



Office of the Superintendent of  
Financial Institutions Canada

Bureau du surintendant des  
institutions financières Canada

Office of the Chief Actuary

Bureau de l'actuaire en chef



# ACTUARIAL REPORT

on the

# PUBLIC SERVICE DEATH BENEFIT ACCOUNT

as at 31 March 2005

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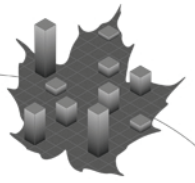
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# ACTUARIAL REPORT

Death Benefit Account for the **PUBLIC SERVICE**  
as at 31 March 2005



8 September 2006

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

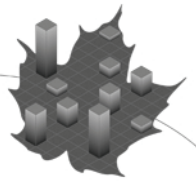
Dear Minister:

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 2005 of the Public Service Death Benefit Account established under Part II of this Act.

Yours sincerely,

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



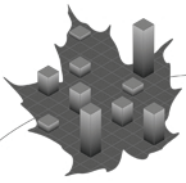


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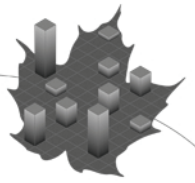
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## **I. Executive Summary**

### **A. Purpose of this Actuarial Report**

This actuarial report on the supplementary death benefit plan established under Part II of the *Public Service Superannuation Act* (PSSA) was made as at 31 March 2005 pursuant to Section 59 of the PSSA, which states that for valuation purposes the plan shall be treated as if it were a pension plan subject to the *Public Pensions Reporting Act* (PPRA). The previous review was made as at 31 March 2002. The scheduled date of the next periodic review pursuant to Section 59 is 31 March 2008.

In accordance with accepted actuarial practice and with the PPRA to which Section 59 refers, the main purpose of this actuarial report is to show realistic long-term projections of the assets, liabilities and financial position of the plan to assess the adequacy of the legislated contribution rates.

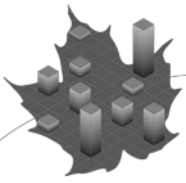
### **B. Scope of the Report**

There were no modifications to the plan provisions since the previous report's date. This valuation report is based on the plan provisions shown in Appendix 1.

### **C. Main Findings**

As at 31 March 2005, the plan had an actuarial excess of \$1,750 million resulting from the difference between the assets of \$2,212 million and the liabilities of \$462 million.

The current actuarial excess of \$1,750 million in the Public Service Death Benefit (PSDB) Account is projected to reach \$2,905 million at the end of plan year 2030. The graph on the following page 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 increase until plan year 2007 due to excess interest earnings, after which it should steadily decline as total death benefits continue to rise.

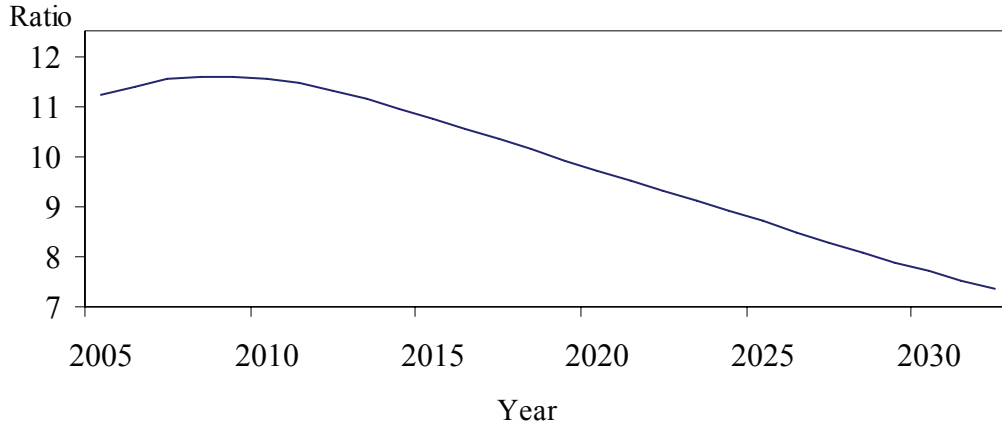


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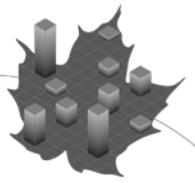
Death Benefit Account for the **PUBLIC SERVICE**  
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## Figure 1 Projected Ratio of Actuarial Excess to Annual Benefit Payments

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







## **II. Financial Position of the Plan**

### **A. Balance Sheet**

The following balance sheet as at 31 March 2005 was prepared using the assets 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.

**Table 1 Balance Sheet**

As at 31 March 2005 (\$ millions)

<b>Assets</b>	<b>2,211.9</b>
<b>Liabilities</b>	
For paid-up <sup>1</sup> death benefit on participants ages 65 and over	440.4
For incurred but unreported or pending claims	22.0
<b>Total Liabilities</b>	<b>462.4</b>
<b>Actuarial Excess</b>	<b>1,749.5</b>

### **B. Financial Position**

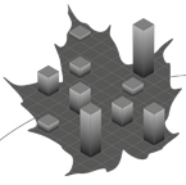
At 31 March 2005 the actuarial excess totalled \$1,750 million, being 11.2 times the total amount of basic benefits projected for plan year 2006. By comparison, the actuarial excess as at 31 March 2002 under the previous report was \$1,466 million, which was 10.5 times the amount of basic benefits paid during plan year 2003.

As shown in Appendix 2 and explained in Section IV, the projected contributions to the plan are less than the projected benefits for all future plan years. However, total income exceeds total expenditures in every year of the projection period because interest earnings more than offset the excess of benefits over contributions.

### **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. These resulting differences 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.

<sup>1</sup> The term paid-up death benefit refers to the \$10,000 portion of the basic benefit for which monthly contributions are no longer required from either the participants or the government.



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Death Benefit Account for the **PUBLIC SERVICE**  
as at 31 March 2005

### **1. Projected Interest Yields**

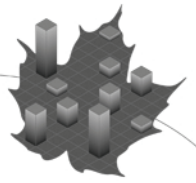
As a measure of sensitivity, an increment of one percentage point in the projected yields would increase the actuarial excess projected at the end of plan year 2030 from \$2,905 million to \$4,673 million, an increase of 61%.

On the opposite side, a decrease of one percentage point in the projected yields would decrease the actuarial excess projected at the end of plan year 2030 from \$2,905 million to \$1,506 million, a decrease of 48%.

### **2. Mortality**

If the assumed improvements in longevity after the 2006 plan year were disregarded, then the monthly benefit cost rate of 24.3 cents projected for 2030 would climb to 33.1 cents, an increase of 36%. The actuarial excess projected at the end of plan year 2030 would decrease by 69% from \$2,905 million to \$902 million.

However, if the assumed improvements in longevity after the 2006 plan year were kept at the level of plan year 2006, resulting in greater improvements in longevity than those assumed in Table 21, then the monthly benefit cost rate of 24.3 cents projected for 2030 would decline to 20.0 cents, a decrease of 18%. This would correspond to an increase of 19% in the actuarial excess projected at the end of plan year 2030, from \$2,905 million to \$3,443 million.



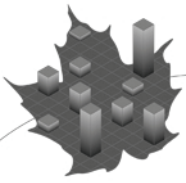
### III. Reconciliation of Results with Previous Report

The following table indicates that the change in mortality rates and longevity improvement factors and the change in the assumption of the number of new entrants in the future are the main reasons for the decrease in the projected monthly benefit cost rate from 26.9 cents based on the previous report assumptions to that of 24.3 cents of this report.

