$78,821	\$73,481	\$72,910

	31 March 2014	31 March 2011
Average age ² :	44.5 years	44.0 years
Average pensionable service ² :	12.7 years	12.2 years
Annualized pensionable payroll ³ :	\$10,249,656,750	\$10,393,451,360
Total PBDA ⁴ indexed reduction to basic annuity:	\$3,569,729	\$2,571,712
Total PBDA ⁴ indexed reduction adjustment:	\$820,484	\$681,020

¹ As defined in Note 1, section D of Appendix 1.

² Expressed in completed years calculated at the beginning of the plan year.

³ The aggregate pensionable earnings of all contributors with less than 35 years of pensionable service.

⁴ PBDA means the *Pension Benefits Division Act*.



Table 76 Male Contributors (Operational Group)
Number and Average Annual Earnings¹ as at 31 March 2014

Age ²	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	All Years of Service ²
To 24	133								133
	\$60,459								\$60,459
25-29	541	102	2						645
	\$65,234	\$71,217	\$72,824						\$66,204
30-34	497	428	77						1,002
	\$67,712	\$73,869	\$76,144						\$70,990
35-39	335	455	471	75					1,336
	\$67,804	\$74,299	\$75,899	\$78,860					\$73,490
40-44	222	314	538	401	67				1,542
	\$67,980	\$73,799	\$76,675	\$79,116	\$74,279				\$75,368
45-49	149	151	212	279	232	145	1		1,169
	\$68,504	\$72,869	\$75,970	\$78,337	\$75,046	\$77,454	\$88,683		\$75,194
50-54	110	92	51	104	174	286	73		891
	\$66,001	\$69,329	\$76,083	\$78,694	\$76,040	\$76,162	\$74,981		\$74,371
55-59	55	49	44	35	70	130	99	15	497
	\$67,639	\$68,765	\$74,518	\$73,806	\$77,209	\$76,339	\$79,523	\$74,162	\$74,981
60-64	30	27	9	11	10	28	40		173
	\$67,256	\$71,689	\$70,675	\$72,487	\$73,164	\$81,212	\$82,412		\$75,891
65+	6	8				2	2		30
	\$69,892	\$86,592			\$69,026	\$75,971	\$83,777		\$78,517
All Ages	2,078	1,626	1,404	906	555	592	215	42	7,418
	\$66,610	\$73,332	\$76,146	\$78,512	\$75,482	\$76,755	\$78,600	\$77,788	\$73,226

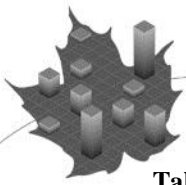
	31 March 2014	31 March 2011
Average age ² :	41.6 years	41.4 years
Average pensionable service ² :	11.3 years	11.4 years
Annualized pensionable payroll ³ :	\$543,192,475	\$488,325,050
Total PBDA ⁴ indexed reduction to basic annuity:	\$615,773	\$834,112
Total PBDA ⁴ indexed reduction adjustment:	\$158,972	\$213,383

¹ As defined in Note 1, section D of Appendix 1.

² Expressed in completed years calculated at the beginning of the plan year.

³ The aggregate pensionable earnings of all contributors with less than 35 years of pensionable service.

⁴ PBDA means the *Pension Benefits Division Act*.



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Table 77 Female Contributors (Operational Group)
Number and Average Annual Earnings¹ as at 31 March 2014

Age ²	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	All Years of Service ²
To 24	106	1							107
	\$59,023	\$49,777							\$58,937
25-29	497	97							594
	\$65,642	\$69,038							\$66,197
30-34	372	447	72						891
	\$66,365	\$74,205	\$73,650						\$70,887
35-39	255	387	392	87					1,121
	\$66,105	\$72,980	\$77,892	\$77,491					\$73,484
40-44	193	258	312	379	67				1,209
	\$63,957	\$71,225	\$77,891	\$78,515	\$71,117				\$74,064
45-49	139	161	133	227	185	75	3		923
	\$63,811	\$68,056	\$75,187	\$76,728	\$71,110	\$74,150	\$93,036		\$71,766
50-54	89	99	48	84	131	168	82		702
	\$62,553	\$66,716	\$64,530	\$76,697	\$74,914	\$69,550	\$65,547		\$69,280
55-59	45	60	38	19	56	72	47		348
	\$63,918	\$67,220	\$67,172	\$66,232	\$71,445	\$74,462	\$77,215		\$70,352
60-64	19	25	15	9	8	9	11		99
	\$71,670	\$69,505	\$65,113	\$65,603	\$65,982	\$85,845	\$73,622		\$70,466
65+	5			1					17
	\$64,121			\$86,796					\$65,130
All Ages	1,720	1,541	1,010	806	449	324	145		6,011
	\$64,979	\$71,553	\$76,005	\$77,288	\$72,076	\$72,159	\$70,484		\$71,227

