



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

PUBLIC SERVICE DEATH BENEFIT ACCOUNT

as at 31 March 2014

Office of the Chief Actuary

Office of the Superintendent of Financial Institutions Canada

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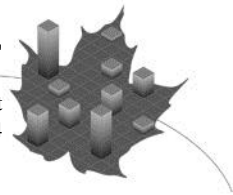
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ACTUARIAL REPORT

PUBLIC SERVICE Death Benefit Account
as at 31 March 2014



29 September 2015

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

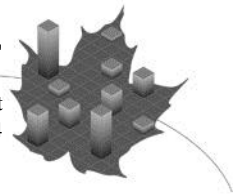
Dear Minister:

Pursuant to Section 59 of the *Public Service Superannuation Act*, I am pleased to submit the report on the actuarial review as at 31 March 2014 of the Public Service Death Benefit Account established under Part II of this 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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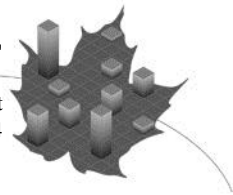
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I. Executive Summary

This actuarial report on the Public Service Death Benefit (PSDB) Account was made pursuant to Section 59 of the *Public Service Superannuation Act* (PSSA), which states that “a valuation report and an assets report on the state of the Public Service Death Benefit Account shall be prepared ... in accordance with the *Public Pensions Reporting Act* and as if the supplementary death benefit plan established by this Part were a pension plan established under an Act referred to in subsection 3(1) of that Act.”

This actuarial valuation is as at 31 March 2014 and is in respect of death benefits and contributions defined by Part II of the PSSA.

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 PSDB Account as well as to assist the President of the Treasury Board in making informed decisions regarding the financing of the government’s death benefit obligation. This is achieved by providing a best-estimate long-term projection of the PSDB Account based on the projected contributions and interest credited to the account and projected death benefits debited from the account.

B. Valuation Basis

This valuation report is based on the supplementary death benefit (SDB) plan provisions enacted by legislation, summarized in Appendix 1.

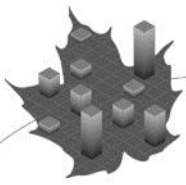
The *Jobs and Growth Act, 2012* (S.C. 2012, c. 31) received Royal Assent on 14 December 2012. Division 23 of Part 4 of the *Jobs and Growth Act, 2012* (S.C. 2012, c. 31) amends the *Public Service Superannuation Act* by increasing the pensionable age by five years for contributors entering the plan on 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 last actuarial valuation report.

The financial data on which this valuation is based relate to the PSDB Account established to track contributions and benefits under the SDB plan provisions. The account data is summarized in Appendix 2. The membership data is summarized in Appendix 3.

The valuation was prepared using accepted actuarial practice in Canada, methods and assumptions which are summarized in Appendices 4 to 6.

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. The actuarial assumptions used in the previous report were revised based on economic trends and demographic experience. A complete description of the assumptions is shown in Appendices 5 and 6.



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Death benefits are paid from the Consolidated Revenue Fund and charged against the PSDB Account. Contributions by employees, Crown corporations and the government are credited to the PSDB Account. Based on the balance of the PSDB Account, interest credits are calculated in such manner and at such rates and credited at such times as the SDB Regulations provide. Therefore, the fluctuations of returns observed in financial markets in recent years have no impact on the PSDB Account except insofar as long-term Government of Canada bond yields influence the interest credited by regulation.

The following table 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
Real increase in average earnings	0.9%	1.2%
Real projected yield on the Public Service Death Benefit Account	2.8%	2.7%

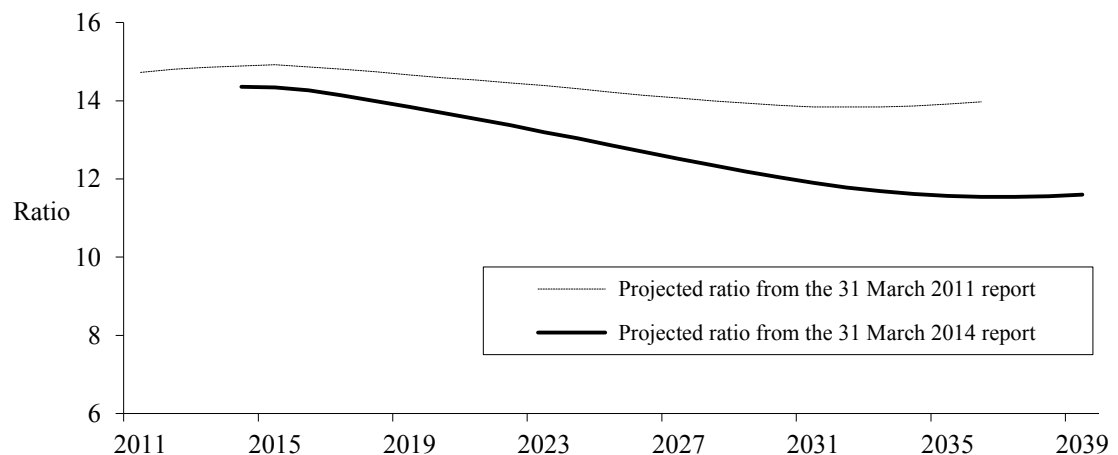
C. Main Findings

As at 31 March 2014, the SDB plan has an actuarial excess of \$2,641 million resulting from the difference between the PSDB Account balance of \$3,310 million and the liabilities of \$669 million.

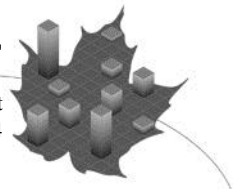
The actuarial excess is projected to reach \$4,271 million at the end of plan year¹ 2039. Figure 1 shows the ratio of projected actuarial excess at the end of the plan year to annual benefit payments projected for the following plan year. This ratio is expected to decrease from the current level of 14.4 to 11.6 by the end of plan year 2039.

Figure 1 Projected Ratio of Actuarial Excess to Annual Benefit Payments

(Actuarial excess is measured at the end of the plan year and annual payments are those of the following plan year.)



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.



II. Financial Position of the Plan

A. State of the Account

The State of the Account as at 31 March 2014 was prepared using the PSDB Account balance described in Appendix 2, the data described in Appendix 3, the methodology described in Appendix 4, and the assumptions described in Appendices 5 and 6. The results of the previous valuation are also shown for comparison purposes.

Table 2 State of the Account
(\$ millions)

	<u>31 March 2014</u>	<u>31 March 2011</u>
Account Balance	3,310	2,961
Liabilities		
Paid-up Death Benefit ¹	642	529
IBNR ²	<u>27</u>	<u>25</u>
Total Liabilities	669	554
Actuarial Excess	2,641	2,407

B. Financial Position

At 31 March 2014 the actuarial excess totals \$2,641 million, being 14.4 times the total amount of basic benefits projected for plan year 2015. By comparison, the actuarial excess as at 31 March 2011 under the previous report was \$2,407 million, which was 14.7 times the amount of basic benefits projected for plan year 2012.