The increase in proportion of participants electing death benefit coverage at retirement with the decrease in the assumed projected yields contributed to a decrease of 1.4 in the year-end actuarial excess to benefit payments in plan year 2031 ratio. The decrease in mortality rates contributed to an increase of 2.2 in the year-end actuarial excess to benefit payments in plan year 2031 ratio.

**Table 2 Reconciliation of Results**

<b>Projections for Plan Year 2030</b>	Monthly Cost per \$1,000 of Death Benefit (Cents)	Year End Actuarial Excess to Benefit Payments in Plan Year 2031 (Ratio)
<b>As at 31 March 2002 (Projection for plan year 2027)</b>	<b>27.3</b>	<b>8.2</b>
<b>As at 31 March 2002 (Projection for plan year 2030)</b>	<b>26.9</b>	<b>7.7</b>
Improvement in the valuation programs	0.2	(0.2)
Intervaluation economic experience and change in population	0.1	0.3
Change in new entrant assumptions	(1.5)	(0.4)
Change in projected yields	0.0	(0.8)
Change in average salary increase and promotional salary increase assumptions	0.1	(0.1)
Change in mortality rates and in longevity improvement factors	(2.2)	2.2
Change in demographic assumptions other than mortality rates and longevity improvement factors	0.4	(0.3)
Change in assumed proportion electing SDB at retirement	0.3	(0.6)
<b>As at 31 March 2005 (Projection for plan year 2030)</b>	<b>24.3</b>	<b>7.7</b>



### IV. Legislated Contribution Rates

The aggregate amount of basic benefit payments projected for plan year 2006 is \$155.6 million, which is made up of \$113.7 million in respect of the death benefit and \$41.9 million in respect of the paid-up death benefit. In this report, death benefit means the basic coverage (two times salary) less the 10% per year reduction applicable from age 66 and the \$10,000 paid-up death benefit applicable from age 65.

#### A. Paid-Up Death Benefit

For plan year 2006, the estimated single premiums at age 65 for each \$10,000 of paid-up death benefit are \$3,769 and \$3,242 for males and females, respectively. The corresponding legislated contribution rates for each \$10,000 of paid-up death 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 5.35% is lower than the yield of 7.83% projected for plan year 2006. This has the effect of gradually increasing the projected single premium over the years.

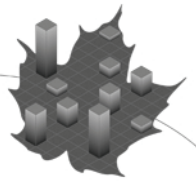
The net effect of longevity improvements and decreasing projected yields is to increase the projected single premiums at age 65 for each \$10,000 of paid-up death benefit. A male participant's projected single premium increases from \$3,769 for plan year 2006 to \$4,025 for plan year 2030; for a female participant the increase is from \$3,242 to \$3,516.

#### B. Death Benefit

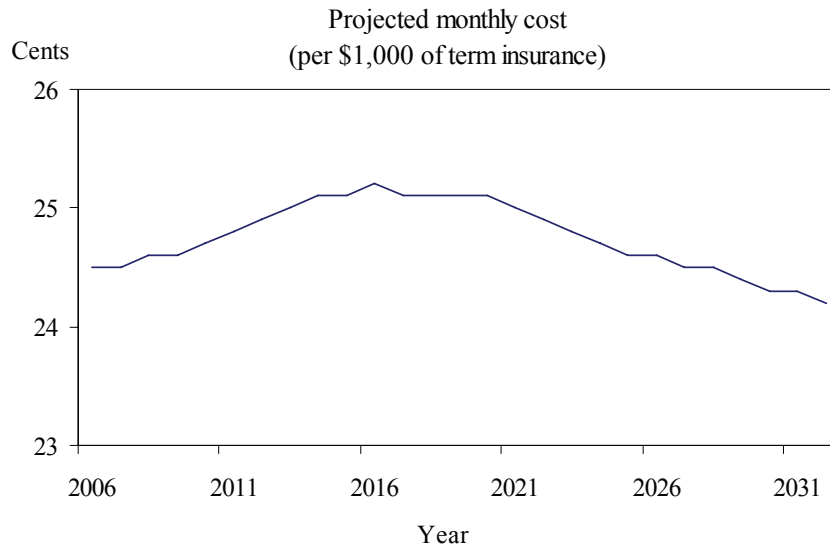
The total amount of death benefit proceeds projected to be payable during plan year 2006 is \$113.7 million. Given that the total amount of death benefit projected to be in force for plan year 2006 is \$38,637 million, the benefit cost rate projected for plan year 2006 is 24.5 cents per month per \$1,000 of death benefit.

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 death benefit. As a minimum, the Government contributes monthly an amount equal to one-twelfth of the actual total amount of death benefit proceeds payable during the month. For plan year 2006, the Government's monthly contribution is estimated at 2.0 cents per \$1,000 of death benefit.

The total amount contributed by participants and the government in plan year 2006 is therefore 17.0 cents (15 cents plus 2.0 cents) per month per \$1,000 of death benefit, i.e. significantly less than the estimated monthly cost of 24.5 cents per \$1,000 of death benefit for plan year 2006.



**Figure 2 Projected Monthly Cost (Cents Per \$1,000 of Death Benefit)**

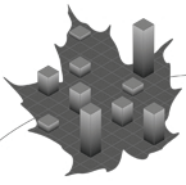


As shown in figure 2, the monthly cost per \$1,000 of death benefit is projected to increase from 24.5 cents to 25.2 cents for 9 years starting in plan year 2007. Thereafter, the monthly cost is projected to decrease gradually to 24.3 cents by plan year 2030. This 24.3 cents cost compares to the combined (Government and participants) legislated contribution rate of 17.0 cents (i.e. 15 cents for participants plus one-twelfth of 24.3 cents for Government) projected for plan year 2030.

The following table illustrates the projected monthly costs per \$1,000 of death benefit for selected plan year and participant type.

**Table 3 Projected Monthly Cost**  
(Cents Per \$1,000 of Death Benefit)

Participants	2006	2013	2020	2025	2030
Non-elective	13.7	12.6	12.0	11.8	11.8
Elective	77.7	66.9	65.6	64.9	64.8
All	24.5	25.0	25.1	24.6	24.3



## ACTUARIAL REPORT

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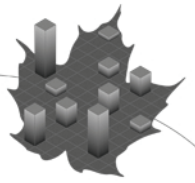
Death Benefit Account for the **PUBLIC SERVICE**  
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For non-elective participants, the monthly cost projected for plan year 2030 is 86% of the monthly cost estimated for plan year 2006. This results mainly from the following two factors:

- There is a reduction in cost due to the assumed lower mortality for plan year 2030 in accordance with the longevity improvement factors shown in Table 21 applied to the current mortality rates shown in Table 20.
- The distribution of non-elective participants in the plan year 2030 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 2030 is 83% of the monthly cost projected for plan year 2006. This decrease is mostly the result of the assumed mortality improvements.

For all plan participants in aggregate, the monthly cost projected for plan year 2030 is 99% of the monthly cost projected for plan year 2006. This decrease is mostly the result of a greater number of new non-elective participants that is assumed to come in the future.



