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ACTUARIAL REPORT

on the Pension Plan for the

CANADIAN FORCES

Regular Force
as at 31 March 2010

Canada

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17 June 2011

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

Dear Minister:

Pursuant to section 6 of the *Public Pensions Reporting Act*, I am pleased to submit the report on the actuarial review as at 31 March 2010 of the Canadian Forces - Regular Force pension plan. This plan is defined by Parts I, III and IV of the *Canadian Forces Superannuation Act*, the *Pension Benefits Division Act* and the Canadian Forces-related benefits provided under the *Special Retirement Arrangements Act*.

Yours sincerely,

Jean-Claude Ménard

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

This actuarial report on the pension plan for the Canadian Forces - Regular Force (CF pension plan) was made pursuant to the *Public Pensions Reporting Act* (PPRA).

This actuarial valuation is as at 31 March 2010 and is in respect of pension benefits and contributions defined by Parts I, III, and IV of the *Canadian Forces Superannuation Act* (CFSA), the *Pension Benefits Division Act* (PBDA) and by the *Special Retirement Arrangements Act*, which covers the Retirement Compensation Arrangement (RCA).

The previous actuarial report was made as at 31 March 2008. The date of the next periodic review is scheduled to occur no later than 31 March 2013.

A. Purpose of the Report

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

B. Valuation Basis

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

The financial data on which this valuation is based are composed of tangible assets (Pension Fund) which the government has earmarked for the payment of benefits for service since 1 April 2000 and accounts available for benefits established to track government's pension benefit obligations such as the Superannuation Account, for service prior to 1 April 2000, and the RCA No. 1 account for benefits in excess of those that can be provided under the *Income Tax Act* limits for registered pension plans. These pension assets and accounts available for benefits are summarized in Appendix 3. The membership data is summarized in Appendix 4.

The valuation was prepared using accepted actuarial practices, methods and assumptions which are summarized in Appendices 5 to 7.

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

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 6 and 7. Table 1 represents a summary of the economic assumptions used in this report compared to those used in the previous report.

Table 1 Ultimate Best-Estimate Economic Assumptions

	31 March 2010	31 March 2008
Assumed level of inflation	2.3%	2.4%
Real increase in average pensionable earnings	1.2%	1.1%
Real rate of return on the Pension Fund	4.2%	4.3%
Real rate of return on the Superannuation Account	2.8%	2.8%

C. Main Findings

The proposed amounts to be credited to (or debited from) the Accounts and the Pension Fund are shown on a calendar year basis in this section beginning with calendar year 2012 which is the first calendar year that follows the expected tabling of this report. Valuation results on a plan year[1] basis are shown in Section II.

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

As at 31 March 2010, the total of the amounts available for benefits payable under the Account is $45,537 million and the actuarial liability for service prior[2] to 1 April 2000 is $43,210 million. The total of the amounts available for benefits is less than 110% of the corresponding actuarial liability; it is 105% of the actuarial liability. The excess of the total of the amounts available for benefits over the actuarial liabilities is $2,327 million.

2) Pension Fund (Service since 1 April 2000)

a) Current Service Cost[3]

The CFSA total normal cost, borne jointly by the contributors and the government, is $1,062 million for calendar year 2012. The estimated members' contributions are $307 million and the estimated government contributions are $755 million for calendar year 2012. The Pension Fund administrative expenses are $6 million (included in the total current service cost) for calendar year 2012. The following table shows the projected current service cost expressed as a percentage of the expected pensionable payroll[4] for the three calendar years following the expected laying of this report. The ratio of government current service cost to the contributors current service cost is also shown.

Table 2 CFSA Current Service Cost on a Calendar Year Basis

Calendar Year	Current Service Cost As a percentage of pensionable payroll			Ratio of Government to Contributors Current Service Cost
	Contributors	Government	Total	
2012	6.68	16.42	23.10	2.46
2013	6.86	16.19	23.05	2.36
2014	6.89	16.10	23.00	2.34

1 Any reference to a given *plan year* in this report should be taken as the 12-month period ending 31 March of the given year.
2 The actuarial liability for service prior to 1 April 2000 refers to the actuarial liability for service accrued prior to that date except for service elections since 1 April 2000 that are deemed to be service accrued since that date.
3 Also called normal cost.
4 Pensionable payroll means the aggregate of pensionable earnings of all contributors with less than 35 years of service.

b) Financial position and amortization of actuarial surplus (deficit)

As at 31 March 2010, the actuarial value of the assets in respect of the Pension Fund is $9,059 million and the actuarial liability is $11,144 million, resulting in an actuarial deficit of $2,085 million.

In accordance with the CFSA the actuarial deficit could be amortized with 15 equal annual special payments of $204 million beginning on 31 March 2012.

c) Non-permitted actuarial surplus

If there exists in the opinion of the President of the Treasury Board a non-permitted actuarial surplus[1] in the Pension Fund, any future contributions to the Fund may be reduced in a manner determined by the President or the non-permitted actuarial surplus may be paid out of the Fund and into the Consolidated Revenue Fund. As at 31 March 2010, a non-permitted actuarial surplus does not exist.

3) RCA No. 1 Account

As at 31 March 2010, the total of the amounts available for benefits payable under the Account is $494 million and the actuarial liability is $380 million resulting in an actuarial excess of $114 million.

The total current service cost, borne jointly by the contributors and the government, is 0.82% of pensionable payroll for calendar year 2012 and is estimated to be 0.84% and 0.86% of pensionable payroll respectively for the following two calendar years. The following table shows the projected current service costs for the three calendar years following the expected laying of this report.

Table 3 RCA No. 1 Current Service Cost on a Calendar Year Basis

Calendar Year	Contributors ($ millions)	Government ($ millions)	Total ($ millions)	Ratio of Government to Contributors Current Service Cost
2012	3	35	38	11.7
2013	3	37	40	12.3
2014	3	38	41	12.7

[1] A non-permitted actuarial surplus exists when the amount by which the actuarial value of assets exceeds liabilities for service since 1 April 2000 is greater than the lesser of (a) and (b), where:
(a) is 20% of the amount of liabilities for service since 1 April 2000, and
(b) is the greater of (i) and (ii) where:
(i) is twice the estimated amount, for the calendar year following the date of that report, of the total of
(A) the current service cost contributions that would be required of contributors, and
(B) the current service cost contributions that would be required of the government, and
(ii) is 10% of the amount of liabilities for service since 1 April 2000.

II. Valuation Results

This report is based on pension benefit provisions enacted by legislation, summarized in Appendices 1 and 2, and the financial and membership data, summarized in Appendices 3 and 4. The valuation was prepared using accepted actuarial practices, methods and assumptions summarized in Appendices 5 to 7. Emerging experience, differing from the corresponding assumptions, will result in gains or losses to be revealed in subsequent reports.

The projection of the Superannuation Account financial position is shown in Appendix 9 and in Appendix 10 for the Pension Fund.

A. CFSA - Financial Position

Beginning on 1 April 2000, member and government contributions to the CFSA pension plan are no longer credited to the Canadian Forces Superannuation Account. Rather, they are now credited to the Canadian Forces Pension Fund, and the total amount of contributions net of the benefits paid and the administrative expenses is transferred to the Public Sector Pension Investment Board (PSPIB) and invested in the financial markets. The valuation results of this section show the financial position for both CFSA financing arrangements as at 31 March 2010. The results of the previous valuation are also shown for comparison purposes.

Table 4 Balance Sheet - Superannuation Account
(Service Prior to 1 April 2000)
($ millions)

	31 March 2010	31 March 2008
Recorded Account balance	45,490	44,153
Present value of prior service contributions	47	44
Total	45,537	44,197
Actuarial Liability		
Active contributors	8,892	10,026
Retirement pensioners	31,248	29,456
Disability pensioners	341	374
Surviving dependents	2,595	2,616
Administrative expenses	134	154
Total Actuarial Liability	43,210	42,626
Actuarial Excess/(Shortfall)	2,327	1,571

Table 5 Balance Sheet - Pension Fund
(Service Since 1 April 2000)
($ millions)

	31 March 2010	31 March 2008
Assets		
Market value of assets	9,145	7,890
Actuarial smoothing adjustment	(256)	29
Present value of prior service contributions	170	108
Total assets	9,059	8,027
Actuarial Liability		
Active contributors	8,184	6,220
Retirement pensioners	2,927	1,671
Disability pensioners	5	5
Surviving dependents	28	10
Total Actuarial Liability	11,144	7,906
Actuarial Surplus/(Deficit)	(2,085)	121

B. CFSA - Reconciliation of the Changes in Financial Position

This section reconciles the changes in the financial position in respect of the Superannuation Account and the Pension Fund shown in this valuation using the main elements responsible for the changes. The items shown are explained afterward.

Table 6 Reconciliation of CFSA Financial position
($ millions)

	Superannuation Account Actuarial Excess/(Shortfall)	Pension Fund Actuarial Surplus/(Deficit)
As at 31 March 2008	1,571	121
Recognized investment losses as at 31 March 2008	-	(29)
Change in methodology	33	(21)
Retroactive changes to the population data	(43)	(229)
Expected interest on initial financial position	225	(20)
Net experience gains and losses	333	(1,513)
Revision of actuarial assumptions	190	(199)
Change in the present value of administrative expenses	14	-
Change in the present value of prior service contributions	4	61
Unrecognized investment gains as at 31 March 2010	-	(256)
As at 31 March 2010	2,327	(2,085)

1) **Recognized Investment Losses as at 31 March 2008**

An actuarial asset valuation method that minimizes the impact of short-term fluctuations in the market value of assets was used in the previous valuation report, causing the actuarial value of the Pension Fund assets to be $29 million more than their market value.

2) **Change in Methodology**

The definition of participation service, based on "qualifying service", was expanded to include all years of military service of a Canadian Forces member whether or not such service may have been previously surrendered. The net impact of this change in methodology resulted in a decrease of $33 million in the Superannuation Account actuarial liabilities and an increase of $21 million in the Pension Fund actuarial liabilities.

3) **Retroactive Changes to the Population Data**

The net impact of the retroactive changes to the population data received from both the Department of National Defence and the Public Works Government Service Canada (PWGSC) has resulted in an increase of $43 million in the Superannuation Account actuarial liabilities and an increase of $229 million in the Pension Fund actuarial liabilities.

4) **Expected Interest on Initial Financial Position**

After factoring the change in methodology and the retroactive changes to the population data item mentioned previously, the expected interest to 31 March 2010 on the Account actuarial excess of $1,528 million as at 31 March 2008 amounted to $225 million. After recognizing the change in methodology, the retroactive changes to the population data and the recognized investment losses items, the expected interest to 31 March 2010 on the resulting Pension Fund actuarial deficit of $137 million as at 31 March 2008 amounted to $20 million. These amounts of interest were based on the Account and Fund yields projected in the previous report for the two-year intervaluation period.

5) **Experience Gains and Losses**

Since the previous valuation, experience gains and losses have increased the Superannuation Account actuarial excess by $333 million. The resulting Pension Fund actuarial deficit, reported in item II.B.4) above, has increased by $1,513 million due to the experience gains and losses over the two-year intervaluation period. The main items are described in the table 7 of page 13.

Table 7 Experience Gains and Losses
($ millions)

	Superannuation Account	Pension Fund
Demographic experience (i)		
Retirements	83	46
Widow(er) deaths	42	-
Non-disabled pensioner deaths	(40)	-
Disabilities 3B with an annuity	(33)	(19)
Terminations with a return of contributions or a transfer value	(30)	(115)
Disabled pensioner deaths	(5)	-
Rehired pensioner members	(2)	(2)
Terminations with a deferred annuity	2	28
Contributor deaths with survivors	(1)	1
New members	-	(45)
Total	16	(106)
Investment earnings (ii)	(16)	(1,543)
Pension indexation (iii)	470	34
Cost/contributions difference (iv)	4	117
Promotional and seniority increases (v)	(47)	(54)
Expected/actual disbursements (vi)	(1)	41
Pension Benefit Division	(7)	(6)
YMPE increases	(4)	(3)
Change in service accrual	2	3
Amounts credited on basis of actuarial valuation	-	23
Miscellaneous	(84)	(19)
Experience Gains and Losses	333	(1,513)

(i) The net impact of the demographic experience decreased the Account actuarial liability by $16 million and increased the Fund actuarial liability by $106 million. The demographic assumptions having a large impact are as follows:

- During the two-year intervaluation, the number of retirements amongst the Officer group was higher than anticipated while the number of retirements amongst the Non-commission members was less than expected. The combined financial impact of retirements is a decrease of $83 million in the actuarial liability of the Account and a decrease of $46 million in the actuarial liability of the Fund.
- Higher than expected deaths amongst surviving spouses decreased the Account actuarial liability by $42 million.
- Less than anticipated deaths amongst healthy pensioners resulted in an increase of $40 million of the Account actuarial liability.

- A higher number of members retiring for disability 3B reason resulted in an increase of $33 million of the Account actuarial liability. Correspondingly, the Fund actuarial liability increased by $19 million.
- Lower than expected terminations with a return of contributions or the commuted value of pension resulted in an increase of $30 million in the Account actuarial liability and a corresponding increase of $115 million in the Fund actuarial liability.

(ii) The rates of interest credited to the Account were marginally less than the corresponding projected Account yields in the previous valuation; consequently the experience loss was $16 million. The global economy and financial markets took a turn for the worst during plan year 2009, showing a -23% return, and even though the markets rebounded during plan 2010 with a return of 21%, the Pension Fund experienced an investment loss of $1,543 million over the two-year intervaluation period.

(iii) In the previous report, pension indexation was projected to be 2% as at 1 January 2010 which differed from the actual 0.5% pension indexation. This resulted in a decrease of $470 million in the Account actuarial liability and a correspondingly smaller decrease of $34 million in the Fund actuarial liability.

(iv) A decrease of $117 million to the Fund actuarial deficit resulted from the actual members and government contributions in plan year 2009 and 2010 being more than anticipated.

(v) The experience of the last two years has shown that the promotional and seniority salary increases were marginally higher than expected in the previous report. This resulted in an increase of $47 million in the Account actuarial liability and a corresponding increase of $54 million in the Fund actuarial liability.

(vi) An increase of $41 million in the Fund actuarial surplus resulted mainly from lower than anticipated transfer value payments and returns of contributions to terminating members.

6) Revision of Actuarial Assumptions

Actuarial assumptions were revised based on economic trends and demographic experience as described in Appendix 7. This revision has decreased the Superannuation Account actuarial liabilities by $190 million and increased the Pension Fund actuarial liabilities by $199 million. The impact of these revisions is described in the following table.

Table 8 Revision of Actuarial Assumptions
($ millions)

Assumption	Superannuation Account	Pension Fund
Indexation, Earnings , Short Term Economic	135	(27)
Survivors mortality rates	663	43
Longevity improvement factors	(329)	(47)
Pensioner mortality rates	(164)	(17)
Disabled retirements 3B	(71)	(124)
Proportion married at death	(18)	1
Pensionable retirements	16	46
Annuity reduction factors	(17)	(19)
Seniority and promotional salary increases	(14)	(39)
Proportions Electing a Deferred Annuity	(2)	38
Assumptions related to children and students	2	-
Withdrawals	(11)	(56)
Contributors mortality rates	1	1
Disabled retirements 3A	(1)	1
Net impact of revision	190	(199)

The net impact of the revision of the assumptions on the Superannuation Account is mainly attributable to the correction in the survivor mortality assumption, the new longevity improvements factors as well as the changes in the pensioner mortality rates. On the Pension Fund side, the net impact of the revision is mainly attributable to the revisions of the economic assumptions and the change in the withdrawals and disabled retirements 3B assumptions.

As described in Appendix 7, except for the assumed yield on the Account, the other economic assumptions made in the previous valuation were revised as follows:

- ultimate level of inflation lowered from 2.4% to 2.3%;
- ultimate real increase in average earnings increased from 1.1% to 1.2%; and
- ultimate real rate of return on the Pension Fund lowered from 4.3% to 4.2%.

7) Change in the Present Value of Administrative Expenses

The previous report annual administrative expense assumption of 0.4% of total pensionable payroll was maintained in this report. However, further analysis revealed that the allocation of total administrative expenses between the Account and the Fund was allocated at a marginally faster pace to the Fund than what was previously assumed. For plan year 2011, 74% of total administrative expenses are being charged to the Account and it is now expected that the proportion charged to the Account will reduce at the rate of 3% per year, an increase of 0.2% per year from our previous assumption of 2.8%. The higher proportion of the administration expenses charged to the Fund increased the Account actuarial excess by $14 million.

8) Change in the Present Value of Prior Service Contributions

The expected total government cost is shown in table 17 of page 21. The government is expected to make additional contributions in excess of the current service cost for members expected prior service elections. The change in the present value of prior service contributions corresponds to members' elections since the last report where the members opted to pay for these elections by instalments. Members' prior service elections paid through instalments have the effect of increasing the Fund assets by $61 million.

9) Unrecognized Investment Gains

The same actuarial asset valuation method described in the 2008 valuation report, which role is to minimize the impact of short-term fluctuations in the market value of assets (see Appendix 6) was used for this valuation. For this valuation, the method caused the actuarial value of the Pension Fund assets to be $256 million less than their market value due to unrecognized investment gains.

C. CFSA - Cost Certificate

1) Current Service Cost

The details of the current service cost for plan year 2011 and reconciliation with the 2009 current service cost are shown below.

