Office of the Superintendent of Financial Institutions Canada
Bureau du surintendant des institutions financières Canada

Office of the Chief Actuary
Bureau de l'actuaire en chef

ACTUARIAL REPORT

on the Pension Plan for the CANADIAN FORCES

Reserve Force
as at 31 March 2013

To obtain a copy of this report, please contact:

Office of the Chief Actuary
Office of the Superintendent of Financial Institutions Canada
12th Floor, Kent Square Building
255 Albert Street
Ottawa, Ontario
K1A 0H2
Facsimile: **613-990-9900**
E-mail: **oca-bac@osfi-bsif.gc.ca**

An electronic version of this report is available
on our Web site, at **www.osfi-bsif.gc.ca**

Cat. No. IN3-16/3-2013E-PDF
ISSN 2292-9711

28 October 2014

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 2013 of the Canadian Forces - Reserve Force pension plan. This plan is defined by Part I.1 of the *Canadian Forces Superannuation Act* and the *Pension Benefits Division Act*.

Yours sincerely,

Jean-Claude Ménard

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

TABLE OF CONTENTS

Page

APPENDICES

TABLES

I. Executive Summary

This Actuarial Report on the pension plan for the Canadian Forces - Reserve Force (Reserve Force pension plan) was made pursuant to the *Public Pensions Reporting Act* (PPRA).

This actuarial valuation is as at 31 March 2013 and is in respect of pension benefits and contributions defined by Part I.1 of the *Canadian Forces Superannuation Act* (CFSA) and the *Pension Benefits Division Act* (PBDA).

The date of the next periodic review is scheduled to occur no later than 31 March 2016.

A. Purpose of Actuarial Report

The purpose of this actuarial valuation is to determine the state of the Reserve Force Pension Fund (RFPF) 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 Appendix 1.

The financial data on which this valuation is based are composed of tangible assets that the government has earmarked for the payment of benefits for service with respect to the Reserve Force pension plan. These pension assets are summarized in Appendix 2. The membership data is summarized in Appendices 3 and 8.

The valuation was prepared using accepted actuarial practices, methods and assumptions which are summarized in Appendices 4, 5 and 6.

Actuarial assumptions used in the previous report were revised based on economic trends and demographic experience. All actuarial assumptions are best-estimate assumptions and are, individually and in aggregate, reasonable for the purposes of the valuation at the date of this report.

The following table presents 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 2013	31 March 2010
Assumed level of inflation	2.0%	2.3%
Real increase in average pensionable earnings	1.0%	1.2%
Real rate of return	4.1%	4.2%

C. Main Findings

The proposed amounts to be credited to (or debited from) the Reserve Force Pension Fund are shown on a calendar year basis in this section beginning with calendar year 2015, 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) Financial position

As at 31 March 2013, the total assets in respect of the Reserve Force Pension Fund is $356.2 million and the actuarial liability is $392.3 million, resulting in an actuarial deficit of $36.1 million. The Reserve Fund assets totalled $373.8 million when the actuarial smoothing adjustment of $17.6 million is removed resulting in a funding ratio of 95%.

In accordance with section 87 of the *Reserve Force Pension Plan Regulations*, the actuarial deficit of $18.5[2] million is amortized over a period of 15 years in equal annual special payments of $1.9 million beginning on 31 March 2015.

2) Non-permitted actuarial surplus

In accordance with section 86 of the *Reserve Force Pension Plan Regulations*, if there exists, following the tabling of this actuarial report , a non-permitted actuarial surplus[3] in the Reserve Force Pension Fund, the government is required to take a contribution holiday covering its share of the current service cost until a subsequent actuarial report, tabled in Parliament, does not show a non-permitted surplus. If a non-permitted surplus does not exist and where the Government was currently subject to a legislated contributions holiday, the Governement would be required, by regulations, to resume contribution for its share of the current service cost as at 31 March 2013, the actuarial report date.

The results of this valuation indicate that, as at 31 March 2013, a non-permitted actuarial surplus does not exist. Following the tabling of this report and on the basis of the assumptions and methodology contained in this report, the Government contribution for the current service cost is expected to resume on the tabling date of this actuarial report prior to 1 January 2015, which is to be made no later than 30 days after the end of the month of the tabling of this report. The expected Government contributions not made to the pension plan due to the previously legislated contribution holiday are to be deposited no later than 30 days after the tabling of this actuarial report.

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 smoothing adjustment of $17.6 million is ignored when calculating the amortization payments.
3 A non-permitted actuarial surplus exists when the amount by which the assets exceeds the liabilities is greater than the lesser of (a) and (b), where:
(a) is 20% of the amount of liabilities, 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.

3) Current Service Cost[1]

The estimated total current service cost, borne jointly by the contributors and the government, is $55.7 million for calendar year 2015. The estimated member contributions are $19.0 million and the estimated government contributions are $36.7 million for calendar year 2015. The Reserve Force Pension Fund administrative expenses are estimated at $4.6 million (included in the total current service cost) for calendar year 2015.

The following table shows the projected current service cost expressed as a percentage of the expected pensionable payroll[2] and in millions of dollars for the three calendar years following the expected laying of this report. The ratio of government current service cost to the members current service cost is also shown. In accordance with the *Reserve Force Pension Plan Regulations* the Government will be expected to contribute an additional amount for the contribution holiday it took between 1 April 2013 and the tabling date of this actuarial report. This amount is estimated to be $50.0 million, and assumes that the tabling will occur on 31 December 2014. Table 2 assumes that the Government contributions resume on 1 January 2015.

Table 2 Projection of Current Service Cost

Calendar	As a percentage of pensionable payroll			Current Service Cost ($ millions)			Government to Contributors
Year	Contributors	Government	Total	Contributors	Government	Total	Ratio
2015	5.20	10.09	15.29	19.0	36.7	55.7	1.94
2016	5.20	10.26	15.46	20.2	39.8	60.0	1.97
2017	5.20	10.48	15.68	21.4	43.2	64.6	2.02

1 Also called normal cost.
2 *Pensionable payroll* is defined in Note 1 of Appendix 1-D.

II. Valuation Results

This report is based on pension benefit provisions enacted by legislation, summarized in Appendix 1, and the financial and membership data, summarized in Appendices 2 and 3. The valuation was prepared using accepted actuarial practices, methods and assumptions summarized in Appendices 4, 5 and 6.

Emerging experience, differing from the corresponding assumptions, will result in gains or losses to be revealed in subsequent reports.

The projection of the Reserve Force Pension Fund financial position is shown in Appendix 7.

A. Financial Position

Member and government contributions to the Reserve Force pension plan are credited to the Reserve Force Pension Fund, and the total amount of contributions net of benefits paid and administrative expenses is transferred to the PSPIB and invested in the financial markets. The valuation results of this section show the financial position as at 31 March 2013. The results of the previous valuation are also shown for comparison purposes.

Table 3 Balance Sheet - Reserve Force Pension Fund
($ millions)

	31 March 2013	31 March 2010
Actuarial Value of Assets		
Market value of assets	414.9	235.3
Actuarial smoothing adjustment	(17.6)	(8.5)
Present value of prior service contributions	17.0	6.5
Remaining contributions for pre-2007 Reserve Force service	47.3	0.0
Amount payable to Part I - Roll-over members	(105.4)	0.0
Total assets	356.2	233.3
Actuarial Liability		
Active contributors	241.7	136.7
Contributors' pre-2007 Reserve Force service	39.0	0.0
Retirement pensioners	77.3	18.5
Disability pensioners	0.0	0.0
Surviving dependents	1.5	0.5
Outstanding payments	7.1	0.0
Pension modernization cost	25.7	0.0
Total actuarial liability	392.3	155.7
Actuarial Surplus/(Deficit)	(36.1)	77.6
Non-Permitted Surplus	N/A	46.5

In accordance with section 87 of the *Reserve Force Pension Plan Regulations*, the actuarial deficit is amortized with equal annual instalments over a period of 15 years to meet the cost of the benefits payable under the Reserve Force pension plan. Therefore, the deficit of $18.5 million could be amortized in 15 equal annual payments of $1.9 million beginning on 31 March 2015.

The actuarial smoothing adjustment of $17.6 million will disappear over the next five years as the unrecognized investment gains will be gradually recognized.

B. Reconciliation of the Changes in Financial Position

Table 4 shows the reconciliation of the changes in the financial position in respect of the Reserve Force Pension Fund. Explanations of the elements largely responsible for the changes follow the table.

Table 4 Reconciliation of RFPF Financial position
($ millions)

	Pension Fund Actuarial Surplus/(Deficit)
As at 31 March 2010	77.6
Recognized investment gains as at 31 March 2010	8.5
Retroactive changes to the population data	1.9
Retroactive changes due to processed pre-2007 service elections	(44.6)
Expected interest on revised initial financial position	8.6
Experience gains and losses	71.7
Revision of actuarial assumptions	(15.3)
Pre-2007 Reserve Force service recognition	8.3
Outstanding payments	(7.1)
Amount payable to Part I - Roll-over members	(105.4)
Pension modernization cost	(25.7)
Change in the present value of prior service contributions	3.0
Unrecognized investment gains as at 31 March 2013	(17.6)
As at 31 March 2013	(36.1)

1) Recognized investment gains as at 31 March 2010

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 RFPF assets to be $8.5 million less than their market value.

2) 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 a decrease of $1.9 million in the Reserve Force Pension Fund actuarial liability.

3) Retroactive changes due to processed pre-2007 service elections

Most buyback elections for pre-2007 Reserve Force service elections started to be processed by the Department of National Defence after the production of the previous report. Since the majority of these elections were signed by members prior to March 2010, the effective date for the recognition of the associated liability to these elections is at the start of the current valuation period, that is, 31 March 2010. These retroactive service election changes have the effect of increasing the actuarial liability by $44.6 million. Note that most of the corresponding members and government contributions associated with these elections were made to the Reserve Force Pension Fund after 31 March 2010.

4) Expected interest on initial financial position

After recognizing the retroactive changes due to processed pre-2007 service elections, the retroactive changes to the population data and the recognized investment gain items, the expected interest to 31 March 2013 on the resulting Reserve Force Pension Fund actuarial surplus of $43.4 million as at 31 March 2010 amounted to $8.6 million. The expected interest amount was based on the Fund yields projected in the previous report for the three-year valuation period.

5) Experience gains and losses

Since the previous valuation, the Reserve Force Pension Fund actuarial surplus has increased by $71.7 million due to the experience gains and losses. The main items are described in the following table:

Table 5 Experience Gains and Losses
($ millions)

	Pension Fund
Demographic experience (i)	
Terminations with a return of contributions or a transfer value	69.2
New participants	(11.2)
Retirements	11.0
Terminations with an annuity	5.8
Disability Retirements	1.3
Rehired pensioner members	0.2
Deaths with an annuity	0.1
Total	**76.4**
Expected/actual disbursements (ii)	(27.3)
Investment earnings (iii)	21.2
Cost/contributions difference (iv)	15.8
Change in service and earnings accrual (v)	(8.5)
Administrative expenses (vi)	(7.0)
Pension indexation	(0.3)
Miscellaneous	1.4
Experience Gains and Losses	**71.7**

(i) The net impact of the demographic experience decreased the Fund actuarial liability by $76.4 million. The demographic assumptions having a large impact are as follows:

- During the valuation period, the plan observed a total of 5,139 participating member terminations. Of these, 2,301 received a return of contributions while 533 members opted for the commuted value of their accrued benefits.