31 March 2014

31 March 2011

Average age²:

40.8 years

40.3 years

Average pensionable service²:

10.3 years

10.3 years

Annualized pensionable payroll³:

\$428,146,927

\$376,838,150

Total PBDA⁴ indexed reduction to basic annuity:

\$33,435

\$43,736

Total PBDA⁴ indexed reduction adjustment:

\$10,255

\$12,784

¹ As defined in Note 1, section D of Appendix 1.

² Expressed in completed years calculated at the beginning of the plan year.

³ The aggregate pensionable earnings of all contributors with less than 35 years of pensionable service.

⁴ PBDA means the *Pension Benefits Division Act*.



Table 78 Contributors on Leave Without Pay
Number and Average Annual Earnings¹ as at 31 March 2014

Age ²	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	All Years of Service ²
To 24	310	8							318
	\$45,117	\$52,643							\$45,307
25-29	1,422	733	4						2,159
	\$57,920	\$64,217	\$72,351						\$60,085
30-34	1,878	2,727	502						5,108
	\$62,968	\$70,051	\$76,041						\$68,038
35-39	1,130	1,944	1,579	128	3				4,784
	\$62,975	\$72,475	\$79,426	\$78,800	\$91,751				\$72,706
40-44	657	911	1,022	372	104	2			3,068
	\$61,541	\$69,687	\$80,045	\$80,758	\$69,509	\$68,367			\$72,728
45-49	420	586	624	315	391	135	8		2,479
	\$59,023	\$66,779	\$74,393	\$79,295	\$79,793	\$68,979	\$92,854		\$71,228
50-54	391	484	540	334	443	388	272	14	2,866
	\$56,490	\$61,390	\$69,502	\$77,020	\$77,932	\$78,992	\$76,603	\$71,768	\$70,506
55-59	274	372	396	255	325	254	173	34	2,083
	\$61,015	\$62,239	\$66,370	\$71,335	\$74,869	\$77,525	\$73,208	\$78,786	\$68,993
60-64	152	197	216	150	155	96	56	31	1,053
	\$56,930	\$61,418	\$69,807	\$72,881	\$74,428	\$74,812	\$85,749	\$81,141	\$69,135
65+	36	49	37	16	10	8	9	9	174
	\$51,171	\$55,670	\$76,066	\$72,467	\$67,506	\$78,701	\$100,790	\$78,556	\$65,878
All Ages	6,670	8,011	4,920	1,571	1,431	883	518	88	24,092
	\$60,013	\$68,621	\$75,977	\$77,146	\$76,709	\$76,558	\$77,129	\$78,475	\$69,286

	31 March 2014	31 March 2011
Average age ² :	41.4 years	41.6 years
Average pensionable service ² :	9.4 years	10.1 years
Annualized pensionable payroll ³ :	\$1,669,243,810	\$1,458,704,080
Total PBDA ⁴ indexed reduction to basic annuity:	\$719,751	\$607,316
Total PBDA ⁴ indexed reduction adjustment:	\$174,438	\$152,829

¹ As defined in Note 1, section D of Appendix 1.

² Expressed in completed years calculated at the beginning of the plan year.

³ The aggregate pensionable earnings of all contributors with less than 35 years of pensionable service.

⁴ PBDA means the *Pension Benefits Division Act*.



ACTUARIAL REPORT

Pension Plan for the **PUBLIC SERVICE OF CANADA**
as at 31 March 2014

Table 79 Male Retirement Pensioners
Number, Average Annual Pension¹ as at 31 March 2014

Age ²	Number	Pension (\$)	RCA No. 1		RCA No. 2	
			Number	Pension (\$)	Number	Pension (\$)
To 24	48	1,937	-	-	-	-
25-29	399	3,325	-	-	-	-
30-34	683	5,361	-	-	-	-
35-39	831	7,986	1	21	-	-
40-44	883	9,323	5	3,205	-	-
45-49	970	12,201	10	6,644	-	-
50-54	1,689	20,070	53	4,885	-	-
55-59	9,480	43,555	627	4,212	-	-
60-64	19,452	44,478	818	6,374	-	-
65-69	23,635	31,080	1,010	5,283	3,994	9,974
70-74	19,215	29,403	635	4,171	2,247	6,635
75-79	14,981	28,999	229	2,479	13	2,893
80-84	11,703	27,300	56	1,677	-	-
85-89	7,053	27,531	6	450	-	-
90-94	3,692	27,867	-	-	-	-
95-99	595	28,831	-	-	-	-
100-104	49	25,584	-	-	-	-
105+	-	-	-	-	-	-
All Ages	115,358	32,184	3,450	4,883	6,254	8,759