## V. Actuarial Opinion

This report was prepared pursuant to the *Public Pensions Reporting Act* per Section 59 of the *Public Service Superannuation Act*. In our opinion:

- the valuation data on which it is based are sufficient and reliable;
- the assumptions that have been used are, in aggregate, appropriate; and
- the methodology employed is appropriate.

This report has been prepared, and our opinions given, in accordance with accepted actuarial practice, and particularly with the Standards of Practice – General Standards of the Canadian Institute of Actuaries.

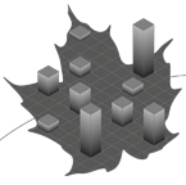
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Jean-Claude Ménard, F.C.I.A., F.S.A.  
Chief Actuary  
Office of the Chief Actuary

Ottawa, Canada  
8 September 2006



## APPENDICES

### Appendix 1 Summary of Plan Provisions

Following is a summary description of the main provisions of the Supplementary Death Benefit plan established for public servants under Part II - *Supplementary Death Benefits* of the *Public Service Superannuation Act* (PSSA). This plan supplements the pension plan by providing a lump sum benefit upon the death of a plan participant.

#### A. Plan Participants

##### 1. Non-Elective Participants

*Non-elective participant* includes all contributors to the pension plan established under the PSSA who are employed in the Public Service except employees of Crown corporations covered under other group life insurance plans.

##### 2. Elective Participants

*Elective participant* means all participants who have ceased to be employed in the Public Service following disability or retirement and have opted for continuing their coverage under the Supplementary Death Benefit plan. Such right is limited to participants who, at the time they ceased to be employed in the Public Service, had completed at least two years of continuous service in the Public Service or two years of membership in the Supplementary Death Benefit plan.

A non-elective participant who ceases employment and becomes entitled to a PSSA immediate annuity or annual allowance automatically becomes an elective participant. During the first 30 days as elective participant, such an individual has the right to opt out of the plan, effective on the 31<sup>st</sup> day.

#### B. Assets

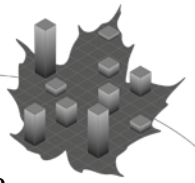
The plan is financed through the Public Service Death Benefit (PSDB) Account, which forms part of the Accounts of Canada. The PSDB Account is credited with all contributions made by the participants and the Government, and charged with all benefit payments as they become due. The PSDB Account is also credited with interest earnings based on interest rates applying to the Superannuation Accounts.

#### C. 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, 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, the legislated contribution rate 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 legislated rates for selected ages are shown in the following table:

**Table 4 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

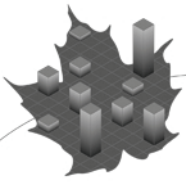
**3. Government**

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 contribute at the rate of one cent per month for each \$250 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.



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**Table 5    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

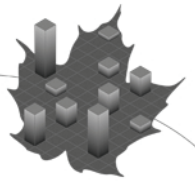
Under the statutes, if for whatever reason the PSDB Account were to become exhausted, the Government would then have to make special contributions to the Account in an amount at least equal to the basic benefits then due but not paid by reason of such cash shortfall.

### **D. 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.

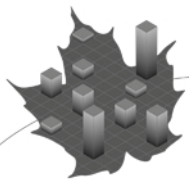
The amount of basic benefit described above is reduced by 10% a year starting at age 66 until it would normally vanish at age 75. However, the amount of basic benefit cannot at any time be reduced below a basic floor value of \$10,000 subject to the following exceptions:

- For those elective participants who had, upon cessation of employment prior to the enactment of Bill C-55, made an election to reduce their basic benefit to \$500 and further had made a second election, within one year following the introduction of Bill C-55, 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 the enactment of Bill C-78 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 PSSA may opt to reduce their amount of basic benefit to \$10,000.



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## Appendix 2 Plan Assets

### A. Public Service Death Benefit Account

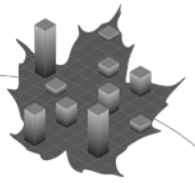
The plan is entirely financed through the PSDB Account, which forms part of the Accounts of Canada. The PSDB Account is:

- credited with all contributions made by participants 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
- charged with basic benefit payments when they become due.

Table 6 shows the reconciliation of assets in the PSDB Account from the last valuation date to the current valuation date. Since the last valuation, the PSDB Account balance has grown by \$315 million (i.e. a 17% increase) to reach \$2,212 million as at 31 March 2005. The net growth in the Account balance is to a large extent the result of interest credits made.

**Table 6 Public Service Death Benefit Account**  
(\$ millions)

Plan Year	2003	2004	2005	2003-2005
Accounts of Canada opening balance	1,897.2	1,998.3	2,100.4	1,897.2
INCOME				
Employee contributions	58.5	61.6	63.8	183.9
Employer contributions				
- Death benefit	7.4	8.1	8.2	23.7
- Paid-up death benefit	1.2	1.3	1.3	3.8
Interest earnings	159.2	163.4	167.4	490.0
Subtotal	226.3	234.4	240.7	701.4
EXPENDITURES				
Death benefit claims				
- Death benefit	80.2	87.7	88.7	256.6
- Paid-up death benefit	45.0	44.6	40.5	130.1
Subtotal	125.2	132.3	129.2	386.7
Accounts of Canada closing balance	1,998.3	2,100.4	2,211.9	2,211.9

**B. Rates of Return**

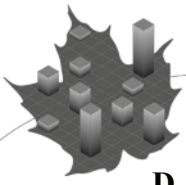
The following rates of return on the PSDB Account by plan year were calculated using the foregoing entries.

**Table 7 Rates of Return**

Plan Year	Return
2003	8.66%
2004	8.44%
2005	8.19%

**C. Sources of Asset Data**

The Account entries shown previously were taken from the Accounts of Canada. In accordance with Section 8 of the *Public Pensions Reporting Act*, the Office of the Comptroller General of the Treasury Board of Canada Secretariat provided a certification of the assets of the plan as at 31 March 2005.



## ACTUARIAL REPORT

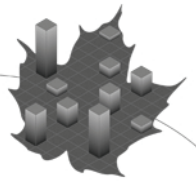
Death Benefit Account for the **PUBLIC SERVICE**  
as at 31 March 2005

### D. Account Projection

The following table shows a projection of the PSDB Account over 25 years commencing 1 April 2005.

**Table 8 Account Projection**  
(\$ millions)

Plan Year	Balance Sheet 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	
2005	2,211.9	462.4	1,749.5	11.2
2006	2,307.1	472.8	1,834.4	11.4
2007	2,402.4	483.9	1,918.5	11.6
2008	2,497.6	497.4	2,000.2	11.6
2009	2,591.2	511.2	2,080.0	11.6
2010	2,683.3	525.4	2,157.9	11.6
2011	2,773.2	541.8	2,231.4	11.5
2012	2,855.2	562.8	2,292.4	11.3
2013	2,933.7	585.8	2,347.9	11.1
2014	3,009.3	608.0	2,401.3	10.9
2015	3,081.7	630.5	2,451.3	10.8
2016	3,149.4	654.4	2,494.9	10.6
2017	3,213.0	678.2	2,534.8	10.4
2018	3,273.6	703.7	2,569.9	10.1
2019	3,333.2	730.6	2,602.6	9.9
2020	3,392.2	758.7	2,633.5	9.7
2021	3,449.6	786.5	2,663.1	9.5
2022	3,506.4	814.5	2,691.9	9.3
2023	3,562.3	842.6	2,719.6	9.1
2024	3,617.1	870.6	2,746.5	8.9
2025	3,670.8	898.6	2,772.3	8.7
2026	3,724.0	926.3	2,797.7	8.5
2027	3,777.0	952.8	2,824.2	8.3
2028	3,830.2	979.4	2,850.8	8.1
2029	3,883.4	1,005.5	2,877.9	7.9
2030	3,936.4	1,031.2	2,905.2	7.7

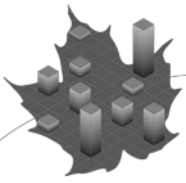


**E. Income and Expenditure Projection**

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 2006.