Table 9 Current Service Cost for Plan Year 2011
($ millions)

Members required contributions	282
Government current service cost	751
Total current service cost	1,033
Expected pensionable payroll	4,463
Total current service cost as % of expected pensionable payroll	23.15%

Table 10 Reconciliation of CFSA Current Service Cost
(Percentage of pensionable payroll)

For plan year 2009	22.34
Change in demographics	0.18
Expected current service cost change	0.07
Changes in assumptions	
Indexation, Earnings , Short Term Economic	0.08
Disabled retirements 3B	0.37
Seniority and promotional salary increases	0.19
Withdrawals	0.17
Mortality improvement factors	0.10
Annuity reduction factors	0.04
Pensioners mortality rates	0.04
Survivors mortality rates	(0.09)
Pensionable retirements	(0.16)
Disabled retirements 3A	(0.16)
Unexplained Changes	(0.01)
For plan year 2011	23.15

2) Projection of Current Service Costs

The current service cost is borne jointly by the members and the government. The member contribution rate on salary up to the Year's Maximum Pensionable Earnings (YMPE) of the Canada Pension Plan is 5.5% for calendar year 2010 and increases gradually to the ultimate rate of 6.4% first attained in calendar year 2013. The member contribution rate on salary above the YMPE is 8.4%.

Current service costs on a plan year basis, expressed in dollar amount as well as in percentage of the projected pensionable payroll, are shown in table 11. The member contributions and the government current service costs are also shown on a calendar year basis in the Executive Summary.

Table 11 Projection of Current Service Cost

	$ Millions			Percentage of Pensionable Payroll			Portion Borne by the Government
Plan Year	Members	Government	Total	Members	Government	Total	
2011	282	751	1,033	6.32	16.83	23.15	73%
2012	296	752	1,048	6.53	16.59	23.12	72%
2013	311	755	1,066	6.73	16.35	23.08	71%
2014	326	761	1,087	6.91	16.13	23.04	70%
2015	333	777	1,110	6.90	16.09	22.99	70%
2020	380	882	1,262	6.87	15.93	22.80	70%
2025	443	1,034	1,477	6.82	15.92	22.74	70%

The decrease in the portion of the current service cost borne by the government from plan year 2011 to 2013 mainly reflects increased plan contributions by members.

3) Pension Fund Administrative Expenses

Based upon the assumptions described in Appendix 7 B. 3, the Fund administrative expenses are included in the total current service costs. As for the previous report, the expected administration expenses exclude the PSPIB operating expenses as these are recognized implicitly through a decrease in the real rate of return. The total administration expenses are estimated to be as follows:

Table 12 Pension Fund Administrative Expenses

Plan Year	($ millions)
2011	4.6
2012	5.3
2013	5.9
2014	6.6

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

4) Contributions for Prior Service Elections

Based upon the valuation data and the assumptions described in sections B and C of Appendix 6, member and government contributions for prior service elections were estimated as follows:

Table 13 Estimated Contributions for Prior Service
($ millions)

	Regular Force Service				Reserve Force Service	
	Account		Fund		Fund	
Plan Year	Members	Government	Members	Government	Members	Government
2011	2.1	2.1	5.4	14.2	3.7	9.9
2012	2.1	2.1	5.5	13.8	5.6	14.0
2013	2.0	2.0	5.6	13.6	9.0	21.5
2014	1.9	1.9	5.8	13.4	13.0	30.2
2015	1.9	1.9	6.0	13.8	18.0	41.8

The last two columns of Table 13 shows the expected contributions by Reserve Force members and government for prior Reserve Force service elections. According to the Department of National Defence (DND) a total of 12,255 prior Reserve Force service elections are expected by the end of plan year 2014. Most of these elections have not yet been processed and DND expects that the 12,255 prior service elections will be processed by the end of plan year 2015.

Using the information provided by DND, it is assumed that approximately 17% of the 12,255 elections, that is 2,083 elections, are made by members currently contributing to the Regular Force pension plan.

D. Sensitivity of Individual Assumptions

This pension plan actuarial report is based on the projection of assets and accounts available for benefits and liabilities over a long period of time. The information required by statute, which is presented in the main report, has been derived using best-estimate assumptions regarding future demographic and economic trends. The key best-estimate assumptions, i.e. those for which changes within a reasonable range have the most significant impact on the long-term financial results, are described in Appendices 6 and 7. Both the length of the projection period and the number of assumptions required ensure that actual future experience will most likely not develop precisely in accordance with the best-estimate assumptions. Individual sensitivity tests have been performed that consist of projections of the pension plan's financial status using alternative assumptions.

The following table measures the effect on the plan year 2011 current service cost, the liabilities for service prior to 1 April 2000 and for service since that date, if key economic assumptions are varied by one percentage point per annum from plan year 2011 onward.

Table 14 Sensitivity of Valuation Results

	Current Service Cost as a percentage of pensionable payroll		Actuarial Liability ($ millions)			
			Service prior to April 2000		Service since April 2000	
Assumption(s) Varied	2011	Effect		Effect		Effect
None (i.e. current basis)	23.15	None	43,210	None	11,144	None
Investment yield						
- if 1% higher	18.29	(4.85)	37,945	(5,265)	9,213	(1,931)
- if 1% lower	29.92	6.78	49,866	6,656	13,737	2,593
Inflation						
- if 1% higher	26.82	3.68	48,776	5,566	12,766	1,622
- if 1% lower	20.29	(2.86)	38,696	(4,514)	9,867	(1,277)
Salary, YMPE and MPE						
- if 1% higher	25.22	2.08	43,487	277	11,680	536
- if 1% lower	21.35	(1.79)	42,951	(259)	10,670	(474)
All economic assumptions						
- if 1% higher	22.63	(0.52)	42,596	(614)	10,868	(276)
- if 1% lower	23.70	0.55	43,854	644	11,440	296

The foregoing estimates indicate the degree to which the CFSA valuation results depend on some of the key economic assumptions. The differences between the results above and those shown in the valuation can also serve as a basis for approximating the effect of other numerical variations in a key assumption to the extent that such effects are linear.

E. RCA No. 1 - Financial Position

The valuation result of this section show the financial position of the RCA No. 1 financing arrangements as at 31 March 2010. The results of the previous valuation are also shown for comparison purposes.

Table 15 RCA No. 1 - Balance Sheet
($ millions)

	31 March 2010	31 March 2008
Recorded Account balance	256	183
Refundable tax	238	163
Total	494	346
Actuarial Liability		
Pensionable excess earnings		
• Active contributors	271	242
• Pensioners	73	46
Survivor Allowance		
• Active contributors	6	13
• Pensioners	30	31
Total Actuarial Liability	380	332
Actuarial Excess/(Shortfall)	114	14

The sum of the recorded balance of the RCA No. 1 Account and the refundable tax is $494 million; it exceeds the actuarial liability of $380 million by 30.0% as at 31 March 2010. As at 31 March 2008, the sum of the recorded balance of the RCA No. 1 Account and the refundable tax was marginally greater than the actuarial liability.

F. RCA No. 1 - Current Service Cost

The projected current service cost, borne jointly by the members and the government, of 1.44% for plan year 2011 calculated in the previous valuation has decreased by 0.67% to 0.77% of pensionable payroll in this valuation.

The RCA No. 1 current service cost for plan year 2011 is estimated to increase to 0.80% and 0.82% of pensionable payroll for plan years 2012 and 2013 respectively.

The following table shows the estimated RCA No. 1 current service cost for the next three plan years.

Table 16 RCA No. 1 - Current Service Costs
($ millions)

	Plan Year		
	2011	2012	2013
Total current service cost			
Pensionable excess earnings	33.2	34.8	36.4
Survivor Allowance	1.4	1.5	1.7
Total	34.6	36.3	38.1
Member contributions	2.3	2.4	2.6
Government current service cost	32.3	33.9	35.5
Current service cost as % of total pensionable payroll	0.77%	0.80%	0.82%

The substantial decrease in the current service cost from the previous report is due to a change in the population data with respect to members having a salary above the Maximum Pensionable Earnings (MPE). In the previous report the total pensionable payroll in excess of the MPE projected for plan year 2011 was $36 million. The comparable payroll reported in the current valuation is $26 million that is a 28% decrease.

G. Summary of Estimated Government Costs

The following table summarizes the estimated total government costs on a plan year basis.

Table 17 Estimated Government Cost
($ millions)

	Current Service Cost		Total Prior Service Contributions	Total Government Cost
Plan Year	CFSA	RCA No. 1		
2011	751	32	26	809
2012	752	34	30	816
2013	755	36	37	828

III. Actuarial Opinion

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

- the valuation input data on which the valuation is based are sufficient and reliable for the purposes of the valuation;
- the assumptions that have been used are, individually and in aggregate, appropriate for the purposes of determining the financial status as at 31 March 2010 of the Superannuation Account, Pension Fund and Retirement Compensation Arrangements Account No.1 of the Canadian Forces – Regular Force, and assisting the President of the Treasury Board in making informed decisions regarding the financing of the government's pension benefit obligation;
- the methodology employed is appropriate for the purposes of determining the financial status as at 31 March 2010 of the Superannuation Account, Pension Fund and Retirement Compensation Arrangements Account No.1 of the Canadian Forces – Regular Force, and assisting the President of the Treasury Board in making informed decisions regarding the financing of the government's pension benefit obligation; and
- this report has been prepared, and our opinions given, in accordance with accepted actuarial practice.

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

To the best of our knowledge, after inquiring with the Department of National, there were no subsequent events between the valuation date and the date of this report that would have a material impact on the results of this valuation.

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

Daniel Hébert

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

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Chief Actuary

Ottawa, Canada
17 June 2011

Appendix 1 - Summary of Pension Benefit Provisions

Pensions for members of the Canadian Forces (the *regular force*) were first provided under the Militia Pension Act of 1901, when in 1950 it became the *Defence Services Pension Act* until the *Defence Services Pension Continuation Act* and the *Canadian Forces Superannuation Act* (CFSA) were enacted in 1959. Benefits are also provided to members of the Regular Force under the *Special Retirement Arrangements Act*. Benefits may be modified in accordance with the *Pension Benefits Division Act* if there is a breakdown of a spousal union.

Changes since the last valuation

The previous valuation report was based on the pension benefit provisions as they stood as at 31 March 2008. Since then, all changes made to the CFSA are considered cosmetic and have no financial impact on the funding of the Regular Force pension plan.

Methodology changes

Following discussions with the Department of National Defence, it was realised that the definition of the ‘Qualifying Service’ given on page 30 of Appendix 1, had a broader interpretation than what would generally be expected in the context of a pension plan. In most pension plans, once a member terminates its pension plan participation and opts for a cash out of his/her accumulated pension benefits that service is no longer to the credit of the member if he/she would at a later date participate again in the pension plan. The exception would be if the reenrolled member opt to buyback such service.

As it should be interpreted, the ‘Qualifying Service’ is never lost and is always to the credit of the member for purposes of pension benefit entitlement. The ‘Pensionable Service’, as defined on page 30 of Appendix 1, is still used to calculate the pension benefits and if at some point in time a member cashes out such pension benefit it is no longer to his/her credit, unless again if he/she buys back such service.

This interpretation has a direct impact on the process used for the development of the demographic assumptions when the basis of these assumptions is on ‘Qualifying Service’. The approach usually followed in developing the demographic assumptions is to modify the current assumption to take into account any credible intervaluation experience to a maximum of 50%. However, the previous report demographic assumptions based on service would not reflect the new interpretation of ‘Qualifying Service’ and as such would not provide a good basis to develop future expected experience.

In order to recognize the new interpretation of the ‘Qualifying Service’, all demographic assumptions based on ‘Qualifying Service’ were derived on the experience of the last five years. This is considered to be a good measure of the medium to short term experience without much discontinuity from the previous report demographic assumptions.

Summary of Pension Benefit Provisions

Summarized in this Appendix are the pension benefits provided under the CFSA registered provisions which are in compliance with the *Income Tax Act*. The portion of the benefits in excess of the *Income Tax Act* limits for registered pension plans is provided under the retirement compensation arrangements described in Appendix 2.

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

A. Membership

Membership in the plan is compulsory for all members of the Canadian Forces.

As of 1 March 2007, a member of the Reserve Force is deemed to be a member of the Regular Force and will become a member of the plan,

- on March 1, 2007 if, on that date,
    - the member's total number of days of paid Canadian Forces service during any period of 60 months beginning on or after April 1, 1999 was no less than 1,674,
    - the member already was or became a member of the Canadian Forces during the first month of the period and remained a member of the Canadian Forces throughout the period without any interruption of more than 60 days,
    - the member is not a person required to contribute to the Public Service Pension Fund or the Royal Canadian Mounted Police Pension Fund, and
    - the member does not have any pensionable service to their credit under Part I of the CFSA;
- in any other case, on the first day of the month following a period of 60 months ending after March 1, 2007 if
    - the member's total number of days of paid Canadian Forces service during the period was no less than 1,674,
    - the member already was or became a member of the Canadian Forces during the first month of the period and remained a member of the Canadian Forces throughout the period without any interruption of more than 60 days, and
    - the member does not have any pensionable service to their credit under Part I of the CFSA.

The general rule is that once a Reserve Force member is deemed a Regular Force member for the purposes of Part I of the CFSA, and that the member does not fail to receive pensionable earnings in any 12 consecutive months, the member remains a contributor under Part I of the CFSA as long as they remain a member of the Reserve Force. There are exceptions to the general rule previously described but for the purpose of this report, these were considered not material.

B. Contributions

1. Members

During the first 35 years of pensionable service, members contribute according to the rates shown in the following table. After 35 years of pensionable service, members contribute only 1% of pensionable earnings.

Calendar Year	2010	2011	2012	2013
Contribution rates on earnings **up to** the maximum covered by the Canada Pension Plan	5.5%	5.8%	6.1%	6.4%
Contribution rates on any earnings **over** the maximum covered by the Canada Pension Plan	8.4%	8.4%	8.4%	8.4%

2. Government

a) Current Service

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

b) Elected Prior Service

The government matches member contributions credited under the Superannuation Account for prior service elections; however, no contributions are credited if the member is paying the double rate.

Government credits to the Pension Fund in respect of elected prior service are as described for current service; however, if the member is paying the double rate the government contribution rate is generally adjusted so that total member and government contributions match the current service cost.

c) Actuarial Excess and Surplus

Bill C-78, which received Royal Assent on 14 September 1999, gives the government the authority to:

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

d) Actuarial Deficit

If an actuarial deficit is identified through a triennial statutory actuarial report, the Superannuation Account and/or the Pension Fund are to be credited with such annual amounts that in the opinion of the President of the Treasury Board will fully amortize the actuarial deficit over a period not exceeding 15 years.

C. Summary Description of Benefits

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

Subject to coordination with the pensions paid by the Canada Pension Plan (CPP), the initial rate of retirement pension is equal to 2% of the highest average of annual pensionable earnings over any period of five consecutive[1] years, multiplied by the number of years of pensionable service not exceeding 35. The pension is indexed annually with the Consumer Price Index and the accumulated indexation may be payable at the earliest of age 55 as defined in Note 2 of section D below. Entitlement to benefits depends on either the qualifying service in the Canadian Forces or the pensionable service, as defined below in Notes 3 and 4 of section D below.

[1] Any five-year period of pensionable service selected by or on behalf of the contributor, or during any period so selected consisting of consecutive periods of pensionable service totalling five years.

Detailed notes on the following overview are provided in the following Section D.

1. Benefit Entitlement on the basis of “Qualifying” Service

a) Active Members

Type of Termination	Qualifying Service in the Canadian Forces *(Note 3)*	Benefit
Retirement on completion of short engagement (an officer other than a subordinate officer who has not reached retirement age and is not serving on an intermediate engagement or for an indefinite period of service) *(Note 5)*	Less than 2 years	Return of contributions *(Note 7)*
	At least 2 but less than 25 years (less than 20 years – old terms of service)	At option of member (1) deferred annuity *(Note 9)*; or (2) transfer value if under age 50 *(Note 10)*
	25 years or more (20 years or more – old terms of service)	See “Retirement for reasons other than those previously mentioned”
Retirement during an indefinite period of service after having completed an intermediate engagement and prior to reaching retirement age, for reasons other than disability or, to promote economy or efficiency	Any length	Immediate annuity to which member was entitled upon completion of intermediate engagement increased to such extent as prescribed by regulation[1] *(Note 11)*
Retirement on completion of intermediate engagement (a member who has not reached retirement age and is not serving for an indefinite period of service) *(Note 6)*	25 years or more (20 years or more – old terms of service)	Immediate annuity *(Note 8)*
Compulsory retirement because of disability[2]	Less than 2 years	Return of contributions *(Note 7)*
	At least 2 but less than 10 years	At option of member (1) deferred annuity *(Note 9)*; or (2) transfer value if under age 50 *(Note 10)*
	10 years or more	Immediate annuity

1 The CFSA limits the annuity to the immediate annuity to which the active member would be entitled if retiring because of age or disability, and the formula in the CFS Regulations (Appendix 1-D.-12) always produces less than the maximum.

2 Any condition rendering a member of the regular force mentally or physically unfit to perform his or her duties. A member is discharged under Q. R. & O. 15.01 Article 3B when he or she is unable to perform the duties of his or her own occupation. A member is discharged under Q.R. & O. 15.01 Article 3A when he or she is unable to perform any occupation.