The remaining 2,305 terminations are from members who rolled over to Regular Force pension plan (2,216 under the age of 50 and 89 above age 49). The termination assumption measures the expected numbers of vested termination below age 50 or the non-vested terminations for members with less than 2 years of sevice. Since participants to the Reserve Force pension plan are automatically being rolled over to the Regular Force pension plan once they have sufficient earnings during a minimum of 55 months in a consecutive period of 60 months, the associated liability held for these participants are significantly larger than Reserve Force participants having erratic earnings history. Whether or not the termination is caused by a roll over, the payment associated with the termination is the commuted value of a pension at age 60. The 2,216 roll over terminations under the age of 50 explained the bulk of the $69.2 million decrease in the Fund actuarial liability.

- During the valuation period, the number of new participants to the plan was greater than anticipated which resulted in an increase of $11.2 million in the Fund actuarial liability.
- The retirement assumption measures the number of members expected to become entitled to a full or reduced annuity when a member ceased to be enrolled over the age of 49 with a minimum of two years of service. According to the pension plan rules, members over the age of 49 are not allowed to take a commuted value of a pension at age 60. However, during the valuation period, a total of 89 members over the age of 49 ceased their participation in the Reserve pension plan and were rolled over to the Regular Force pension plan. The associated liability held as contributors for these roll over members is significantly higher than the corresponding commuted value which explains the $11.0 million decrease in the Fund actuarial liability.
- This evaluation assumes that all members who terminate will take the commuted value of their accrued benefit. However, during the valuation period, it was observed that a large proportion of the terminated members have no termination entitlement information as DND had not processed these terminations as at 31 March 2013. Consequently, members with no entitlement information have been recognized in this valuation as deferred annuitants. As at 31 March 2013, the actuarial liability held for these members as deferred annuitant is significantly less than the corresponding actuarial liability held for these members as contributors. This resulted in a decrease of $5.8 million in the Fund actuarial liability.

(ii) The actual disbursements exceeded largely the expected disbursements during the valuation period. These were mainly the results of the large proportion of roll over members transferring the commuted value of their benefit to the Regular Force pension plan. These roll over members are the major cause for the $27.3 million Pension Fund Asset reduction.

(iii) The investment return on the Pension Fund exceeded expectation in plan years

2011 and 2013, but was less than expected in plan year 2012. This resulted in an investment gain of $21.2 million over the valuation period.

(iv) An increase of $15.8 million to the Fund actuarial surplus resulted from the actual members and government contributions being more than projected. Even though the government took a contribution holiday for the current service cost over the last 15 months leading to 31 March 2013, the government made matching contributions for prior service elections. During the valuation period DND has ramped up the process of pre-2007 Reserve Force service elections which is the main reason for the additional excess contributions.

(v) The treatment of pre-2007 Reserve Force service elections had the effect of increasing the pensionable service and past earnings history of contributors during the valuation period. The additional earnings history credited to the active members has increased the Fund actuarial liability by $8.5 million.

(vi) Administration expenses over the valuation period were $7.0 million more than anticipated mainly due to the cost associated with the Pension Modernization project.

6) Revision of Actuarial Assumptions

Actuarial assumptions were revised based on economic trends and demographic experience as described in Appendices 5 and 6. These revisions have decreased the Reserve Force Pension Fund actuarial surplus by $15.3 million. The impact of these revisions is described in the following table.

Table 6 Revision of Actuarial Assumptions
($ millions)

Assumption	Pension Fund
Economic Assumptions	
Pension Indexation	15.2
Increase in average pensionable earnings	17.1
Rates of return	(46.5)
Total	(14.2)
Disabled retirements	0.3
Pensioner mortality rates	(0.6)
Survivor mortality rates	(0.2)
Longevity improvement factors	(1.1)
Proportion married at death	0.5
Net impact of revision	(15.3)

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

- ultimate level of inflation decreased from 2.3% to 2.0%;
- ultimate real increase in average earnings decreased from 1.2% to 1.0%; and
- ultimate real rate of return decreased from 4.2 to 4.1%.

Details of the changes in economic assumptions are described in Appendix 5.

7) **Pre-2007 Reserve Force Service Recognition**

With the coming into force of the new Reserve Force pension plan in 2007, members were provided with the option to buy back pre-2007 Reserve Force service to count toward their pension entitlement. The methodology used in the past to account for elective service was to recognize the service once the member's election had been processed by DND. This type of election was allowed until the end of February 2011. As at 1 March 2011, there was a backlog of approximately 11,000 Reserve Force service elections. As at 31 March 2013, 4,831 member elections remained in the backlog.

For the current valuation, DND provided a list of the remaining members with pre-2007 Reserve Force service elections that have not yet been processed. A total of 2,717 Part I.1 such elections have been recognized in this valuation and therefore have been counted toward the determination of the liability and the normal cost of the Reserve Force pension plan. The cost of these elections to both the members and the government are recognized as an increase of $47.3 million in the Pension Fund assets. The recognition of these past Reserve Force services increased the Pension Fund actuarial liability by a total of $39.0 million where the net impact is an increase of $8.3 million in the Pension Fund surplus.

8) **Outstanding payments**

Due to the part time nature of the Reserve Force membership there is a certain number of members that become non-participants to the Reserve Force pension plan by reason of not having met the minimum earning requirement over any period of twelve consecutive months. For non-vested members becoming non-participants as at 31 March 2013, where no termination entitlement have been provided by DND, an estimate of each terminating member return of contributions with interest has been earmarked from the Reserve Pension Fund for a total reduction of $7.1 million in the Pension Fund Surplus.

9) **Amount payable to Part I - Roll-over members**

Upon the completion of a minimum of 55 months of Canadian Forces service within a consecutive 60 months period, a member of the Reserve Force is automatically rolled-over to the Regular Force pension plan and his/her participation to the Reserve Force pension plan is terminated. All accumulated services are then transferred to the Regular Force pension plan where the liability associated with this service will now be recognized. The Transfer Value of the accrued benefit earned under the Reserve Force pension plan is transferred from the assets of the Reserve Force pension plan to the assets of the Regular Force pension plan.

In normal circumstances, the time elapsed between the roll-over date and the date of the transfer of assets between the plans is minimal. However, as of the valuation date a total of 2,554 members have been identified as members who have rolled-over to the Regular Force pension plan and the assets associated to these members have not been transferred. Since the liability associated with these members have been transferred to the Regular Force pension plan, the associated Transfer Value amount to be transferred from the assets of the Reserve Force pension plan has been estimated at $105.4 million. Accordingly, the Fund surplus is decreased by $105.4 million and this amount has been recorded as an amount payable to Part I of the CFSA, the Regular Force pension plan.

10) Pension Modernization Cost

The PWGSC Pension Modernization Project is now focused on bringing the administration of the pension plan for the Canadian Forces – Reserve Force under the responsibility of PWGSC. DND expects the project to be completed by plan year 2017. The cost associated with this project will be debited directly from the Reserve Force Pension Fund. The net impact of the project is a decrease of $25.7 million to the Pension Fund Surplus.

11) Change in the Present Value of Prior Service Contributions

The expected total government cost is shown in Table 14 of page 20. 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 member 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 Reserve Force Pension Fund assets by $3.0 million.

12) Unrecognized Investment Gains

The actuarial asset valuation method used in this valuation is the same as that described in the 2010 valuation report. The purpose of the actuarial asset valuation method is to minimize the impact of short-term fluctuations in the market value of assets (see Appendix 4). For this valuation, the method resulted in an actuarial value of the Pension Fund assets that is $17.6 million less than their market value, due to unrecognized investment gains.

C. Cost Certificate

1) Current Service Cost

The details of the current service cost for plan year 2014 and reconciliation with the plan year 2011 current service costs are shown in the following tables.

Table 7 Current Service Cost for Plan Year 2014
($ millions)

Member required contributions	16.5
Government current service cost	31.4
Total current service cost	47.9
Expected pensionable payroll	318.1
Total current service cost as % of expected pensionable payroll	15.06%

Table 8 Reconciliation of CFSA Current Service Cost
(Percentage of pensionable payroll)

For plan year 2011	13.64
Expected current service cost change	0.74
Change in demographics	-
Changes in assumptions	
Indexation, Earnings , Rates of return	0.36
With pre-2007 backlog reserve service	0.06
Disabled retirements	(0.01)
Pensioners mortality rates	0.02
Survivors mortality rates	0.01
Mortality improvement factors	0.04
Seniority and promotional salary increases	0.24
Proportion married at death	(0.02)
Unexplained Changes	(0.02)
For plan year 2014	15.06

2) Projection of Current Service Costs

The current service cost is borne jointly by the plan members and the government. The member contribution rate on pensionable earnings is 5.2% at the valuation date and there are no scheduled changes to this rate.

The current service costs, expressed in percentage of the projected pensionable payroll as well as in dollar amount, are shown on a plan year basis in Table 9 on page 17. Member contributions and the government current service costs are also shown on a calendar year basis in the Executive Summary.

Table 9 Projection of Current Service Cost

Plan Year	Percentage of Pensionable Payroll			$ millions			Portion Borne by the Government
	Members	Government	Total	Members	Government	Total	
2014	5.20	9.86	15.06	16.5	31.4	47.9	65%
2015	5.20	9.96	15.16	18.0	34.5	52.5	66%
2016	5.20	10.12	15.32	19.3	37.4	56.7	66%
2017	5.20	10.31	15.51	20.5	40.6	61.1	66%
2018	5.20	10.52	15.72	21.7	44.0	65.7	67%
2023	5.20	11.74	16.94	28.2	63.6	91.8	69%

Taking into account the current government contribution holiday expected to continue at the latest up to 31 December 2014, the following table shows the projected current service cost expressed as a percentage of the expected pensionable payroll as well as in dollars. In accordance with the *Reserve Force Pension Plan Regulations* the Government will be expected to contribute an additional $50.0 million for the contribution holiday it took since 1 April 2013. The actual arrears amount will be calculated once the final tabling date of the actuarial report is known.

Table 10 Projection of Current Service Cost (Including Government Contribution Holiday Expected to end on 31 Décember 2014)

Plan Year	Percentage of Pensionable Payroll			$ millions			Portion Borne by the Government
	Members	Government	Total	Members	Government	Total	
2014	5.20	-	5.20	16.5	-	16.5	0%
2015	5.20	2.49	7.69	18.0	8.6	26.6	32%
2016	5.20	10.12	15.32	19.3	37.4	56.7	66%
2017	5.20	10.31	15.51	20.5	40.6	61.1	66%
2018	5.20	10.52	15.72	21.7	44.0	65.7	67%
2023	5.20	11.74	16.94	28.2	63.6	91.8	69%

Until the pension plan reaches its maturity the current service cost as a percentage of pensionable payroll is expected to increase. Since the member contribution rate is set at a maximum of 5.2% of pensionable payroll the government is expected to absorb the future increase in the current service cost.