**Table 9 Income and Expenditure Projection**  
(\$ millions)

Plan Year	Contributions			Benefit Payments			Interest Earnings	Net Cash Flow	
	Participants	Government		Term	Paid-Up	Total			
		Term	Paid-Up						Total
2006	69.5	9.5	1.5	80.5	113.7	41.9	155.6	170.3	95.3
2007	72.9	9.9	1.6	84.5	118.9	42.4	161.3	172.1	95.2
2008	75.3	10.3	1.8	87.4	123.2	42.8	166.1	173.9	95.2
2009	78.8	10.8	1.9	91.4	129.2	43.3	172.5	174.8	93.7
2010	82.4	11.3	1.9	95.7	135.8	43.6	179.4	175.8	92.1
2011	86.3	11.9	2.1	100.3	142.8	43.9	186.7	176.3	89.9
2012	90.4	12.5	2.6	105.5	150.3	44.1	194.5	170.9	82.0
2013	94.8	13.2	2.7	110.7	158.2	44.5	202.7	170.5	78.5
2014	99.3	13.9	2.7	115.8	166.2	44.8	211.0	170.8	75.6
2015	104.0	14.5	2.7	121.1	174.2	45.2	219.4	170.7	72.4
2016	108.7	15.2	2.8	126.7	182.3	45.5	227.8	168.7	67.6
2017	113.5	15.9	2.8	132.2	190.3	45.9	236.2	167.6	63.6
2018	118.4	16.5	2.9	137.9	198.4	46.3	244.8	167.5	60.7
2019	123.4	17.2	3.0	143.7	206.6	46.9	253.5	169.4	59.6
2020	128.5	17.9	3.1	149.5	214.7	47.5	262.2	171.7	59.0
2021	133.8	18.6	3.1	155.4	222.7	48.4	271.0	173.0	57.4
2022	139.1	19.2	3.1	161.4	230.5	49.3	279.8	175.2	56.8
2023	144.5	19.9	3.1	167.4	238.5	50.4	288.9	177.4	55.9
2024	149.9	20.6	3.1	173.6	246.8	51.6	298.4	179.7	54.8
2025	155.6	21.3	3.1	180.0	255.4	53.0	308.4	182.2	53.8
2026	161.3	22.0	3.1	186.5	264.3	54.6	318.8	185.6	53.2
2027	167.3	22.8	3.0	193.1	273.5	56.3	329.8	189.7	53.0
2028	173.4	23.6	3.0	200.0	282.8	58.1	341.0	194.1	53.2
2029	179.8	24.4	3.0	207.2	292.5	60.1	352.6	198.6	53.2
2030	186.5	25.2	3.0	214.7	302.5	62.2	364.7	202.9	53.0



### **Appendix 3 Participant Data**

#### **A. Source of Participant Data**

The valuation input data required in respect of all participants are extracted from master computer files maintained by the Superannuation Directorate of the Department of Public Works and Government Services Canada.

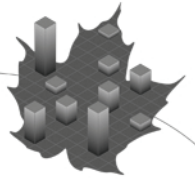
The main valuation data file supplied by the Superannuation Directorate contained all the status information of a participant during the period from 1 April 2001 to 31 March 2004.

These data were projected to 31 March 2005 generally using the demographic assumptions of the preceding valuation and the actual economic experience (2.26% per year for general pay increases for non-elective participants) for the relevant one-year projection period.

#### **B. Participant Data Summary**

Tables 10 to 12 on the following pages show the detailed participant data upon which this valuation is based.





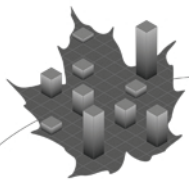
**Table 10 Non-Elective Participants<sup>1</sup>**  
As at 31 March 2004

Age <sup>2</sup>	Number			Basic Benefits (\$ thousands)		
	Male	Female	Total	Male	Female	Total
15-19	60	59	119	4,515	3,750	8,265
20-24	2,436	3,836	6,272	206,025	311,413	517,438
25-29	8,917	13,341	22,258	889,904	1,287,807	2,177,711
30-34	11,807	16,365	28,172	1,302,917	1,718,017	3,020,934
35-39	14,360	19,559	33,919	1,709,031	2,119,299	3,828,330
40-44	19,080	25,614	44,694	2,347,623	2,768,844	5,116,467
45-49	22,131	27,446	49,577	2,802,442	3,003,719	5,806,161
50-54	23,614	23,359	46,973	3,140,573	2,595,674	5,736,247
55-59	14,312	11,422	25,734	1,984,432	1,225,546	3,209,978
60-64	4,467	3,093	7,560	624,116	315,448	939,564
65-69	<u>871</u>	<u>465</u>	<u>1,336</u>	<u>109,636</u>	<u>41,392</u>	<u>151,028</u>
Total	122,055	144,559	266,614	15,121,214	15,390,909	30,512,123

	<u>Average</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
<b>As at 31 March 2001</b>	Age <sup>1</sup>	45.0	42.4	43.7
	Service <sup>1</sup>	15.2	12.4	13.9
	Basic Benefit (\$)	109,649	93,009	100,876
<b>As at 31 March 2004</b>	Age <sup>1</sup>	45.4	42.9	44.1
	Service <sup>1</sup>	15.8	13.4	14.6
	Basic Benefit (\$)	123,889	106,468	114,443

<sup>1</sup> Includes Correctional Services Canada participants in operational service. Averages are calculated on a dollar-weighted basis.

<sup>2</sup> Expressed in completed years calculated at the beginning of the plan year.



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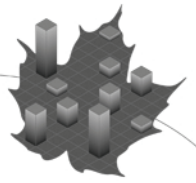
Death Benefit Account for the **PUBLIC SERVICE**  
as at 31 March 2005

**Table 11 Elective Participants in Receipt of a Disability Pension**  
As at 31 March 2004

Age <sup>1</sup>	Number			Basic Benefits (\$ thousands)		
	Male	Female	Total	Male	Female	Total
30-34	-	6	6	-	518	518
35-39	29	62	91	2,354	5,035	7,389
40-44	84	210	294	6,421	16,114	22,535
45-49	295	556	851	23,563	41,862	65,425
50-54	736	847	1,583	60,434	64,321	124,755
55-59	973	905	1,878	80,349	66,667	147,016
60-64	942	794	1,736	71,819	53,769	125,588
65-69	978	720	1,698	55,902	33,381	89,282
70-74	817	513	1,330	15,709	8,386	24,095
75-79	634	345	979	6,340	3,450	9,790
80-84	468	264	732	4,680	2,640	7,320
85-89	130	131	261	1,300	1,310	2,610
90-94	19	25	44	190	250	440
95-99	-	4	4	-	40	40
Total	6,105	5,382	11,487	329,060	304,174	633,233