Type of Termination	Qualifying Service in the Canadian Forces *(Note 3)*	Benefit
Compulsory retirement to promote economy or efficiency	Less than 2 years	Return of contributions
	More than 2 but less than 10 years	At option of member (1) deferred annuity *(Note 9)*; or (2) transfer value if under age 50 *(Note 10)*
	At least 10 but less than 25 years (less than 20 years – old terms of service)	At option of member (1) return of contributions; or (2) deferred annuity; or (3) transfer value if under age 50 *(Note 10)* (4) with consent of the Minister of National Defence, an immediate reduced annuity *(Note 12)*
	25 years or more (20 years or more – old terms of service)	Immediate annuity *(Note 8)*
Retirement for reasons other than those previously mentioned	Less than 2 years	Return of contributions *(Note 7)*
	At least 2 but less than 25 years (less than 20 years – old terms of service)	At option of member (1) deferred annuity *(Note 9)*; or (2) transfer value if under age 50 *(Note 10)*
	(At least 20 but less than 25 years – old terms of service)	Immediate reduced annuity
	25 years or more	Officer: - immediate reduced annuity *(Note 12)*; Other than officer: - immediate annuity *(Note 8)*

b) Benefits in Case of Death of an Active Member

Status at Death	Qualifying Service in the Canadian Forces (*Note 3*)	Benefit
Leaving no eligible spouse or children under 25 (*Notes 13 and 14*)	Less than 2 years	Return of contributions
	2 years or more	Five times the annual amount of retirement pension to which the member would have been entitled at the date of death
Leaving eligible spouse and/or children under 25	Less than 2 years	Return of contributions or an amount equal to one month's earnings of the deceased member for each year of credited pensionable service, whichever is the greater
	2 years or more	Annual allowance (*Note 15*)

c) Benefits in Case of Death of a Pensioner

Status at Death	Benefit
Leaving no eligible spouse or children under 25	Minimum death benefit (*Note 16*)
Leaving eligible spouse and/or children under 25	Annual allowance (*Note 15*)

2. Benefit Entitlement on the basis of "Pensionable "Service

Member's Type of Termination	**Benefit**
With two or more years of pensionable service; and	
▪ Involuntary termination due to a work force reduction program and	
- With 20 years of service or more	Immediate annuity
- Age 50 or over and service 10 years of service or more	
▪ Leaving prior to age 50, except for death or disability	Deferred annuity or transfer value
▪ Leaving at age 50 or over, except for death or disability, and	
- Age 60 or over, or age 55 or over and service 30 years or more	Immediate annuity
- Otherwise	Deferred annuity or annual allowance

D. Explanatory Notes

1. Pensionable Earnings

Pensionable earnings means the salary at the annual rate prescribed by the regulations made pursuant to the *National Defence Act* together with the allowances representing medical-dental care costs.

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

2. Indexation

a) Level of Indexation Adjustments

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

b) First Indexation Adjustment

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

c) Commencement of Indexation Payments

The indexation portion of a retirement, disability or survivor pension normally starts being paid when the pension is put into pay. However, regarding a retirement pension, the pensioner must be at least 55 years old provided also the sum of age and pensionable service is at least 85; otherwise the retirement pensioner must be at least 60 years old.

3. Qualifying Service in the Canadian Forces

Qualifying service in the Canadian Forces means service for which a Regular or Reserve Force member is paid, and includes:

- days of service in the Regular Force for which pay was authorized, and period of authorized leave of absence;
- days of service in the Reserve Force for which pay was authorized, and authorized absences for maternity and parental purposes:
  - days of training or duty of less than 6 hours = half-day
  - days of Class "A" service = 1.4 days
  - periods before 1 April 1999 (when duration of period is verifiable but not the number of days) = quarter time
  - during maternity and parental leaves, days of CF service are based on service in previous 12 months

4. **Pensionable Service**

Pensionable service includes any period of service in the regular force in respect of which an active member either (1) made contributions that remain in the Account or Fund or (2) elected to contribute. It also includes any period of prior service for which an active member was paid a return of contributions or lump sum payment under the CFSA that he or she did elect to repay on subsequent enrolment. It also includes prior service in the Public Service of Canada, the Royal Canadian Mounted Police and the militaries of the Commonwealth of Nations they elected to count as pensionable service.

5. **Short Engagement**

Short engagement means a continuous period of service as a commissioned officer in the regular force for a period not exceeding nine years.

6. **Intermediate Engagement**

Intermediate engagement means 20 years (IE20) of continuous service as a member of the regular force for members serving under an indefinite period of service (IPS) or serving under an IE20 and did not opt for the new intermediate engagement of 25 years of continuous service effective May 2005. All other regular members will have to complete the new IE25 in order to be eligible to an immediate unreduced annuity.

7. **Return of Contributions**

Return of contributions means the payment of an amount equal to the accumulated current and prior service contributions paid or transferred by the member into the Account and/or into the Fund together with interest. Interest is calculated at the quarterly Fund rate each quarter on the accumulated contributions with interest as at the end of the previous quarter.

8. **Immediate Annuity**

Immediate annuity means an unreduced pension that becomes payable immediately upon a pensionable retirement or a pensionable disability. The annual amount is equal to 2% of the highest average of annual pensionable earnings (Note 1) of the active member over any period of five[1] consecutive[2] years, multiplied by the number of years of pensionable service not exceeding 35. However, if such highest five-year earnings average exceeds the yearly maximum prescribed for the calendar year in which service is terminated, then the annual amount is reduced by 2% of such excess, multiplied by the number of years of pensionable service after April 1995.

When a pensioner attains age 65 or becomes entitled to a disability pension from the CPP, the annual amount of pension is reduced by a percentage of the indexed CPP annual pensionable earnings[3] (or, if lesser, the indexed five-year[1] pensionable earnings average on which the immediate annuity is based), multiplied by the years of CPP

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

2 Any five-year period of pensionable service selected by or on behalf of the contributor, or during any period so selected consisting of consecutive periods of pensionable service totalling five years.

3 Indexed CPP annual pensionable earnings means the average of the YMPE, as defined in the CPP, over the last five years of pensionable service, increased by indexation proportionate to that accrued in respect of the immediate annuity.

pensionable service[1]. The applicable percentage (it was 0.7% before 1 January 2008) depends on the year the pensioner attains age 65 or become entitled to a disability pension. The following table shows the applicable percentage:

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

Annuities are payable in equal monthly instalments in arrears until the end of the month in which the pensioner dies or when the disability pensioner recovers from disability. Upon the death of the pensioner, either a survivor allowance (Note 15) or a minimum death benefit (Note 16) may be payable.

9. Deferred Annuity

Deferred annuity means an annuity that becomes payable to a retirement pensioner when he/she reaches age 60. The annual payment is determined as for an immediate annuity (see Note 8 above) but is adjusted to reflect the indexation (see page 30) from date of termination to the commencement of annuity payments.

The deferred annuity becomes an immediate annuity during any period of disability beginning before age 60. If the disability ceases before age 60, the immediate annuity reverts to the original deferred annuity.

10. Transfer Value

Active members who, at their date of termination of pensionable service, are under age 50 and who are eligible for a deferred annuity may elect to transfer the commuted value of their benefits, determined in accordance with the regulations, to

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

[1] Years of CPP pensionable service, means the number of years of pensionable service after 1965 or after attaining age 18, whichever is later, but not exceeding 35.

11. Annuity Payable upon Retirement During an Indefinite Period of Service

For an active member who has not reached retirement age and ceases to be a member of the regular force while on an indefinite period of service after completing an intermediate engagement for any reason other than disability, or to promote economy or efficiency, Canadian Forces Superannuation Regulations prescribe an annuity that is equal to the greater of:

(a) an immediate annuity based on the pensionable service to the date of completion of the intermediate engagement only and the highest five-year earnings average at date of retirement, and

(b) an immediate annuity based upon the total pensionable service to the date of retirement and the highest five-year employment earnings average at that date reduced by 5% of such amount of annuity for each full year by which:

- in the case of an officer, the age at the date of retirement is less than the retirement age applicable to the member's rank; or
- in the case of a member other than an officer, the age at the date of retirement is less than the retirement age applicable to the member's rank or the period of service in the regular force is less than 25 years, whichever is the lesser.

12. Reduced Immediate Annuity

Reduced immediate annuity means an immediate annuity for which the annual amount of the annuity as determined in Note 8 is reduced as stated below.

With the consent of the Minister of National Defence, an active member who is required to terminate to promote economy or efficiency and has between 10 and 20 years of service in the regular force may choose an immediate annuity reduced, until attainment of age 65 but not thereafter, by 5% for each full year not exceeding six by which:

(a) the period of service in the regular force is less than 20 years; or

(b) the age of the active member at the time of retirement is less than the retirement age applicable to the member's rank,

whichever is the lesser.

An active member who, not having reached retirement age, ceases to be a member of the regular force for any reason other than disability, or to promote economy or efficiency, or while on an indefinite period of service is entitled

(a) as an officer having served in the regular force for 20 years or more, to an immediate annuity reduced by 5% for each full year by which his or her age at the time of retirement is less than the retirement age applicable to his or her rank, or

(b) as other than an officer having served in the regular force for 20 years or more but less than 25 years, to an immediate annuity reduced by 5% for each full year by which:

- the period of service in the regular force is less than 25 years, or

- the age at the time of retirement is less than the retirement age applicable to the member's rank,

  whichever is the lesser.

When a pensioner in receipt of an immediate reduced annuity becomes disabled before reaching age 60, the pensioner ceases to be entitled to that immediate reduced annuity and becomes entitled to an immediate annuity adjusted in accordance with regulations to take into account the amount of any immediate reduced annuity which the pensioner may have received prior to becoming disabled.

13. Eligible Surviving Spouse or common-law partner

Eligible surviving spouse means the surviving spouse or common-law partner of an active member or pensioner except if:

(a) the active member or pensioner died within one year of marriage unless the Minister of National Defence is satisfied that the member's health at the time of the marriage justified an expectation of surviving for at least one year; or

(b) the pensioner married or began a common-law partner at age 60 or over, unless after such marriage or partnership the pensioner either:

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

(c) the pensioner is a female who retired before 20 December 1975 and did not make an optional survivor benefit election within the one-year period ending 6 May 1995.

14. Eligible Surviving Children

Eligible surviving children includes all children of the active member or pensioner who are under age 18, and any child of the active member or pensioner who is age 18 or over but under 25 and in full-time attendance at a school or university.

15. Annual Allowance for Eligible Survivors

Annual allowance means, for the eligible surviving spouse and children of an active member or pensioner, an annuity that becomes payable immediately upon the death of that individual. The amount of the allowance, called a "basic allowance" is equal to 1% of the highest average of annual pensionable earnings of the active member over five consecutive years, multiplied by the number of years of pensionable service not exceeding 35. If such highest five-year earnings average exceeds the yearly maximum prescribed for the calendar year in which service is terminated, then the annual amount is reduced by 2% of such excess, multiplied by the number of years of pensionable service after April 1995.

The annual allowance for a spouse or a common-law partner is equal to the basic allowance except in the case where the spouse became eligible to a survivor pension as a result of an optional survivor benefit election, in which case it is equal to the percentage of the basic allowance specified by the pensioner making the election.

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

Annual allowances are not coordinated with the CPP and are payable in equal monthly instalments in arrears until the end of the month in which the survivor dies or otherwise loses eligibility. If applicable, a residual benefit (Note 16) is payable to the estate upon the death of the last survivor.

16. Minimum Death Benefit

If upon the death of an active member there is no person to whom an allowance provided under the terms of the CFSA may be paid, or if the persons to whom such allowances may be paid die or cease to be entitled thereto and no other amount may be paid to them, there is paid to the estate of the active member or to the named beneficiary under CFSA Part II, if any exist:

(a) if the active member was not a member of the regular force upon or after 20 December 1975, any amount by which the amount of return of contributions exceeds the aggregate of all amounts paid to those persons and to the active member;

(b) if the active member was a member of the regular force upon or after 20 December 1975, an amount similar to the above except that the return of contributions is taken as at least equal to five times the basic annuity to which the active member was or would have been entitled at the time of his or her death; or

17. Division of Pension in Case of Spousal Union Breakdown

In accordance with the *Pension Benefits Division Act*, upon the breakdown of a spousal union (including common-law partnership), a lump sum can be transferred upon application supported by a court order or by mutual consent agreement from the amounts in the Superannuation Accounts and the Fund to the credit of an active member or pensioner. As at the transfer date, the maximum transferable amount is half the value of the retirement pension accrued by the active or former member during the period of cohabitation. If the member's benefits are not vested, the maximum transferable amount corresponds to half the member's contributions made during the period subject to division, accumulated with interest at the rate applicable on a refund of contributions. The benefits of the active member or pensioner are then reduced accordingly.

Appendix 2 - RCA Benefit Provisions

This Appendix describes the Canadian Forces - Regular Force pension benefits financed through retirement compensation arrangements RCA No. 1 rather than through the CFSA registered provisions using the Superannuation Account and the pension Fund. As described below, RCAs are pension plans not subject to the benefit limitations that apply to registered pension plans because they are taxed on a current rather than on a deferred basis.

Effective 1 May 1995, RCA No. 1 was established pursuant to the *Special Retirement Arrangements Act* (SRAA) to provide for all pension benefits in excess of those that may be paid under the CFSA but are limited to be in accordance with the *Income Tax Act* restrictions on registered pension plans.

The following benefits are currently provided under RCA No. 1 to the extent that they are in excess of the ITA limit.

<table>
<tr><th>Benefit</th><th>CFSA Registered Provisions limit</th></tr>
<tr><td>Survivor allowance for service from 1 January 1992 onward
(see Appendix 1-D.-11)</td><td><u>Pre-retirement death</u>
Maximum spouse allowance is two-thirds of greater of A and B; and
Maximum aggregate dependants’ allowance is the greater of A and B, where
A is the amount of member annuity earned to date of death, and
B is the hypothetical amount of member annuity earned to age 65 where the average annual salary is limited to 1.5 times the average YMPE

<u>Post-retirement death</u>
The amount of spouse allowance is limited in any year to a maximum of two-thirds the retirement benefit that would have been payable to the member in that year.</td></tr>
<tr><td>Minimum lump sum death benefit
(see Appendix 1-D.-12)</td><td><u>Pre-retirement death</u>
The amount of pre-retirement death benefit if the member has no eligible dependants is limited to the greater of the member contributions with interest and the present value of the member’s accrued benefits on the day prior to death.

<u>Post-retirement death</u>
If the member has no eligible dependants at retirement, then the minimum death benefit is limited to the member contributions with interest.</td></tr>
<tr><td>Excess pensionable earnings (provided since 1 May 1995 for service since then)</td><td>The highest average of pensionable earnings is subject to a prescribed yearly maximum that varies by calendar year and the registered plan’s benefit formula. The calendar year 2011 Maximum Pensionable Earnings was $142,800.</td></tr>
</table>

Appendix 3 - Assets, Accounts and Rates of Return

A. Assets and Accounts Available for Benefits

The pension promise to members of the Canadian Forces - Regular Force enacted by legislation encompasses government assets, accounts and liabilities. The assets and accounts available for benefits the government uses to finance the pension promise are composed of tangible assets (Pension Fund) which the government has earmarked for the payment of benefits, the Superannuation Account and the RCA No. 1 account established to track its pension benefit obligations.

1. Canadian Forces Superannuation Account

CFSA benefits earned up to 31 March 2000 are financed entirely through the Superannuation Account, which forms part of the Accounts of Canada.

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

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

Table 18 Reconciliation of Balances in Superannuation Account
($ millions)

Plan Year	2009	2010	2009-2010
Public Accounts opening balance	44,153	44,882	44,153
INCOME			
Interest earnings	3,038	2,974	6,012
Employer contributions	3	3	6
Member contributions	3	3	6
Transfers received	3	3	6
Actuarial liability adjustments	-	-	-
Subtotal	*3,047*	*2,983*	*6,030*
EXPENDITURES			
Annuities	2,268	2,320	4,588
Pension divisions	32	35	67
Return of contributions	-	-	-
Pension transfer value payments	-	3	3
Transfers to other pension plans	5	1	6
Minimum benefits	1	1	2
Administrative expenses	12	15	27
Subtotal	*2,318*	*2,375*	*4,693*
Public Accounts closing balance	44,882	45,490	45,490

Since the last valuation, the Account balance has grown by $1.3 billion (a 3.0% increase) to reach $45.5 billion as at 31 March 2010.

2. Canadian Forces Pension Fund

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

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

Table 19 Reconciliation of Balances in Pension Fund
($ millions)

Plan Year	2009	2010	2009-2010
Opening balance	7,890	6,809	7,890
INCOME			
Interest earnings	(1,905)	1,509	(396)
Employer contributions	731	760	1,491
Member contributions	262	286	548
Transfers received	-	-	-
Actuarial liability adjustments	22	-	22
Subtotal	*(890)*	*2,555*	*1,665*
EXPENDITURES			
Annuities	122	158	280
Pension divisions	10	14	24
Return of contributions	-	-	-
Pension transfer value payments	28	19	47
Transfers to other pension plans	-	1	1
Minimum benefits	11	4	15
Administrative expenses	20	23	43
Subtotal	*191*	*219*	*410*
Closing balance	6,809	9,145	9,145

Since the last valuation, the Fund balance has increased by $1.2 billion (a 15.9% increase) to reach $9.1 billion as at 31 March 2010.

3. Canadian Forces RCA No. 1 Account

The amount in the RCA No. 1 account available for benefits is composed of the recorded balance in the Retirement Compensation Arrangements Account, which forms part of the Accounts of Canada, and a refundable tax. Each calendar year, a cash transfer is made to the Canada Revenue Agency (CRA) such that in total roughly half the RCA No. 1 account available for benefits is held by the CRA as a refundable tax.

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

Table 20 Reconciliation of Balances in RCA No.1 Account
($ millions)

Plan Year	2009	2010	2009-2010
Public Accounts opening balance	183.2	216.8	183.2
INCOME			
Interest earnings	14.2	16.2	30.4
Employer contributions	54.8	61.8	116.6
Member contributions	2.3	2.5	4.8
Transfers received	0.0	0.0	0.0
Actuarial liability adjustments	0.0	0.0	0.0
Subtotal	*71.3*	*80.5*	*151.8*
EXPENDITURES			
Annuities	1.6	2.0	3.6
Pension divisions	0.0	0.1	0.1
Return of contributions	0.0	0.0	0.0
Pension transfer value payments	0.2	0.2	0.4
Transfers to other pension plans	0.0	0.0	0.0
Minimum benefits	0.0	0.0	0.0
Transfer to Canada Post Corporation	0.0	0.0	0.0
Amount transfer to CRA	35.9	39.2	75.1
Subtotal	*37.7*	*41.5*	*79.2*
Public Accounts closing balance	216.8	255.8	255.8
Refundable tax	199.2	238.3	238.3

Since the last valuation, the Account balance has grown by $73 million (a 39.7% increase) to reach $256 million as at 31 March 2010 and the refundable tax has increased by $75 million (a 46.0% increase) to reach $238 million.