3) Administrative Expenses (Pension Modernization Cost Included)

Pension Fund assets have been earmarked to cover the cost of the Pension Modernization Cost up to plan year 2017 and are shown in the following table. Based upon the assumptions described in Appendix 6H.4, the Fund administrative expenses are included in the total current service costs and are estimated to be as follows:

Plan Year	Ongoing ($ millions)	Pension Modernization ($ millions)
2014	4.0	5.9
2015	4.3	10.4
2016	4.6	9.2
2017	4.9	2.3

4) Contributions for Prior Service Elections

Based upon the valuation data, the assumptions described in sections B and C of Appendix 5 and recent statistical information provided by the Department of National Defence, members and government contributions for prior service elections were estimated in the following table:

Table 11 Estimated Contributions for Prior Service
($ millions)

Plan Year	Member	Government
2014	12.8	12.8
2015	11.9	11.9
2016	11.0	11.0
2017	8.0	8.0
2018	5.1	5.1

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

This valuation assumes that the current mortality rates applicable to members of the Canadian Forces - Reserve Force will improve over time. This assumption is based on the longevity improvement assumption[1] contained in the 26th Canada Pension Plan actuarial report. Table 12 measures the effect on the plan year 2014 current service cost and the liabilities under various longevity improvement assumptions. The current longevity improvement assumption is described in Table 33 of Appendix 6.

Table 12 Sensitivity of Valuation Results to Variation in Longevity Improvement Factors

	Current Service Cost as a percentage of pensionable payroll		Actuarial Liability ($ millions)		Age 65 Life Expectancy in 2013 (Age nearest in years)		
					Male Officer	Male Other Rank	Female
Longevity improvement factors	2014	Effect	2014	Effect			
Current basis	15.06	None	392	None	22.6	20.2	23.8
- if 0%	14.39	(0.67)	377	(15)	21.1	18.6	22.6
- if ultimate 50% higher	15.27	0.21	397	5	23.0	20.5	24.2
- if ultimate 50% lower	14.89	(0.17)	389	(3)	22.5	20.1	23.7
- if kept at 2015 level	15.67	0.61	406	13	23.7	21.2	24.5

E. Sensitivity to Variations in Key Assumptions

The information required by statute, which is presented in the main report, has been derived using best-estimate assumptions regarding future demographic and economic trends. The key best-estimate assumptions, i.e. those for which changes within a reasonable range have the most significant impact on the long-term financial results, are described in Appendices 5 and 6. Both the length of the projection period and the number of assumptions required ensure that actual future experience will almost certainly not develop precisely in accordance with the best-estimate assumptions. Individual sensitivity tests have been performed, projecting the pension plan's financial status using alternative assumptions.

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

The following table measures the effect on the plan year 2014 current service cost and liabilities, if key economic assumptions are varied by one percentage point per annum from plan year 2014 onward.

Table 13 Sensitivity of Valuation Results

	Current Service Cost (Percentage of Pensionable Payroll)		Actuarial Liability ($ millions)	
Assumption(s) Varied	2014	Effect	2014	Effect
None (i.e. current basis)	15.06	None	392.3	None
Investment yield				
- if 1% higher	11.97	(3.09)	321.4	(70.9)
- if 1% lower	19.53	4.47	491.7	99.5
Inflation				
- if 1% higher	17.59	2.53	453.8	61.5
- if 1% lower	13.13	(1.93)	344.6	(47.7)
Salary, YMPE and MPE				
- if 1% higher	17.47	2.41	432.6	40.3
- if 1% lower	13.12	(1.94)	359.1	(33.1)
All economic assumptions				
- if 1% higher	15.91	0.86	401.9	9.6
- if 1% lower	14.53	(0.53)	387.2	(5.1)

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.

F. Summary of Estimated Government Costs

The following table summarizes the estimated total government costs on a plan year basis taking into account the current government contribution holiday since 1 April 2013, the annual special payments of $1.9 million, starting on 31 March 2015, required to amortize the deficit as well as the expected contribution of $50.0 million for the contribution holiday it took since 1 April 2013 up to the tabling of this report.

Table 14 Estimated Government Cost
Assuming that Government Contribution Resumes on 1 January 2015
($ millions)

Plan Year	Current Service Cost	Total Prior Service Contributions	Special Payments	Expected Arrears Payments	Total Government Cost
2014	-	12.8	-	-	12.8
2015	8.6	11.9	1.9	50.0	72.4
2016	37.4	11.0	1.9	-	50.3
2017	40.6	8.0	1.9	-	50.5
2018	44.0	5.1	1.9	-	51.0

III. Actuarial Opinion

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

- the valuation input data on which the valuation is based are sufficient and reliable for the purposes of the valuation;
- the assumptions that have been used are, individually and in aggregate, appropriate for the purposes of the valuation;
- the methodology employed is appropriate for the purposes of the valuation; 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 Defence, 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, F.S.A., F.C.I.A. Senior Actuary	Jean-Claude Ménard, F.S.A., F.C.I.A Chief Actuary

Ottawa, Canada
28 October 2014

Appendix 1 - Summary of Pension Benefit Provisions

The enactment of Bill C-78 on 14 September 1999 gave authority to create a pension plan for the Canadian Forces - Reserve Force. The Reserve Force pension plan was established on 1 March 2007 and provides pension benefits to part-time members of the Reserve Force who meet the threshold requirements for becoming plan members. The benefit eligibility rules under this plan are the same as the rules that apply to Regular Force members starting on 1 March 2007.

One major aspect of the change to the CFSA was the introduction of the duality in qualifying for benefits as well as an extended definition of pensionable service. Canadian Forces members accumulate two types of service, pensionable and qualifying. *Pensionable service* is a period during which the member was eligible to contribute to the pension plan and made the required contributions. *Qualifying service* is a period of paid service or enrolment period with pay in the Canadian Forces. Although very limited, certain types of service in the Canadian Forces are excluded. Regardless of event leading to a benefit entitlement (withdrawal, retirement, disability or death) or the basis on which the member qualifies (pensionable or qualifying service), the benefit to be received under Part I.1 is based on career average pensionable earnings.

The duality in qualifying for benefits depends on the type of service, pensionable versus qualifying. To qualify for an early retirement benefit, qualifying service is used. An annual allowance is available from age 50 with the completion of two years of pensionable service. A member terminating with at least two years of pensionable service will be entitled to a full immediate annuity at the age of 55 with a minimum of 30 years of pensionable service, or when the member becomes disabled or reaches the age of 60.

Valuation Methodology

This valuation is based on the use of the pensionable service years credited to each member as at 31 March 2013 to estimate future benefit entitlements. However, this valuation also recognizes that certain members will be entitled to an unreduced benefit at an earlier age after the completion of a total of 25 years of qualifying service.

Summary of Pension Benefit Provisions

Summarized in this appendix are the pension benefits provided under Part I.1 of the CFSA registered provisions, which are in compliance with the *Income Tax Act*.

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

A. Membership

A member of the Reserve Force is deemed to become a member in the Reserve Force pension plan, defined under Part I.1 of the CFSA, if,

a) during each of any two consecutive periods of 12 months beginning on or after 1 April 1999 and ending no later than 1 March 2007, the earnings that the member was entitled to receive were at least 10 per cent of the Annual Earnings Threshold[1], provided

[1] Annual Earnings Threshold is equal to the sum of 1/12 of the Year's Maximum Pensionable Earnings over any 12 month period.

that the member already was or became a member of the Canadian Forces during the first month of the first period and remained a member of the Canadian Forces, without any interruption of more than 60 days, until 1 March 2007; or

b) in any other case, on the first day of the month following two consecutive periods of 12 months, the second of which ending after 1 March 2007 and during each of which the earnings that they were entitled to receive were at least 10 per cent of the Annual Earnings Threshold, provided that the member already was or became a member of the Canadian Forces during the first month of the first period and remained a member of the Canadian Forces, without any interruption of more than 60 days, throughout those two periods.

B. Contributions

1. Members

During the first 35 years of pensionable service, members contribute 5.2% on all earnings up to 2/3 of the Maximum Pensionable Earnings (MPE) as defined under the Income Tax Regulations. After 35 years of pensionable service, members contribute only 1% of pensionable earnings.

2. Government

a) Current Service

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

b) Elected Prior Service

Consistent with the previous valuation, this valuation assumes that the government will match member contributions for prior service elections.

c) Actuarial Surplus

The regulations under Part I.1 of the act give the government the authority to deal with any actuarial surplus, subject to limitations, in the Pension Fund as it occurs by reducing employer contributions.

d) Actuarial Deficit

If an actuarial deficit is identified through a triennial statutory actuarial report, the Pension Fund is 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 Reserve Force pension plan is to provide an employment earnings–related lifetime retirement pension to eligible members. Benefits to eligible members in case of disability and to the spouse and children in case of death are also provided.

The rate of retirement pension is equal to 1.5% of the greater of the member's total pensionable earnings and total updated pensionable earnings over the most recent 35 years of pensionable service (i.e. Updated Career Average Plan). The plan also provides a bridge benefit equal to 0.5% of the greater of the pensioner's total bridge benefit earnings and total updated bridge benefit earnings over the most recent 35 years of pensionable service. The pension and bridge benefits are indexed annually with the Consumer Price Index and the accumulated indexation may be payable at age 55 at the earliest, as defined in Note 6 of section D below.

Entitlement to benefits depends on either qualifying service in the Canadian Forces or pensionable service, as defined in Notes 7 and 8 of section D below.

Detailed notes on the following overview are provided in the following section.

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

Member's Type of Termination	Benefit
With less than two years of pensionable service	Return of contributions
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 10 years of service or more	Immediate annuity
▪ Leaving prior to age 50, except for death, and	
- Because of disability	Immediate annuity
- Otherwise	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

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

Member's Type of Termination	Benefit
Retirement on completion of 25 years or more of Canadian Forces service *(Note* 7)	Immediate annuity *(Note 10*)

D. Explanatory Notes

1. Earnings

Earnings refers to the salary at the annual rate prescribed by the regulations made pursuant to the *National Defence Act* together with premiums in lieu of leave.

Pensionable earnings means the earnings of a member with less than 35 years of pensionable service, who has completed the required two-year waiting period.

Pensionable payroll means the aggregate pensionable earnings of all members.

2. Wage measure

Wage measure is

(a) for a calendar year prior to 2015, the corresponding rate of pay shown in Table 36 of this report; and

(b) for a calendar year after 2014, the greater of

a. the standard basic rate of pay for a period of duty or training of six hours or more, before any retroactive adjustment, that was prescribed or established under the *National Defence Act*, to be paid on October 1 of the preceding year to a member at the rank of Corporal (class A), and

b. the wage measure of the previous year.