	<u>31 March 2014</u>	<u>31 March 2011</u>
Average age last birthday	70.0 years	69.7 years
Average age last birthday at termination	56.4 years	56.3 years
Average age last birthday at entitlement	58.1 years	58.1 years
<u>Total annual pensions payable from</u>		
PS Superannuation Account	\$3,047 million	\$2,809 million
PS Pension Fund	\$665 million	\$371 million
RCA No. 1 Account	\$17 million	\$12 million
RCA No. 2 Account	\$55 million	\$53 million

¹ Includes deferred annuity to age 60, annual allowance adjustments, PBDA reductions and C/QPP offsets in effect at the valuation date.

² Expressed in completed years calculated at the beginning of the plan year.



Table 80 Female Retirement Pensioners
Number, Average Annual Pension¹ as at 31 March 2014

Age ²	Number	Pension (\$)	RCA No. 1		RCA No. 2	
			Number	Pension (\$)	Number	Pension (\$)
To 24	74	1,913	-	-	-	-
25-29	601	3,328	-	-	-	-
30-34	1,019	5,394	-	-	-	-
35-39	1,089	7,311	1	2,738	-	-
40-44	1,097	9,758	1	7,534	-	-
45-49	1,127	11,249	13	8,446	-	-
50-54	2,458	18,706	45	3,319	-	-
55-59	12,648	37,112	728	3,028	-	-
60-64	19,036	34,455	464	6,039	-	-
65-69	16,997	19,692	269	5,855	2,600	8,476
70-74	10,948	16,225	88	5,952	1,421	5,874
75-79	7,886	15,445	25	4,039	12	1,912
80-84	5,745	14,474	1	1,107	-	-
85-89	4,209	14,286	-	-	-	-
90-94	2,356	13,948	-	-	-	-
95-99	575	13,748	-	-	-	-
100-104	87	13,305	-	-	-	-
105+	8	8,272	-	-	-	-
All Ages	87,960	23,075	1,635	4,573	4,033	7,540

	31 March 2014	31 March 2011
Average age last birthday	66.7 years	66.4 years
Average age last birthday at termination	55.7 years	55.1 years
Average age last birthday at entitlement	58.2 years	58.2 years
<u>Total annual pensions payable from</u>		
PS Superannuation Account	\$1,438 million	\$1,148 million
PS Pension Fund	\$591 million	\$296 million
RCA No. 1 Account	\$7 million	\$4 million
RCA No. 2 Account	\$30 million	\$29 million

¹ Includes deferred annuity to age 60, annual allowance adjustments, PBDA reductions and C/QPP offsets in effect at the valuation date.

² Expressed in completed years calculated at the beginning of the plan year.



ACTUARIAL REPORT

Pension Plan for the **PUBLIC SERVICE OF CANADA**
as at 31 March 2014

Table 81 Male Disabled Pensioners
Number, Average Annual Pension¹ as at 31 March 2014

<u>Age</u> ²	Number	Pension (\$)	RCA No. 1	
			Number	Pension (\$)
To 24	-	-	-	-
25-29	3	4,007	-	-
30-34	8	5,342	-	-
35-39	29	9,586	-	-
40-44	73	13,047	-	-
45-49	187	13,988	-	-
50-54	473	18,942	3	1,273
55-59	876	20,890	6	2,210
60-64	1,191	20,252	5	5,661
65-69	1,015	17,242	1	269
70-74	772	16,149	-	-
75-79	709	17,323	-	-
80-84	481	16,833	-	-
85-89	229	16,094	-	-
90-94	114	16,567	-	-
95-99	15	13,126	-	-
100-104	-	-	-	-
105+	-	-	-	-
All Ages	6,175	18,040	15	3,044

	<u>31 March 2014</u>	<u>31 March 2011</u>
Average age last birthday	66.6 years	67.1 years
Average age last birthday at disability	50.3 years	50.9 years
<u>Total annual pensions payable from</u>		
Superannuation Account	\$91 million	\$87 million
Pension Fund	\$21 million	\$10 million
RCA Account	\$0 million	\$0 million

¹ Includes deferred annuity to age 60, annual allowance adjustments, PBDA reductions and C/QPP offsets in effect at the valuation date.