B. Rates of Interest (Return)

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

The Fund yields are those from the PSPIB 2010 Annual Report.

Plan Year	Superannuation Account	Pension Fund
2009	7.1%	(22.7%)
2010	6.8%	21.5%

C. Sources of Asset and Accounts Available for Benefits Data

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

Appendix 4 - Membership Data

A. Sources of Membership Data

The valuation input data required in respect of members, former members (pensioners) and survivors are provided by the Department of National Defence (DND). Because DND does not administer the pension payments made to Regular Force pensioners, the information received from DND on former members may not be accurate since the information is not kept up to date. The pensioner information is kept internally at DND with the sole purpose of providing valuation data to OSFI. An additional set of valuation data on Regular Force pensioners are extracted from master computer files maintained by the Department of Public Works and Government Services Canada (PWGSC). This second set of valuation data on pensioners provides OSFI with the ability to cross verify the information provided by DND.

The main valuation data file supplied by the DND contained the historical status information on all members up to 31 March 2010. The valuation data file on pensioners provided by PWGSC covers the period of 1 April 2008 to 31 March 2010.

B. Validation of Membership Data

1. Status-Related Tests

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

- a consistency check that a status could be established for each record of a member. The status of a member may change over time but at a given point in time it can be only one of the following: contributor, outstanding termination, pensioner, deceased leaving an eligible survivor;
- a consistency check of the changes in status of a member during the intervaluation period; e.g.
  - if a contributor record indicated that the member retired, then a pensioner record should exist; and
  - if a contributor or pensioner record indicated that the member died leaving an eligible survivor, then a corresponding survivor record should exist;
- a reconciliation between the status of members as at 31 March 2010 from the current valuation data and the status of the members as at 31 March 2008 from the previous valuation data.

2. Benefit-Related Tests

Consistency tests were made to ensure that all proper information to value the member benefits based on individual statuses as at 31 March 2010 was included, by verifying that

a) For Active Members

– the pensionable and qualifying service was reasonable in relation to the attained age;

– the salary was included and, if not, imputing a salary by updating a salary rate from a previous year with an average earnings increase or failing that, using the average salary rate for that rank, sex, age and service.

b) For Pensioners and Survivors in Receipt of an Annuity

– the amount of the annuity, including indexation, was included; and

– the benefits were indexed up to 1 January 2010.

c) For Adjustments to Status and Benefit Data

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

C. Membership Data

The following tables show the detailed reconciliation of membership data since the last valuation. Detailed membership data upon which this valuation is based are shown in Appendix 12.

Table 21 Reconciliation of Contributors

	Male			Female			
	Officer	Other Rank	Total	Officer	Other Rank	Total	Total
As at 31 March 2008	**13,284**	**44,289**	**57,573**	**2,587**	**7,282**	**9,869**	**67,442**
Data corrections	69	229	298	45	(6)	39	337
New Contributors							
New entrants	1,574	8,211	9,785	394	1,250	1,644	11,429
Rehired /cash-out	177	1,398	1,575	33	174	207	1,782
Rehired/pensioners Part I	77	235	312	9	28	37	349
Rehired/pensioners Part I.1	16	40	56	13	4	17	73
Subtotal	1,844	9,884	11,728	449	1,456	1,905	13,633
Changes of							
Activity Status	5	4	9	1	1	2	11
Officers/Other Ranks	285	(285)	-	48	(48)	-	-
Service Type	273	1,336	1,609	80	363	443	2,052
Subtotal	563	1,055	1,618	129	316	445	2,063
Lumpsum terminations							
Return of contribution	(373)	(3,171)	(3,544)	(106)	(562)	(668)	(4,212)
Transfer value	(110)	(564)	(674)	(48)	(77)	(125)	(799)
Subtotal	(483)	(3,735)	(4,218)	(154)	(639)	(793)	(5,011)
Pensionable terminations							
Disability (3A)	-	(2)	(2)	-	(1)	(1)	(3)
Disability (3B)	(183)	(1,359)	(1,542)	(59)	(261)	(320)	(1,862)
Death	(18)	(112)	(130)	(2)	(8)	(10)	(140)
Retirement	(1,110)	(2,994)	(4,104)	(144)	(349)	(493)	(4,597)
Subtotal	(1,311)	(4,467)	(5,778)	(205)	(619)	(824)	(6,602)
As at 31 March 2010	**13,966**	**47,255**	**61,221**	**2,851**	**7,790**	**10,641**	**71,862**

Table 22 Reconciliation of Pensioners

	Male			Female			
	Officer	Other Rank	Total	Officer	Other Rank	Total	Total
Retirement Pensioners							
As at 31 March 2008	16,367	54,113	70,480	742	2,654	3,396	73,876
Data corrections	(12)	(192)	(204)	2	(62)	(60)	(264)
New pensioners	1,116	2,950	4,066	135	337	472	4,538
Terminations							
Death	(823)	(2,624)	(3,447)	(19)	(16)	(35)	(3,482)
Rehired	(66)	(240)	(306)	(12)	(26)	(38)	(344)
As at 31 March 2010	16,582	54,007	70,589	848	2,887	3,735	74,324
Disability Pensioners (3A)							
As at 31 March 2008	170	2,308	2,478	16	70	86	2,564
Data corrections	(7)	(125)	(132)	-	-	-	(132)
New pensioners	-	2	2	-	1	1	3
Terminations							
Death	(16)	(127)	(143)	-	-	-	(143)
As at 31 March 2010	147	2,058	2,205	16	71	87	2,292
Disability Pensioners (3B)							
As at 31 March 2008	606	7,421	8,027	141	1,177	1,318	9,345
Data corrections	107	895	1,002	26	123	149	1,151
New pensioners	182	1,360	1,542	59	261	320	1,862
Terminations							
Death	(11)	(248)	(259)	(1)	(10)	(11)	(270)
Rehired	(2)	(4)	(6)	-	-	-	(6)
As at 31 March 2010	882	9,424	10,306	225	1,551	1,776	12,082

Table 23 Reconciliation of Spouse Survivors

	Widows	Widowers	Total
As at 31 March 2008	22,270	81	22,351
Data corrections	551	18	569
New from contributors	81	6	87
New from Pensioners	2,187	18	2,205
Spouse deaths	(2,203)	(7)	(2,210)
As at 31 March 2010	22,886	116	23,002

Table 24 Reconciliation of Survivors - Children/Students

	Children	Students	Total
As at 31 March 2008	410	526	936
Data corrections	26	28	54
New from contributors	93	14	107
New from Pensioners	60	16	76
Termination of Benefits	(19)	(304)	(323)
Eligible as Student	(114)	114	-
As at 31 March 2010	456	394	850

Appendix 5 - CFSA Valuation Methodology

A. Plan Assets and Accounts Available for Benefits

1. Canadian Forces Superannuation Account

The amount in the Superannuation Account available for benefits consists essentially of the recorded balance of the Superannuation Account in the Accounts of Canada. The underlying notional bond portfolio described in Appendix 3 is shown at the book value.

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

2. Canadian Forces Pension Fund

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

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

The only other Fund-related amount available for benefits consists of the discounted value of future member contributions and government credits in respect of prior service elections[1]. The discounted value of future member contributions and government credits was calculated using the assumed yield on the Pension Fund.

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

The actuarial value of the assets, determined as at 31 March 2010, under the adjusted market value method is $9,059 million and was determined as follows:

Table 25 Actuarial Value of Pension Fund Assets
($ millions)

Plan Year	2006	2007	2008	2009	2010	
Actual net investment return (A)	830	676	(55)	(1,922)	1,491	
Expected investment return (B)	288	380	473	498	434	
Investment gains (losses) (A-B)	542	296	(528)	(2,420)	1,058	
Gains (losses) recognized immediately	31	-	-	(1,690)	-	
Investment gains (losses) to be amortized	511	296	(528)	(731)	1,058	
Unrecognized percentage	0%	20%	40%	60%	80%	
Unrecognized investment gains (losses)	-	59	(211)	(438)	846	
Market value as at 31 March 2010						9,145
Plus						
Present value of prior service contributions						170
Less						
Total unrecognized investment gains (losses)						256
Actuarial value as at 31 March 2010						9,059

B. Actuarial Cost Method

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

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

1. Current Service Costs

Under the projected accrued benefit actuarial cost method, the current service cost, also called normal cost, computed in respect of a given year is the sum of the value, discounted in accordance with the actuarial assumptions for the Pension Fund, of all future payable benefits considered to accrue in respect of that year's service. The Pension Fund administrative expenses[1] are deemed to be included in the total current service cost.

[1] As defined in Appendix 7-B.-3 Administrative Expenses

Under this method, the current service cost for an individual member will increase each year as the member approaches retirement. However, all other things being equal, the current service cost for the total population, expressed as a percentage of total pensionable payroll, can be expected to remain stable as long as the average age and service of the total population remains constant. For a given year, the government current service cost is the total current service cost reduced by the members' contributions during the year.

2. Actuarial Liability

The actuarial liability with respect to contributors corresponds to the value, discounted in accordance with the actuarial assumptions for the Superannuation Account or the Pension Fund, as the case may be, of all future payable benefits accrued as at the valuation date in respect of all previous service to the credit of members. For pensioners and survivors, the actuarial liability corresponds to the value, discounted in accordance with the actuarial assumptions for the Superannuation Account or the Pension Fund, as the case may be, of future payable benefits.

3. Actuarial Excess (Deficit)

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

The actuarial excess (deficit) is the difference between the actuarial value of assets and the actuarial liability. The disposition of any actuarial surplus or deficit is defined in the CFSA.

4. Government Contributions

The recommended government contribution corresponds to the sum of:

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

C. Projected Yields and Interest Discount Rate

The projected yields (shown in Appendix 6) assumed for computing future interest earnings credited to the Canadian Forces Superannuation Account are the projected annual yields on the combined book value of the Superannuation Accounts of the Public Service, Canadian Forces, and RCMP pension plans.

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

- the combined notional bond portfolio of the three Accounts as at the valuation date;
- the assumed future new money interest rates (also shown in Appendix 6);

- the expected future benefits payable in respect of all pension entitlements accrued up to 31 March 2000;
- the expected future contributions for prior service elections made up to 31 March 2000, and
- the expected future administrative expenses,

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

The projected yields (shown in Appendix 6) assumed for computing future interest earnings credited to the Canadian Forces Pension Fund were developed on the basis that the Fund holds a diversified mix of assets.

The interest discount rate used in the determination of the actuarial liability and the current service is set equal to the expected future interest earnings on Plan assets and accounts available for benefits.

D. Membership Data

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

The member data shown in Appendices 4 and 12 were provided as at 31 March 2010. This valuation is based on the member data as at the valuation date.

The information in respect of the contributions for elected prior service was provided as at 31 March 2010. Future member contributions in respect of elected prior took into account only the payment streams that were still in effect at 31 March 2010. Only payments due after 31 March 2010 were included.

Appendix 6 - CFSA Economic Assumptions

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

A. Inflation-Related Assumptions

1. Level of Inflation

Price increases, as measured by changes in the Consumer Price Index (CPI), tend to fluctuate from year to year. In 2006, the Bank of Canada and the Government renewed their commitment to keep inflation between 1% and 3% until the end of 2011. It is assumed that this commitment will be renewed for another five years following 2011. Therefore, a price increase rate of 2.0% is assumed for plan years 2011 to 2017. For plan years 2018 to 2020, the CPI is assumed to increase from 2.0% to 2.3% and remain at 2.3% thereafter. The ultimate rate of 2.3% is 0.1% lower than the assumed rate from the previous valuation.

2. Increase in Pension Indexing Factor

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

B. Employment Earnings Increases

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

The YMPE is required in the valuation process because the plan is coordinated with the Canada Pension Plan. The assumed increase in the YMPE for a given calendar year is derived, in accordance with the *Canada Pension Plan,* to correspond to the increase in the average weekly earnings (AWE), as calculated by Statistics Canada, over successive 12-month periods ending on 30 June. The AWE, and thus the YMPE, is deemed to include a component for seniority and promotional increases. The YMPE for 2011 was determined to be $48,300. Future increases in the YMPE correspond to the assumed real[1] increase in the AWE plus assumed increases in the CPI.

The real-wage differential is developed taking into account historical trends, a possible labour shortage, and an assumed moderate economic growth for Canada with a relatively high unemployment rate in fiscal year 2011. Thus, a real-wage differential of 0.2% is assumed for 2012, and is assumed to gradually increase to the ultimate assumption of 1.3% by 2021. The ultimate real-wage differential assumption combined with the ultimate price increase assumption results in an assumed annual increase in

[1] Note that all of the real rates presented in this report are actually differentials, i.e. the difference between the effective annual rate and the rate of increase in prices. This differs from the technical definition of a real rate of return, which, for example in the case of the ultimate Fund assumption would be 4.1% (derived from 1.065/1.023) rather than 4.2%.

nominal wages of 3.6% in 2021 and thereafter. Thus, the ultimate rate of increase for the YMPE is 3.6%, resulting from a 1.3% increase in the real AWE and a 2.3% increase in the CPI.

2. Increase in Average Pensionable Earnings

Average pensionable earnings are applicable to Plan members only, whereas the YMPE applies to the general working population in Canada. In addition, increases in average pensionable earnings are exclusive of seniority and promotional increases, which are considered under a separate demographic assumption. Thus, the annual increase in average pensionable earnings is assumed to be 0.1% lower than the corresponding increase in the YMPE. The ultimate increase in average pensionable earnings is 3.5%.

3. Increase in Maximum Pensionable Earnings (MPE)

Since the plan is coordinated with the Canada Pension Plan, the tax-related maximum pensionable earnings were derived from both the maximum annual pension accrual under a registered defined benefit plan and the YMPE. The maximum annual pension accrual of $2,494.44 for 2010 will increase to $2,552.22 for 2011, in accordance with Income Tax Regulations. Thereafter, the maximum annual pension accrual is assumed to increase in accordance with the assumed annual increase in the YMPE, which is the same as the assumed annual increase in the AWE.

As described in Explanatory Note 8 of Appendix 1, the coordination factor of 0.7%, effective for calendar years before 2008, will decrease by 0.015% per year to an ultimate coordination factor of 0.625% by calendar year 2012. The *Canadian Forces Superannuation Regulations* specifies that the ultimate coordination factor of 0.625% is to be used for the determination of the maximum pensionable earnings. The MPE is $142,800 for calendar year 2011.

C. Investment-Related Assumptions

1. New Money Rate

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

Recognizing recent experience, the real yield on long-term federal bonds is assumed to be 2.1% in plan year 2011, 2.3% in plan year 2012 and 2.5% in plan year 2013. The real yield then increases by 0.1% in each of the next three years to reach its ultimate value of 2.8% in plan year 2016. The real yield on long-term bonds is based on historical yields and is unchanged from the previous report.

2. Projected Yields on Superannuation Account

These yields are required for the computation of present values of benefits to determine the liability for service prior to 1 April 2000. The methodology used to determine the projected yields on the Account is described in Appendix 5. The methodology is unchanged from previous valuations.

3. Rate of Return on the Fund

The annual nominal rates of return on the Fund are required for the computation of present values of benefits to determine the liability for service since 1 April 2000 and the current service cost. This is consistent with the Canadian Institute of Actuaries' Standards of Practice. The following sections describe how the rates of return on the Fund are determined.

a) Investment Strategy

Since 1 April 2000, tangible assets resulting from transferred amount equal to the government and employee contributions, net of benefit payments, are invested in capital markets through the PSPIB. PSPIB invests funds according to its own investment policies that take into account the needs of contributors and beneficiaries, as well as financial market constraints. For the purpose of this report, the investments have been grouped into three broad categories: equities, fixed income securities and real return assets. Equities consist of Canadian, foreign developed market and emerging market equities. Fixed income securities consist of bonds which are usually a mix of federal, provincial, corporate and real return bonds. Real return assets include such categories as real estate and infrastructure.

As at 31 March 2010, the asset mix for the Plan consisted of 60% equity, 24% fixed income securities (including world inflation-linked bonds) and 16% real return assets. PSPIB has developed a long-term target Policy Portfolio (approved by its Board of Directors on 31 March 2011 and subject to an annual review), which consists of 56% equity, 18% fixed income securities (including world inflation-linked bonds) and 26% real return assets. The Policy Portfolio asset mix weights represent long-term targets. Therefore, the initial asset mix for this Plan is derived using the actual investments reported by PSPIB as at 31 March 2010.

The asset mix of the Plan portfolio at the beginning of plan year 2011 consists of 60% equity, 24% fixed income and 16% real return assets. As PSPIB Policy Portfolio reflects long-term expectations, it is assumed that the asset mix of the Plan portfolio will converge slowly toward the Policy Portfolio, but not necessarily reaching its ultimate weights. Indeed, the ultimate asset mix of the Plan portfolio is reached in plan year 2015 and consists of 60% equity, 20% fixed income securities and 20% real return assets.

Table 26 shows the assumed asset mix for each plan year throughout the projection period.