3. Updated Pensionable Earnings

The updated pensionable earnings for a calendar year are the member's pensionable earnings for that year, subject to the *Income Tax Act* limits, times A/B, rounded to the nearest fourth decimal place, where

A = the average of the wage measures for five years consisting of the year the member most recently ceased to be a member and the most recent years during which the member was a member and, if necessary, the years preceding all of those years, and

B = the wage measure for that calendar year.

4. Bridge Benefit Earnings

Bridge benefit earnings for a calendar year are the lesser of

(a) the member's pensionable earnings for that year, and

(b) the Year's Maximum Pensionable Earnings (YMPE) for that year.

5. Updated Bridge Benefit Earnings

Updated bridge benefit earnings for a calendar year are the lesser of

(a) the member's updated pensionable earnings for that year, and

(b) the average of the YMPE for five years consisting of the year the member most recently ceased to be a member and the preceding four years.

6. 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 participation in the plan terminates. The first annual adjustment following termination of employment is prorated accordingly.

c) Commencement of Indexation Payments

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

7. Qualifying Service in the Canadian Forces

For most purposes of the CFSA, qualifying service in the Canadian Forces means service for which a Reserve Force member is paid, and includes:

- days of service in the Regular Force for which pay was authorized, and authorized maternity and parental leaves
  - excluding any service for which a member was paid a return of contributions or lump sum payment under the CFSA that he or she did not elect to repay on subsequent enrolment;
- 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.

8. Pensionable Service

Pensionable service includes any period of service in the Reserve Force in respect of which a member either made contributions that remain in the Pension Fund or elected to contribute. It also includes any period of prior service for which a 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 that the member elected to count as pensionable service.

9. 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 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.

10. 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 1.5% of the greater of the member's total pensionable earnings and total updated pensionable earnings over the most recent 35 years of pensionable service, plus an additional bridge benefit equal to 0.5% of the greater of the member's total bridge benefit earnings and total updated bridge benefit earnings.

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 16) or a minimum death benefit (Note 17) may be payable.

11. Deferred Annuity

Deferred annuity means an annuity that becomes payable to a retirement pensioner when he or she reaches age 60. The annual payment is determined as for an immediate annuity (see Note 10 above) but is adjusted to reflect the indexation (see page 26) from the 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.

12. Transfer Value

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.

13. Annual Allowance for Member

Annual allowance means an annuity payable immediately on retirement or upon attaining age 50, if later. The amount of the allowance is equal to the amount of the deferred annuity to which the member would otherwise be entitled, reduced by 5% multiplied by the difference between 60 and the age when the allowance becomes payable.

However, if the member is at least 50 years old at termination, and has at least 25 years of pensionable service, then the difference is reduced (subject to the above as a maximum) to the greater of

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

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

14. Eligible Surviving Spouse or Common-law Partner

Eligible surviving spouse means the surviving spouse or common-law partner of a member or pensioner except where

(a) the 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 partnership at age 60 or over, unless after such marriage or partnership the pensioner either

- became a member of the plan again, or
- made an optional survivor benefit election within 12 months following the 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.

15. Eligible Surviving Children

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

16. Annual Allowance for Eligible Survivors

Annual allowance means, for the eligible surviving spouse or common-law partner and children of a member or pensioner, an annuity that becomes payable immediately upon the death of that individual. The amount of the annual allowance, called a basic allowance, is equal to

(a) 1% of the greater of the pensioner's total pensionable earnings and total updated pensionable earnings; or,

(b) if the member was in receipt of an annual allowance at the time of death, an amount equal to A × B / C where:

- A = the amount calculated under paragraph (a),
- B = the amount of the annual allowance, and
- C = the amount of the deferred annuity to which the pensioner was entitled.

(c) Each eligible surviving child of a member is entitled to receive,

- if the member died leaving an eligible surviving spouse, an allowance equal to 1/4 of the basic allowance or, if there are more than two children, to an annual allowance equal to 1/2 of the basic allowance divided by the number of children; or
- if the member died without leaving an eligible surviving spouse, and
  - there are fewer than four children, an annual allowance equal to 1/2 of the basic allowance, or
  - there are more than three children, an annual allowance equal to 1.5 times the basic allowance divided by the number of children.
- The proportion of the basic allowance that constitutes the annual allowance shall be revised when the number of children who are entitled changes.

17. Minimum Death Benefit

If upon the death of a 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 member or to the named beneficiary under CFSA Part II, if any exist, an amount equal to A minus B where

- A is the greater of a return of contributions and an amount equal to five times the total of the initial annuity plus the bridge benefit (see Notes 9 and 10 above); and
- B is the aggregate of all amounts paid to a survivor or child and to the member or pensioner.

18. 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 Fund to the credit of a member or pensioner. As at the transfer date, the maximum transferable amount is half the value of the retirement pension accrued by the 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 member or pensioner are then reduced accordingly.

Appendix 2 - Assets and Rates of Return

A. Assets

The government has a statutory obligation to fulfill the pension promise enacted by legislation to members of the Canadian Forces – Reserve Force. The government has earmarked invested assets (the Reserve Force Pension Fund) to meet the cost of pension benefits.

1. Reserve Force Pension Fund

Since 1 March 2007, contributions (for current and prior service) have been credited to the Reserve Force 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 contributions as well as with the net investment returns generated by the capital assets managed by the Public Sector Pension Investment Board (PSPIB). It is debited with benefit payments and plan administrative expenses.

Table **15** **Reconciliation of Balances in Pension Fund**
($ millions)

Plan Year	2011	2012	2013
Opening Balance	235.3	328.2	373.9
INCOME			
Interest earnings	38.8	10.8	38.5
Employer contributions	41.5	30.3	12.6
Member contributions	24.3	26.2	28.7
Transfers received	-	-	-
Actuarial liability adjustments	-	-	-
Subtotal	*104.6*	*67.3*	*79.8*
EXPENDITURES			
Annuities	1.3	5.3	3.6
Pension divisions	-	-	-
Return of contributions	0.2	0.2	0.2
Pension transfer value payments	4.3	8.7	6.3
Transfers to other pension plans	-	-	18.8
Minimum benefits	-	-	-
Administrative expenses	5.9	7.4	9.9
Subtotal	*11.7*	*21.6*	*38.8*
Closing Balance	328.2	373.9	414.9

Since the last valuation, the Fund balance has increased by $179.6 million (a 76% increase) to reach $414.9 million as at 31 March 2013.

B. Rates of Return

The Fund yields are those from the PSPIB 2013 Annual Report.

Plan Year	Pension Fund
2011	14.5%
2012	3.0%
2013	10.7%

C. Sources of Asset Data

The Reserve Force 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 3 - 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 members of the Canadian Forces - Reserve Force, 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 the Office of the Superintendent of Financial Institutions (OSFI). An additional set of valuation data on Reserve Force pensioners is 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 verify the information provided by DND.

The main valuation data file supplied by DND contains the historical status information on all members up to 31 March 2013. The valuation data file on former members of the Canadian Forces - Reserve Force provided by PWGSC covers the period of 31 March 2010 to 31 March 2013.

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; and,
- 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 2013 from the current valuation data and the status of the members as at 31 March 2010 from the previous valuation data.

2. Benefit-Related Tests

Consistency tests were performed to ensure that all information required to value the member benefits based on individual statuses as at 31 March 2013 was included, by verifying that

a) For Active Members

- the earnings were included and, if not, imputing earnings by updating earnings from a previous year with an average earnings increase or failing that, using the average earnings for that sex.

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 2013.

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 other 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 8.

Table 16 Reconciliation of Contributors

	Male			Female			
	Officer	Other Rank	Total	Officer	Other Rank	Total	Total
31 March 2010	**4,823**	**11,964**	**16,787**	**2,217**	**2,673**	**4,890**	**21,677**
Data corrections	(115)	(839)	(954)	(108)	(206)	(314)	(1,268)
Changes of							
Participating Status	1,450	5,477	6,927	745	967	1,712	8,639
Officers/Other Ranks	20	(20)	-	1	(1)	-	-
Service Type	(333)	(1,462)	(1,795)	(108)	(402)	(510)	(2,305)
Subtotal	1,137	3,995	5,132	638	564	1,202	6,334
Lumpsum terminations			-			-	-
Return of contribution	(414)	(1,445)	(1,859)	(173)	(269)	(442)	(2,301)
Transfer value	(98)	(277)	(375)	(67)	(91)	(158)	(533)
Subtotal	(512)	(1,722)	(2,234)	(240)	(360)	(600)	(2,834)
Pensionable terminations			-			-	-
Disability	(16)	(53)	(69)	(3)	(24)	(27)	(96)
Death	(11)	(28)	(39)	(4)	(3)	(7)	(46)
Retirement	(722)	(1,635)	(2,357)	(312)	(383)	(695)	(3,052)
Subtotal	(749)	(1,716)	(2,465)	(319)	(410)	(729)	(3,194)
31 March 2013	**4,620**	**11,732**	**16,352**	**2,201**	**2,274**	**4,475**	**20,827**

Table 17 Reconciliation of Pensioners

	Male			Female			
	Officer	Other Rank	Total	Officer	Other Rank	Total	Total
Retirement Pensioners							
31 March 2010	204	403	607	78	131	209	816
Data corrections	103	168	271	39	17	56	327
New pensioners	723	1,635	2,358	311	384	695	3,053
Terminations							
Death	(10)	(2)	(12)	-	-	-	(12)
Rehired	(32)	(46)	(78)	(13)	(11)	(24)	(102)
31 March 2013	988	2,158	3,146	415	521	936	4,082
Disability Pensioners							
31 March 2010	5	3	8	-	-	-	8
Data corrections	(8)	(41)	(49)	(2)	(16)	(18)	(67)
New pensioners	16	53	69	3	24	27	96
Death	-	-	-	-	(1)	(1)	(1)
Rehired	-	-	-	-	-	-	-
31 March 2013	13	15	28	1	7	8	36

Table 18 Reconciliation of Spouse Survivors

	Widows	Widowers	Total
31 March 2010	5	-	5
Data corrections	1	1	2
New from contributors	-	-	-
New from Pensioners	19	2	21
Spouse deaths	-	-	-
31 March 2013	25	3	28

Table 19 Reconciliation of Survivors - Children/Students

	Children	Students	Total
31 March 2010	8	-	8
Data corrections	-	1	1
New from contributors	13	-	13
New from Pensioners	2	1	3
Eligible as Student	(1)	1	-
31 March 2013	22	3	25

Appendix 4 - Valuation Methodology

A. Reserve Force 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 asset 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 rate of return on the Pension Fund.

The actuarial value of the assets determined as at 31 March 2013 under the adjusted market value method is $356.2 million and was determined as follows.