² Expressed in completed years calculated at the beginning of the plan year.



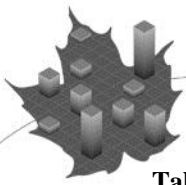
Table 82 Female Disabled Pensioners
Number, Average Annual Pension¹ as at 31 March 2014

Age ²	Number	Pension (\$)	RCA No. 1	
			Number	Pension (\$)
To 24	-	-	-	-
25-29	-	-	-	-
30-34	24	8,042	-	-
35-39	109	9,904	-	-
40-44	240	12,085	-	-
45-49	486	14,391	1	2,559
50-54	1,156	18,019	4	2,247
55-59	1,831	19,249	5	617
60-64	1,564	17,154	6	1,853
65-69	1,015	13,038	1	1,035
70-74	731	11,223	-	-
75-79	612	10,562	-	-
80-84	390	10,365	-	-
85-89	205	9,748	-	-
90-94	96	10,346	-	-
95-99	25	9,579	-	-
100-104	1	2,450	-	-
105+	-	-	-	-
All Ages	8,485	15,232	17	1,575

	<u>31 March 2014</u>	<u>31 March 2011</u>
Average age last birthday	62.2 years	62.9 years
Average age last birthday at disability	49.5 years	49.8 years
<u>Total annual pensions payable from</u>		
PS Superannuation Account	\$89 million	\$76 million
PS Pension Fund	\$41 million	\$19 million
RCA Account	\$0 million	\$0 million

¹ Includes deferred annuity to age 60, annual allowance adjustments, PBDA reductions and C/QPP offsets in effect at the valuation date.

² Expressed in completed years calculated at the beginning of the plan year.



ACTUARIAL REPORT

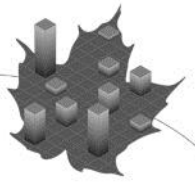
Pension Plan for the **PUBLIC SERVICE OF CANADA**
as at 31 March 2014

Table 83 Surviving Spouses
Number and Average Annual Allowance as at 31 March 2014

Age ¹	Number		Allowance	RCA No. 1			
	Widower	Widow		Allowance on Service Since 1992		Maximum Earnings Limit on Service Since 1994	
				Number	Allowance	Number	Allowance
To 24	-	-	-	-	-	-	-
25-29	1	1	5,669	-	-	-	-
30-34	8	21	5,624	-	-	-	-
35-39	17	39	7,329	2	667	-	-
40-44	68	90	8,049	14	4,790	-	-
45-49	96	246	9,713	29	1,699	-	-
50-54	281	649	10,881	106	1,256	-	-
55-59	465	1,361	12,692	267	957	-	-
60-64	651	2,415	13,657	683	930	-	-
65-69	797	3,633	14,200	1,269	799	1	26,629
70-74	798	4,759	13,885	1,402	605	1	3,234
75-79	837	6,349	13,551	987	505	-	-
80-84	760	8,480	13,159	553	507	-	-
85-89	553	9,484	13,180	172	575	-	-
90-94	285	6,454	12,817	31	638	-	-
95-99	50	1,651	12,483	1	168	-	-
100-104	1	211	11,352	-	-	-	-
105+	-	10	11,506	-	-	-	-
All Ages	5,668	45,853	13,233	5,516	707	2	14,931

	31 March 2014	31 March 2011
Male average age last birthday	71.7 years	71.8 years
Female average age last birthday	79.6 years	79.6 years
<u>Total annual allowances payable from</u>		
PS Superannuation Account	\$658 million	\$632 million
PS Pension Fund	\$24 million	\$10 million
RCA Account	\$4 million	\$5 million

¹ Expressed in completed years calculated at the beginning of the plan year.



Appendix 13 – Acknowledgements

The Superannuation Directorate of the Department of Public Works and Government Services Canada provided the data on plan members.

The co-operation and able assistance received from the above-mentioned data provider deserve to be acknowledged.

The following individuals assisted in the preparation of this report:

Kimberley Burt
Cornell Carter
Alexandre Chassé
Alice Chiu, A.S.A.
Mathieu Désy, F.C.I.A.
Christopher Dieterle, F.C.I.A.
Natacha Losier
Michel Rapin, F.C.I.A.
Annie St-Jacques, F.C.I.A.