As shown in Appendix 2 and explained in Section IV, the projected ratio of actuarial excess to annual benefit payments decreased as a result of several factors. First, the introduction of Group 2 members by the *Jobs and Growth Act, 2012* (S.C. 2012, c.31) means more non-elective participants will remain in the workforce for a longer period.

Over time, as this group ages, the death benefits payable will be higher since the coverage is based on the member's salary at death which lowers the ratio. However, the factor that has the greatest impact in decreasing the ratio is the new valuation interest rate assumption. Lower interest rates resulted in less interest credited and higher cost for paid up premiums for all future years, which diminishes the actuarial excess.

In addition, the new mortality rates and new longevity improvement factors resulted in more deaths for all future years, which in turn resulted in an increase of total death benefit payments. The result is that total expenditures exceed total contribution income in every year of the projection period and this has the impact of decreasing the projected ratio of actuarial excess to annual benefit payments.

¹ The \$10,000 portion of the basic benefit for which monthly contributions are no longer required from either the participant or the Government. See Appendix 4 – G.1.

² Incurred But Not Reported claims. See Appendix 4 – G.2.



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C. Sensitivity of Valuation Results to Variations in Key Assumptions

The following supplementary estimates indicate the degree to which the valuation results depend on some of the key assumptions. Differences between these results 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 indeed linear.

1. Projected Interest Yields

As a measure of sensitivity, an increment of one percentage point in the projected yields would increase the actuarial excess projected at the end of plan year 2039 from \$4,271 million to \$6,336 million, an increase of 48.4%.

Similarly, a decrease of one percentage point in the projected yields would decrease the actuarial excess projected at the end of plan year 2039 from \$4,271 million to \$2,617 million, a decrease of 38.7%.

2. Mortality

If the assumed improvements in longevity after the 2015 plan year were disregarded, then the monthly benefit cost rate¹ of 19.2 cents projected for plan year 2039 would climb to 24.6 cents, an increase of 28.1%. The actuarial excess projected at the end of plan year 2039 would decrease by 31.4% from \$4,271 million to \$2,929 million.

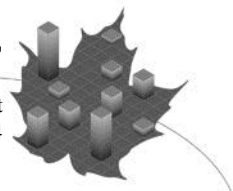
However, if the assumed improvements in longevity were kept at the level of plan year 2015, resulting in greater improvements in longevity than those assumed in Table 29, then the monthly benefit cost rate of 19.2 cents projected for 2039 would decline to 16.2 cents, a decrease of 15.6%. The actuarial excess projected at the end of plan year 2039 would climb by 13.2% from \$4,271 million to \$4,835 million.

3. Non-elective Population Growth Rate

If the assumed percentage increase in the non-elective population in each plan year were double the current assumption, then the projected population would be relatively younger. The monthly cost projected for plan year 2039 would decrease by 4.2% from 19.2 to 18.4 cents. The actuarial excess projected at the end of plan year 2039 would climb by 2.3% from \$4,271 million to \$4,370 million.

If the assumed percentage increase in the non-elective population were set to 0%, then the projected population would be relatively older. The monthly cost projected for plan year 2039 would increase by 3.6% from 19.2 to 19.9 cents. The actuarial excess projected at the end of plan year 2039 would decrease by 1.6% from \$4,271 million to \$4,203 million.

¹ The expression *monthly benefit cost rate* is defined as the ratio of the total expected monthly *term insurance* payments over the total amount of expected monthly term insurance benefit coverage, where coverage is expressed per thousand dollars. In this report, *term insurance benefit* means the basic benefit excluding the \$10,000 paid-up death benefit applicable from age 65.



III. Reconciliation of Results with Previous Report

Table 3 illustrates the impact of the updated assumptions, intervaluation economic experience, population changes and changes in mortality assumption methodology since the last valuation report as at 31 March 2011. The projected monthly cost for plan year 2039 rose 1.9 cents from 17.3 cents as at 31 March 2011 to 19.2 cents as at 31 March 2014. One source of the increase was the five-year increase in pensionable age for contributors entering the plan on or after 1 January 2013. The overall effect is that the Group 2 members will have higher death benefit coverages at retirement for all future years which in turn increases the monthly cost. The lower new entrant assumptions mean that the plan will end up with a projected population of older ages and this has the effect of increasing the cost. Other factors that drove the monthly cost up are the new mortality assumptions and longevity improvement factors. The combination of these assumptions resulted in more death benefits payments for all future years and therefore increases the monthly cost.

For the same reason as described above, the projected ratio of actuarial excess at the end of plan year 2039 to benefit payments in plan year 2040 decreased by 18.3% from 14.0 to 11.6.

Table 3 Reconciliation of Projected Results

	Monthly Cost Per \$1000 of Term Insurance (Cents)	Year End Actuarial Excess to the Following Year's Benefit Payments (Ratio)
Previous report as at 31 March 2011		
Plan Year 2036 Projection	17.6	14.0
Plan Year 2039 Projection	17.3	14.2
Retroactive data correction	(0.3)	0.4
New population and intervaluation account experience	0.2	0.2
Excluding Crown Corporations not covered under the PSDB	(0.1)	0.4
Jobs and Growth Act, 2012 - Intro. of Group 2 members	0.2	(0.2)
Change in new entrant assumption	0.4	0.2
Change in economic salary increases	-	1.2
Change in valuation interest rates	0.0	(3.2)
Change in non-elective mortality rates	0.2	(0.3)
Change in elective mortality rates	0.4	(0.7)
Change in longevity improvement factors	0.2	(0.2)
Change in termination rates	(0.2)	0.3
Change in retirement rates	0.1	(0.1)
Change in all other demographic assumptions	0.5	(0.6)
Plan Year 2039 Projection as at 31 March 2014	19.2	11.6



IV. Legislated Contribution Rates

The aggregate amount of death benefit payments projected for plan year 2015 is \$183.8 million, which is made up of \$142.5 million in respect of the term insurance and \$41.3 million in respect of the paid-up insurance. In this report, *term insurance* means the basic coverage (two times salary) less the 10% per year reduction applicable from age 66 and less the \$10,000 paid-up insurance applicable from age 65.

A. Paid-up Insurance

For plan year 2015, the estimated single premiums at age 65 for each \$10,000 of paid-up insured benefit are \$4,511 and \$4,140 for males and females, respectively. The corresponding legislated contribution rates for each \$10,000 of paid-up insured benefits are \$310 and \$291, respectively.

The assumed improvements in longevity cause the projected single premium for the paid-up death benefit to decrease over time. However, the projected ultimate yield of 4.80% is lower than the yield of 5.10% projected for plan year 2015. This has the effect of gradually increasing the projected single premium over the years.

The net effect of longevity improvements and decreasing projected yields is to decrease the projected single premiums at age 65 for each \$10,000 of paid-up insured benefit. A male participant's projected single premium decreases from \$4,511 for plan year 2015 to \$4,328 for plan year 2039; for a female participant the decrease is from \$4,140 to \$3,957.

