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ACTUARIAL REPORT

on the Benefit Plan Financed Through the

Royal Canadian Mounted Police (Dependants) Pension Fund

as at 31 March 2010

Canada

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Cat. No. IN3-16/21-2010E-PDF
ISBN 978-1-100-16750-3

17 September 2010

The Honourable James M. Flaherty, P.C., M.P.
Minister of Finance
House of Commons
Ottawa, Canada
K1A 0G5

Dear Minister:

Pursuant to section 56 of the *Royal Canadian Mounted Police Pension Continuation Act,* I am pleased to submit the report on the actuarial review as at 31 March 2010 of the benefit plan established under Part IV of the Act.

Yours sincerely,

Jean-Claude Ménard

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

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I. Executive Summary

A. Purpose of this Actuarial Report

This actuarial review of the benefit plan governed by Part IV of the *Royal Canadian Mounted Police Pension Continuation Act* (RCMPPCA) was made as at 31 March 2010 pursuant to section 56 of the Act. The previous review was made as at 31 March 2007. The date of the next periodic review is 31 March 2013.

In accordance with accepted actuarial practice and the RCMPPCA, the main purposes of this actuarial report are:

- to show an estimate of the balance sheet (i.e. assets, actuarial liabilities, and actuarial surplus) as at the valuation date,
- to compare the actual and expected experience under the RCMPPCA during the intervaluation period and to reconcile the change in the financial position of the Plan since the last actuarial report, and
- to recommend measures to deal with the actuarial surplus.

B. Changes since the Last Valuation

During the intervaluation period there were no changes to the plan provisions, which are summarized in Appendix 1. However, the Governor in Council made benefit improvements in accordance with the surplus distribution recommendations in the 2007 actuarial report on the benefit plan. The major improvements were effective pension increases of 2.2% as at 1 April 2008, 1 April 2009 and 1 April 2010. There were also increases in the lump sum death benefit payable on the death of a member and in the residual amount payable on the early death of a widow.

The Fund yield and mortality assumptions were revised for this valuation. These changes are discussed respectively in Appendix 4 and Appendix 5.

C. Main Findings and Recommendation

- As at 31 March 2010 (i.e. the end of the 2010 plan year[1]), the plan had an actuarial surplus of $2.7 million ($3.8 million as at 31 March 2007), being the excess of assets of $27.0 million over actuarial liabilities of $24.3 million.
- It is recommended that $1.1 million of actuarial surplus be used to provide the following benefit improvements:

  i) a pension increase for current and prospective widows and children of 2.0% as at 1 April 2011, 1 April 2012 and 1 April 2013;
  ii) an increase in the lump sum benefit payable upon the death of a member of 2.0% as at 1 April 2011, 1 April 2012 and 1 April 2013; and

[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.

iii) an increased residual amount payable on the death of a widow of a member who dies in the 2012, 2013, or 2014 plan years, obtained by deeming the member's contributions, which have not been credited with interest, to be increased by 1,173%, 1,198%, and 1,224% respectively (note that this is equivalent to an increase of 2.0% per year to the member's deemed contributions as at 1 April 2010).

The remaining $1.6 million of actuarial surplus should be retained in the Fund to provide for benefit improvements in each subsequent year in accordance with the established methodology.

D. Future of the Plan

The plan membership has been declining steadily since 1948. The Fund is estimated to decline steadily until the last dollar is paid to the last widow, which is projected to occur in the plan year 2037, based on the best-estimate mortality assumptions of this report.

A best-estimate mortality assumption is good in projecting as a whole the mortality experience of a sufficiently large group of individuals. As the group size diminishes, random fluctuations play a larger role in mortality experience. This is demonstrated in the experience gains and losses analysis section of this report which shows significant deviation between actual and expected mortality results. Therefore, the best-estimate mortality assumption used in this valuation is not necessarily a good indicator of the future mortality experience of the relatively small number of members and widows remaining in the plan.

As in the previous valuation report, an additional actuarial liability has been set up to absorb the financial impact of random adverse mortality deviations. The amount of this provision was set equal to the loss that would occur if there were no deaths in the widow population in the plan year following the valuation date. As the group size diminishes, the relative value of the provision will increase but may also prove to be insufficient to ensure the future solvency of the plan in accordance with the RCMPPCA. At such time, the solvency of the plan can only be assured by the government assuming the mortality risk, which would allow the provision to be released into actuarial surplus.