Table 26 Asset Mix
(in percentage)

Plan Year	Fixed Income Securities	Canadian Equity	U.S. and Foreign Equity	Emerging Market Equity	Real Estate & Infrastructure
2011	24	29	24	7	16
2012	20	28	28	7	17
2013	20	27	28	7	18
2014	20	26	28	7	19
2015	20	25	28	7	20
2016+	20	25	28	7	20

b) Real Rates of Return by Asset Type

Real rates of return are required in order to discount future payable benefits for the determination of Plan liabilities and current service cost. They are assumed for each year of the projection period and for each of the main asset categories in which Plan assets are invested. All of the real rates of return described in this section are net of investment expenses other than operating expenses, that is, net of transaction costs and investment management fees (subsection c) describes how the portfolio returns are further reduced for operating expenses) and include an allowance for rebalancing and diversification. Over the last three plan years, investment expenses other than operating expenses have been, on average, equal to about 0.20% of average net assets. It is assumed that 50 % of those investment expenses (transaction costs and investment management fees) are incurred through active management decisions that are expected to be self supporting. Therefore, it is assumed that going forward transaction costs and investment management fees will represent 0.10% of average net assets.

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

Fixed Income Securities

PSPIB currently has 24% of the Plan portfolio invested in fixed income securities, including Canadian fixed income, world government bonds, world inflation-linked bonds and cash. PSPIB Policy Portfolio assumes a long-term target weight for fixed income securities of 18% (including world inflation-linked bonds). Thus, it is assumed that the proportion invested in fixed income securities will decrease in order to follow the Policy Portfolio. It is assumed that by plan year 2012, 20% of the portfolio will be invested in fixed income securities. Net cash flows (contributions less expenditures) are expected to become negative during plan year

2027 and a portion of investment income will therefore be required to pay benefits. Changes to the assumed asset mix may be required in the future to reduce funding risks and to take into account the maturity of the plan.

It is assumed that the Plan's fixed income portfolio consists of federal, provincial, corporate and inflation-linked bonds. Initially, the fixed income portfolio is assumed to consist of 35% federal bonds, 17% provincial bonds, 18% corporate bonds and 30% inflation-linked bonds. However, the bond mix is assumed to shift over the following five plan years as investments in provincial and corporate bonds increase while investments in federal and inflation-linked bonds decrease. The fixed income portfolio is projected to reach its ultimate assumed mix of 30% federal, 30% provincial, 30% corporate and 10% inflation-linked bonds in plan year 2016.

The assumed ultimate real yield on long-term federal bonds is 2.8%. The initial spreads over the federal bond real yield are assumed to be 65 basis points for provincial bonds and 145 basis points for corporate bonds. These spreads are much higher than in the last report and reflect the current economic environment. The ultimate spreads for provincial and corporate bonds are assumed to be 45 basis points and 90 basis points, respectively, and are reached at the end of plan year 2012 and 2015 respectively. Corporate bond spreads are net of the expected default rate. Real return bonds, on the other hand, have a lower real yield than long-term federal bonds, since the real return is guaranteed and will not vary with inflation. Thus, the spread on inflation-linked bonds is assumed to be -50 basis points initially and will reach its ultimate value of -40 basis points at the end of plan year 2012.

The expected real rates of return for individual bonds take into account the coupons and market value fluctuations due to the expected movement of their respective long-term yield rates. As the economy continues to strengthen (following the 2008-2009 economic downturn), the long-term federal bond yield is assumed to increase between plan years 2010 and 2015 and only stabilize at the end of 2015. Therefore, bond returns are quite low for the first five years of the projection. The assumed ultimate real rate of return for long-term federal bonds is 2.8% starting in plan year 2016. An ultimate real rate of return of 3.2% is assumed for the fixed income portfolio for 2016 and thereafter.

Equity

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

Since the last actuarial valuation, equity returns have been very volatile. In plan year 2009, the Fund earned a nominal return of -23%, but it rebounded with a nominal return of 21% in plan year 2010. The economy is expected to continue to strengthen over the next five years. Thus, equity returns are assumed to be higher over the next five years, before reaching their ultimate value in plan year 2016.

Consistent with the assumption that risk taking must be rewarded, equity returns are developed by adding an equity risk premium to the long-term federal bond real rate of return. Historical equity risk premiums were higher than expected due to several non-repeatable factors (mainly diversification and globalization). As a result, the long-term expected equity risk premium is assumed to be lower than what was realized in the past. However, the equity risk premium is assumed to be higher in the first five years of the projection (starting at 6.9% in plan year 2011, decreasing to 4.0% in plan year 2015 and to 2.0% for plan year 2016 and thereafter), before reaching its ultimate rate of 2.0% for Canadian and foreign developed markets. The equity risk premium is higher over the first five years for two reasons. First and foremost, long-term federal bond rate of returns are expected to be low over that period. Second, slightly higher equity returns are expected due to the strengthening of the economy; as the economy gets stronger, current risks embedded in the market are expected to fade out gradually. The equity risk premium for emerging market equities is expected to be 1.0% higher than for Canadian and foreign developed market equities, reflecting the additional risk inherent with investments in emerging countries. As described in the previous section, the long-term federal bond real yield and real rate of return are set at 2.8% for plan years 2016 and thereafter.

Real rates of return for developed market equity investments are projected to be 4.8% (5.8% for emerging markets) throughout the projection period.

Real Return Assets

Real return assets such as real estate and infrastructure are considered to be a hybrid of debt and equity. If these assets are considered to behave 40% like debt and 60% like developed market equities, then the assumed return should be composed of 40% of the return on the fixed income portfolio and 60% of the return on developed market equities. Thus, the assumed real return for these assets increases from 3.7% in plan year 2011 to 4.2% in the long term.

Table 27 summarizes the assumed real rates of return by asset type throughout the projection period, net of transaction costs and investment management fees.

Table 27 Real Rate of Return by Asset Type
(in percentage)

Plan Year	Fixed Income Securities	Canadian Equity	U.S. and Foreign Equity	Emerging Market Equity	Real Estate & Infrastructure
2011	0.0	6.2	6.2	7.2	3.7
2012	0.2	5.8	5.8	6.8	3.5
2013	1.3	5.5	5.5	6.5	3.8
2014	1.8	5.3	5.3	6.3	3.9
2015	2.0	5.2	5.2	6.2	3.9
2016+	3.2	4.8	4.8	5.8	4.2

c) Overall Rate of Return on Fund

The best-estimate rate of return on total assets was derived from the weighted average assumed rate of return on all types of assets, using the assumed asset mix proportions as weights. The best-estimate rate of return is further reduced to reflect PSPIB operating expenses. Over the last three plan years, operating expenses have been, on average, equal to about 0.20% of average net assets. It is assumed that going forward operating expenses will remain at 0.20% of average net assets. Therefore, the rates of return described in this section are net of all investment expenses (0.30%), that is, 0.10% for transaction costs and investment management fees and 0.20% for operating expenses. The resulting nominal and real rates of return are shown in table 28.

Table 28 Rates of Return on Assets in Respect of the Pension Fund
(in percentage)

Plan Year	Nominal	Real
2011	6.2	4.2
2012	6.2	4.2
2013	6.2	4.2
2014	6.2	4.2
2015	6.2	4.2
2016	6.2	4.2
2017	6.2	4.2
2018	6.3	4.2
2019	6.4	4.2
2020+	6.5	4.2

For Plan assets, it is assumed that the ultimate real rate of return on investments will be 4.2%, net of all investment expenses. This represents a reduction of 0.1% from the previous valuation. The real rate of return on PSPIB assets takes into account the assumed asset mix of investments as well as the assumed real rate of return for all categories of PSPIB assets. The nominal returns projected for the Fund are simply the sum of the assumed level of inflation and the real return on the Fund.

4. **Transfer Value Real Interest Rate**

The Canadian Institute of Actuaries has adopted the Revised Standards of Practice for Pension Commuted Values, effective 1 April 2009. The financial impact of the Revised Standards has been reflected in this valuation. The real interest rates to be used for the computation of commuted values as at a particular date are as follows:

First 10 years: $r_7 + 0.90\%$

After 10 years: $r_L + 0.5 \text{ x } (r_L - r_7) + 0.90\%$

Where $r_7 = r_L \text{ x } (i_7/i_L)$

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

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

i_7 is the 7-year Government of Canada benchmark bond yield[1], annualized

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

For example, for plan year 2011, the real rates of interest are 2.8% for the first 10 years and 3.0% thereafter. These rates were derived from the assumed 2011 CPI increase and the assumed 2011 long-term Government of Canada benchmark bond yield which corresponds to the new money rate in this valuation.

[1] It was deemed to be equal to 90% of the long-term Government of Canada benchmark bond yield.

5. Summary of Economic Assumptions

The following table summarizes the main economic assumptions over the projection period.

Table 29 Economic Assumptions[1]
(As a percentage)

	Inflation		Employment Earning Increases				Interest	
Plan Year	CPI Increase[2]	Pension Indexing[3]	YMPE[3]	Average Pensionable Earnings[4]	Maximum Pensionable Earnings[3,5]	New Money Rate	Projected Yield on Account	Projected Return on Fund
2011	2.0	**1.4**	**2.3**	**1.5**	**2.3**	4.1	6.5	6.2
2012	2.0	2.0	2.2	2.1	2.2	4.3	6.0	6.2
2013	2.0	2.0	2.5	2.4	2.5	4.5	5.8	6.2
2014	2.0	2.0	2.7	2.6	2.7	4.6	5.6	6.2
2015	2.0	2.0	2.8	2.7	2.8	4.7	5.4	6.2
2016	2.0	2.0	2.9	2.8	2.9	4.8	5.2	6.2
2017	2.0	2.0	3.0	2.9	3.0	4.8	5.0	6.2
2018	2.1	2.0	3.1	3.0	3.1	4.9	4.9	6.3
2019	2.2	2.1	3.3	3.2	3.3	5.0	4.8	6.4
2020	2.3	2.2	3.5	3.4	3.5	5.1	4.8	6.5
2025	2.3	2.3	3.6	3.5	3.6	5.1	4.6	6.5
2030	2.3	2.3	3.6	3.5	3.6	5.1	4.8	6.5
2035	2.3	2.3	3.6	3.5	3.6	5.1	5.1	6.5
2040+	2.3	2.3	3.6	3.5	3.6	5.1	5.1	6.5

For the period ending December 2009, the following table was prepared based on the Canadian Institute of Actuaries Report on Canadian Economic Statistics 1924-2009.

Period of Years Ending 2009	15	25	50
Level of Inflation	1.92%	2.53%	4.09%
Real Increases in Average Earnings	0.37%	0.25%	0.99%
Real Return on Long-Term Canada Bonds	6.97%	7.39%	3.72%
Average Real Return on Diversified Portfolios	5.99%	6.40%	4.34%

1 Bold figures denote actual experience.
2 Assumed to be effective during the Plan Year.
3 Assumed to be effective as at 1 January.
4 Assumed to be effective as at 1 April. Exclusive of seniority and promotional increases.
5 Calendar year 2011 Maximum Pensionable Earnings is $142,800

Appendix 7 - CFSA Demographic and Other Assumptions

A. Demographic Assumptions

Given the size of the population subject to the CFSA, the plan's own experience, except where otherwise noted, was deemed to be the best model to determine the demographic assumptions. As mentioned in Appendix 1, demographic assumptions based on service were derived from the pension plan experience of the last five years and those assumptions from the previous valuation not based on 'service' were updated to reflect past experience to the extent it was deemed credible.

1. Seniority and Promotional Salary Increases

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

Over the recent years, the Canadian Forces reported higher than expected terminations amongst Officers and Non-Commission members entitled to an annuity. Consequently, the higher than expected observed salary increases due to promotions and seniority are believed to be temporary. Accordingly, partial (25%) credibility was given to the experience data of plan years 2007 to 2010. The assumed rate increased by an average of 3% for officers with 10 or fewer years of completed service and increased by an average of 4% for officers with 11 to 30 years of completed service. The assumed rate increased by an average of 10% for other ranks with 10 or fewer years of completed service and increased by an average of 7% for other ranks with 11 to 30 years of completed service.

Table 30 Sample of Assumed Seniority and Promotional Salary Increases
(Percentage of annual earnings)

Completed Years of Qualifying Service	Officer	Other Rank
0	6.2	16.7
1	5.3	14.8
2	11.0	4.8
3	19.7	8.0
4	13.5	2.1
5	6.1	1.9
6	7.4	1.7
7	5.7	1.4
8	3.9	1.2
9	4.0	1.0
10	4.1	1.0
15	2.2	1.2
20	1.5	1.2
25	1.1	1.2
30	0.8	0.9

2. New Contributors

It was assumed that the distribution of new members by age and sex would be the same as that of members with less than one year of service at the valuation date. It is assumed that the number of new contributors would be such that the total number of contributors would remain the same over the projection period.

The initial salary of new members in a given age-sex cell in plan year 2011 is assumed to be the same as the corresponding experience in plan year 2010 with an economic salary increase for plan year 2011. 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 were revised to reflect the intervaluation experience. The rates previously broken down by Terms of Service and Ranks are now further broken down by sex. Under the old terms of service the retirement rate assumption was increased for male officers by an average of 4% from the previous valuation, while it was increased by an average of 22% for female officers. For male officers under the new terms of service the retirement rate assumption was increased by an average of 15% from the previous valuation while the rates for female officers were increased on average by 7%.

For male other ranks under the old terms of service the retirement rate assumption was decreased by an average of 9% from the previous valuation and was decreased by an average of 2% for female other ranks. For male other ranks under the new terms of service the retirement rate assumption was decreased by an average of 9% from the previous valuation and was decreased by an average of 4% for female other ranks.

The following table provides sample rates of pensionable retirement.

Table 31 Sample of Assumed Rates of Retirement
(Per 1,000 individuals)

Completed Years of Qualifying Service	Old Terms of Service				New Terms of Service			
	Officer		Other Rank		Officer		Other Rank	
	Male	Female	Male	Female	Male	Female	Male	Female
19	96	132	102	89	-	-	-	-
20	78	145	106	120	-	-	-	-
21	57	126	77	96	-	-	-	-
22	37	55	69	70	-	-	-	-
23	20	47	74	73	-	-	-	-
24	55	72	102	100	55	43	51	117
25	71	92	100	119	71	51	50	113
30	108	107	113	133	108	107	134	134
35	396	396	406	406	396	396	406	406

4. Disability Retirement

The disability incidence rate assumptions were revised to reflect the intervaluation experience. The assumed 3A (any occupation) disability incidence rate for males was decreased by an average of 43% from the previous valuation while the rate for females was left unchanged.

The assumed 3B (own occupation) disability incidence rate for male officers was increased by an average of 106% from the previous valuation. The assumed 3B disability incidence rate for male other ranks was increased by an average of 17% from the previous valuation. The assumed 3B disability incidence rate for females was increased by an average of 23% from the previous valuation.

Table 32 Sample of Assumed Rates of Pensionable Disability
(Per 1,000 individuals)

	Any Occupation (3A)		Own Occupation (3B)		
Age Last Birthday	Male	Female	Male Officer	Male Other Rank	Female
20	0.2	0.2	1.7	2.3	5.5
25	0.1	0.4	3.4	5.3	6.8
30	0.1	0.6	1.5	7.7	7.3
35	0.2	0.9	2.2	12.9	15.3
40	0.3	1.3	5.8	28.9	28.5
45	0.2	1.8	9.3	37.8	39.8
50	0.5	2.5	15.6	46.6	51.7
55	1.2	3.3	40.3	77.9	65.9
59	1.7	4.8	32.6	77.9	69.1

5. Withdrawal

Withdrawal means ceasing to be a member of the force for reasons other than death or retirement with an immediate annuity or an annual allowance.

Under the old terms of service the assumed withdrawal rate for male officers was decreased by an average of 41% from the previous valuation. The assumed withdrawal rate for female officers under the old terms of service was decreased by an average of 52% from the previous valuation.

Under the new terms of service the assumed withdrawal rate for male officers was decreased by an average of 25% from the previous valuation. The assumed withdrawal rate for female officers under the new terms of service was decreased by an average of 64% from the previous valuation.

Under the old terms of service the assumed withdrawal rate for non-officer males under the old terms of service was increased by an average of 120% from the previous valuation. The assumed withdrawal rate for non-officer females under the old terms of service was decreased by an average of 28% from the previous valuation.

Under the new terms of service the assumed withdrawal rate for non-officer males was increased by an average of 142% from the previous valuation. The assumed withdrawal rate for non-officer females under the new terms of service was decreased by an average of 31% from the previous valuation.

Table 33 Sample of Assumed Withdrawal Rates
(Per 1,000 individuals)

	Old Terms of Service				New Terms of Service			
	Officer		Other Rank		Officer		Other Rank	
Completed Years of Qualifying Service	Male	Female	Male	Female	Male	Female	Male	Female
0	22	42	74	2	104	86	126	124
1	22	30	33	7	32	28	30	36
5	23	9	46	24	19	13	35	23
10	17	38	19	13	10	13	13	9
15	3	2	7	5	23	18	29	8
18	6	5	3	5	31	9	25	11
19	-	-	-	-	96	9	28	11
20	-	-	-	-	78	9	30	11
21	-	-	-	-	57	9	39	11
22	-	-	-	-	37	9	44	11
23	-	-	-	-	20	15	47	11
24+	-	-	-	-	-	-	-	-

Plan year 2010 experience has revealed that not all vested members would transfer the commuted value of the deferred pension upon withdrawal. To the contrary, a larger proportion of members are opting for a deferred annuity. It is a fairly new development and it may not necessarily reflect future member's behaviour. However, the current economic conditions may push terminating members to rethink the prospect of higher returns on their commuted value and this trend could be anticipated for the near future.

The following table shows a sample of the assumed proportions of members electing a deferred annuity upon withdrawal:

Table 34 Sample of Assumed Proportions of Members Electing a Deferred Annuity
(Per 1,000 individuals)

Completed Years of Qualifying Service	Old Terms of Service	New Terms of Service
1	660	660
5	610	610
10	660	660
15	720	720
18	760	760
19	-	760
20	-	770
21	-	770
22	-	770
23	-	770
24+	-	-

6. Mortality

The mortality rate assumptions were created by giving partial credibility to projected mortality rates from the previous report and partial credibility to the intervaluation experience.