Table 20 Actuarial Value of Pension Fund Assets
($ millions)

Plan Year	2009	2010	2011	2012	2013	
Actual net investment return (A)	(25)	31.5	38.2	10.0	37.5	
Expected investment return (B)	6	9.7	16.3	21.4	23.3	
Investment gains (losses) (A-B)	(32)	21.8	21.9	(11.4)	14.2	
Gains (losses) recognized immediately	-	-	-	-	-	
Investment gains (losses) to be amortized	(32)	21.8	21.9	(11.4)	14.2	
Unrecognized percentage	0%	20%	40%	60%	80%	
Unrecognized investment gains (losses)	-	4.4	8.8	(6.8)	11.4	
Market value as at 31 March 2013						414.9
Plus						
Present value of prior service contributions						17.0
Remaining contributions for pre-2007 Reserve Force service						47.3
Less						
Amount payable to Part I - Roll-over members						105.4
Total unrecognized investment gains (losses)						17.6
Actuarial value as at 31 March 2013						356.2

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

B. Actuarial Cost Method

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

As in the previous valuation, the projected accrued benefit actuarial cost method (also known as the projected unit credit method) was used to determine the current service cost and actuarial liability. Consistent with this cost method, pensionable earnings are projected up to retirement using the assumed annual increases in average pensionable earnings (including seniority and promotional increases). The yearly maximum salary cap and other benefit limits under the *Income Tax Act* were taken into account to determine the benefits payable under Part I.1 of the CFSA.

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.

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.

As at the valuation date, the Reserve Force pension plan has been in operation for a total of six years and one month. With the recognition of current and prior/backlog pensionable service election made by members as at 31 March 2013 the average age and pensionable service are respectively 32.2 and 4.6 years. Being a young pension plan, the Reserve Force pension plan current service cost is expected to increase over the years. In addition, the pension plan's own experience is limited and projecting when the current service cost for the total population will become stable is still unknown at this time.

2. Actuarial Liability

The actuarial liability with respect to members corresponds to the value, discounted in accordance with the actuarial assumptions, 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, of future payable benefits.

1 As defined in Appendix 6H.4 Administrative Expenses

3. Unreduced Retirement Benefit on Account of Total Canadian Forces Service

This valuation recognizes the higher cost and liabilities associated with members that would qualify, as at 31 March 2013, for an early unreduced retirement benefit due to their completion of a total of 25 years of Canadian Forces (both Regular and Reserve) service.

4. Actuarial Surplus (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 surplus or deficit is the difference between the actuarial value of assets and the actuarial liability. A new actuarial deficit is amortized over a period of 15 years through special payments and the disposition of any actuarial surplus is defined in Part I.1 of the CFSA.

5. 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

The projected yields (shown in Appendix 5) assumed for computing future interest earnings credited to the Reserve Force 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.

D. Membership Data

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

The member data shown in Appendices 3 and 8 were provided as at 31 March 2013. 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 2013. Future member contributions in respect of elected prior service took into account the payment streams that were still in effect at 31 March 2013. Only payments due after 31 March 2013 were included. For the first time, this valuation has recognized the expected members and government cost associated with the pre-2007 Reserve Force service election backlog. Pension Fund assets were credited with the expected cost associated with the purchase of the pre-2007 service and the Pension Fund Actuarial liability was increased to account for the added historical pre-2007 earnings and service.

Appendix 5 - Economic Assumptions

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

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 2012, the Bank of Canada and the Government renewed their commitment to keep inflation between 1% and 3% until the end of 2016. However, with the level of inflation currently much lower than the 2% target, it is assumed that the level of inflation will increase from 1.0% in 2014 to 1.6% in 2015 and to 1.9% in 2016, before reaching its ultimate rate of 2.0% in 2017. The ultimate rate of 2.0% is 0.3% lower than the assumed rate in 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 provides a bridge benefit based on career earnings up to the YMPE. The assumed increase in the YMPE for a given calendar year is derived, in accordance with the Canada Pension Plan, to correspond to the increase in the average weekly earnings (AWE), as calculated by Statistics Canada, over successive 12 month periods ending on 30 June. The AWE, and thus the YMPE, is deemed to include a component for seniority and promotional increases. The YMPE is equal to $52,500 for calendar year 2014. Future increases in the YMPE correspond to the assumed real increase[1] in the AWE plus assumed increases in the CPI.

The real-wage differential is developed taking into account historical trends, a possible labour shortage and an assumed moderate economic growth for Canada. Thus, a real-wage differential of 0.6% is assumed for 2015, and is assumed to gradually increase to the ultimate assumption of 1.2% by 2021. The ultimate real-wage differential assumption combined with the ultimate price increase assumption results in an assumed

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

annual increase in nominal wages of 3.2% in 2021 and thereafter. Thus, the ultimate rate of increase for the YMPE is 3.2%, resulting from a 1.2% increase in the real AWE and a 2.0% 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 0.2% lower than the corresponding increase in the YMPE, except for years 2016 to 2018 where the annual increase in average pensionable earnings is assumed to be 0.6%, 0.5% and 0.3% lower than the corresponding increase in the YMPE. The ultimate increase in average pensionable earnings is 3.0%.

3. Increase in Maximum Pensionable Earnings (MPE)

Since the plan is not coordinated with the Canada Pension Plan, the tax-related maximum pensionable earnings were derived from the maximum annual pension accrual under a registered defined benefit plan. The maximum annual pension accrual of $2,696.67 for 2013 will increase to $2,770.00 for 2014, in accordance with Income Tax Regulations. Thereafter, the maximum annual pension accrual increases in accordance with the increase in the YMPE, which is the same as the assumed increase in the AWE.

The MPE is $184,666 for calendar year 2014. As at 31 March 2013, no member had earnings in excess of $184,666.

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 annual real yield on long-term federal bonds is assumed to be 1.8% in plan year 2014, and is assumed to increase gradually to its ultimate level of 2.8% first attained in plan year 2020. This increase is consistent with the average of private sector forecasts. The ultimate real yield on long-term bonds is based on historical yields and is unchanged from the previous report.

2. Rate of Return on the Fund

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

a) Investment Strategy

Invested assets resulting from transferred amount equal to the government and employee contributions, net of benefit payments and administrative expenses, are invested in capital markets through the Public Sector Pension Investment Board (PSPIB). PSPIB invests funds to maximize returns without undue risk of loss according to the investment policy set and approved by its Board of Directors that 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 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 assets include such categories as real estate and infrastructure.

As at 31 March 2013, PSPIB assets consisted of 62% equity, 20% fixed income securities (including world inflation-linked bonds) and 18% real assets (including asset classes such as real estate, infrastructure and renewable resources). PSPIB has developed a long-term target Policy Portfolio (approved by its Board of Directors on 13 November 2013 and subject to an annual review), which consists of 54% equity, 18% fixed income securities and 28% real assets. The Policy Portfolio asset mix weights represent long-term targets. Therefore, the initial asset mix is derived using the actual investments reported by PSPIB as at 31 March 2013.

As PSPIB Policy Portfolio reflects long-term expectations, it is assumed that the asset mix will converge slowly toward the Policy Portfolio. The ultimate asset mix is reached in plan year 2018 and consists of 55% equity, 20% fixed income securities (including 2% cash) and 25% real assets. Net cash flows (contributions less expenditures, disregarding special payments) are expected to become negative during plan year 2028 and a portion of investment income will therefore be required to pay benefits. Changes to the assumed asset mix may be required in the future to reduce funding risks and to take into account the maturity of the plan.

Table 21 shows the assumed asset mix for each plan year throughout the projection period.

Table 21 Asset Mix
(in percentage)

Plan Year	Fixed Income Securities	Cash	Canadian Equity	U.S. and Foreign Equity	Emerging Market Equity	Real Assets
2014	18	2	22	32	8	18
2015	18	2	21	32	8	19
2016	18	2	20	31	8	21
2017	18	2	20	29	8	23
2018+	18	2	20	27	8	25

b) Real Rates of Return by Asset Type

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

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

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

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

Fixed Income Securities

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

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

The assumed real yield on long-term federal bonds is expected to increase from 1.5% at the beginning of plan year 2014 to an ultimate of 2.8% at the end of plan year 2019. This increase in real yield is consistent with the average private sector forecasts. The initial spreads over the long-term federal bond real yield are assumed to be 110 basis points for long-term provincial bonds and 155 basis points for corporate bonds. These spreads are higher than in the last report and reflect the current economic environment. The ultimate spreads for provincial and corporate bonds are assumed to be 50 basis points and 90 basis points, respectively, and are reached at the end of plan year 2018. Corporate bond spreads are net of the expected default rate. Real return bonds, on the other hand, usually 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 0 basis points initially and will reach its ultimate value of -40 basis points at the end of plan year 2018.

In the previous report, it was assumed that fixed income securities would consist of long-term bonds only. However, since the current PSPIB policy portfolio is not only composed of long-term bonds, but of bonds of all duration (universe), it is assumed that fixed income securities are composed of universe bonds for the entire projection period. Since bonds with shorter duration are less affected by an increase in yield, this result in slightly higher fixed income rates of return over the first six years than it would have been assuming long-term bonds. However, the assumed real rate of return of the fixed income securities once bond yields have stabilized is lower than the corresponding assumed real rate of return of the last report (2.6% instead of 3.3% before investment expenses).

Due to their shorter duration, the yield on universe bonds is lower than the yield on long-term bonds. The spread between the long-term federal bonds and the universe of federal bonds is assumed to decrease from 85 basis points at the beginning of plan year 2014 to 50 basis points at the beginning of plan year 2018. Spreads between universe federal bonds and universe provincial, or universe corporate bonds are assumed to be similar to spreads between long-term bonds.

The expected real rates of return for individual bonds take into account the coupons and market value fluctuations due to the expected movement of their respective yield rates. As the economy continues to strengthen (following the 2008-2009 economic downturn), the long-term federal bond yield is assumed to increase between plan years 2014 and 2019 and only stabilize at the end of plan year 2019. Therefore, bond returns are quite low for the first six years of the projection. The assumed ultimate real rate of return for long-term federal bonds is 2.8% starting in plan year 2020. An ultimate fixed income real rate of return of 2.6% is assumed for 2020 and thereafter.

Equity

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

Consistent with the assumption that risk taking must be rewarded, equity real rates of returns are developed by adding an equity risk premium to the long-term federal bond real rate of return. The historical equity risk premium over long-term government bond returns for 22 countries, representing almost 90% of global stock market value, for the 113-year and 50-year periods ending in 2012 were 3.2% and 0.9% respectively (3.4% and 1.0% for Canada)[1]. Historical equity risk premiums over the 113-year period 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 113 years. However, the equity risk premium is assumed to be higher in the

[1] Source: Elroy Dimson, Paul Marsh and Mike Staunton, Credit Suisse Global Investment Returns Yearbook 2013.

first six years of the projection, reflecting assumed low bond returns over the same period, before reaching its ultimate rate of 2.2% for Canadian and foreign developed markets. The equity risk premium for emerging market equities is expected to be 100 basis points higher than for Canadian and foreign developed market equities, reflecting the additional risk inherent with investments in emerging countries.