B. Term Insurance

The total amount of term insurance proceeds projected to be payable during plan year 2015 is \$142.5 million. Given that the total amount of term insurance projected to be in force for plan year 2015 is \$56,383 million, the benefit cost rate projected for plan year 2015 is 21.1 cents per month per \$1,000 of term insurance.

Non-elective participants and elective participants in receipt of an immediate annuity or an annual allowance are required to contribute monthly 15 cents per \$1,000 of term insurance. As a minimum, the government contribution credited monthly to the PSDB Account is equal to one-twelfth of the total amount of term insurance proceeds payable during the month. For plan year 2015, the government's monthly contribution is estimated at 1.8 cents per \$1,000 of term insurance.

The total amount credited to the PSDB Account resulting from participants and government contributions in plan year 2015 is therefore 16.8 cents (15 cents plus 1.8 cents) per month per \$1,000 of term insurance, i.e. significantly less than the estimated monthly cost of 21.1 cents per \$1,000 of term insurance for plan year 2015.

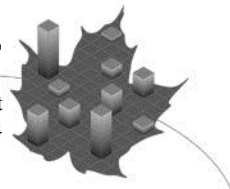
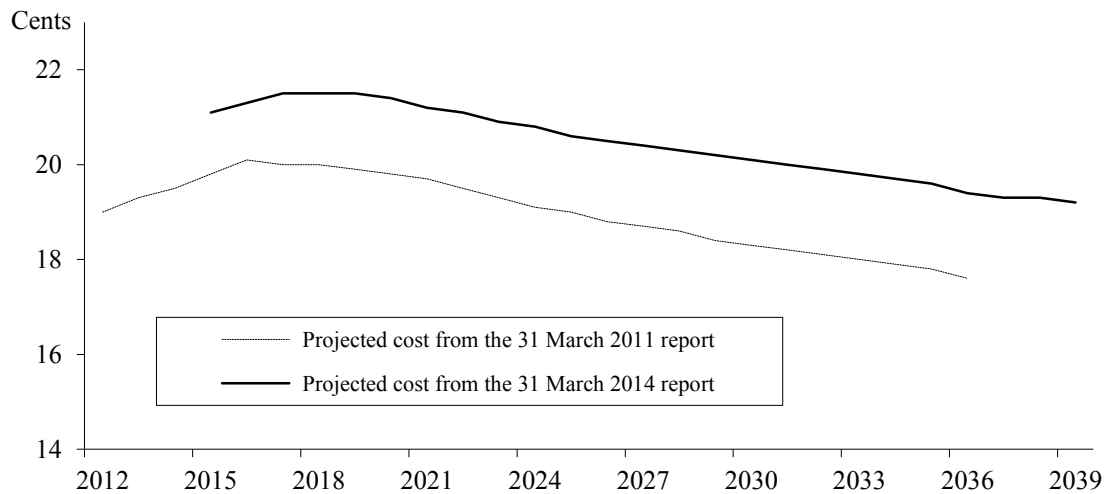


Figure 2 Projected Monthly Cost
(cents per \$1,000 of term insurance)



As shown in Figure 2, the monthly cost per \$1,000 of term insurance is projected to increase from 21.1 cents to 21.5 cents by plan year 2019. Thereafter, the monthly cost is projected to decrease gradually to 19.2 cents by plan year 2039. In comparison, the combined contribution rate in 2039 is projected to be 16.6 cents (15 cents for participants plus one-twelfth of 19.2 cents for Government).

The following table shows the projected monthly costs per \$1,000 of term insurance by participant type for selected plan years.

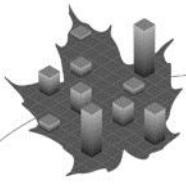
Table 4 Projected Monthly Cost
(cents per \$1,000 of term insurance)

Participants	2015	2019	2024	2029	2034	2039
Non-elective	10.6	10.5	10.3	10.3	10.0	9.5
Elective	54.8	55.0	54.4	54.3	51.9	49.4
All	21.1	21.5	20.8	20.2	19.7	19.2

For non-elective participants, the monthly cost projected for plan year 2039 is 89.6% of the monthly cost estimated for plan year 2015. This results mainly from the following two factors:

- There is a reduction in cost due to the assumed lower mortality for plan year 2039 in accordance with the longevity improvement factors shown in Table 29 applied to the current mortality rates shown in Table 28.
- The distribution of non-elective participants in the plan year 2039 is weighted more heavily at the older ages than currently. This has the effect of increasing costs. However, this increase is more than offset by the effect of the assumed mortality improvements.

In respect of elective participants in receipt of an immediate annuity or an annual allowance, the monthly benefit cost rate projected for plan year 2039 is 90.1% of the

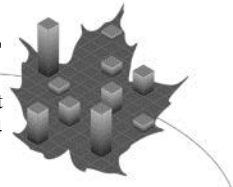


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monthly cost projected for plan year 2015. This decrease is mostly the result of the new elective mortality assumption.

For all plan participants in aggregate, the monthly cost projected for plan year 2039 is 91.0% of the monthly cost projected for plan year 2015.



V. Actuarial Opinion

In our opinion, considering that this report was prepared pursuant to the *Public Pensions Reporting Act* per Section 59 of the *Public Service Superannuation 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.

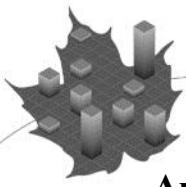
In particular, this report was prepared in accordance with the Standards of Practice (General Standards) published by the Canadian Institute of Actuaries.

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.

Daniel Hébert, F.C.I.A., F.S.A.
Senior Actuary
Office of the Chief Actuary

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

Ottawa, Canada
29 September 2015



Appendix 1 - Summary of Plan Provisions

Following is a summary description of the main provisions of the SDB plan established for public servants under Part II of the PSSA. This plan supplements benefits payable under the pension plan for the Public Service of Canada (PS pension plan) by providing a lump sum benefit upon the death of a plan participant.

A. Plan Participants

1. Non-elective Participants

The term *non-elective participant* means all contributors to the PS pension plan who are employed in the Public Service except employees of Crown corporations covered under other group life insurance plans.

2. Elective Participants

The term *elective participant* means all participants who have ceased to be employed in the Public Service following disability or retirement and have opted to continue their coverage under the SDB plan. Such right is limited to participants who, at the time they cease to be employed in the Public Service, have completed at least two years of continuous service in the Public Service or two years of membership in the SDB plan.

A non-elective participant who ceases employment and becomes entitled to an immediate annuity or annual allowance under the PS pension plan automatically becomes an elective participant. During the first 30 days as an elective participant, an individual has the right to opt out of the plan, effective on the 31st day.