	<u>Average</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
<b>As at 31 March 2001</b>	Age <sup>1</sup>	58.9	56.1	57.6
	Basic benefit (\$)	51,014	50,572	50,822
<b>As at 31 March 2004</b>	Age <sup>1</sup>	59.5	56.5	57.9
	Basic benefit (\$)	53,371	54,866	54,072

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



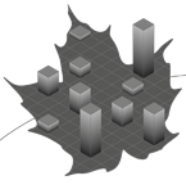
**Table 12 Elective Retired Participants<sup>1</sup>**  
(In Receipt of an Immediate Annuity or an Annual Allowance)  
As at 31 March 2004

Age <sup>2</sup>	Number			Basic Benefits (\$ thousands)		
	Male	Female	Total	Male	Female	Total
45-49	6	2	8	657	204	862
50-54	484	430	914	56,278	45,909	102,187
55-59	9,109	5,057	14,166	1,057,473	467,990	1,525,463
60-64	12,297	6,010	18,307	1,376,128	508,812	1,884,940
65-69	11,368	4,848	16,216	942,720	290,934	1,233,654
70-74	12,853	4,829	17,682	361,913	102,643	464,556
75-79	12,032	4,682	16,714	120,320	46,820	167,140
80-84	11,039	3,956	14,995	110,390	39,560	149,950
85-89	4,748	2,068	6,816	47,480	20,680	68,160
90-94	1,265	788	2,053	12,650	7,880	20,530
95-99	188	188	376	1,880	1,880	3,760
100-104	9	22	31	90	220	310
105-109	-	3	3	-	30	30
Total	75,398	32,883	108,281	4,087,980	1,533,562	5,621,542

	<u>Average</u>	<u>Male</u>	<u>Female</u>	<u>Total</u>
<b>As at 31 March 2001</b>	Age <sup>1</sup>	63.5	63.1	63.4
	Basic benefit (\$)	50,701	41,281	48,013
<b>As at 31 March 2004</b>	Age <sup>1</sup>	64.0	63.2	63.8
	Basic benefit (\$)	53,719	46,336	51,472

<sup>1</sup> There were also 111 elective participants entitled to a deferred annuity as at 31 March 2004 but they were not taken into account for valuation purposes. Their impact is considered negligible.

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



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### Appendix 4 Methodology

#### A. Assets

The assets of the plan consist essentially of the recorded balance in the PSDB Account, which forms part of the Accounts of Canada. These assets are shown at the book value of the underlying notional bond portfolio described in Appendix 2.

The PSDB Account balance corresponds to the excess of past contributions and interest earnings over past basic benefit payments. Assets are 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 earnings 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

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

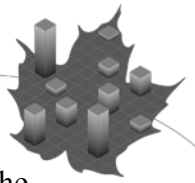
Non-elective participants' salaries are projected for a given plan year using the assumed rates of increase described in Appendix 5 and by the assumed seniority and promotional salary increases described in Table 15. Elective participants' salaries are frozen at time of retirement or disability and are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

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).

#### C. Projected Yields

The projected yields (shown in Appendix 5) assumed in computing the present value of benefits payable under the PSDB Account are the projected annual yields on the combined



book value of the Superannuation Accounts of the Public Service, Canadian Forces, and the Royal Canadian Mounted Police pension plans.

**D. Interest Earnings**

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

**E. 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.

**F. Liabilities****1. Paid-up Reserve**

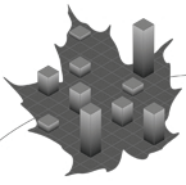
At the end of a given plan year, the liabilities associated with the individual \$10,000 paid-up death benefit in force correspond to the amount which, together with interest at the projected yields, is sufficient to pay for each individual \$10,000 paid-up death benefit projected payable on the basis 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 effect 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 liability is deemed to exist 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. real increase in average employment earnings in excess of inflation) and seniority and promotional increase. Seniority and promotion is strongly service-based and is therefore considered to be a demographic assumption rather than an economic assumption.

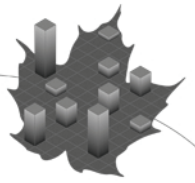
Price increases, as measured by changes in the Consumer Price Index, tend to fluctuate from year to year. Based on historical trends, the renewed commitment of the Bank of Canada and the government to keep inflation between 1% and 3% until 2006 and long-term economic forecasts, an ultimate rate of price increase of 2.5% was assumed for 2012 and thereafter. Recognizing recent experience, the rate of price increase is to increase from 1.9% for plan year 2007 to 2.5% for plan year 2012. In the previous valuation the ultimate rate of price increase was assumed to be 2.7%.

The assumed ultimate productivity rate was 1.0% per annum. This is closer to the average Canadian experience of the past 50 years (1.07% per annum) than that of the past 25 years (0.0% per annum). Real increases in average earnings were assumed to rise gradually over a 7-year select period to reach the ultimate 1.0% per annum in plan year 2013. In the previous valuation an ultimate productivity rate of 0.9% was used.

Resulting nominal assumed salary increases are shown in Table 13.

#### B. Projected Yields on PSDB Account

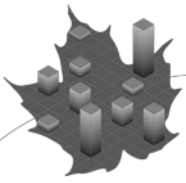
These yields are required for the estimates of the long-term projection of the assets, liabilities and actuarial excess or deficit. The methodology used to determine the projected yields on the PSDB Account is described in Appendix 4.



**Table 13 Summary of Economic Assumptions**  
(percentage)

Plan Year	Average Salary Increase <sup>1</sup> of Non-Elective Participants	Projected Yield
2006	2.40	7.83
2007	2.30	7.59
2008	2.50	7.36
2009	2.70	7.11
2010	2.90	6.90
2011	3.10	6.68
2012	3.30	6.26
2013	3.50	6.07
2014	3.50	5.92
2015	3.50	5.77
2016	3.50	5.57
2017	3.50	5.41
2018	3.50	5.30
2019	3.50	5.26
2020	3.50	5.24
2021	3.50	5.19
2022	3.50	5.17
2023	3.50	5.15
2024	3.50	5.14
2025	3.50	5.13
2026	3.50	5.15
2027	3.50	5.19
2028	3.50	5.24
2029	3.50	5.29
2030	3.50	5.33
2031+	3.50	5.35

<sup>1</sup> Exclusive of seniority and promotional increases.