For contributors and retirement pensioners the new base year mortality rates are lower at most ages in comparison to the mortality rates projected from the last report (projection from 2008 to 2010). In particular, for ages 30 to 80 the assumed male mortality rates declined by an average of 3% for officers and 1% for other ranks. For the same age range the assumed female mortality rates declined by an average of 3%.

The assumed mortality rate for 3B (own occupation) disability pensioners is the same as the mortality assumption for contributors and retirement pensioners. The assumed mortality rate for 3A (any occupation) male disability pensioners between the ages of 30 and 80 declined by an average of 4% for officers and 11% for other ranks. For the same age range the assumed female mortality rates declined by an average of 4%.

The assumed mortality rates for spouse survivors were also revised based on intervaluation experience. The assumed mortality rate for ages 30 to 80 increased by an average of 59% for female survivors due to an underreporting of the number of deaths. The male survivor assumption was set equal to the 2009 base mortality projected to plan year 2011 using the longevity improvement factors of the previous actuarial report.

Table 35 Sample of Assumed Rates of Mortality
(Per 1,000 individuals)

Age Last Birthday	Contributors and Retirement Pensioners			Disability (3A) Pensioners			Surviving Spouses	
	Male			Male				
	Officer	Other Rank	Female	Officer	Other Rank	Female	Male	Female
30	0.5	0.7	0.4	0.6	3.5	0.5	1.0	0.2
40	0.7	1.0	0.5	1.1	4.6	1.1	1.5	0.5
50	1.2	2.6	1.3	6.9	7.9	2.7	3.4	5.6
60	3.8	8.9	3.8	15.9	12.7	7.2	9.7	8.1
70	14.5	22.5	12.1	30.0	30.6	18.1	25.3	18.9
80	46.8	68.3	36.6	68.5	63.6	48.1	65.4	45.0
90	147.0	154.9	111.4	144.9	158.7	129.3	166.0	126.3
100	315.0	328.6	287.3	312.6	288.3	287.2	340.3	331.8
110	500.0	500.0	492.4	500.0	500.0	492.4	500.0	500.0

As shown in the 25th 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 Canadian Force membership as supported by analysis of past mortality experience. Mortality rates are reduced in the future in accordance with the same longevity[1] improvement assumption used in the 25th Actuarial Report on the Canada Pension Plan. For both males and females, the longevity improvement factors are higher than those used in the previous valuation except at advanced ages. Factors shown in the 25th Actuarial Report of the Canada Pension Plan are based on calendar years. These factors have been interpolated to obtained 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 2006. Improvement factors for plan year 2012 are assumed to be those experienced on average over the 15-year period 1991 to 2006. After plan year 2012, the factors are assumed to reduce gradually to their ultimate level by plan year 2031.

[1] In this report 'longevity improvement assumption' is equivalent to the 'mortality improvement assumption' discussed in the 25th Actuarial Report on the Canada Pension Plan

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

Table 36 Sample of Assumed Longevity Improvement Factors

Age Last Birthday	Initial and Ultimate Plan Year Mortality Reductions (%)			
	Male		Female	
	2012	2031+	2012	2031+
30	2.87	0.80	1.59	0.80
40	2.18	0.80	1.34	0.80
50	1.89	0.80	1.28	0.80
60	2.38	0.80	1.41	0.80
70	2.58	0.80	1.49	0.80
80	2.08	0.70	1.49	0.70
90	1.19	0.44	0.70	0.44
100	0.35	0.30	0.10	0.30
110+	0.00	0.30	0.00	0.30

7. Family Composition

The assumptions regarding spouse survivors were revised based on the intervaluation experience. The probability of leaving, upon death, a spouse eligible for a survivor pension was decreased from the previous valuation by an average of 4% for males while the previous assumption for females was maintained for this valuation. The assumption for the age of the spouse at the time of death of the member was unchanged from the previous valuation.

Table 37 Assumptions for Survivor Spouse Allowances[1]

Age Last Birthday	Male		Female	
	Probability of an Eligible Spouse at Death of Member	Spouse Age Difference	Probability of an Eligible Spouse at Death of Member	Spouse Age Difference
30	0.57	(1)	0.49	1
40	0.75	(1)	0.51	2
50	0.78	(2)	0.52	1
60	0.78	(3)	0.52	0
70	0.75	(3)	0.49	(1)
80	0.61	(4)	0.43	(1)
90	0.40	(6)	0.26	(5)
100	0.15	(9)	0.01	-

The assumptions regarding the average number of eligible children were revised, for male member only, based on the intervaluation experience. The assumptions for female member remained unchanged from the previous valuation.

For male members, below age 30, the average number of children assumption was decreased on average by 15%. Between the ages of 26 and 50 the average number children assumed to be eligible for a survivor allowance increased by an average of 2%. Above age 50, the average number of children decreased by an average of 30%.

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

The assumption regarding the average age of eligible children was changed from the previous report by one year at select ages. As in the previous valuation, to determine the value of pensions payable to eligible children, the rates of pension termination were assumed to be zero prior to age 17 and 16% per annum thereafter until expiry of the benefit on the 25th birthday.

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

Table 38 Assumptions for Survivor Children Allowances[1]

Age Last Birthday at Death	Male		Female	
	Average Number of Children	Average Age of Children	Average Number of Children	Average Age of Children
30	0.7	5	0.7	5
40	1.1	11	0.8	13
50	0.5	16	0.3	17
60	0.1	18	0.0	-
70	0.0	-	0.0	-

B. Other Assumptions

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

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

2. Minimum Post-Retirement Death Benefit

This valuation does not take into account the minimum death benefit described in Note 16 of Appendix 1-D, with respect of deaths occurring after retirement. The resulting understatement of the accrued liability and current service cost is not material since the majority of the relatively few pensioners who die in the early years of retirement leave an eligible survivor.

3. Administrative Expenses

In the previous report, the Public Service Pension Investment Board (PSPIB) operating expenses were implicitly recognized through a reduction in the real return on the Fund. In this report, the operating expenses of the PSPIB are still recognized implicitly.

All other pension plan administrative expenses are charged to both the Account and the Fund. The experience of the last two plan years supported our current annual administrative expense assumption of 0.4% of total pensionable payroll.

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

In addition, the analysis also revealed that the total administrative expenses charged between the Account and the Fund was allocated at a faster pace to the Fund than the previously assumed rate of 2.8% per year. For plan year 2011, 74% of total administrative expenses are being charged to the Account and it is now expected that the proportion charged to the Account will be reduced by 3% per year.

4. Financing of Elected Prior Service

The assumed future government credits in respect of prior service elections vary according to the financing vehicle (i.e. Account or Fund) into which the contributions are credited. The government matches member contributions made to the Superannuation Account for prior service elections; however, it makes no contributions if the member is paying the double rate. Government credits to the Pension Fund in respect of elected prior service are as described for the current service.

5. Outstanding Terminations

The information provided by DND does not allow us to make an appropriate estimate of the amounts paid from 1 April 2010 onward for terminations that occurred prior to that date. Payments owing to former active members as at 31 March 2010 were ignored in this valuation. A more in-depth analysis will be conducted in the next valuation report scheduled for 31 March 2013.

6. Disability Incidence Rates for Pensioners Under Age 60

Both deferred pensioners and pensioners receiving an annual allowance while under age 60 were assumed to have a 0% disability rate. The resulting understatement of liability and current service cost is negligible.

7. Recovery Rates for Disability Pensioners

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

8. Sex of Surviving Spouses

Each eligible surviving spouse is assumed to be of the opposite sex.

Appendix 8 - RCA Valuation Methodology and Assumptions

A. Valuation of the Amounts Available for Benefits

The amounts available for benefits comprise the recorded balance in the Retirement Compensation Arrangements Account (RCA No. 1), which forms part of the Accounts of Canada, and a refundable tax. Each calendar year a cash transfer is made to the Canada Revenue Agency (CRA) such that in total approximately half of the amounts are held by the CRA as a refundable tax.

Interest is credited every three months in accordance with the actual average yield on a book value for the same period on the combined Superannuation Accounts of the Public Service, Canadian Forces and Royal Canadian Mounted Police pension plans. The actuarial amounts available for benefits are equal to the book value.

B. Valuation of Liabilities

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

1. Terminally Funded RCA Benefits

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

- pre-retirement survivor benefits
- minimum death benefit

The above benefits are terminally funded because they are uncommon or of little financial significance. The pre-retirement survivor benefit becomes payable only when the average salary is less than 1.4 times the YMPE. As well, the minimum death benefit is expected to occur only with deaths at younger ages where the mortality rates are low.

2. Post-retirement Survivor Benefits

The limit on the amount of spousal annual allowance that can be provided under the CFSA decreases at the same time the member's pension reduces due to the CPP coordination, usually at age 65.

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

3. Excess Pensionable Earnings

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

This valuation applies the same valuation methodology that was used in the previous report. Officers are divided into specialists (doctors, dentists, etc) and non-specialists. Also included amongst the specialist group are officers with salary as at 31 March 2010 in excess of the 2010 MPE. The specialists, who represent more than 70% of the RCA No. 1 liabilities, are valued using the actuarial assumptions described in Appendix 6, as was the case in the previous report.

4. Administrative Expenses

To compute the liabilities and current service cost, no provision was made regarding the expenses incurred for the administration of the RCA No. 1 Account. These expenses, which are not debited to the RCA No. 1 Account, are borne entirely by the government and are commingled with all other government expenses.

C. Actuarial Assumptions

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

D. Valuation Data

The RCA No. 1 pension benefits in payment were provided as at 31 March 2010.
RCA No. 1 benefits expected to be paid in respect of contributors and accrued spousal allowances of current retired members were all derived from the membership data described in Appendix 4 and shown in Appendix 12.

Appendix 9 - Canadian Forces Superannuation Account Projection

Prior to 1 April 2000, the CFSA was entirely financed through the Superannuation Account. The Account is now debited only with benefit payments made in respect of service earned before that date and administrative expenses; and it is credited with prior service related to elections made prior to 1 April 2000 and interest earnings.

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

The projection shows the expected cash flows and balance of the Superannuation Account if all assumptions are realized. If the Account balance exceeds 110% of the liability, an actuarial excess reduction is triggered to bring the balance down to 110% and is reflected in this projection. Such excess surplus is expected to develop by the end of plan year 2037. Emerging experience, differing from the corresponding assumptions, will result in gains or losses to be revealed in subsequent valuation reports.

Table 39 Superannuation Account Projection
($ millions)

Plan Year	Beginning Account Balance	Beginning Liability	Beginning Actuarial Excess	Actuarial Excess Reduction[1]	Net Payments[2]	Interest Earnings
2011	45,537	43,210	2,327	0	2,352	2,730
2012	45,916	43,589	2,327	0	2,396	2,542
2013	46,062	43,733	2,328	0	2,435	2,464
2014	46,091	43,761	2,330	0	2,469	2,380
2015	46,002	43,670	2,332	0	2,501	2,290
2016	45,790	43,456	2,334	0	2,532	2,192
2017	45,451	43,116	2,335	0	2,560	2,091
2018	44,982	42,644	2,337	0	2,585	2,026
2019	44,423	42,082	2,340	0	2,605	1,956
2020	43,773	41,433	2,341	0	2,622	1,925
2025	39,642	37,291	2,351	0	2,638	1,654
2030	34,537	32,179	2,358	0	2,512	1,484
2035	29,443	27,081	2,362	0	2,332	1,321
2036	28,432	26,069	2,363	0	2,290	1,271
2037	27,414	25,050	2,364	84	2,247	1,220
2038	26,304	24,023	2,281	100	2,202	1,170
2039	25,172	22,990	2,182	100	2,156	1,118
2040	24,034	21,951	2,083	100	2,108	1,066
2050	12,874	11,760	1,114	89	1,497	562

[1] The actuarial excess reduction is calculated using the liabilities and Account balance at the end of the plan year.
[2] Benefit payments plus administrative expenses minus prior service contributions.

Appendix 10 - Canadian Forces Pension Fund Projection

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

The results of the following projection were computed using the data described in Appendices 4 and 12, the methodology described in Appendix 5 and the assumptions described in Appendices 6 and 7. The actuarial value of assets was $9,059 million at the beginning of plan year 2011.

The projection shows the expected growth of the Pension Fund if all assumptions are realized. According to the projection, the PSPIB will receive positive cash flows until plan year 2027. Emerging experience, differing from the corresponding assumptions, will result in gains or losses to be revealed in subsequent valuation reports.

Table 40 Pension Fund Projection
($ millions)

Plan Year	Beginning Assets	Contributions[1]	Benefit Payments	Investment Earnings	Special Payments	Present value of prior service contributions	Beginning Liability
2011	9,145	1,048	221	592	0	170	11,144
2012	10,564	1,060	267	679	204	160	12,667
2013	12,241	1,076	316	782	204	152	14,252
2014	13,987	1,096	369	889	204	144	15,902
2015	15,807	1,118	426	1,001	204	137	17,621
2016	17,703	1,142	489	1,118	204	130	19,411
2017	19,677	1,167	557	1,239	204	124	21,273
2018	21,730	1,195	630	1,387	204	117	23,206
2019	23,886	1,227	709	1,545	204	111	25,238
2020	26,152	1,262	792	1,715	204	106	27,374
2021	28,541	1,300	882	1,869	204	100	29,627
2022	31,031	1,338	980	2,028	204	95	31,972
2023	33,621	1,378	1,085	2,195	204	90	34,409
2024	36,313	1,422	1,192	2,368	204	85	36,937
2025	39,114	1,469	1,300	2,548	204	79	39,564
2026	42,034	1,520	1,411	2,736	204	74	42,300
2027	45,083	1,575	1,520	2,932	0	69	45,152
2028	48,071	1,633	1,634	3,125	0	65	48,136
2029	51,194	1,691	1,758	3,325	0	61	51,255
2030	54,452	1,750	1,888	3,535	0	57	54,509
2040	93,758	2,376	3,921	6,045	0	30	93,788
2050	143,452	3,326	6,887	9,210	0	13	143,465

[1] Total current service cost plus prior service contributions.

Appendix 11 - Uncertainty of Results – Pension Fund Assets

A. Introduction

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

Section B examines the sensitivity of the Plan to different asset allocations. Five alternative investment portfolios are described, along with the volatility of each portfolio and the resulting impact on the Plan's financing ratio and current service cost. The impact of financial market volatility on the financial status of the Plan is explored in section C, where severe one-time financial shocks are applied to three investment portfolios with the purpose of quantifying the impact on the financing ratio over the short term. Finally, section D analyzes the cumulative impact of PSPIB active management decisions since 1 April 2000.

B. Sensitivity of Investment Policy

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

The Pension Plan for the Canadian Regular Forces represents a long-term obligation to pay pension benefits. Thus, a long-term approach must be taken to fund these obligations. Long-term Government of Canada bonds are considered risk-free and their yields are considered low. The real yield on long-term federal bonds was around 2.1% in March 2010. This is significantly below the required real return on assets of 4.2% that is needed to sustain the plan at the current contribution rate.

By investing solely in risk-free long-term federal bonds, all funding risk could be eliminated with an excessive cost and then at the detriment of current and future contributors who will have to contribute more unless benefits were decreased. If PSPIB were to switch from the current portfolio of fixed and variable income securities to a portfolio that consists of only long-term Government of Canada bonds, the current service cost of the plan would have to increase substantially in order to maintain the current funding status or benefits would have to be reduced. Neither of these is a desirable option. The Government created the PSPIB to invest the Plan's contributions in excess of benefits with the purpose of maximizing investment returns without undue risk of loss. The current service cost is less than it would have been if the investment policy had been restricted to long-term government bonds. Diversifying the portfolio into a mix of fixed and variable income securities accomplishes this. Thus, the Plan sponsor may wish to examine its contribution and risk profile through different asset mix.

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

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

The following table shows the impact that various asset mixes would have on the financing ratio and the long-term service cost, as well as their relative volatility.

Table 41 Investment Policy Impact on Liability Financing

	Assets Mixed							
Portfolio	Fixed Income	Equity	Real Return	Real Rate of Return	1 year Standard Deviation	Pension Assets Financing Ratio as at 31 March 2010	Current Service Cost	Annual Special Payment ($ millions)
#1	100%	0%	0%	2.8%	9.0%	61%	32.92%	627
#2	100%	0%	0%	3.2%	8.1%	66%	29.62%	487
#3	80%	15%	5%	3.5%	8.1%	71%	27.45%	393
#4	50%	40%	10%	3.9%	10.1%	77%	24.87%	280
Best-Estimate	20%	60%	20%	4.2%	13.2%	81%	23.15%	204
#5	0%	100%	0%	4.6%	18.0%	87%	21.44%	126

Although the riskiest portfolio leads to the highest expected return, the highest financing ratio and the lowest required current service cost, its volatility is significantly higher which may lead to significant additional contribution requirements.

Portfolio #1 is invested in long-term federal bonds. This portfolio does not result in a feasible scenario due to its prohibitive cost; however, its volatility is low when compared to the other portfolios considered. Portfolio #2 is invested in a marketable bond portfolio consisting of federal, provincial, corporate and real return bonds. This diversification increases the real rate of return earned on the portfolios and reduces its volatility compared to the first portfolio since the four bond asset categories are not perfectly correlated. Although this portfolio produces a higher real rate of return compared to Portfolio #1, it is still not sufficient to ensure the plan remains fully funded while maintaining an acceptable current service cost. This is also a low risk, low return portfolio. Thus, a portfolio with greater diversification in variable income assets is required in order to keep funding cost to a reasonable level.