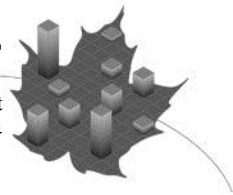
B. Contributions

1. Non-elective Participants and Elective Participants in Receipt of an Immediate Annuity or an Annual Allowance

For non-elective participants as well as elective participants in receipt of an immediate annuity (disability or retirement) or an annual allowance under the PS pension plan, the rate of contribution is 15 cents per month for each \$1,000 of death benefit. When these participants attain age 65 (or complete two years of service, if later), their contribution is reduced by \$1.50 per month in recognition of the fact that \$10,000 of basic benefit becomes paid-up (by the government) for the remaining lifetime of the participant.

2. Elective Participants Entitled to a Deferred Annuity

For elective participants entitled to a deferred annuity under the PS pension plan, the contribution rate set in legislation varies in accordance with the attained age of the participant, and the corresponding contributions become chargeable on the 30th day immediately following cessation of employment.



The contribution rates for selected ages are shown in the following table:

Table 5 Contribution per \$2,000 of Death Benefit

Age Last Birthday	Annual	Monthly
25	\$9.70	\$0.82
30	11.42	0.97
35	13.58	1.15
40	16.29	1.39
45	19.72	1.67
50	24.11	2.05
55	29.80	2.53
60	37.65	3.20

3. Government

The government credits monthly to the PSDB Account an amount equal to one-twelfth of the total amount of death benefits paid in the month.

Crown corporations and public boards whose employees are participants in the plan contribute at the rate of four cents per month for each \$1000 of death benefit.

When a participant, other than one entitled to a deferred annuity, reaches age 65 (or completes two years of service, if later), the Government credits to the PSDB Account a single premium for the individual \$10,000 paid-up portion of basic benefit in respect of which contributions are no longer required from the participant.

The legislated amount of single premium for each such \$10,000 paid-up portion of basic benefit is shown in the following table and corresponds to one-twentieth of \$10,000 times the single premium rate for each dollar of death benefit, computed on the basis of the Life Tables, Canada, 1950-1952 and interest at 4% per annum.

Table 6 Legislated Single Premium per \$10,000 of Basic Benefit

Age Last Birthday	Male	Female
65	\$310	\$291
66	316	298
67	323	306
68	329	313
69	336	320
70	343	328
71	349	335
72	356	342
73	362	349
74	369	356
75	375	363

Under the statutes, if for whatever reason the PSDB Account were to become exhausted, the government would then credit special contributions to the PSDB Account in an



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amount at least equal to the basic benefits then due but not paid by reason of such cash shortfall.

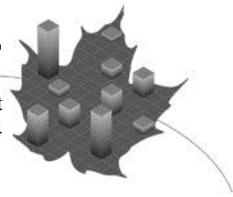
C. Amount of Basic Benefit

Subject to the applicable reductions described below, the lump sum benefit payable upon the death of a participant is equal to twice the participant's current salary, the result being rounded to the next higher multiple of \$1,000 if not already equal to such a multiple. For this purpose, the current salary of an elective participant is defined as the annual rate of pay at the time of cessation of employment in the Public Service.

The amount of basic benefit described above is reduced by 10% per year starting at age 66 until it would normally vanish at age 75. However, the amount of basic benefit cannot at any time be reduced below a basic floor value of \$10,000 subject to the following exceptions:

- For those elective participants who had, upon cessation of employment prior to 5 October 1992, made an election to reduce their basic benefit to \$500 and further had made a second election, within one year thereafter, to keep their basic benefit at \$500, the floor value is \$500 instead of \$10,000. Such election is irrevocable.
- For non-elective participants, the amount of basic benefit cannot be reduced below the multiple of \$1,000 equal to or next above one-third of the participant's annual salary, even if the resulting amount is higher than \$10,000.
- All participants aged between 61 and 70 prior to 1 October 1999 may elect to retain the 10% a year reduction schedule starting at age 61.
- For elective participants entitled to a deferred annuity, there is no coverage past age 75.

Upon ceasing to be employed in the Public Service, elective participants in receipt of an immediate annuity or in receipt of an annual allowance under the PS pension plan may opt to reduce their amount of basic benefit to \$10,000.



Appendix 2 - PSDB Account Balance

A. Public Service Death Benefit Account

The SDB plan is financed entirely through the PSDB Account, which forms part of the Accounts of Canada. The Account records the transactions for the plan, meaning that no formal debt instrument has been issued to the Account by the government in recognition of the amounts therein. The PSDB Account is:

- credited with all contributions made by participants, Crown corporations and the Government;
- credited with interest earnings every three months on the basis of the actual average yield for the same period on the combined Superannuation Accounts of the Public Service, Canadian Forces and Royal Canadian Mounted Police pension plans. These accounts generate 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; and
- debited with basic benefit payments when they become due.

Table 6 shows the reconciliation of the balance of the PSDB Account from the last valuation date to the current valuation date. Since the last valuation, the PSDB Account balance has grown by \$349 million (i.e., a 11.8% increase) to reach \$3,310 million as at 31 March 2014. The net growth in the PSDB Account balance is to a large extent the result of interest credits made.



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PUBLIC SERVICE Death Benefit Account
as at 31 March 2014

Table 7 Public Service Death Benefit Account
(\$ millions)

Plan Year	2012	2013	2014	2012-2014
Opening Balance	2,961.0	3,080.8	3,208.2	2,961.0
INCOME				
Employee Contributions				
Active members				
Public Service employees		70.0	69.2	
Public Service corporations		4.8	4.9	
Retired employees		<u>20.7</u>	<u>22.6</u>	
Total Employee Contributions	95.1	95.5	96.7	287.3
Employer Contributions				
Public Service corporations	1.2	1.3	1.3	3.8
Death benefit - general	10.3	9.8	11.5	31.6
Death benefit - single premium \$10,000	2.3	2.7	2.8	7.8
Interest	<u>175.0</u>	<u>172.1</u>	<u>170.1</u>	<u>517.2</u>
Total Income	283.9	281.3	282.4	847.6
EXPENDITURES				
Benefits payments				
General	123.6	117.5	137.1	378.2
Life coverage for \$10,000	40.4	36.2	43.1	119.7
Other death benefit payments	<u>0.1</u>	<u>0.2</u>	<u>0.3</u>	<u>0.6</u>
Total Expenditures	164.1	153.9	180.6	498.5
Closing Balance	3,080.8	3,208.2	3,310.0	3,310.0

B. Rates of Interest

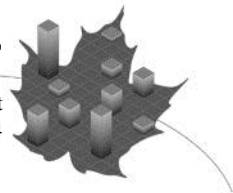
The following rates of interest on the PSDB Account by plan year were calculated using the foregoing entries.

Table 8 Rates of Interest

Plan Year	Interest
2012	5.97%
2013	5.63%
2014	5.36%

C. Sources of the Financial Data

The PSDB Account entries shown previously were taken from the Accounts of Canada.

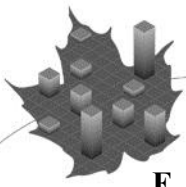


D. Account Projection

The following table shows a projection of the PSDB Account over 25 years commencing 1 April 2014.