II. Financial Position of the Plan

A. Balance Sheet

The following balance sheet is based on the plan provisions described in Appendix 1, the cumulative dividends in effect as at 1 April 2010, and the data and actuarial assumptions described in following sections. Previous valuation results as at 31 March 2007 are shown for comparison.

Table 1 Balance Sheet
($ dollars)

	As at 31 March 2010	As at 31 March 2007
Assets		
Fund balance	26,972,000	29,409,000
Actuarial present value of instalments in pay by members	24,000	37,000
Total Assets	**26,996,000**	**29,446,000**
Actuarial Liabilities		
Benefits accrued by members		
· widow pensions	4,559,000	5,683,000
· lump sums on death without a widow	3,679,000	3,591,000
Widow pensions in pay	14,999,000	15,406,000
Provision for adverse mortality deviation	932,000	789,000
Outstanding payments[1]	162,000	195,000
Total Actuarial Liabilities	**24,331,000**	**25,664,000**
Actuarial Surplus	**2,665,000**	**3,782,000**

The actuarial surplus of $2.7 million represents 11% of the actuarial liabilities of $24.3 million.

B. Reconciliation of Financial Position with Previous Report

This subsection describes the various factors reconciling the actuarial surplus of this valuation with the corresponding surplus of the previous valuation. Figures in brackets indicate negative amounts.

[1] Lump sum payments not yet made as at 31 March 2010 for member or widow deaths that occurred before that date.

Table 2 Reconciliation of Financial Position
As at 31 March 2010 ($ dollars)

Actuarial surplus as at 31 March 2007	**3,782,000**
Interest on surplus	862,000
Data updates and pension suspensions	425,000
Cost of 2008, 2009 and 2010 benefit increases	(1,598,000)
Experience gains and losses	(418,000)
Change in actuarial assumptions	(425,000)
Change in provision for adverse mortality deviation	37,000
Actuarial surplus as at 31 March 2010	**2,665,000**

1. **Interest on Surplus**

   The expected interest to 31 March 2010 on the 31 March 2007 surplus of $3,782,000 is $862,000.

2. **Data Updates and Pension Suspensions**

   Data were updated based on the information received in 2010 that was not available at the time of the previous valuation, such as an unreported widow death and the amount for outstanding payments; such updates resulted in an increase of $81,000 to the surplus. Four widow pensions had been suspended as the widows could not be found; the assumption that these widows had died resulted in an additional increase of $344,000 to the surplus for a total increase of $425,000 as at 31 March 2010.

3. **Cost of 2008, 2009 and 2010 Benefits Increases**

   Benefit improvements in accordance with the surplus distribution recommendations resulted in a surplus increase of $1,598,000 as at 31 March 2010.

4. **Experience Gains and Losses**

   Since the previous valuation, the actuarial surplus decreased by $418,000 due to actuarial gains and losses as described in the following table.

Table 3 Experience Gains and Losses
($ dollars)

Mortality of widows	(709,000)
Mortality of members	213,000
Age of new widows	37,000
Proportion married	(27,000)
Interest rates	21,000
Miscellaneous	47,000
Net experience gains	(418,000)

(a) Mortality of Widows
During the three years ended 31 March 2010, the 24 reported widow deaths amounted to 68% of the 35.2 deaths expected in accordance with the assumption in the previous valuation. The plan recorded an experience loss of $709,000.

(b) Mortality of Members
During the three years ended 31 March 2010, the 28 reported member deaths amounted to 89% of the 31.5 deaths expected in accordance with the assumption in the previous valuation. The plan recorded an experience gain of $213,000.

(c) Age of New Widows
The 19 new widows during the three-year period ended 31 March 2010 were on average 1.1 year older than expected. The plan recorded an experience gain of $37,000.

(d) Proportion Married
During the three years ended 31 March 2010, the 19 new widows were 111% of the 17.2 expected; the plan recorded an experience loss of $27,000.

(e) Interest Rates
In the previous valuation, the Fund was assumed to earn interest at an average annual rate of 7.08% during the three years ended 31 March 2010. The actual interest rates were just above the expected rates (average 7.11%), causing an experience gain of $21,000.

5. Change in Actuarial Assumptions

Actuarial assumptions were revised as described in Appendix 4 and Appendix 5. The actuarial surplus decreased by $425,000, due to the following revisions.

Table 4 Change in Actuarial Assumptions
($ dollars)

Interest rates	(251,000)
Widow mortality	(170,000)
Member mortality	(4,000)
Net impact of revision	**(425,000)**

(a) Interest Rates
The interest rates for this valuation were developed by the procedure described in Appendix 3-D, in particular, the long-term new money rate was revised downward from 5.35% to 5.20%. The adoption of the revised interest assumption caused the actuarial surplus to decrease by $251,000.