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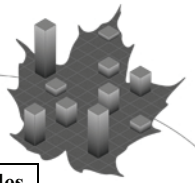
Death Benefit Account for the **PUBLIC SERVICE**  
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## Appendix 6 Demographic and Other Assumptions

Except where otherwise noted, all demographic assumptions were determined from the plan's own experience as was done in the past. Where applicable, assumptions of the previous valuation were updated to reflect the available intervaluation experience of April 2001 to March 2004. Described below are the assumptions related to causes of termination (employment or participation):

Description	Basis	Comments	Tables
<b>Non-elective Service</b>			
Withdrawal (Before age 50)	Sex, Service		
Main group		The assumed rates for the main group females are on average 32% lower than those of the previous valuation; for males the decreases are on average 26% less than those of the previous valuation.	16
Operational service (o/s)		The assumed rates for the operational service group are 43% higher than previously.	16
		Approximately one-third of the terminating contributors with more than two years of service are assumed to elect a deferred annuity.	
Pensionable retirement (From age 50)	Age, Sex and Service		
Main group		The rates of pensionable retirement assumed for the main group of contributors were reduced on average by 50% for selective age and service groups.	17
Operational service (o/s)		The pensionable retirement rates for operational service group were changed in accordance with the experience. Although some rates have increased by 100% and others decrease by 50%, the overall financial impact was marginal.	18
Disability	Age, Sex	The disability incidence rates were significantly revised to reflect the intervaluation experience. The disability incidence rates for males are about 25% lower than assumed in the previous valuation while female incidence rates are about 20% lower.	19
Mortality	Age, Sex and Year	The assumed rates are lower than those projected in the previous valuation. In particular, at ages 50 to 60 they are as much as 13% lower for males and as much as 25% lower for females.	20
		The mortality improvements are higher than those used in the previous valuation. These ultimate rates of improvement were established by adjusting the results of a detailed study prepared by the Social Security Administration in the United States. The adjustments are to reflect, in part, historical differences between Canada and the United States. Rates of improvement for the period 2002 to 2006 are assumed to be equal to those experienced over the period 1991 to 2001 and then gradually reduce to their ultimate levels by 2026.	21





Description	Basis	Comments	Tables
<b>Elective Participants opting to continue coverage after termination of employment</b>	Age, Sex	Except at ages less than 50, the proportions of participant electing to continue coverage were increased on average by 3% for male participants and by 4% for female participants. At ages less than 50, they were decreased by 7% for male participants and by 25% for female participants.	22
<b>Mortality of Elective participants</b>			
Normal Retirement	Age, Sex and Year	Same rates as mortality-in-service.	20
		Mortality improvement was the same as for mortality-in-service.	21
Disability Retirement	Age, Sex and Year	The assumed rates are either the same as or generally very close to those projected for plan year 2003 and latter in the previous valuation.	20
		Mortality improvement was the same as for mortality-in-service.	21

**A. Other Demographic 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**

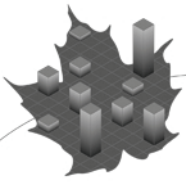
Bill C-78 introduced this option to participants effective 1 October 1999. Election of this option by participants would have a positive effect on the plan’s actuarial excess. The valuation data indicates that approximately 1.5% of participants have opted to continue their 10% annual reduction from age 61 instead of age 66. Accordingly, no participants were assumed to make such an election.

**3. Elective Participants Entitled to a Deferred Annuity**

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

**4. Seniority and Promotional Salary Increases**

As in the previous valuation, the experience of the last three years has revealed higher salary increases than anticipated. These increases are believed to be caused by the rapidly expanding workforce of the Public Service of Canada during the last five years. It is assumed that these higher than anticipated salary increases are temporary in nature and that a return to the seniority and promotional salary increases assumption of the 2002 valuation report is the most probable scenario. Consequently, the 2002 valuation report assumption has been modified by given full credibility to experience of the last three years. For plan year 2005, the assumed rates for males were increased by roughly 17% at most durations; for females the increase was approximately 10%. The plan year 2005 assumed rates will be graded down linearly to the 2002 assumed rates over the next five years (a return to the 2002 assumption by plan year 2009).



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### 5. New Participants

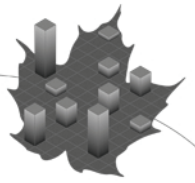
It was assumed that the distribution of new participants by age, sex and initial salary rate would be the same as that of participants with less than one year of service at the valuation date. Initial salary is assumed to increase in future plan years in accordance with the assumption for average earnings increase. It was assumed that the number of new participants would be such that the total number of non elective participants would increase as follows:

**Table 14 Percentage of Increase of Non-Elective Participants**

Plan Year	Increase
2005	0.50%
2006	1.50%
2007	1.30%
2008-2016	0.90%
2017-2022	0.80%
2023+	0.50%

### 6. Administrative Expenses

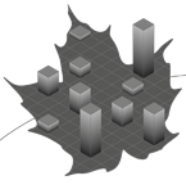
In the projection of the PSDB Account, no assumption was made regarding the expenses incurred for the administration of the plan. These expenses, which are not charged to the PSDB Account, are borne by the Government and are commingled with all other government expenses.



**Table 15 Assumed Seniority and Promotional Salary Increases**  
(percentage)

Service <sup>1</sup>	Male					Female				
	2005	2006	2007	2008	2009+	2005	2006	2007	2008	2009+
0	5.63	5.72	5.82	5.91	6.00	6.24	6.18	6.12	6.06	6.00
1	5.14	5.15	5.17	5.18	5.20	5.24	5.23	5.22	5.21	5.20
2	4.70	4.65	4.60	4.55	4.50	4.50	4.50	4.50	4.50	4.50
3	4.32	4.21	4.11	4.00	3.90	3.95	3.94	3.93	3.91	3.90
4	3.98	3.86	3.74	3.62	3.50	3.55	3.54	3.52	3.51	3.50
5	3.68	3.56	3.44	3.32	3.20	3.24	3.23	3.22	3.21	3.20
6	3.42	3.29	3.16	3.03	2.90	3.01	2.99	2.96	2.93	2.90
7	3.19	3.06	2.92	2.79	2.65	2.83	2.80	2.77	2.73	2.70
8	2.98	2.84	2.69	2.55	2.40	2.69	2.64	2.59	2.55	2.50
9	2.80	2.63	2.47	2.31	2.15	2.56	2.50	2.43	2.37	2.30
10	2.62	2.45	2.29	2.12	1.95	2.45	2.36	2.28	2.19	2.10
11	2.46	2.30	2.13	1.97	1.80	2.35	2.27	2.18	2.09	2.00
12	2.32	2.15	1.99	1.82	1.65	2.27	2.18	2.08	1.99	1.90
13	2.19	2.02	1.85	1.67	1.50	2.18	2.09	1.99	1.90	1.80
14	2.07	1.92	1.76	1.61	1.45	2.11	2.01	1.90	1.80	1.70
15	1.97	1.82	1.68	1.54	1.40	2.04	1.94	1.85	1.75	1.65
16	1.87	1.74	1.61	1.48	1.35	1.98	1.88	1.79	1.69	1.60
17	1.79	1.67	1.55	1.42	1.30	1.92	1.83	1.73	1.64	1.55
18	1.73	1.61	1.49	1.37	1.25	1.86	1.77	1.68	1.59	1.50
19	1.67	1.55	1.43	1.32	1.20	1.81	1.72	1.63	1.54	1.45
20	1.62	1.50	1.38	1.27	1.15	1.77	1.67	1.58	1.49	1.40
21	1.57	1.45	1.34	1.22	1.10	1.72	1.63	1.54	1.44	1.35
22	1.53	1.41	1.29	1.17	1.05	1.68	1.59	1.49	1.40	1.30
23	1.50	1.37	1.25	1.12	1.00	1.64	1.55	1.45	1.35	1.25
24	1.47	1.34	1.21	1.08	0.95	1.61	1.51	1.41	1.30	1.20
25	1.43	1.30	1.17	1.03	0.90	1.58	1.47	1.36	1.26	1.15
26	1.40	1.27	1.15	1.02	0.90	1.54	1.43	1.32	1.21	1.10
27	1.36	1.25	1.13	1.02	0.90	1.51	1.39	1.28	1.16	1.05
28	1.33	1.22	1.11	1.01	0.90	1.47	1.36	1.26	1.16	1.05
29	1.29	1.19	1.09	1.00	0.90	1.43	1.34	1.24	1.15	1.05
30	1.25	1.16	1.07	0.99	0.90	1.39	1.30	1.22	1.13	1.05
31	1.21	1.13	1.05	0.98	0.90	1.35	1.27	1.20	1.12	1.05
32	1.17	1.10	1.03	0.97	0.90	1.30	1.24	1.18	1.11	1.05
33	1.13	1.07	1.01	0.96	0.90	1.25	1.20	1.15	1.10	1.05
34	1.09	1.04	0.99	0.95	0.90	1.21	1.17	1.13	1.09	1.05
35+	1.09	1.04	0.99	0.95	0.90	1.21	1.17	1.13	1.09	1.05

<sup>1</sup> Expressed in completed years calculated at the beginning of the plan year.