Table 9 Account Projection
(\$ millions)

Plan Year	State of the Account at the End of Plan Year			Ratio of Projected Actuarial Excess at the End of the Plan Year to Annual Benefit Payments Projected for the Following Plan Year
	Account	Liabilities	Actuarial Excess	
2014	3,310	669	2,641	14.4
2015	3,411	702	2,709	14.3
2016	3,504	735	2,769	14.3
2017	3,590	768	2,822	14.1
2018	3,671	802	2,869	14.0
2019	3,750	837	2,913	13.8
2020	3,828	871	2,957	13.7
2021	3,901	904	2,997	13.5
2022	3,976	937	3,038	13.4
2023	4,049	970	3,079	13.2
2024	4,123	1,001	3,122	13.0
2025	4,195	1,031	3,164	12.9
2026	4,268	1,060	3,208	12.7
2027	4,342	1,086	3,256	12.5
2028	4,416	1,111	3,306	12.4
2029	4,492	1,133	3,358	12.2
2030	4,568	1,155	3,413	12.0
2031	4,644	1,171	3,473	11.9
2032	4,725	1,185	3,540	11.8
2033	4,812	1,198	3,615	11.7
2034	4,910	1,211	3,699	11.6
2035	5,015	1,223	3,791	11.6
2036	5,131	1,237	3,895	11.5
2037	5,261	1,251	4,011	11.5
2038	5,400	1,264	4,136	11.6
2039	5,548	1,277	4,271	11.6



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PUBLIC SERVICE Death Benefit Account
as at 31 March 2014

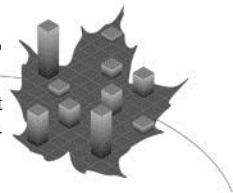
E. Income and Expenditure Projection

The following table shows a projection of the income and expenditure which served as the basis of the projection of the PSDB Account over 25 years commencing with plan year 2015.

Table 10 Income and Expenditure Projection
(\$ millions)

Plan Year	Contributions				Benefit Payments			Interest Credits	Net Credits
	Participants	Term	Paid-Up	Total	Term	Paid-Up	Total		
2015	101	13.3	2.8	118	143	41	184	167	101
2016	104	13.8	3.0	120	147	42	189	162	94
2017	106	14.3	3.0	123	152	42	194	156	85
2018	110	14.8	3.1	128	157	42	200	153	81
2019	113	15.3	3.2	132	162	43	205	153	79
2020	117	15.9	3.2	136	167	44	211	152	78
2021	121	16.4	3.2	141	172	44	216	148	73
2022	125	16.9	3.2	146	176	45	221	151	75
2023	130	17.4	3.3	150	181	46	227	150	73
2024	134	17.9	3.2	155	186	47	233	152	74
2025	139	18.5	3.2	160	191	49	239	151	72
2026	143	19.0	3.2	165	196	50	246	154	73
2027	148	19.6	3.1	170	201	52	253	156	74
2028	152	20.1	3.1	176	207	54	260	159	75
2029	157	20.7	3.1	181	212	55	268	162	75
2030	162	21.3	3.1	187	218	57	275	165	76
2031	168	22.0	2.9	193	224	60	284	167	76
2032	173	22.6	2.7	199	230	62	292	175	81
2033	179	23.3	2.7	205	236	64	300	182	87
2034	185	23.9	2.7	212	243	66	309	195	98
2035	191	24.6	2.8	219	249	69	318	204	105
2036	198	25.4	2.9	226	257	71	328	218	117
2037	205	26.2	2.9	234	264	74	337	234	130
2038	212	27.0	2.9	241	272	76	347	245	139
2039	219	27.8	2.9	249	280	78	358	257	148

¹ Government term contributions include the four cents per month per \$1,000 contribution made by participating Crown corporations and public boards.



Appendix 3 - Participant Data

A. Source of Participant Data

The valuation input data required in respect of contributors (both active and non-active) and pensioners 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.

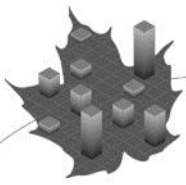
The main valuation data file supplied by the Superannuation Directorate contained the historical status information on all members up to 31 March 2014.

B. Validation of Participant Data

The participant data was validated with respect to the Actuarial Report on the Pension Plan for the Public Service of Canada as at 31 March 2014. Details of the data validation can be found in Appendix 4 of that report.

C. Participant Data Summary

Tables 11 to 13 on the following pages show the detailed participant data upon which this valuation is based. Comparisons are made with the population used in the previous actuarial report as at 31 March 2011. Please note that members of several Crown Corporations listed in Schedule I Part I of the PSSA were excluded from this report as mentioned previously and this will result in a lower non-elective population as at 31 March 2014.



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PUBLIC SERVICE Death Benefit Account
as at 31 March 2014

Table 11 Non-Elective Participants¹
As at 31 March 2014

Age ²	Number			Basic Benefits (\$ thousands)		
	Male	Female	Total	Male	Female	Total
15-19	56	69	125	3,813	4,949	8,762
20-24	1,929	2,452	4,381	184,430	234,209	418,640
25-29	8,124	11,361	19,485	1,010,685	1,387,192	2,397,877
30-34	14,435	20,541	34,976	2,031,417	2,787,667	4,819,084
35-39	17,324	24,506	41,830	2,689,124	3,585,170	6,274,295
40-44	17,716	23,548	41,264	2,893,512	3,548,534	6,442,046
45-49	19,157	24,691	43,848	3,190,542	3,698,050	6,888,592
50-54	22,378	28,007	50,385	3,744,582	4,094,754	7,839,336
55-59	16,074	17,737	33,811	2,706,191	2,557,777	5,263,968
60-64	7,314	7,070	14,384	1,240,423	977,236	2,217,658
65-69	2,188	1,628	3,816	382,036	217,636	599,672
70-74	399	248	647	70,793	31,568	102,361
Total	127,094	161,858	288,952	20,147,546	23,124,742	43,272,289

	<u>Average</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
As at 31 March 2011	Age ²	45.3	43.5	44.4
	Service ²	13.1	12.2	12.6
	Basic Benefit (\$)	146,924	131,665	138,421
As at 31 March 2014	Age ²	45.9	44.3	45.0
	Service ²	14.3	13.0	13.6
	Basic Benefit (\$)	158,525	142,871	149,756

¹ Includes Correctional Services Canada employees and members from participating Crown corporations and public boards

² Expressed in completed years calculated at the beginning of the plan year. Averages are calculated on a dollar-weighted basis.