As described in the previous section, the long-term federal bond real rate of return is set at 2.8% for plan years 2020 and thereafter. The real rates of return are thus projected at 5.0% for developed market equities and 6.0% for emerging markets equities.

Real Assets

Real assets such as real estate and infrastructure are considered to be a hybrid of corporate bonds and equity. If these assets are considered to behave 75% like corporate bonds and 25% like developed market equities, then the assumed return should be composed of 75% of the return on corporate bonds and 25% of the return on developed market equities. Considering the inherent difficulties in modelling short-term returns for volatile assets, real assets are projected at 3.9% throughout the projection period.

Table 22 summarizes the assumed real rates of return by asset type throughout the projection period, prior to reduction for investment expenses.

Table 22 Real Rate of Return by Asset Type
(in percentage)

Plan Year	Fixed Income Securities	Cash	Canadian Equity	U.S. and Foreign Equity	Emerging Market Equity	Real Assets
2014	(3.3)	0.1	5.0	5.5	6.0	3.9
2015	(2.0)	0.0	5.0	5.0	6.0	3.9
2016	(1.9)	0.0	5.0	5.0	6.0	3.9
2017	(1.2)	0.2	5.0	5.0	6.0	3.9
2018	(0.8)	0.5	5.0	5.0	6.0	3.9
2019	0.8	0.8	5.0	5.0	6.0	3.9
2020+	2.6	1.0	5.0	5.0	6.0	3.9

c) Investment Expenses

Over the last three plan years, PSPIB's operating and asset management expenses have decreased from 0.67% to 0.57% of average net assets. It is assumed that going forward PSPIB investment expenses will average 0.60% of average net assets. The majority of those investment expenses were incurred through active management decisions.

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

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

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

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

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

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

Table 23 Rates of Return on Assets in Respect of the Pension Fund
(in percentage)

Plan Year	Nominal	Real
2014	4.3	3.3
2015	4.9	3.3
2016	5.2	3.3
2017	5.4	3.4
2018	5.5	3.5
2019	5.8	3.8
2020	6.1	4.1
2021+	6.1	4.1
2014-2018	5.1	3.4
2014-2023	5.5	3.7

It is assumed that the ultimate real rate of return on investments will be 4.1%, net of all investment expenses. This represents a reduction of 0.1% from the previous valuation. The real rates of return over the first six years of the projection are on average 0.8% lower than assumed in the previous valuation. The real rate of return on assets takes into account the assumed asset mix as well as the assumed real rate of return for all categories of assets. The nominal returns projected for the Pension Fund are simply the sum of the assumed level of inflation and the real return.

3. Transfer Value Real Interest Rate

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

First 10 years: $r_7 + 0.90\%$

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

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

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

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

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

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

For example, for plan year 2016, the assumed real rates of interest are 2.4% for the first 10 years and 2.7% thereafter. These rates were derived from the assumed 2016 CPI increase and the assumed 2016 long-term Government of Canada benchmark bond yield which corresponds to the new money rate in this valuation.

4. Summary of Economic Assumptions

The economic assumptions used in this report are summarized in the following table.

Table 24 Economic Assumptions[2]
(As a percentage)

	Inflation		Employment Earning Increases			Interest	
Plan Year	CPI Increase[3]	Pension Indexing[4]	YMPE[4]	Average Pensionable Earnings[5]	Maximum Pensionable Earnings[4,6]	New Money Rate	Projected Return on Fund
2014	1.0	**0.9**	**2.7**	**2.5**	**2.7**	2.8	4.3
2015	1.6	1.3	2.2	2.0	2.2	3.2	4.9
2016	1.9	1.9	2.6	2.0	2.6	3.6	5.2
2017	2.0	2.0	2.8	2.3	2.8	4.0	5.4
2018	2.0	2.0	2.9	2.6	2.9	4.4	5.5
2019	2.0	2.0	3.0	2.8	3.0	4.7	5.8
2020	2.0	2.0	3.1	2.9	3.1	4.8	6.1
2021	2.0	2.0	3.2	3.0	3.2	4.8	6.1
2022	2.0	2.0	3.2	3.0	3.2	4.8	6.1
2023	2.0	2.0	3.2	3.0	3.2	4.8	6.1
2025	2.0	2.0	3.2	3.0	3.2	4.8	6.1
2030	2.0	2.0	3.2	3.0	3.2	4.8	6.1
2035	2.0	2.0	3.2	3.0	3.2	4.8	6.1
2040+	2.0	2.0	3.2	3.0	3.2	4.8	6.1

1 It was deemed to be equal to 90% of the long-term Government of Canada benchmark bond yield.
2 Bold figures denote actual experience.
3 Assumed to be effective during the Plan Year.
4 Assumed to be effective as at 1 January.
5 Assumed to be effective as at 1 April. Exclusive of seniority and promotional increases.
6 Calendar year 2014 Maximum Pensionable Earnings is $184,666

As a reference, for periods ending December 2012, the following table was prepared based on the Canadian Institute of Actuaries Report on Canadian Economic Statistics 1924-2012.

Period of Years Ending 2012	15	25	50
Level of Inflation	2.0%	2.2%	4.1%
Real Increases in Average Earnings	0.5%	0.4%	1.0%
Real Yield of Long-Term Canada Bonds	2.5%	3.9%	3.3%
Real Return on Long-Term Canada Bonds	5.5%	7.4%	3.9%
Average Real Return on Diversified Portfolios	4.0%	5.9%	4.2%

Appendix 6 - Demographic Assumptions

The Reserve Force pension plan is a young plan, with little experience, providing little predictable information for establishing appropriate demographic assumptions. Except where otherwise noted, the experience of the Regular Force members covered under Part I of the CFSA was deemed to be the best source of data to determine the demographic assumptions.

A. Seniority and Promotional Increases

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

Developing the promotional and seniority increases assumption under the Reserve Force pension plan is difficult since the part-time nature of the Force means that member's year-to-year earnings will fluctuate based on the number of days worked. Since both Forces are hierarchical organizations with similar ranks and structures, it is appropriate to derive the seniority and promotional increase assumption indirectly by using experience data from the Regular Force.

Therefore, as in the previous valuation, the seniority and promotional assumption was determined by studying the experience for the Regular Force by age. The assumed rate increased by an average of 22% for officers under age 36 and increased by an average of 31% for officers over age 36. The assumed rate decreased by an average of 31% for other ranks under age 36 and increased by an average of 3% for other ranks over age 36.

The following table provides sample rates of seniority and promotional increases.

Table 25 Sample of Assumed Seniority and Promotional Salary Increases
(Percentage of annual earnings)

Age Last Birthday	Officer	Other Rank
17	1.8	5.3
18	1.8	5.3
19	1.8	5.3
20	4.5	5.9
21	56.0	6.4
22	40.9	6.1
23	12.0	5.3
24	10.1	4.4
25	8.8	3.8
26	6.7	3.3
30	4.8	2.1
40	2.0	1.5
50	1.1	0.9

B. New Participants

It was assumed that the distribution of new participants by age and sex will be the same as that of participants with less than one year of participating service at the valuation date. The total Reserve Force membership under Part I.1 of the CFSA was assumed to remain at the 31 March 2013 level.

The initial earnings of new male and female participants in a given age range in plan year 2014 were assumed to be the same as the corresponding experience in plan year 2013 with an economic salary increase for plan year 2014. The initial earnings were assumed to increase in future years in accordance with the assumption for average earnings increases.

C. Pensionable Retirement

As previously described, members of the Forces (Regular and Reserve) may qualify for retirement using either their total qualifying Canadian Forces service or the pensionable service to their credit. As at 31 March 2013, the demographic profile of the Reserve Force membership indicates that the majority of members will be qualifying for a retirement benefit based on their pensionable service.

For this valuation report the retirement rates of the previous report were left unchanged by reason that the experience does not justify a change in assumption.

The following tables provide sample rates of pensionable retirement.

Table 26 Sample of Assumed Rates of Retirement
(Per 1,000 individuals)

Completed Years of	Age - Male			Age - Female		
Pensionable Service	49	54	59	49	54	59
5	21	44	142	28	45	115
10	15	27	157	14	31	153
15	8	18	169	11	27	197
25	7	13	245	13	28	322
30	15	232	307	19	281	342
35	35	577	417	35	530	307

D. Disability Retirement

The disability retirement experience over the intervaluation period was consistent with the disability rate assumption in the previous report. The disability rate assumption was left unchanged from the previous report as the level of experience did not justify updating the assumption.

Table 27 Sample of Assumed Rates of Pensionable Disability
(Per 1,000 individuals)

Age Last Birthday	Male	Female
25	0.2	0.7
35	0.3	1.7
45	0.4	3.6
55	2.1	6.8
59	3.6	8.2

E. Withdrawal

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

After a careful review of the experience, it was decided that the assumption of the previous report will remain the same. The impact of the roll-over of members to PartI blurs the definition of what is considered a real termination, especially in the context of the significant number of members that are being processed for their pre-2007 Reserve Force service elections. The assumption will be analysed in much more details during the next valuation schedule as at 31 March 2016, knowing that DND administration would have been able to process all backlog information as well as processing actual terminations/retirements within an acceptable timeline.

All the terminating members with more than two years of pensionable service are assumed to elect a transfer value rather than a deferred annuity.

Table 28 to Table 31 provide sample rates of withdrawal.

Table 28 Sample of Assumed Withdrawal Rates - Male Officer
(Per 1,000 individuals)

	Completed Years of Pensionable Service						
Age Last Birthday	0	1	2	5	10	15	20+
20	17	29	20	20	-	-	-
25	22	28	20	20	18	-	-
30	18	30	22	22	18	11	-
35	21	26	23	23	18	11	9
40	17	26	21	21	18	11	9
45	18	27	20	20	18	11	9
50	18	-	-	-	-	-	-
55	36	-	-	-	-	-	-

Table 29 Sample of Assumed Withdrawal Rates - Male Other Rank
(Per 1,000 individuals)

	Completed Years of Pensionable Service						
Age Last Birthday	0	1	2	5	10	15	20+
20	46	55	43	43	-	-	-
25	48	66	42	42	18	-	-
30	36	54	39	39	18	11	-
35	24	43	31	31	18	11	9
40	24	35	26	26	18	11	9
45	18	31	24	24	18	11	9
50	22	-	-	-	-	-	-
55	38	-	-	-	-	-	-

Table 30 Sample of Assumed Withdrawal Rates - Female Officer
(Per 1,000 individuals)

	Completed Years of Pensionable Service						
Age Last Birthday	0	1	2	5	10	15	20+
20	14	25	48	29	-	-	-
25	16	27	46	29	18	-	-
30	18	29	37	29	18	11	-
35	21	27	32	29	18	11	9
40	14	27	27	27	18	11	9
45	12	27	26	26	18	11	9
50	18	-	-	-	-	-	-
55	23	-	-	-	-	-	-

Table 31 Sample of Assumed Withdrawal Rates - Female Other Rank
(Per 1,000 individuals)

	Completed Years of Pensionable Service						
Age Last Birthday	0	1	2	5	10	15	20+
20	35	47	46	46	-	-	-
25	44	51	48	48	18	-	-
30	45	53	44	44	18	11	-
35	24	53	38	38	18	11	9
40	21	54	34	34	18	11	9
45	26	54	32	32	18	11	9
50	23	-	-	-	-	-	-
55	22	-	-	-	-	-	-

F. Mortality

The mortality rate assumption and longevity improvement assumption used are the same as the assumptions used to produce the Actuarial Report on the Pension Plan for the Canadian Forces – Regular Force as at 31 March 2013. In the previous report the mortality rate assumption for disability pensioners was the mortality rate for 3A pensioners from the Actuarial Report on the Pension Plan for the Canadian Forces – Regular Force as at 31 March 2010. In this report the mortality rate assumption for disability pensioners was the same as the assumption for members and retirement pensioners. This reflects the fact that as of the valuation date all disability pensioners have been classified as disabled 3B pensioners.