The following portfolios are diversified portfolios that combine equity and real return assets, such as real estate and infrastructure, to fixed income securities. Portfolio #3 and portfolio #4 are more diversified than the first two portfolios and are invested 15% and 40%, respectively, in equity. This diversification increases the real rate of return earned on these portfolios and keeps their volatility comparable to the first two portfolios since the three broad asset categories are not perfectly correlated. However, despite an increased real return and similar risk, these portfolios are still not sufficient to maintain the current funded ratio. Thus, an increase in the plan's current service cost would be required with both portfolios. Since an increase to the current service cost is not desirable, it is necessary to invest in a slightly more risky portfolio.

Portfolio #5 is considered a more risky portfolio because it is entirely invested in equity which has much more volatile returns than bonds. This portfolio is likely to result in higher than necessary returns, resulting in either an improvement to the plan's funding ratio or a decrease to the current service cost. However, the volatility of this portfolio is quite high. By investing in a less risky portfolio, a reasonable current service cost can still be achieved along with lower volatility, and therefore, a lower probability of significant losses and large unforeseen additional contributions.

The best-estimate portfolio is invested 20% in fixed income securities, 60% in equity and 20% in real return assets in the long-term. Such a portfolio produces an annual real return of 4.2% net of all investment expenses (transaction costs, investment management fees and operating expenses, together assumed to total 0.30% of assets) with a standard deviation of 13.2%. By observing the volatility of each of the portfolios in table 41, it can be concluded that a certain degree of risk must be undertaken in order to earn a sufficient return. Thus, an asset allocation such as the best-estimate portfolio shows that an average real return of 4.2% can be achieved with some degree of risk. More risky portfolios, such as portfolios #5, may produce a higher real return, on average, but with a higher degree of risk.

C. Financial Market Tail Events

Having determined that the best-estimate portfolio is the most appropriate in terms of risk, this section focuses on the volatility present in that portfolio and the extreme outcomes that could result. During plan year 2009, the nominal return on Plan assets was -23% due to the economic slowdown. Such an event could be characterized as low probability (also referred to as a "tail event"). However, when these events do occur, the impact on the financing ratio is significant. This section analyzes the impacts that tail events in portfolio returns will have on the Plan's financing ratio. To illustrate this, portfolio returns other than the best-estimate are assumed to occur in plan year 2012. Two alternative portfolios were selected from section B to show the potential variation in tail returns of a less risky (Portfolio 4: 40% equity, 10% real estate and infrastructure, 50% fixed income) and a more risky (Portfolio 5: 100% equity) portfolio in relation to the best-estimate portfolio.

It is assumed that the returns of the three portfolios follow a normal distribution. The mean and standard deviation for each portfolio is given in table 41 in section B. Two probability levels were selected to analyze: 1/10 and 1/50. These levels can be thought of as the probabilities of earning a given return once every 10 and 50 years, respectively. Since the normal distribution has two tails, a left tail and a right tail, both were examined. The left tail event is the occurrence of a nominal return such that the probability of earning that return or less is equal to 1/10 (or 1/50). The right tail event is the occurrence of a nominal return such that the probability of earning that return or more is equal to 1/10 (or 1/50).

For each portfolio a nominal return is calculated for plan year 2012 at the two probability levels. The nominal returns are given in the following table.

Table 42 Tail Event Portfolio Returns

		Portfolio 4: 40% Equities/ 50% Fixed Income/ 10% Real Estate & Infrastructure	Best-Estimate Portfolio: 60% Equities/ 20% Fixed Income/ 20% Real Estate & Infrastructure	Portfolio 5: 100% Equities
Probability of return[1]	Tail	Nominal Return	Nominal Return	Nominal Return
1/10	Left	-9.0%	-12.7%	-18.5%
	Right	16.8%	21.1%	27.7%
1/50	Left	-16.8%	-22.9%	-32.4%
	Right	24.6%	31.3%	41.6%

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

Table 43 shows the impact on the projected Surplus/ (Deficit) as at 31 March 2013 (the expected date of the next actuarial review) if the nominal return for plan year 2012 happens to be equal to the returns presented in table 42 for the best-estimate scenario. Following the various portfolio returns in plan year 2012, it is assumed that the return revert back to its best-estimate value for plan year 2013.

Table 43 Sensitivity of the Projected Surplus/(Deficit) as at 31 March 2013
($ millions)

Assumption(s) Varied	Market Value of Assets	Projected Actuarial Value Assets	Projected Actuarial Value Liability	Projected Actuarial Value Surplus/ (Deficit)	Annual Special Payments[1]
None (i.e. current basis)	13,987	13,976	15,902	(1,926)	194
Investment return					
- Left Tail event at 1/10th probability	11,786	12,644	15,902	(3,258)	343
- Right Tail event at 1/10th probability	15,718	14,774	15,902	(1,128)	105
- Left Tail event at 1/50th probability	10,174	10,933	15,902	(4,969)	534
- Right Tail event at 1/50th probability	16,481	15,468	15,902	(434)	27

D. Investing in Riskier Assets - Impact on Pension Fund

This section highlights in dollar value the cumulative impact of PSPIB active asset management decisions since 1 April 2000 compared to fictitious investments in risk-free bonds during the same period. The following table shows the impact of investment decisions on the Pension Fund. Specifically, the table shows in lines (A) to (D) the hypothetical value of the fund and of the investment earnings had the fund been invested entirely in long-term Government of Canada bonds throughout its life. Those figures are compared to the actual PSPIB results – lines (E) to (I) – to obtain the net value of the decision to invest in capital markets, in lines (J) and (K).

Even though investment earnings may not be positive each and every year, one can reasonably expect investment earnings above the risk-free rate to be positive in the long-term due to investment decisions, such as asset allocation in line (F) and active management in line (G). The cumulative net impact of investment decisions – line (K) in 2010 – is negative, meaning that since the inception of the Fund, it has been less profitable to invest a portion of the Fund in equities rather than investing solely in risk-free bonds.

[1] Equal annual special payments to amortize the deficit over the next 15 years starting 31 March 2015.

Table 44 Cumulative Impact of Investment Decision on Pension Fund
As at 31 March 2010
($millions)

Hypothetical Risk-Free Portfolio (100% Government Long-Term Bonds)		2001-08	2009	2010
Fictitious Value of Assets, beginning of year	(A)	-	7,041	8,177
Net Contributions Less Disbursements	(B)	5,872	839	846
Return on Risk-Free Portfolio	(C)	1,169	297	344
Fictitious Value of Assets, end of year	(D) = (A) + (B) + (C)	7,041	8,177	9,367
Risky Assets Portfolio (PSPIB Actual Figures)				
Market Value of Assets, beginning of year	(E)	-	7,891	6,808
Net Contributions Less Disbursements	(B)	5,872	839	846
Return on Risky Assets Portfolio				
Selecting Fund's Actual Asset Allocation Policy	(F)	1,983	(1,501)	1,369
Active management (over the benchmark)	(G)	36	(421)	122
Total Return on Risky Assets Portfolio	(H) = (F) + (G)	2,019	(1,922)	1,491
Market Value of Assets, end of year	(I) = (E) + (B) + (H)	7,891	6,808	9,145
Net Impact of Investment Decisions				
Annual	(J) = (H) - (C)	850	(2,219)	1,147
Cumulative	(K) = (I) - (D)	850	(1,369)	(222)
Investment Actuarial Gains and Losses				
Expected Investment Earnings[1]	(L)	1,655	498	434
Total Return on Risky Assets Portfolio	(H)	2,019	(1,922)	1,491
Gains/Losses				
Annual	(M) = (H) - (L)	364	(2,420)	1,057
Cumulative	(N) = $(N)_{\text{prior year}}$ + (M)	364	(2,056)	(999)

1 In 2010, the $434 million is based on an expected nominal return of 6.0% (4.0% real plus 2.0% CPI).

Appendix 12 - Detailed Information on Membership Data

In this appendix, the 'Age' and/or 'Service' nomenclature refers to completed years calculated at the beginning of the plan year.

Table 45 Male Officers
Number and Average Annual Earnings[1] as at 31 March 2010

Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	All Years of Service
15-19	416 $18,218								416 $18,218
20-24	1,145 $29,621	268 $53,752							1,413 $34,198
25-29	815 $53,220	929 $68,828	183 $78,880						1,927 $63,182
30-34	401 $59,521	722 $81,005	709 $86,941	218 $94,757					2,050 $80,318
35-39	205 $61,337	334 $82,069	539 $91,288	787 $97,599	250 $98,749				2,115 $90,159
40-44	121 $66,571	126 $85,372	252 $92,166	415 $103,156	1,009 $101,263	174 $106,229			2,097 $98,000
45-49	87 $68,622	93 $96,460	111 $90,475	160 $101,408	673 $103,204	920 $107,416	222 $112,992		2,266 $103,518
50-54	35 $102,011	29 $91,320	58 $101,325	71 $98,131	160 $111,281	363 $112,395	555 $113,787	63 $124,593	1,334 $111,445
55-59	13 $121,786	14 $97,006	32 $94,855	38 $97,262	26 $107,031	45 $120,720	111 $117,164	66 $111,373	345 $110,851
>59[2]			3 $86,970						3 $86,970
All Ages	3,238 $43,388	2,515 $74,743	1,887 $88,883	1,689 $98,973	2,118 $102,411	1,502 $108,880	888 $114,010	129 $117,829	13,966 $83,076

	31 March 2010	31 March 2008
Average age:	37.6	37.7
Average pensionable service:	14.5	14.5
Annualized pensionable payroll[3]:	$1,145,041,586	$1,078,079,640
Total PBDA[4] indexed reduction to basic annuity:	$3,382,354	$2,784,490
Total PBDA[4] indexed reduction adjustment:	$630,130	$584,868

1 As defined in Note 1 of Appendix 2-D.
2 As at 31 March 2010 these members are treated as pensioners.
3 The aggregate pensionable earnings of all contributors with less than 35 years of pensionable service.
4 PBDA means the *Pension Benefits Division Act*.

Table 46 Male Other Ranks
Number and Average Annual Earnings[1] as at 31 March 2010

Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	All Years of Service
15-19	1,349 $34,806								1,349 $34,806
20-24	7,791 $42,758	583 $55,619							8,374 $43,653
25-29	4,285 $45,527	4,740 $57,611	265 $59,638						9,290 $52,095
30-34	1,517 $45,205	3,126 $58,557	2,666 $60,389	192 $63,345					7,501 $56,630
35-39	570 $45,316	1,063 $58,875	1,892 $60,927	2,387 $63,665	758 $65,693				6,670 $60,787
40-44	248 $44,596	398 $58,604	585 $60,886	1,240 $63,501	3,708 $66,751	342 $70,807			6,521 $64,480
45-49	127 $43,773	160 $57,511	230 $59,348	327 $62,246	1,461 $65,922	2,623 $71,031	424 $75,469		5,352 $67,898
50-54	36 $45,784	48 $58,895	78 $64,625	61 $62,212	135 $62,442	475 $69,471	968 $75,859	97 $78,645	1,898 $71,549
55-59	7 $43,034	15 $55,307	25 $62,310	29 $65,658	14 $66,289	25 $67,188	94 $73,533	88 $78,690	297 $70,832
>59[2]		2 $128,088		1 $128,088					3 $128,088
All Ages	15,930 $43,198	10,135 $57,975	5,741 $60,606	4,237 $63,501	6,076 $66,323	3,465 $70,767	1,486 $75,601	185 $78,666	47,255 $56,455

	31 March 2010	31 March 2008
Average age:	34.1	34.7
Average pensionable service:	11.5	12.0
Annualized pensionable payroll[3]:	$2,653,234,747	$2,436,708,934
Total PBDA[4] indexed reduction to basic annuity:	$6,090,207	$5,501,040
Total PBDA[4] indexed reduction adjustment:	$1,707,379	$1,668,037

1 As defined in Note 1 of Appendix 2-D.
2 As at 31 March 2010 these members are treated as pensioners.
3 The aggregate pensionable earnings of all contributors with less than 35 years of pensionable service.
4 PBDA means the *Pension Benefits Division Act*.

Table 47 Female Officers
Number and Average Annual Earnings[1] as at 31 March 2010

Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	All Years of Service
15-19	106 $17,760								106 $17,760
20-24	310 $29,343	81 $54,719							391 $34,600
25-29	186 $54,082	279 $69,910	67 $76,581						532 $65,216
30-34	97 $63,502	169 $81,030	202 $85,992	53 $93,826					521 $80,992
35-39	59 $64,512	94 $87,193	123 $95,166	174 $94,504	24 $99,227				474 $89,732
40-44	25 $66,460	40 $89,304	70 $88,829	84 $103,226	112 $99,248	14 $109,355			345 $94,984
45-49	17 $79,856	26 $91,732	50 $92,025	43 $96,398	83 $105,874	69 $104,376	7 $117,814		295 $99,333
50-54	5 $137,540	5 $76,600	28 $89,581	24 $97,804	22 $105,669	36 $117,840	23 $109,242	1 $141,204	144 $105,187
55-59	4 $189,722	3 $82,760	6 $103,060	3 $137,298	5 $120,378	2 $124,722	16 $100,826	3 $139,483	42 $117,153
>59[2]			1 $79,285						1 $79,285
All Ages	809 $43,844	697 $75,202	547 $88,175	381 $97,091	246 $102,485	121 $109,294	46 $107,619	4 $139,914	2,851 $76,133

	31 March 2010	31 March 2008
Average age:	34.6	34.5
Average pensionable service:	11.0	10.0
Annualized pensionable payroll[3]:	$216,495,505	$193,240,557
Total PBDA[4] indexed reduction to basic annuity:	$45,784	$26,296
Total PBDA[4] indexed reduction adjustment:	$5,648	$3,883

1 As defined in Note 1 of Appendix 2-D.
2 As at 31 March 2010 these members are treated as pensioners.
3 The aggregate pensionable earnings of all contributors with less than 35 years of pensionable service.
4 PBDA means the *Pension Benefits Division Act*.

Table 48 Female Other Ranks
Number and Average Annual Earnings[1] as at 31 March 2010

Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	All Years of Service
15-19	105 $35,225								105 $35,225
20-24	762 $42,773	59 $55,355							821 $43,677
25-29	668 $45,142	613 $57,153	34 $62,522						1,315 $51,191
30-34	391 $45,377	618 $57,481	367 $59,868	11 $59,681					1,387 $54,718
35-39	257 $45,967	380 $56,991	437 $59,941	276 $62,356	102 $64,049				1,452 $57,443
40-44	125 $45,288	256 $57,908	250 $60,379	185 $60,860	435 $64,847	39 $67,583			1,290 $60,220
45-49	70 $44,813	141 $58,673	137 $59,620	136 $60,673	233 $63,890	266 $68,981	33 $73,039		1,016 $62,475
50-54	16 $43,059	44 $59,172	60 $57,476	48 $61,666	48 $61,820	56 $67,531	62 $72,910	5 $67,752	339 $62,859
55-59	1 $46,236	4 $51,460	16 $55,115	17 $62,450	5 $66,411	4 $73,326	9 $70,671	6 $74,090	62 $62,928
>59[2]			2 $128,088		1 $128,088				3 $128,088
All Ages	2,395 $44,065	2,115 $57,393	1,303 $59,970	673 $61,514	824 $64,388	365 $68,657	104 $72,757	11 $71,209	7,790 $55,575

	31 March 2010	31 March 2008
Average age:	36.0	36.0
Average pensionable service:	10.5	9.5
Annualized pensionable payroll[3]:	$432,144,436	$393,147,769
Total PBDA[4] indexed reduction to basic annuity:	$41,273	$55,009
Total PBDA[4] indexed reduction adjustment:	$12,670	$16,244

1 As defined in Note 1 of Appendix 2-D.
2 As at 31 March 2010 these members are treated as pensioners.
3 The aggregate pensionable earnings of all contributors with less than 35 years of pensionable service.
4 PBDA means the *Pension Benefits Division Act*.

Table 49 Officer Male - Retirement Pensioners
Number and Average Annual Pension[1] in pay as at 31 March 2010

	Total		Account		Fund		RCA Account	
Age	Number	Average	Number	Average	Number	Average	Number	Average
30-34	1	$7,530	1	$4,000	1	$3,530	-	-
35-39	42	34,096	42	19,035	42	15,062	-	-
40-44	461	28,364	460	18,993	351	12,086	5	$19,404
45-49	1,233	32,313	1,229	24,699	937	9,834	17	15,971
50-54	1,517	37,933	1,515	31,409	878	10,948	52	6,693
55-59	1,770	46,204	1,762	40,117	1,015	10,456	91	5,292
60-64	2,312	47,704	2,295	45,881	758	6,161	86	3,761
65-69	2,474	40,903	2,469	40,879	38	5,808	36	1,158
70-74	1,879	42,212	1,879	42,205	4	3,185	-	-
75-79	1,783	40,976	1,783	40,976	-	-	-	-
80-84	1,355	38,115	1,355	38,115	-	-	-	-
85-89	1,150	36,690	1,150	36,690	-	-	-	-
90-94	417	34,166	417	34,166	-	-	-	-
>95	60	29,733	60	29,733	-	-	-	-
All Ages	16,454	$40,562	16,417	$38,169	4,024	$9,747	287	$5,447

	31 March 2010	31 March 2008
Average age	67.1	66.9
Average age at retirement	48.3	48.3

Table 50 Officer Female - Retirement Pensioners
Number and Average Annual Pension[1] in pay as at 31 March 2010

	Total		Account		Fund		RCA Account	
Age	Number	Average	Number	Average	Number	Average	Number	Average
35-39	9	$34,816	9	$19,316	9	$15,500	-	-
40-44	84	25,929	83	17,124	57	12,588	3	$13,081
45-49	143	27,689	142	20,844	94	10,427	3	6,512
50-54	142	33,864	138	27,325	88	11,666	5	2,219
55-59	116	37,798	115	33,059	56	9,846	5	6,276
60-64	115	40,896	110	37,747	49	11,032	5	2,056
65-69	57	30,140	57	30,055	-	-	1	4,825
70-74	36	32,817	36	32,817	-	-	-	-
75-79	38	30,577	38	30,577	-	-	-	-
80-84	30	27,109	30	27,109	-	-	-	-
85-89	17	29,436	17	29,436	-	-	-	-
90-94	18	16,962	18	16,962	-	-	-	-
>95	5	18,073	5	18,073	-	-	-	-
All Ages	810	$32,244	798	$334	353	$34	22	$42

	31 March 2010	31 March 2008
Average age	58.7	58.7
Average age at retirement	45.8	45.6

[1] Include annual allowance adjustments, PBDA reductions and CPP coordination if in effect at the valuation date.