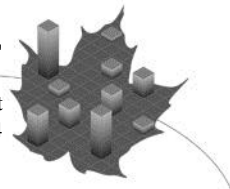


Table 12 Elective Participants in Receipt of a Disability Pension
As at 31 March 2014

Age ¹	Number			Basic Benefits (\$ thousands)		
	Male	Female	Total	Male	Female	Total
30- 34	8	22	30	943	2,454	3,397
35- 39	28	107	135	3,520	12,625	16,145
40- 44	69	233	302	9,038	27,338	36,376
45- 49	179	473	652	21,542	52,692	74,234
50- 54	457	1,128	1,585	53,130	123,073	176,203
55- 59	842	1,773	2,615	95,634	181,688	277,322
60- 64	1,106	1,522	2,628	111,851	141,073	252,924
65- 69	925	975	1,900	68,536	63,644	132,180
70- 74	706	678	1,384	16,989	14,799	31,788
75- 79	642	562	1,204	6,420	5,620	12,040
80- 84	409	314	723	4,090	3,140	7,230
85- 89	189	163	352	1,890	1,630	3,520
90- 94	100	77	177	1,000	770	1,770
95- 99	9	18	27	90	180	270
100-104	0	0	0	0	0	0
105-109	0	0	0	0	0	0
Total	5,669	8,045	13,714	394,673	630,726	1,025,400

	<u>Average</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
As at 31 March 2011	Age ¹	60.0	57.0	58.3
	Basic Benefit (\$)	61,542	68,851	65,576
As at 31 March 2014	Age ¹	59.8	56.9	58.0
	Basic Benefit (\$)	69,620	78,400	74,770

¹ Expressed in completed years calculated at the beginning of the plan year. Averages are calculated on a dollar-weighted basis.



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PUBLIC SERVICE Death Benefit Account
as at 31 March 2014

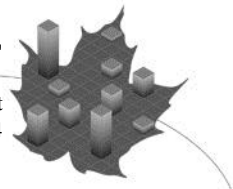
Table 13 Elective Retired Participants¹
(In Receipt of an Immediate Annuity or an Annual Allowance)
As at 31 March 2014

Age ²	Number			Basic Benefits (\$ thousands)		
	Male	Female	Total	Male	Female	Total
To 44	0	0	0	0	0	0
45- 49	8	9	17	1,176	1,313	2,489
50- 54	467	843	1,310	72,362	114,386	186,748
55- 59	7,902	10,709	18,611	1,291,447	1,510,689	2,802,136
60- 64	17,157	16,751	33,908	2,710,880	2,213,183	4,924,063
65- 69	20,173	14,294	34,467	2,326,579	1,336,100	3,662,679
70- 74	14,693	8,222	22,915	587,443	251,706	839,149
75- 79	10,009	4,734	14,743	100,090	47,340	147,430
80- 84	8,619	3,657	12,276	86,190	36,570	122,760
85- 89	5,797	2,816	8,613	57,970	28,160	86,130
90- 94	3,111	1,622	4,733	31,110	16,220	47,330
95- 99	530	396	926	5,300	3,960	9,260
100-104	44	53	97	440	530	970
105-109	<u>0</u>	<u>6</u>	<u>6</u>	<u>0</u>	<u>60</u>	<u>60</u>
Total	88,510	64,112	152,622	7,270,987	5,560,217	12,831,204

	<u>Average</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
As at 31 March 2011	Age ²	63.9	62.3	63.3
	Basic Benefit (\$)	75,145	75,440	75,257
As at 31 March 2014	Age ²	64.2	62.5	63.4
	Basic Benefit (\$)	82,149	86,727	84,072

¹ Participants entitled to a deferred annuity were not taken into account for valuation purposes. Their impact is considered negligible.

² Expressed in completed years calculated at the beginning of the plan year. Averages are calculated on a dollar-weighted basis.



Appendix 4 - Methodology

A. PSDB Account Balance

The balance of the PSDB Account forms part of the Accounts of Canada. The account records the transactions for the plan, meaning that no debt instrument has been issued to the PSDB Account by the government in recognition of the amounts therein. The recorded balance is shown at the book value of the underlying notional bond portfolio described in Appendix 2.

The PSDB Account balance corresponds to the cumulative historical excess of contributions and interest credits over basic benefit payments. The PSDB Account balance is accordingly projected to the end of a given plan year by adding to the PSDB Account at the beginning of that plan year the net income (i.e. the excess of contributions and interest credits over benefits) projected as described below for that plan year. Administration expenses are ignored because they are not charged to the PSDB Account.

B. Contributions

1. Participants

Participants' annual contributions are projected for a given plan year by multiplying

- the legislated annual contribution rate of \$1.80 per \$1,000 of coverage (equivalent to the monthly rate of 15 cents per \$1,000 of coverage)

by

- the aggregate of two times the salaries of participants projected for that plan year on an open-group basis,

less

- the 10% per year reduction from age 66 if applicable, and
- the \$10,000 paid-up coverage after age 65, if applicable.

Non-elective participants' salaries are projected for a given plan year using the assumed rates of increase described in Appendix 5 and the assumed seniority and promotional salary increases described in Table 15. Elective participants' salaries are frozen at the time of retirement or disability and are not subject to further increases.

2. Government

The government's annual contribution is projected for a given plan year as the sum of:

- one-twelfth of the amount of term insurance death benefits projected to be paid during that plan year, and
- the legislated single premiums in respect of relevant participants 65 years of age (or participants completing two years of service, if older).



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PUBLIC SERVICE Death Benefit Account
as at 31 March 2014

3. Crown Corporations and Public Boards

Crown corporations' and public boards' annual contributions are projected for a given plan year by multiplying

- the legislated annual contribution rate of \$0.48 per \$1,000 of coverage (equivalent to the monthly rate of 4 cents per \$1,000 of coverage)
- by
- the aggregate of two times the salaries of each participant who is employed by the Crown corporation or public board projected for that plan year on an open-group basis,
- less
- the 10% a year reduction from age 66 if applicable, and
 - the \$10,000 paid-up coverage after age 65, if applicable.

C. Discount Rates

The rates used to calculate the present value of actuarial liabilities in respect of paid-up death benefits are the same as the yields described and shown in Appendix 5.

D. Interest Credits

Annual interest credits are projected for a given plan year as the product of the yield projected for that plan year (shown in Appendix 5) and the projected average PSDB Account balance in that plan year.

E. Treatment of Correctional Service of Canada (CSC) Elective Employees

As at 31 March 2014, there are approximately 200 Deemed Operational employees and 14,277 Actual Operational employees. For simplification, all Deemed Operational employees of CSC have been treated as Actual Operational service employees which means a total of 14,477 employees of CSC were reported as Actual Operational for valuation purpose.

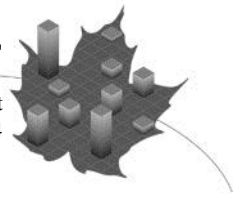
F. Basic Benefit Payments

The total amount of basic benefits (term and paid-up insurance) for a given plan year is projected as the total amount of insurance in force during that plan year multiplied by the mortality rates assumed to apply during that plan year. The amount of basic benefit in force depends on the salary projected to time of death. Salaries are projected for this purpose using the assumed rates of increase in salaries and the number of participants projected on an open-group basis as described in Appendix 6.

G. Liabilities

1. Paid-up Reserve

At the end of a given plan year, the liabilities associated with the individual \$10,000 paid-up death benefit in force correspond to the amount which, together with interest at the projected yields, is sufficient to pay for each individual \$10,000 paid-up death benefit projected payable on the basis of the assumed mortality rates.