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

	Members and Retirement Pensioners			Surviving Spouses	
	Male				
Age Last Birthday	Officer	Other Rank	Female	Male	Female
30	0.5	0.7	0.4	1.0	0.2
40	0.6	0.9	0.5	1.4	1.7
50	1.1	2.4	1.3	3.3	4.1
60	4.1	7.9	3.7	9.0	6.9
70	11.8	20.1	11.6	23.5	18.4
80	44.2	62.1	35.0	61.5	43.7
90	143.4	160.5	109.2	160.3	119.2
100	311.7	325.2	286.3	336.8	330.7
110	499.7	499.7	492.1	499.7	499.7

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

Table 33 Sample of Assumed Longevity Improvement Factors

	Initial and Ultimate Plan Year Mortality Reductions (%)			
	Male		Female	
Age Last Birthday	2015	2031+	2015	2031+
30	2.39	0.80	1.11	0.80
40	1.98	0.80	1.42	0.80
50	1.42	0.80	1.11	0.80
60	2.12	0.80	1.64	0.80
70	2.61	0.80	1.64	0.80
80	2.40	0.80	1.64	0.80
90	1.42	0.48	1.25	0.48
100	0.56	0.30	0.56	0.30
110+	0.20	0.23	0.20	0.23

G. Family Composition

The assumptions regarding spouse survivors are the same as the assumptions used to produce the Actuarial Report on the Pension Plan for the Canadian Forces – Regular Force as at 31 March 2013.

Table 34 Assumptions for Survivor Spouse Allowances[1]

	Male		Female	
Age Last Birthday	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	0.50	(1)	0.49	1
40	0.69	(1)	0.51	2
50	0.73	(2)	0.52	1
60	0.76	(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	0.17	(9)	0.01	(6)

The assumptions regarding child survivors are the same as the assumptions used to produce the Actuarial Report on the Pension Plan for the Canadian Forces – Regular Force as at 31 March 2013.

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

Table 35 Assumptions for Survivor Children Allowances

	Male		Female	
Age Last Birthday at Death	Average Number of Children	Average Age of Children	Average Number of Children	Average Age of Children
30	0.7	4	0.7	5
40	1.3	10	0.8	13
50	0.5	16	0.3	17
60	0.1	17	0.0	-
70	0.0	-	0.0	-

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

H. Other Assumptions

1. Wage Measure

Under Part I.1 of the CFSA, the retirement benefit is based on the career average of the updated earnings. Past earnings are updated using the wage measure as defined in the schedule of the Reserve Force pension plan regulations. The regulations also prescribe the wage measures for calendar year 2007 and later as the greater of:

- the standard basic rate of pay for a period of duty or training of six hours or more, before any retroactive adjustment , that was prescribed or established under the *National Defence Act* to be paid on October 1 of the preceding year to a member at the rank of Corporal (class A), and
- the wage measure of the previous year.

The wage measure for calendar years up to 2014 is shown in the following table.

Table 36 Wage Measure

Calendar Year	Rate of Pay ($)	Calendar Year	Rate of Pay ($)
2014	131.74	1986	41.50
2013	129.16	1985	40.00
2012	127.26	1984	38.25
2011	125.08	1983	36.25
2010	123.24	1982	33.25
2009	121.42	1981	29.25
2008	116.70	1980	25.75
2007	113.70	1979	25.75
2006	113.70	1978	24.50
2005	104.18	1977	21.00
2004	104.18	1976	21.00
2003	101.64	1975	17.37
2002	97.72	1974	12.20
2001	89.52	1973	12.20
2000	89.52	1972	12.10
1999	83.42	1971	10.50
1998	80.82	1970	10.10
1997	61.68	1969	7.17
1996	60.36	1968	7.17
1995	60.36	1967	7.17
1994	60.36	1966	7.17
1993	60.36	1965	6.50
1992	58.60	1964	6.50
1991	58.60	1963	6.50
1990	54.50	1962	6.23
1989	50.80	1961	6.23
1988	47.27	1960	5.67
1987	43.90		

2. 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 division was 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 division for the same reason.

3. Minimum Post-Retirement Death Benefit

This valuation does not take into account the minimum death benefit described in Note 17 of Appendix 1D, with respect to deaths occurring after retirement. The resulting understatement of the accrued liability and current service cost is not material since the majority of the relatively few pensioners who die in the early years of retirement leave an eligible survivor.

4. Administrative Expenses

The operating expenses of the PSPIB continue to be recognized implicitly in this report.

All other pension plan administrative expenses are charged to the Fund. Beside the additional administration cost associated with the Pension Modernization, the experience of the last three plan years supported our current annual administrative expense assumption of 1.25% of total pensionable payroll.

5. Financing of Elected Prior Service

As with the previous valuation, this valuation assumed that the government would match members' contributions for elected prior service.

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

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

Appendix 7 - Reserve Force Pension Fund Projection

Since the inception of the Reserve Force pension plan on 1 March 2007, the plan has been financed through the Reserve Force Pension Fund. Government and employee contributions, investment earnings and prior service contributions are added to the Fund. Benefit payments and administrative expenses are subtracted from the Fund.

The results of the following projection were computed using the data described in Appendix 8, the methodology described in Appendix 4 and the assumptions described in Appendices 5 and 6.

The projection shows the expected growth of the Pension Fund if all assumptions are realized. According to the projection, cash flows are expected to be positive until plan year 2043. Emerging experience that differs from the corresponding assumptions will result in gains or losses to be revealed in subsequent valuation reports.

Table 37 Pension Fund Projection
Assuming Government Contribution Resumes on 1 January 2015
($ millions)

Plan Year	Expected Unrecognized Investment (Gains)/Losses	Present value of prior service contributions	Beginning Market Value of Assets	Contributions[1,2]	Benefit Payments[3]	Investment Earnings	Special Payments	Year End Pension Fund[4]	Beginning Actuarial Liability
2014	(17.0)	17.0	462.2[5]	18.2	26.0	19.9	-	(120.3)[6]	392.3
2015	(8.3)	16.0	482.1	85.5[7]	36.6	24.8	1.9	(69.5)	424.2
2016	(3.4)	15.1	506.9	58.4	35.3	27.0	1.9	(44.5)	461.2
2017	(2.8)	14.2	533.9	62.8	23.0	29.9	1.9	(2.8)	507.1
2018	-	13.2	563.8	67.3	19.9	32.3	1.9	-	573.6
2019	-	12.3	642.6	72.1	21.5	38.7	1.9	-	652.2
2020	-	11.3	733.8	77.1	23.2	46.4	1.9	-	740.3
2021	-	10.4	836.0	82.3	25.1	52.7	1.9	-	839.3
2022	-	9.4	947.8	87.9	27.3	59.6	1.9	-	947.8
2029	-	1.3	2,043.2	131.9	52.2	127.0	1.9	-	2,014.4
2030	-	0.8	2,251.8	139.2	57.2	139.8	-	-	2,218.8
2035	-	0.2	3,524.2	181.1	90.1	217.7	-	-	3,479.1
2040	-	0.1	5,268.5	228.4	147.9	323.8	-	-	5,207.5
2042	-	-	6,090.1	241.7	191.2	373.0	-	-	6,021.6
2043	-	-	6,513.6	241.0	219.4	398.0	-	-	6,440.9
2044	-	-	6,933.2	243.6	250.6	422.9	-	-	6,856.0
2045	-	-	7,356.1	244.3	285.7	448.7	-	-	7,266.9

1 Total current service cost plus prior service contributions.
2 Exclude the annual administration expenses of 1.25% of the pensionable payroll when there are a Government contributions holiday.
3 Include the annual administration expenses of 1.25% of the pensionable payroll and the Pension Modernization Costs.
4 Exclude funds transferred to and invested by PSPIB.
5 Include $47 million of remaining contributions for pre-2007 Reserve Force service as at 31 March 2013.
6 Include $105.4 million payable to the Regular Force pension plan for actual roll-over members and $7.1 million in outstanding payments as at 31 March 2013.
7 As required by legislation and following the tabling of this actuarial report, the Government current service contributions includes an additional $50.0 million of Government contributions corresponding to plan years 2014 and part of 2015 actual Government contributions holiday.

Appendix 8 - 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 38 Male Officers
Number and Average Annual Earnings[1] as at 31 March 2013

Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	All Years of Service
15-19	3 $14,813								3 $14,813
20-24	418 $13,911	6 $23,580							424 $14,048
25-29	449 $14,757	305 $16,915	7 $18,337						761 $15,655
30-34	183 $14,050	446 $14,298	37 $20,457	10 $27,119					676 $14,758
35-39	138 $10,280	327 $12,938	35 $23,315	9 $28,065	6 $20,017				515 $13,278
40-44	154 $10,700	334 $15,830	57 $27,049	17 $28,166	19 $19,352	7 $22,448			588 $16,123
45-49	160 $11,168	284 $14,523	61 $24,607	27 $27,646	13 $21,186	8 $22,685	3 $14,608		556 $15,575
50-54	126 $10,930	260 $14,142	50 $31,513	29 $31,186	9 $30,553	5 $17,746	6 $34,704	6 $46,137	491 $17,073
55-59	80 $7,970	264 $14,041	37 $21,933	11 $32,180	4 $17,442	5 $19,505		6 $49,347	407 $14,677
60+[2]	43 $6,910	133 $9,682	15 $14,196	1 $25,208	1 $8,319	1 $5,614	1 $35,724	4 $9,284	199 $9,597
All Ages	1,754 $12,669	2,359 $14,409	299 $24,563	104 $29,160	52 $21,467	26 $20,403	10 $28,777	16 $38,128	4,620 $14,964

	31 March 2013	31 March 2010
Average age:	39.6	39.9
Average pensionable service:	6.0	2.8
Annualized pensionable payroll[3]:	$68,524,496	$84,242,324

1 As defined in Note 1 of Appendix 1-D.
2 As at 31 March 2013 these members are treated as pensioners.
3 The aggregate pensionable earnings of all contributors with less than 35 years of pensionable service.