(b) Widow Mortality
Both components of the mortality basis for widows, namely the rates assumed for the 2011 plan year and the annual reduction factors applying to those rates in subsequent years, were revised for this valuation. As a result, the actuarial surplus decreased by $149,000 and $21,000, respectively, for a total decrease of $170,000.

(c) Member Mortality

Both components of the mortality basis for members, namely the rates assumed for the 2011 plan year and the annual reduction factors applying to those rates in subsequent years, were revised. As a result, the actuarial surplus decreased by \$28,000 and increased by \$24,000, respectively, for a net decrease of \$4,000.

6. Change in Provision for Adverse Mortality Deviation

In this valuation, the provision for adverse mortality deviation is \$932,000, which is \$37,000 less than the provision in the previous actuarial valuation accumulated with interest as at 31 March 2010 (\$969,000). The provision is sufficient to withstand the mortality loss that would result if all widows survived the plan year immediately following the valuation date. The provision recognizes that the government will ultimately have to assume the plan's mortality risk if the objective of paying the last dollar to the last widow is to be realized without special treatment for that widow.

C. Sensitivity Analysis of Actuarial Liabilities to Variations in Key Assumptions

The supplementary estimates shown below indicate the degree to which the actuarial liabilities of \$24.3 million shown in the balance sheet depend on some key assumptions. The actuarial liability changes can also serve to approximate the effect of other numerical variations in each key assumption, to the extent that such effects are linear.

1. Mortality of Widows

If the mortality rates assumed for widows in each future year were reduced by 10%, the actuarial liabilities would increase by \$946,000 (i.e. by 3.9%).

If the assumed improvements in longevity for widows after the 2011 plan year (see Appendix 5) were not realized, the actuarial liabilities would decrease by \$207,000 (i.e. by 0.9%).

2. Mortality of Members

If the mortality rates assumed for members in each future year were increased by 10%, the actuarial liabilities would increase by \$227,000 (i.e. by 0.9%).

If the assumed improvements in longevity for members after the 2011 plan year (see Appendix 5) were not realized, the actuarial liabilities would increase by \$49,000 (i.e. by 0.2%).

3. Proportion of Married Members

If the proportion of members married at death were increased by 10%, then the actuarial liabilities would increase by \$145,000 (i.e. by 0.6%).

4. Widow Age Difference

If the age of each future new widow were reduced by one year, then the actuarial liabilities would increase by \$174,000 (i.e. by 0.7%).

The projected yields assumption is no longer considered to be a key assumption. Significant variation in the assumed yield is unlikely to occur. The Superannuation Accounts from which the Fund's quarterly interest rates are derived are now almost only credited with interest as no additional contributions are made to the Accounts. That being the case, the credited interest rates are more predictable for at least the next decade and the risk to the plan has decreased accordingly.

D. Plan Assets

1. RCMP (Dependants) Pension Fund

The plan is entirely financed through the RCMP (Dependants) Pension Fund, which forms part of the Public Accounts of Canada. The Fund is:

- credited with all contributions made by members;
- charged with the benefit payments made; and,
- credited with interest earnings, as though net cash flows were invested with other public pension plans' cash flows in 20-year Government of Canada bonds issued at prescribed interest rates and held to maturity. No formal debt instrument is issued to the Account by the Government in recognition of the amounts therein. Interest earnings are credited every three months to the Fund on the basis of the actual average yield for the same period on the combined Superannuation Accounts of the Public Service, Canadian Forces – Regular Forces and RCMP pension plans.

2. Reconciliation

The following table shows the reconciliation of the Fund from the previous valuation date to the current valuation date. The Fund entries shown below were provided and certified by the RCMP Pension Accounting Unit. During the intervaluation period, the Fund balance decreased by $2,437,000 (i.e. 8.3%) to $26,972,000 as at 31 March 2010.

Table 5 Fund Balance
($ thousands)

Plan Year	2008	2009	2010	2008-2010
Fund Opening Balance	29,409	28,537	27,831	29,409
Income				
Instalment payments	6	6	5	17
Interest credited	2,063	1,937	1,810	5,810
Subtotal	2,069	1,943	1,815	5,827
Expenditures				
Survivor pension benefits	2,431	2,433	2,477	7,341
Lump sum payments	510	216	197	923
Subtotal	2,941	2,649	2,674	8,264
Fund Closing Balance	28,537	27,831	26,972	26,972

3. Rates of Return

The rates of return on the Fund in plan years 2008, 2009 and 2010 were 7.38%, 7.12% and 6.83% respectively. They were calculated based on the assumption that instalment payments, survivor pension benefits and lump sum benefits were made in the middle of the year.