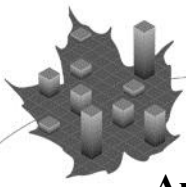


2. IBNR and Pending Claims Reserves

On the basis of the plan's experience, the reserve at the end of a given plan year for claims incurred but not reported (IBNR) and for pending claims is set equal to one-sixth of the projected annual death benefits paid on average during the six previous plan years.

3. Extension of Coverage

Due to the negligible financial impact of the 30-day extension of the basic benefit upon termination of coverage and to the nature of basic benefit paid for on a monthly basis, no explicit liability was calculated in respect of that basic benefit provision.



Appendix 5 - Economic Assumptions

The following economic assumptions are required for valuation purposes:

A. Increases in Average Earnings

Salary increases consist of a combination of inflation, productivity growth (i.e. real¹ increase in average employment earnings in excess of inflation) and seniority and promotional increase. Seniority and promotional increase is strongly service-based and is therefore considered to be a demographic assumption rather than an economic assumption.

Price increases, as measured by changes in the Consumer Price Index (CPI), tend to fluctuate from year to year. Based on the commitment of the Bank of Canada and the Government to keep inflation between 1% and 3% until the end of 2016, a price increase of 2.0% was 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.

The actual increase in average earnings² for plan year 2015 was 1.9%. The assumed increase in average earnings were 2.0% and 2.2% for plan years 2016 and 2017, respectively, based on recently approved contracts which apply to the majority of non-elective participants. The assumed increase in average earnings for plan years 2018+ was calculated as the sum of assumed inflation and assumed productivity growth. Thus, the ultimate increase in average earnings is 2.9%.

The assumed increases in average earnings are shown in Table 14.

B. Projected Yields on PSDB Account

These yields are required for the long-term projection of the PSDB Account, liabilities and excess or shortfall. The projected yields on the PSDB Account are the projected annual yields on the combined book value of the Superannuation Accounts of the Public Service, Canadian Forces, and Royal Canadian Mounted Police pension plans.

¹ The real rates in this report are differentials, i.e. the difference between the effective annual rate and the inflation rate.

² Exclusive of seniority and promotional increases

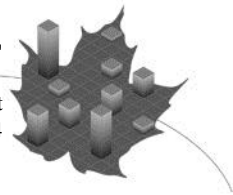
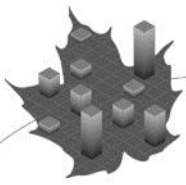


Table 14 Summary of Economic Assumptions
(percentage)

Plan Year	Average Salary Increase ¹ of Non-Elective Participants	Projected Yield
2015	1.90	5.10
2016	2.00	4.80
2017	2.20	4.50
2018	2.50	4.30
2019	2.70	4.20
2020	2.90	4.10
2021	2.90	3.90
2022	2.90	3.90
2023	2.90	3.80
2024	2.90	3.80
2025	2.90	3.70
2026	2.90	3.70
2027	2.90	3.70
2028	2.90	3.70
2029	2.90	3.70
2030	2.90	3.70
2031	2.90	3.70
2032	2.90	3.80
2033	2.90	3.90
2034	2.90	4.10
2035	2.90	4.20
2036	2.90	4.40
2037	2.90	4.60
2038	2.90	4.70
2039	2.90	4.80
2040+	2.90	4.80

¹ Exclusive of seniority and promotional increases



Appendix 6 - Demographic and Other Assumptions

All contributors to the pension plan for the Public Service of Canada (PS) are covered by a supplementary death benefit as defined under Part II of the PSSA. Hence, given the size of the population subject to the PSSA, except where otherwise noted, all demographic assumptions were determined using the PS pension plan’s own experience, as was done in the past. Where applicable, assumptions used in the previous valuation were updated to reflect the intervaluation experience.

A. Demographic Assumptions

1. Seniority and Promotional Salary Increases

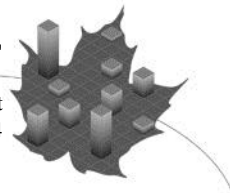
Seniority means length of service within a classification and promotion means moving to a higher paid classification.

The seniority and promotional salary increases are the same as those used in the Actuarial Report on the Pension Plan for the Public Service of Canada as at 31 March 2014. Details of this assumption can be found in Appendix 7 of that report.

The following table shows a sample of the assumed seniority and promotional salary increases.

Table 15 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 Participants

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 increases for each plan year are shown in the following table:

Table 16 Assumed Annual Increases in Number of Non-Elective Participants

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

The assumed rates of pensionable retirement are the same as those used in the Actuarial Report on the Pension Plan for the Public Service of Canada as at 31 March 2014. Details of this assumption can be found in Appendix 7 of that report.

The following tables show a sample of the assumed rates of pensionable retirement.

Table 17 Sample of Assumed Rates of Retirement - Main Group 1- Male
(Per 1,000 individuals)

Age	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 18 Sample of Assumed Rates of Retirement - Main Group 1- Female
(Per 1,000 individuals)

Age	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



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Table 19 Sample of Assumed Rates of Retirement - Main Group 2 - Male
(Per 1,000 individuals)

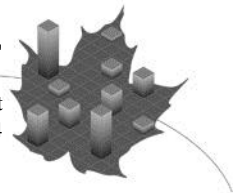
Age	Completed Years of Pensionable Service						
	1	2	10	20	29	30	35
55	52	45	17	11	9	12	52
60	86	82	58	59	251	182	478
65	235	212	244	247	287	279	405
70	435	344	327	583	318	600	386

Table 20 Sample of Assumed Rates of Retirement - Main Group 2 - Female
(Per 1,000 individuals)

Age	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

Table 21 Sample of Assumed Rates of Retirement - Operational Service Group
(Per 1,000 individuals)

Age	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 assumed disability incidence rates are the same as those used in the Actuarial Report on the Pension Plan for the Public Service of Canada as at 31 March 2014. Details of this assumption can be found in Appendix 7 of that report.

The following table shows a sample of the assumed rates of disabled retirement.

Table 22 Sample of Assumed Rates of Pensionable Disability
(Per 1,000 individuals)

Age	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.

The assumed rates of withdrawal are the same as those used in the Actuarial Report on the Pension Plan for the Public Service of Canada as at 31 March 2014. Details of this assumption can be found in Appendix 7 of that report.

The following tables provide a sample of assumed rates of withdrawal.