Table 39 Male Other Ranks

Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	All Years of Service
15-19	517 $12,854								517 $12,854
20-24	4,016 $14,053	381 $16,532							4,397 $14,268
25-29	1,214 $16,070	1,783 $14,547	35 $17,800						3,032 $15,194
30-34	340 $15,216	847 $13,543	99 $16,419	33 $12,332					1,319 $14,160
35-39	189 $13,366	392 $11,484	100 $17,022	23 $20,666	6 $9,069				710 $13,042
40-44	187 $11,731	328 $11,852	147 $17,537	19 $15,843	17 $19,271	5 $14,986			703 $13,318
45-49	123 $13,177	203 $12,150	76 $17,585	18 $18,861	4 $21,294	15 $13,548	2 $9,660		441 $13,766
50-54	84 $10,255	158 $11,380	55 $16,983	21 $24,318	4 $27,207	4 $24,901	6 $7,791	5 $13,415	337 $13,135
55-59	45 $8,972	102 $11,789	35 $19,070	8 $11,762	3 $12,437		4 $16,824	4 $18,697	201 $12,672
60+[2]	42 $7,086	28 $6,928	2 $18,115	1 $6,556				2 $13,946	75 $7,497
All Ages	6,757 $14,159	4,222 $13,680	549 $17,309	123 $17,351	34 $18,039	24 $15,740	12 $11,114	11 $15,432	11,732 $14,180

	31 March 2013	31 March 2010
Average age:	28.9	28.8
Average pensionable service:	4.5	2.4
Annualized pensionable payroll[3]:	$166,186,539	$240,870,843

1 As defined in Note 1 of Appendix 1-D.
2 As at 31 March 2013 these members are treated as pensioners.
3 The aggregate pensionable earnings of all contributors with less than 35 years of pensionable service.

Table 40 Female Officers
Number and Average Annual Earnings[1] as at 31 March 2013

Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	All Years of Service
15-19	1 $10,174								1 $10,174
20-24	261 $11,000	1 $7,445							262 $10,987
25-29	263 $12,141	201 $11,365							464 $11,805
30-34	108 $9,532	302 $11,961	16 $24,748	3 $7,587					429 $11,796
35-39	58 $11,037	182 $14,504	17 $31,866	1 $27,912	1 $19,348				260 $14,935
40-44	69 $13,460	132 $11,876	7 $31,235	6 $46,300	4 $29,732	1 $2,698			219 $14,221
45-49	86 $11,786	97 $13,670	9 $28,231	4 $36,701	5 $60,011	1 $15,593			202 $15,129
50-54	65 $11,559	104 $15,239	6 $24,014	5 $16,336			1 $		181 $14,154
55-59	33 $10,222	80 $12,396	7 $14,654	1 $12,895	1 $29,291	1 $31,643		1 $98,707	124 $12,937
60+[2]	11 $9,247	42 $11,523	3 $14,111	1 $	2 $15,510				59 $11,170
All Ages	955 $11,389	1,141 $12,706	65 $26,145	21 $27,136	13 $38,357	4 $16,042	1 $	1 $98,707	2,201 $12,860

	31 March 2013	31 March 2010
Average age:	36.6	36.2
Average pensionable service:	5.1	2.7
Annualized pensionable payroll[3]:	$28,206,683	$30,233,572

1 As defined in Note 1 of Appendix 1-D.
2 As at 31 March 2013 these members are treated as pensioners.
3 The aggregate pensionable earnings of all contributors with less than 35 years of pensionable service.

Table 41 Female Other Ranks
Number and Average Annual Earnings[1] as at 31 March 2013

Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	All Years of Service
15-19	51 $13,682								51 $13,682
20-24	666 $16,661	78 $18,233							744 $16,826
25-29	244 $17,428	369 $15,635	12 $23,683						625 $16,490
30-34	80 $20,873	193 $14,373	26 $16,817	8 $16,609					307 $16,332
35-39	56 $22,249	93 $11,839	19 $25,550	8 $15,295					176 $16,789
40-44	54 $22,791	49 $17,925	20 $18,792	6 $33,815	6 $14,518	2 $11,885			137 $20,428
45-49	36 $20,113	39 $13,534	13 $12,727	12 $22,249	6 $21,385	3 $22,098	2 $25,270		111 $17,383
50-54	29 $20,459	36 $15,203	6 $23,628	4 $15,094	1 $5,856	1 $21,732	5 $21,001	1 $5,592	83 $17,843
55-59	4 $20,119	21 $18,800	2 $35,008	4 $19,318	3 $32,852	1 $19,344			35 $21,156
60+[2]	2 $6,648	2 $13,467	1 $						5 $8,046
All Ages	1,222 $17,679	880 $15,275	99 $19,798	42 $20,542	16 $19,989	7 $18,734	7 $22,221	1 $5,592	2,274 $16,922

	31 March 2013	31 March 2010
Average age:	29.9	29.6
Average pensionable service:	5.0	2.5
Annualized pensionable payroll[3]:	$38,475,409	$54,830,929

1 As defined in Note 1 of Appendix 1-D.
2 As at 31 March 2013 these members are treated as pensioners.
3 The aggregate pensionable earnings of all contributors with less than 35 years of pensionable service.

Table 42 Officer Male - Retirement Pensioners
Number and Average Annual Pension as at 31 March 2013

Age	Number	Average
50-54	9	$9,919
55-59	39	12,415
60-64	138	6,245
65-69	149	2,584
70-74	6	2,856
All Ages	341	$5,388

	31 March 2013	31 March 2010
Average age	63.7	63.5
Average age at retirement	61.2	62.3

Table 43 Officer Female - Retirement Pensioners
Number and Average Annual Pension as at 31 March 2013

Age	Number	Average
50-54	3	$261
55-59	11	10,785
60-64	24	6,776
65-69	35	2,424
70-74	1	7,281
All Ages	74	$5,056

	31 March 2013	31 March 2010
Average age	63.3	63.8
Average age at retirement	61.0	62.2

Table 44 Other Rank Male - Retirement Pensioners
Number and Average Annual Pension as at 31 March 2013

Age	Number	Average
50-54	6	$4,710
55-59	15	8,586
60-64	47	5,413
65-69	5	2,258
70-74	2	224
All Ages	75	$5,643

	31 March 2013	31 March 2010
Average age	61.0	60.3
Average age at retirement	58.4	59.1

Table 45 Other Rank Female - Retirement Pensioners
Number and Average Annual Pension as at 31 March 2013

Age	Number	Average
50-54	3	$16,578
55-59	8	11,149
60-64	9	7,729
All Ages	20	$10,425

	31 March 2013	31 March 2010
Average age	58.5	58.3
Average age at retirement	56.5	56.7

Table 46 Officer Male - Disability Pensioners
Number and Average Annual Pension as at 31 March 2013

Age	Number	Average
45-49	2	$3,767
55-59	2	15,033
60-64	9	10,987
All Ages	13	$10,498

	31 March 2013	31 March 2010
Average age	58.9	54.9
Average age at retirement	55.7	53.4

Table 47 Officer Female - Disability Pensioners
Number and Average Annual Pension as at 31 March 2013

Age	Number	Average
50-54	1	11,628

	31 March 2013	31 March 2010
Average age	52.9	N/A
Average age at retirement	51.7	N/A

Table 48 Other Rank Male - Disability Pensioners
Number and Average Annual Pension as at 31 March 2013

Age	Number	Average
40-44	1	$4,786
45-49	2	6,859
50-54	4	13,299
55-59	2	17,358
60-64	6	2,744
All Ages	15	$8,192

	31 March 2013	31 March 2010
Average age	55.8	53.9
Average age at retirement	52.7	52.7

Table 49 Other Rank Female - Disability Pensioners
Number and Average Annual Pension as at 31 March 2013

Age	Number	Average
50-54	4	$4,681
55-59	2	6,622
60-64	1	15,059
All Ages	7	$6,718

	31 March 2013	31 March 2010
Average age	54.9	N/A
Average age at retirement	51.4	N/A

Table 50 Deferred Annuitant - Officer Male
Number and Average Annual Pension as at 31 March 2013

Age	Number	Average
30 or less	133	$706
31-34	90	805
35-39	82	1,064
40-44	96	1,197
45-49	79	1,989
50-54	76	2,172
55-59	91	3,551
All Ages	647	$1,567

	31 March 2013	31 March 2010
Average age	41.5	43.0
Average age at retirement	39.6	42.3

Table 51 Deferred Annuitant - Officer Female
Number and Average Annual Pension as at 31 March 2013

Age	Number	Average
30 or less	102	$453
31-34	76	577
35-39	43	604
40-44	29	1,890
45-49	34	1,327
50-54	32	1,680
55-59	25	2,948
All Ages	341	$1,007

	31 March 2013	31 March 2010
Average age	38.0	35.6
Average age at retirement	35.9	34.9

Table 52 Deferred Annuitant - Other Rank Male
Number and Average Annual Pension as at 31 March 2013

Age	Number	Average
30 or less	1,355	$788
31-34	266	1,021
35-39	172	1,156
40-44	113	1,879
45-49	67	2,072
50-54	63	2,202
55-59	47	1,794
All Ages	2,083	$1,014

	31 March 2013	31 March 2010
Average age	31.1	30.9
Average age at retirement	29.1	30.2

Table 53 Deferred Annuitant - Other Rank Female
Number and Average Annual Pension as at 31 March 2013

Age	Number	Average
30 or less	283	$795
31-34	91	1,365
35-39	45	977
40-44	33	2,826
45-49	16	3,703
50-54	16	7,327
55-59	17	2,827
All Ages	501	$1,419

	31 March 2013	31 March 2010
Average age	32.3	32.6
Average age at retirement	30.3	31.8

Table 54 Surviving Spouses - Female
Number and Average Annual Allowance as at 31 March 2013

Age	Number	Average
30 or less	3	$2,015
31-34	2	301
35-39	3	1,486
40-44	1	6,233
45-49	6	754
50-54	4	8,618
55-59	2	3,411
60-64	1	5,264
65-69	2	2,250
70-74	1	496
All Ages	25	$2,937

	31 March 2013	31 March 2010
Average age	47.7	42.0
Average age at death of member	45.8	41.6

Table 55 Surviving Spouses - Male
Number and Average Annual Allowance as at 31 March 2013

Age	Number	Average
35-39	1	$1,770
40-44	1	966
50-54	1	428
All Ages	3	$1,055

	31 March 2013	31 March 2010
Average age	44.0	N/A
Average age at death of member	42.4	N/A

Appendix 9 - Acknowledgements

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

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

The following individuals assisted in the preparation of this report:

Alexandre Chassé
Alice Chiu, A.S.A.
Christopher Dieterle, F.C.I.A.
Cornell Carter
Kimberley Burt
Marie-Ève Bégin, A.S.A