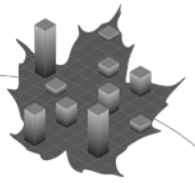
# ACTUARIAL REPORT

Death Benefit Account for the **PUBLIC SERVICE**  
as at 31 March 2005

**Table 16 Assumed Rates of Withdrawal Prior to Age 50**  
(per 1,000 individuals)

<u>Service</u> <sup>1</sup>	<u>Main Group</u>		<u>Operational Service Group</u>
	<u>Male</u>	<u>Female</u>	<u>Male/Female</u>
0	234	248	81
1	95	96	47
2	72	68	36
3	59	52	29
4	50	46	25
5	39	38	24
6	37	33	23
7	32	29	22
8	28	26	21
9	24	23	20
10	20	21	19
11	19	18	18
12	14	17	16
13	14	16	16
14	13	15	16
15	13	15	16
16	13	15	16
17	13	15	16
18	13	15	16
19+	13	13	15

<sup>1</sup> Expressed in completed years calculated at the beginning of the plan year.



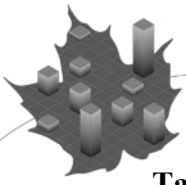
**Table 17 Assumed Rates of Retirement - Main Group**  
(per 1,000 individuals)

Male Members (Completed Years of Service)													
Age <sup>1</sup>	<u>1-3</u>	<u>4-8</u>	<u>9-13</u>	<u>14-18</u>	<u>19-23</u>	<u>24-28</u>	<u>29</u>	<u>30</u>	<u>31</u>	<u>32</u>	<u>33</u>	<u>34</u>	<u>35+</u>
49	45	20	15	10	10	10	15	20	20	25	25	45	35
50	45	20	15	10	10	10	20	20	20	25	30	55	35
51	45	20	15	10	10	15	25	25	25	30	35	65	45
52	45	20	15	10	10	15	30	30	30	35	50	75	75
53	45	20	15	10	10	20	40	45	45	45	60	95	95
54	90	40	30	20	10	20	250	250	260	300	330	590	540
55	110	60	30	30	10	20	230	230	240	260	290	540	450
56	110	60	30	30	15	20	230	230	230	250	290	500	400
57	140	80	40	30	15	20	230	230	230	250	290	500	400
58	140	80	40	40	20	20	230	230	230	250	290	500	400
59	190	190	190	190	190	290	380	380	380	330	320	550	450
60	190	190	190	190	190	260	310	310	310	290	290	500	400
61	170	170	170	170	190	240	280	280	280	280	280	400	400
62	190	190	190	190	220	250	290	310	330	330	330	500	400
63	210	210	210	210	230	270	320	320	320	320	320	500	400
64	470	470	470	470	570	570	570	570	610	610	610	650	550
65	360	360	360	360	410	410	450	450	450	450	450	600	450
66	360	360	360	360	360	360	450	450	450	450	450	600	450
67	360	360	360	360	360	360	450	450	450	450	450	600	450
68	360	360	360	360	360	360	450	450	450	450	450	600	450
69	360	360	360	360	360	360	450	450	450	450	450	600	450

Female Members (Completed Years of Service)													
Age <sup>1</sup>	<u>1-3</u>	<u>4-8</u>	<u>9-13</u>	<u>14-18</u>	<u>19-23</u>	<u>24-28</u>	<u>29</u>	<u>30</u>	<u>31</u>	<u>32</u>	<u>33</u>	<u>34</u>	<u>35+</u>
49	90	20	15	15	15	20	25	30	30	30	30	45	35
50	50	20	15	15	15	20	25	30	30	35	35	50	40
51	50	20	15	15	15	20	25	30	30	35	35	55	45
52	50	20	15	15	15	20	30	35	35	35	35	60	50
53	55	20	15	15	15	25	35	35	35	40	40	85	65
54	110	40	30	30	30	25	270	270	270	270	270	570	470
55	120	50	40	40	50	30	260	260	260	260	210	480	350
56	120	50	40	40	50	35	250	250	250	250	220	480	350
57	130	50	40	40	50	35	230	230	230	230	230	480	350
58	130	50	50	50	50	45	290	290	290	290	240	480	350
59	130	130	180	220	260	320	350	350	350	350	270	600	350
60	140	140	180	220	260	300	300	300	300	300	300	550	350
61	140	140	180	220	260	300	300	300	300	300	300	550	350
62	140	140	180	220	260	300	300	300	300	300	300	550	320
63	140	140	180	230	260	300	300	300	300	300	300	550	320
64	450	450	550	550	550	550	550	550	550	650	650	650	500
65	370	370	370	370	370	370	450	450	450	450	450	550	450
66	270	270	320	320	320	320	320	370	370	370	370	550	400
67	270	270	320	320	320	320	320	370	370	370	370	550	400
68	270	270	320	320	320	320	320	370	370	370	370	550	400
69	270	270	320	320	320	320	320	370	370	370	370	550	400

<sup>1</sup> Expressed in completed years calculated at the beginning of the plan year.