Table 51 Other Rank Male - Retirement Pensioners
Number and Average Annual Pension[1] in pay as at 31 March 2010

	Total		Account		Fund	
Age	Number	Average	Number	Average	Number	Average
35-39	130	$22,483	130	$12,381	129	$10,180
40-44	1,571	22,755	1,570	14,473	1,508	8,638
45-49	5,776	21,096	5,766	16,680	4,572	5,615
50-54	6,786	20,450	6,781	18,301	2,867	5,117
55-59	5,110	22,719	5,106	21,244	1,445	5,275
60-64	6,463	27,587	6,457	27,259	734	3,110
65-69	6,737	21,327	6,737	21,323	8	3,267
70-74	7,653	20,603	7,653	20,601	3	3,920
75-79	6,815	19,954	6,815	19,954	-	-
80-84	3,726	19,677	3,726	19,677	-	-
85-89	1,951	20,754	1,951	20,754	-	-
90-94	545	19,172	545	19,172	-	-
>95	78	17,949	78	17,949	-	-
All Ages	53,341	$21,685	53,315	$20,483	11,266	$5,736

	31 March 2010	31 March 2008
Average age	65.1	64.3
Average age at retirement	44.9	44.9

Table 52 Other Rank Female - Retirement Pensioners
Number and Average Annual Pension[1] in pay as at 31 March 2010

	Total		Account		Fund	
Age	Number	Average	Number	Average	Number	Average
35-39	19	$23,407	19	$12,852	18	$11,142
40-44	191	21,391	191	13,553	171	8,756
45-49	831	18,768	826	15,120	558	5,569
50-54	952	17,847	943	16,392	320	4,789
55-59	437	20,313	433	19,057	116	5,388
60-64	222	25,379	219	24,868	26	7,231
65-69	69	19,471	69	19,471	-	-
70-74	54	17,928	54	17,928	-	-
75-79	36	14,800	36	14,800	-	-
80-84	13	13,260	13	13,260	-	-
85-89	1	11,842	1	11,842	-	-
90-94	1	35,231	1	35,231	-	-
All Ages	2,826	$19,353	2,805	$16,949	1,209	$5,915

	31 March 2010	31 March 2008
Average age	53.0	51.5
Average age at retirement	41.9	41.5

1 Include annual allowance adjustments, PBDA reductions and CPP coordination if in effect at the valuation date.

Table 53 Officer Male - 3B Pensioners
Number and Average Annual Pension[1] in pay as at 31 March 2010

	Total		Account		Fund		RCA Account	
Age	Number	Average	Number	Average	Number	Average	Number	Average
30-34	9	$16,420	9	$3,857	9	$12,234	1	$2,961
35-39	17	23,716	17	12,377	17	11,340	-	-
40-44	63	29,887	61	19,569	57	11,538	2	15,746
45-49	192	36,566	185	26,650	165	12,060	10	10,042
50-54	189	46,308	188	36,741	162	11,106	4	11,380
55-59	181	52,578	180	44,188	143	10,514	6	9,870
60-64	140	51,886	140	48,197	73	6,601	7	4,948
65-69	54	39,130	54	39,075	3	328	1	2,002
70-74	15	42,618	15	42,618	-	-	-	-
75-79	10	39,562	10	39,562	-	-	-	-
80-84	1	44,301	1	44,301	-	-	-	-
All Ages	871	$43,834	860	$36,241	629	$10,709	31	$8,911

	31 March 2010	31 March 2008
Average age	54.4	54.0
Average age at retirement	47.1	46.3

Table 54 Officer Female - 3B Pensioners
Number and Average Annual Pension[1] in pay as at 31 March 2010

	Total		Account		Fund		RCA Account	
Age	Number	Average	Number	Average	Number	Average	Number	Average
30-34	9	$14,262	9	$6,300	9	$7,962	-	-
35-39	15	21,359	14	12,075	14	10,064	1	$10,436
40-44	37	24,569	36	16,108	32	10,018	1	8,591
45-49	52	37,775	51	26,928	48	10,971	6	10,726
50-54	39	43,788	34	32,177	37	14,921	4	15,404
55-59	37	44,703	36	35,644	26	12,688	2	20,462
60-64	19	37,200	18	35,670	9	7,041	1	1,375
65-69	6	24,892	6	24,892	-	-	-	-
70-74	1	41,917	1	41,917	-	-	-	-
All Ages	215	$35,265	205	$26,290	175	$11,458	15	$12,486

	31 March 2010	31 March 2008
Average age	49.9	48.5
Average age at retirement	44.0	42.4

1 Include annual allowance adjustments, PBDA reductions and CPP coordination if in effect at the valuation date.

Table 55 Other Rank Male - 3B Pensioners
Number and Average Annual Pension[1] in pay as at 31 March 2010

	Total		Account		Fund	
Age	Number	Average	Number	Average	Number	Average
<30	3	$7,809	2	$979	3	$7,156
30-34	101	12,054	92	3,742	101	8,646
35-39	519	15,271	512	8,772	504	6,815
40-44	1,553	18,502	1,532	12,689	1,417	6,559
45-49	2,936	21,955	2,916	17,318	2,342	5,962
50-54	1,852	25,296	1,849	21,541	1,177	5,963
55-59	988	28,018	987	25,278	464	5,889
60-64	708	26,220	707	25,693	136	2,929
65-69	402	20,260	402	20,258	2	281
70-74	223	21,630	223	21,630	-	-
75-79	67	21,865	67	21,865	-	-
80-84	8	28,387	8	28,387	-	-
All Ages	9,360	$22,448	9,297	$18,541	6,146	$6,140

	31 March 2010	31 March 2008
Average age	50.8	50.3
Average age at retirement	41.9	41.4

Table 56 Other Rank Female - 3B Pensioners
Number and Average Annual Pension[1] in pay as at 31 March 2010

	Total		Account		Fund		RCA Account	
Age	Number	Average	Number	Average	Number	Average	Number	Average
30-34	6	$10,279	5	$2,969	6	$7,805	-	-
35-39	108	15,011	98	9,109	103	7,074	-	-
40-44	295	17,555	287	12,045	270	6,317	1	$16,369
45-49	578	20,676	567	16,332	460	5,848	-	-
50-54	375	22,989	365	19,853	228	6,029	-	-
55-59	124	24,134	121	21,499	65	6,019	-	-
60-64	35	23,526	33	22,013	9	10,778	-	-
65-69	1	17,819	1	17,819	-	-	-	-
70-74	1	22,813	1	22,813	-	-	-	-
All Ages	1,523	$20,545	1,478	$16,400	1,141	$6,165	1	$16,369

	31 March 2010	31 March 2008
Average age	48.2	46.9
Average age at retirement	41.0	40.1

1 Include annual allowance adjustments, PBDA reductions and CPP coordination if in effect at the valuation date.

Table 57 Officer Male - 3A Pensioners
Number and Average Annual Pension[1] in pay as at 31 March 2010

Age	Total		Account		Fund		RCA Account	
	Number	Average	Number	Average	Number	Average	Number	Average
40-44	1	$24,001	1	$19,916	1	$4,085	-	-
45-49	4	20,313	4	20,313	-	-	-	-
50-54	7	31,682	7	29,320	3	3,753	1	$5,271
55-59	5	24,672	5	23,046	1	8,133	-	-
60-64	14	31,877	14	30,803	4	3,759	-	-
65-69	21	21,660	21	21,660	-	-	-	-
70-74	18	18,923	18	18,923	-	-	-	-
75-79	24	19,452	24	19,452	-	-	-	-
80-84	27	21,893	27	21,893	-	-	-	-
85-89	24	21,136	24	21,136	-	-	-	-
90-94	2	20,587	2	20,587	-	-	-	-
All Ages	147	$22,439	147	$22,141	9	$4,279	1	$5,271

	31 March 2010	31 March 2008
Average age	73.9	72.8
Average age at retirement	40.3	40.4

Table 58 Officer Female - 3A Pensioners
Number and Average Annual Pension[1] in pay as at 31 March 2010

Age	Total		Account		Fund	
	Number	Average	Number	Average	Number	Average
45-49	1	$9,872	1	$9,872	-	-
50-54	2	22,435	2	22,435	-	-
55-59	3	22,373	3	22,373	-	-
60-64	4	26,551	4	26,425	1	$505
65-69	1	12,519	1	12,519	-	-
70-74	1	10,167	1	10,167	-	-
75-79	1	26,570	1	26,570	-	-
80-84	1	16,479	1	16,479	-	-
85-89	2	15,160	2	15,160	-	-
All Ages	16	$20,257	16	$20,226	1	$505

	31 March 2010	31 March 2008
Average age	65.8	63.8
Average age at retirement	42.4	42.4

[1] Include annual allowance adjustments, PBDA reductions and CPP coordination if in effect at the valuation date.

Table 59 Other Rank Male - 3A Pensioners
Number and Average Annual Pension[1] in pay as at 31 March 2010

	Total		Account		Fund	
Age	Number	Average	Number	Average	Number	Average
30-34	1	$11,406	1	$5,062	1	$6,344
35-39	2	9,979	2	8,242	2	1,737
40-44	18	13,529	18	11,004	13	3,496
45-49	68	16,019	68	14,788	36	2,325
50-54	65	15,910	65	15,353	17	2,128
55-59	38	19,169	38	18,243	11	3,197
60-64	101	12,767	101	12,708	2	2,991
65-69	228	9,556	228	9,556	-	-
70-74	406	10,971	406	10,971	-	-
75-79	604	11,939	604	11,939	-	-
80-84	350	13,032	350	13,032	-	-
85-89	136	13,581	136	13,581	-	-
90-94	38	12,998	38	12,998	-	-
>95	3	13,345	3	13,345	-	-
All Ages	2,058	$12,246	2,058	$12,141	82	$2,638

	31 March 2010	31 March 2008
Average age	74.0	72.7
Average age at retirement	38.2	38.4

Table 60 Other Rank Female - 3A Pensioners
Number and Average Annual Pension[1] in pay as at 31 March 2010

	Total		Account		Fund	
Age	Number	Average	Number	Average	Number	Average
35-39	2	$10,566	2	$9,275	2	$1,291
40-44	8	11,593	8	9,470	6	2,831
45-49	25	13,189	25	12,685	10	1,262
50-54	15	15,397	15	14,953	4	1,667
55-59	13	17,142	13	16,492	4	2,114
60-64	4	13,384	4	13,384	-	-
65-69	2	14,184	2	14,184	-	-
70-74	1	15,804	1	15,804	-	-
80-84	1	6,200	1	6,200	-	-
All Ages	71	$14,103	71	$13,437	26	$1,820

	31 March 2010	31 March 2008
Average age	51.9	50.1
Average age at retirement	38.2	38.2

1 Include annual allowance adjustments, PBDA reductions and CPP coordination if in effect at the valuation date.

Table 61 Deferred Annuitant - Officer Male
Number and Average Annual Pension[1] in pay as at 31 March 2010

	Total		Account		Fund		RCA Account	
Age	Number	Average	Number	Average	Number	Average	Number	Average
<30	39	$4,838	6	$1,472	39	$4,612	-	-
30-34	42	13,149	15	5,138	42	11,314	1	$22
35-39	22	14,387	10	6,433	22	11,463	-	-
40-44	12	19,100	6	15,281	11	11,857	1	7,086
45-49	14	13,516	9	13,773	9	6,255	1	8,969
50-54	6	20,854	5	21,374	2	9,063	1	129
55-59	4	20,366	3	9,400	3	17,755	-	-
All Ages	139	$12,104	54	$9,277	128	$9,104	4	$4,052

	31 March 2010	31 March 2008
Average age	35.0	44.9
Average age at retirement	32.5	37.2

Table 62 Deferred Annuitant - Officer Female
Number and Average Annual Pension[1] in pay as at 31 March 2010

	Total		Account		Fund		RCA Account	
Age	Number	Average	Number	Average	Number	Average	Number	Average
<30	15	$6,432	3	$1,192	15	$6,193	-	-
30-34	10	13,489	6	4,888	10	10,556	-	-
35-39	7	15,904	5	7,364	7	10,401	1	$1,704
40-44	9	11,784	6	10,773	7	5,160	1	5,305
45-49	5	15,899	5	11,417	3	7,470	-	-
50-54	2	15,201	2	7,601	2	7,601	-	-
All Ages	48	$11,639	27	$7,654	44	$7,841	2	$3,505

	31 March 2010	31 March 2008
Average age	35.3	41.3
Average age at retirement	33.1	32.9

[1] Include annual allowance adjustments, PBDA reductions and CPP coordination if in effect at the valuation date.

Table 63 Deferred Annuitant - Other Rank Male
Number and Average Annual Pension[1] in pay as at 31 March 2010

	Total		Account		Fund	
Age	Number	Average	Number	Average	Number	Average
<30	388	$4,276	12	$474	386	$4,283
30-34	156	7,453	55	1,865	156	6,795
35-39	73	10,595	44	5,044	73	7,554
40-44	32	11,674	25	7,741	30	6,002
45-49	33	10,727	26	9,654	20	5,149
50-54	27	10,184	23	10,962	9	2,540
55-59	21	9,830	18	8,420	9	6,097
All Ages	730	$6,581	203	$5,805	683	$5,308

	31 March 2010	31 March 2008
Average age	31.9	47.0
Average age at retirement	29.8	35.5

Table 64 Deferred Annuitant - Other Rank Female
Number and Average Annual Pension[1] in pay as at 31 March 2010

	Total		Account		Fund	
Age	Number	Average	Number	Average	Number	Average
<30	19	$5,790	1	$202	19	$5,780
30-34	18	5,681	10	1,282	18	4,969
35-39	12	5,576	8	1,690	12	4,449
40-44	14	7,597	8	4,437	14	5,061
45-49	16	8,081	11	6,210	12	5,082
50-54	9	7,306	4	7,535	8	4,452
55-59	1	6,083	-	-	1	6,083
All Ages	89	$6,592	42	$3,821	84	$5,074

	31 March 2010	31 March 2008
Average age	38.3	39.2
Average age at retirement	36.2	31.4

[1] Include annual allowance adjustments, PBDA reductions and CPP coordination if in effect at the valuation date.

Table 65 Surviving Spouses - Female
Number and Average Annual Pension as at 31 March 2010

	Total		Account		Fund		RCA Account		RCA Account	
Age	Number	Average	Number	Average	Number	Average	Number	Average	Number	Average
<30	24	$3,834	10	$2,322	23	$2,980	-	-	1	$261
30-34	40	8,056	31	6,919	34	3,165	-	-	1	127
35-39	68	8,126	64	6,208	47	3,290	-	-	7	89
40-44	150	10,110	147	8,834	71	3,025	-	-	27	113
45-49	307	10,437	305	9,498	104	2,882	1	$694	65	107
50-54	449	12,182	448	11,498	95	3,266	-	-	99	85
55-59	690	12,558	690	12,381	40	2,870	-	-	107	66
60-64	1,266	12,813	1,266	12,774	25	1,809	1	560	77	42
65-69	2,111	12,471	2,111	12,469	4	1,219	-	-	8	36
70-74	3,280	11,864	3,280	11,864	2	460	-	-	1	92
75-79	4,270	11,345	4,270	11,345	1	295	-	-	-	-
80-84	4,448	11,559	4,448	11,559	-	-	-	-	-	-
85-89	3,993	11,842	3,993	11,842	-	-	-	-	-	-
90-94	1,482	11,521	1,482	11,521	-	-	-	-	-	-
>95	308	11,041	308	11,041	-	-	-	-	-	-
All Ages	22,886	$11,750	22,853	$11,707	446	$2,964	2	$627	393	$77

	31 March 2010	31 March 2008
Average age	77.0	76.5
Average age at death of member	63.1	61.7

Table 66 Surviving Spouses - Male
Number and Average Annual Pension as at 31 March 2010

	Total		Account		Fund		RCA Account		RCA Account	
Age	Number	Average	Number	Average	Number	Average	Number	Average	Number	Average
30-34	3	$4,484	3	$1,310	3	$3,174	-	-	-	-
35-39	1	7,873	1	1,849	1	6,024	-	-	-	-
40-44	6	9,068	6	6,747	6	2,276	-	-	2	$136
45-49	17	10,495	16	8,730	7	5,420	1	$400	4	102
50-54	24	10,910	24	10,083	6	3,199	-	-	7	92
55-59	14	12,858	14	12,136	5	1,854	-	-	6	140
60-64	13	8,992	13	8,959	-	-	-	-	5	87
65-69	13	14,665	13	14,580	2	536	-	-	1	25
70-74	8	12,056	8	12,056	-	-	-	-	-	-
75-79	8	11,351	8	11,351	-	-	-	-	-	-
80-84	6	11,419	6	11,419	-	-	-	-	-	-
85-89	2	12,838	2	12,838	-	-	-	-	-	-
90-94	1	20,395	1	20,395	-	-	-	-	-	-
All Ages	116	$11,253	115	$10,484	30	$3,223	1	$400	25	$105

	31 March 2010	31 March 2008
Average age	59.7	58.7
Average age at death of member	51.6	49.5

Appendix 13 - Acknowledgements

The Department of National Defence provided relevant valuation input data on active members, pensioners and survivors. Superannuation Directorate of the Department of Public Works and Government Services Canada provided additional information in respect of pensioners and survivors.

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