Table 23 Sample of Assumed Rates of Withdrawal - Main Group 1 - Male
(Per 1,000 individuals)

Age	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	-	-	-	-	-	-



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Table 24 Sample of Assumed Rates of Withdrawal - Main Group 1 - Female
(Per 1,000 individuals)

Age	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	-	-	-	-	-	-

Table 25 Sample of Assumed Rates of Withdrawal - Main Group 2- Male
(Per 1,000 individuals)

Age	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

Table 26 Sample of Assumed Rates of Withdrawal - Main Group 2 - Female
(Per 1,000 individuals)

Age	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

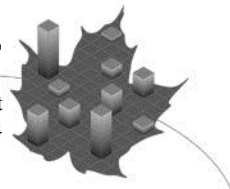


Table 27 Sample of Assumed Rates of Withdrawal - Operational Group
(Per 1,000 individuals)

Age	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	-	-	-	-	-
53	74	-	-	-	-	-
58	123	-	-	-	-	-

6. Elective Participants Entitled to a Deferred Annuity

Due to their negligible impact on costs and liabilities, actual and future deferred annuitants are not taken into consideration for the purpose of this valuation.

7. Mortality

As mentioned in the previous valuation, the SDB plan had been experiencing discrepancy between the observed and expected SDB death benefit payments where the projected death benefit payments exceeded the actual death benefit payments over a period of three years by a margin of at least 30%. In 2011, a new study of mortality as a function of coverage was conducted over the period of plan years 2007 to 2011. The resulting mortality rates were lower than those of the PSSA pension plan for all ages below 95. The resulting mortality rates and hence death benefit payments were therefore more in line with what the SDB was actually experiencing and therefore it was decided that the new methodology would be adopted for future valuation.

For this valuation, the same mortality study was conducted based on the period 2012 to 2014. The resulting rates were again slightly lower than the PSSA pension plan’s mortality rate but only for younger ages. For older ages, the mortality rates were actually higher than those experienced by the PSSA pension plan and this was the opposite of what we would expect. This may be partially explained by the fact that the data on the older population accounts for less than 2% of the exposure in the study. In addition, SDB record keeping for elective members were not necessarily updated as often as for non-elective members and therefore data on the older population may be deemed less reliable compared to records of younger ages. Taking these facts into consideration, it was decided that the PSSA mortality rates will be used for older ages.

The mortality rate assumptions used in this report are the blended rates between the PSDB plan’s own experience and those reported in the Pension Plan for the Public Service of Canada (PSSA) as at March 31 2014 report. This is a change from



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methodology used in the previous valuation where in the previous report the mortality rates were derived by giving full credibility to the SDB plan's experience over the period of plan years 2007 to 2011.

For this valuation, for age 65 and below, 50% credibility were given to the SDB plan's experience over the last three plan years and 50% credibility were given to the SDB plan's experience over the period 2007 to 2011. For ages above 65, the mortality rates reported in the PSSA pension plan was used instead.

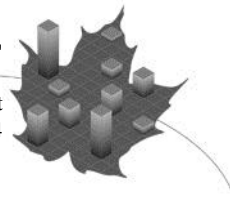
For more details on development of the pension plan's mortality rate please refer to Appendix 7 of the PSSA report for details.

Table 28 Sample of Assumed Rates of Mortality - SDB Plan
(Per 1,000 individuals)
Plan Year 2015

Age	Non-Elective Participants and Elective Participants who Retired Normally		Elective Participants who Retired on Disability	
	Male	Female	Male	Female
30	0.2	0.1	6.6	4.5
40	0.5	0.3	9.2	6.0
50	1.6	1.3	13.7	8.2
60	4.2	3.5	20.6	12.9
70	14.9	10.8	36.6	22.7
80	49.4	33.5	80.7	56.7
90	154.8	118.3	188.8	156.5
100	369.2	303.0	420.9	470.2
110	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.

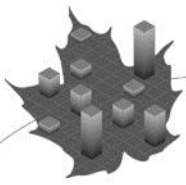
The ultimate longevity improvement factors for plan years 2031 and thereafter were established by analysing the trend by age and sex of the Canadian experience over the period 1921 to 2009. Improvement factors for plan year 2015 are assumed to be those experienced on average over the 15-year period from 1994 to 2009. After plan year 2015, the factors are assumed to reduce gradually to their ultimate level by plan year 2031.



A sample of assumed longevity improvement factors is shown in the following table.

Table 29 Sample of Assumed Longevity Improvement Factors
(applicable at the beginning of the plan year)

Age	Initial and Ultimate Plan Year Mortality Reductions (%)			
	Male		Female	
	2015	2031+	2015	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



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8. Election Proportions

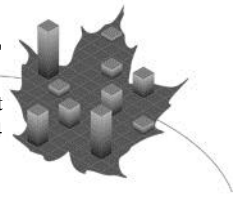
The following table provides a sample of the assumed rates of non-elective participants who opt to continue coverage under the plan at retirement.

Table 30 Election Proportions
(Non-elective participants choosing to become elective participants at retirement)

Age ¹	Pensionable Retirement ²		Disability Retirement	
	Male	Female	Male	Female
15-43	0.00	0.00	1.00	1.00
44	0.12	0.13	1.00	1.00
45	0.20	0.17	1.00	1.00
46	0.27	0.21	1.00	1.00
47	0.34	0.25	1.00	1.00
48	0.41	0.31	1.00	1.00
49	0.48	0.37	1.00	1.00
50	0.55	0.45	1.00	1.00
51	0.63	0.53	1.00	1.00
52	0.70	0.62	1.00	1.00
53	0.77	0.71	1.00	1.00
54	0.83	0.79	1.00	1.00
55	0.88	0.86	1.00	1.00
56	0.91	0.90	1.00	1.00
57	0.93	0.91	1.00	1.00
58	0.93	0.92	1.00	1.00
59	0.94	0.93	1.00	1.00
60	0.94	0.93	1.00	1.00
61	0.94	0.94	1.00	1.00
62	0.94	0.94	1.00	1.00
63	0.94	0.94	1.00	1.00
64	0.94	0.94	1.00	1.00
65	0.94	0.95	1.00	1.00
66	0.94	0.95	1.00	1.00
67	0.95	0.95	1.00	1.00
68	0.95	0.96	1.00	1.00
69	0.95	0.96	1.00	1.00
70+	1.00	1.00	1.00	1.00

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

² A pensionable retirement is a retirement resulting in either an immediate annuity for reasons other than disability or an annual allowance.

**B. Other Assumptions****1. Option to Reduce Coverage to \$10,000**

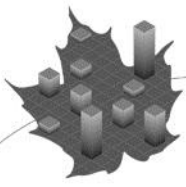
The valuation data indicates that the proportion of elective participants opting to reduce their basic benefit to \$10,000 is negligible. Accordingly, no elective participants were assumed to make such an option.

2. Option to Continue the Annual 10% Reduction from Age 61

Bill C-78 introduced this option to participants effective 1 October 1999. Election of this option by participants would have a positive effect on the plan's actuarial excess. The valuation data indicates that approximately 2.3% of participants have opted to continue their 10% annual reduction from age 61 instead of age 66. Accordingly, no participants were assumed to make such an election.

3. Administrative Expenses

In the projection of the PSDB Account, no assumption was made regarding the expenses incurred for the administration of the plan. These expenses, which are not debited to the PSDB Account, are commingled with all other government charges.



Appendix 7 - Acknowledgements

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

The following individuals were instrumental in the preparation of this report:

Kimberley Burt
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