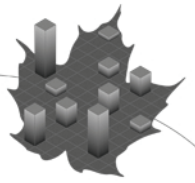
# ACTUARIAL REPORT

Death Benefit Account for the **PUBLIC SERVICE**  
as at 31 March 2005

**Table 18 Assumed Rates of Retirement - Operational Service Group**  
(per 1,000 individuals)

Age <sup>1</sup>	Years of Service												
	1-3	4-8	9-13	14-18	19-23	24-28	29	30	31	32	33	34	35+
44	n/a	n/a	n/a	n/a	6	54	72	72	72	72	72	190	170
45	n/a	n/a	n/a	n/a	6	54	72	72	72	72	72	190	170
46	n/a	n/a	n/a	n/a	6	54	72	72	72	72	72	190	170
47	n/a	n/a	n/a	n/a	6	54	72	72	72	72	72	190	170
48	n/a	n/a	n/a	n/a	6	54	72	72	72	72	72	190	170
49	36	22	19	16	15	70	90	90	90	90	90	190	170
50	36	22	19	16	15	70	90	90	90	90	90	190	170
51	36	22	19	16	15	70	90	90	90	90	90	190	170
52	36	22	19	16	15	80	120	120	120	120	120	190	170
53	36	22	19	16	15	100	150	150	150	150	150	255	185
54	40	30	24	19	19	125	240	240	240	240	240	650	550
55	45	35	29	23	23	131	288	288	288	288	288	650	550
56	45	35	29	23	23	144	288	288	288	288	288	650	550
57	55	40	32	26	26	153	288	288	288	288	288	650	550
58	55	40	32	26	26	167	288	288	288	288	288	650	550
59	190	190	210	210	210	310	410	410	410	370	350	600	500
60	190	190	210	210	210	310	350	350	370	340	320	550	450
61	180	180	180	180	220	280	310	310	310	310	310	500	410
62	200	200	200	200	240	280	340	340	380	380	380	500	410
63	250	250	250	250	270	310	350	350	370	370	370	600	480
64	500	500	500	500	600	600	600	600	650	650	650	700	600
65	400	400	400	400	450	450	500	500	500	500	500	650	480
66	400	400	400	400	400	400	500	500	500	500	500	650	480
67	400	400	400	400	400	400	500	500	500	500	500	650	480
68	400	400	400	400	400	400	500	500	500	500	500	650	480
69	400	400	400	400	400	400	500	500	500	500	500	650	480

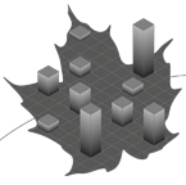
<sup>1</sup> Expressed in completed years calculated at the beginning of the plan year.



**Table 19 Assumed Rates of Pensionable Disability**  
(per 1,000 individuals)

Age <sup>1</sup>	Male	Female
25 and less	0.3	0.1
26	0.3	0.2
27	0.3	0.2
28	0.3	0.3
29	0.3	0.3
30	0.3	0.4
31	0.3	0.5
32	0.3	0.5
33	0.3	0.6
34	0.4	0.7
35	0.5	0.9
36	0.7	1.0
37	0.9	1.2
38	1.0	1.4
39	1.1	1.5
40	1.2	1.7
41	1.3	1.8
42	1.4	2.0
43	1.5	2.1
44	1.7	2.4
45	1.9	2.6
46	2.0	2.9
47	2.1	3.2
48	2.6	3.7
49	3.0	4.1
50	3.4	4.5
51	3.8	5.0
52	4.3	5.5
53	4.7	6.1
54	5.1	6.8
55	5.7	7.6
56	6.4	8.4
57	7.2	9.3
58	8.1	10.2

<sup>1</sup> Expressed in completed years calculated at the beginning of the plan year.



# ACTUARIAL REPORT

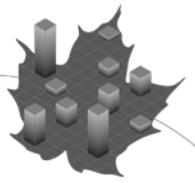
Death Benefit Account for the **PUBLIC SERVICE**  
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**Table 20 Assumed Mortality Rates**  
For Plan Year 2006 (per 1,000 individuals)

Age <sup>1</sup>	Non-Elective Participants and Elective Participants who <u>Retired Normally</u>		Elective Participants who <u>Retired on Disability</u>	
	Male	Female	Male	Female
20	0.3	0.2	2.9	6.1
25	0.4	0.3	5.7	6.7
30	0.7	0.4	8.8	7.3
35	0.9	0.4	11.8	7.7
40	1.1	0.6	13.7	8.0
45	1.4	1.1	16.1	8.7
50	2.1	1.5	19.7	9.2
55	3.5	2.4	21.3	12.1
60	6.6	4.4	24.9	13.9
65	13.2	8.4	33.9	19.5
70	22.6	13.6	52.5	28.8
75	39.7	22.7	72.1	42.8
80	68.4	42.4	104.9	67.0
85	109.7	76.9	149.2	110.1
90	168.2	127.3	208.3	178.9
95	251.8	192.2	315.5	281.3
100	351.4	315.4	476.3	441.9
105	500.0	500.0	500.0	500.0
110	500.0	500.0	500.0	500.0
115	1000.0	1000.0	1000.0	1000.0

<sup>1</sup> Expressed in completed years calculated at the beginning of the plan year.



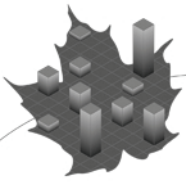


**Table 21 Assumed Longevity Improvement Factors**

Age <sup>2</sup>	Annual Percentage of Mortality Reduction <sup>1</sup> (%)			
	Male		Female	
	2006	2027+	2006	2027+
20	2.80	0.80	1.50	0.70
25	3.40	0.80	1.95	0.70
30	3.70	0.80	1.80	0.70
35	3.35	0.80	1.35	0.70
40	2.65	0.80	0.95	0.70
45	2.10	0.71	1.35	0.61
50	2.30	0.65	1.60	0.55
55	2.65	0.65	1.65	0.55
60	2.75	0.65	1.75	0.55
65	2.60	0.56	1.45	0.52
70	2.20	0.50	1.10	0.50
75	1.85	0.50	1.15	0.50
80	1.30	0.50	0.95	0.50
85	0.55	0.44	0.30	0.44
90	0.10	0.40	0.00	0.40
95	0.00	0.40	0.00	0.40
100	0.00	0.31	0.00	0.31
105	0.00	0.25	0.00	0.25

<sup>1</sup> The mortality rate reduction applicable during any plan year within the 21-year select period is found by linear interpolation between the figures for plan years 2006 and 2027.

<sup>2</sup> Expressed in completed years calculated at the beginning of the plan year.



# ACTUARIAL REPORT

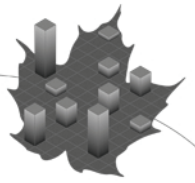
Death Benefit Account for the **PUBLIC SERVICE**  
as at 31 March 2005

**Table 22 Election Proportions**  
(Non-elective participants choosing to become elective  
participants at retirement)

Age Last Birthday <sup>1</sup>	Pensionable Retirement <sup>2</sup>		Disability Retirement	
	Male	Female	Male	Female
15 - 43	0.00	0.00	1.00	1.00
44	0.38	0.39	1.00	1.00
45	0.45	0.41	1.00	1.00
46	0.51	0.43	1.00	1.00
47	0.56	0.45	1.00	1.00
48	0.61	0.47	1.00	1.00
49	0.65	0.49	1.00	1.00
50	0.72	0.60	1.00	1.00
51	0.78	0.69	1.00	1.00
52	0.82	0.76	1.00	1.00
53	0.86	0.82	1.00	1.00
54	0.89	0.86	1.00	1.00
55	0.90	0.89	1.00	1.00
56	0.91	0.91	1.00	1.00
57	0.92	0.92	1.00	1.00
58	0.92	0.92	1.00	1.00
59	0.92	0.92	1.00	1.00
60	0.92	0.92	1.00	1.00
61	0.92	0.92	1.00	1.00
62	0.92	0.92	1.00	1.00
63	0.92	0.92	1.00	1.00
64	0.92	0.92	1.00	1.00
65	0.92	0.92	1.00	1.00
66	0.92	0.92	1.00	1.00
67	0.92	0.92	1.00	1.00
68	0.92	0.92	1.00	1.00
69+	1.00	1.00	1.00	1.00

<sup>1</sup> Expressed in completed years calculated at the beginning of the plan year.

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



## **Appendix 7 Acknowledgements**

The Office of the Comptroller General of the Treasury Board of Canada Secretariat provided a certification of the assets of the plan as at 31 March 2005.

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

The following individuals assisted in the preparation of this report:

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