E. Disposition of Actuarial Surplus

Based on our established algorithm for the distribution of actuarial surplus, as described in Appendix 3-E, the amount of actuarial surplus recommended for distribution in the 2012, 2013, and 2014 plan years is $1.1 million, which could provide the recommended benefit improvements shown below. By far the most costly of these increases is with respect to the widow pensions, which would rise by 2.0% on 1 April 2011, 1 April 2012 and 1 April 2013.

Table 6 Recommended Benefit Improvements

Pension and residual amount increase for current and prospective widows

Effective Date	Dividend Increase	Cumulative Dividend	Effective Increase
1 April 2011	25%	1173%	2.0%
1 April 2012	25%	1198%	2.0%
1 April 2013	26%	1224%	2.0%

Increase in lump sum payable upon death of a member

Effective Date	Dividend Increase	Cumulative Dividend	Effective Increase
1 April 2011	15%	647%	2.0%
1 April 2012	15%	662%	2.0%
1 April 2013	15%	677%	2.0%

The remaining $1.6 million of actuarial surplus should be sufficient to provide future increases of 2.0% per year from 1 April 2014 onward if the experience of the plan develops according to the assumptions.

III. Demographic and Financial Projections

A. Membership Projections

On the basis of the demographic assumptions described in Appendix 5, the member and widow populations were projected over the expected remaining lifetime of the plan.

Number of Members and Widows

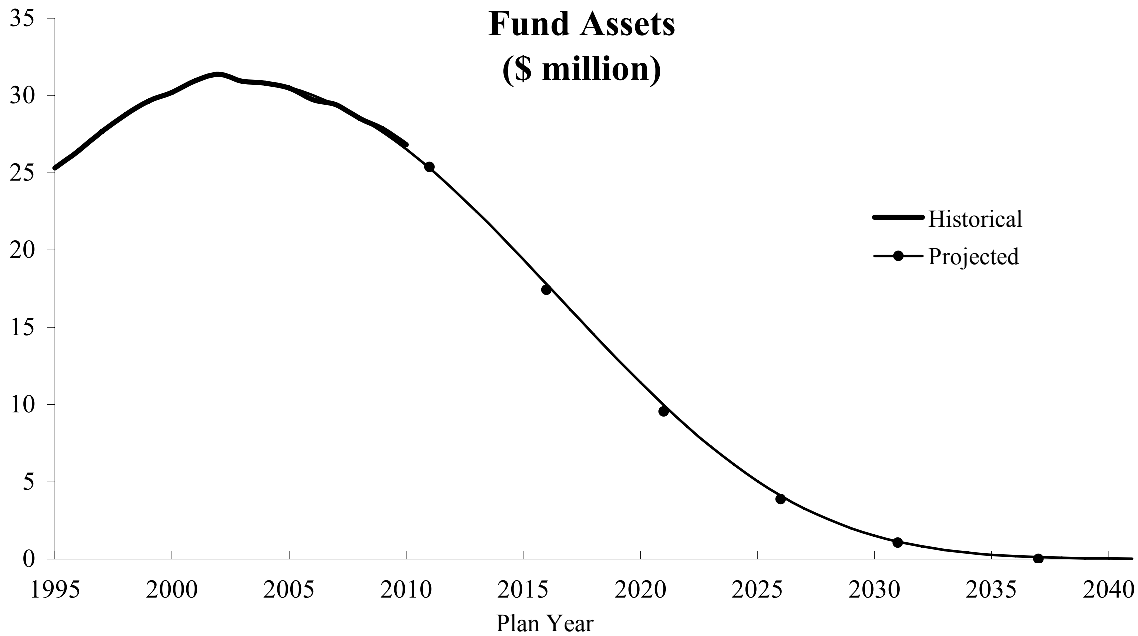
As at 31 March	Members	Widows
Historical		
2001	*193*	*176*
2004	*165*	*171*
2007	*125*	*149*
2010	*97*	*144*
Projected		
2013	68	109
2016	44	75
2019	26	49
2022	14	29
2025	7	16
2037	-	-

Over the last decade, the number of members has fallen steadily so that only 97 remain at 1 April 2010 (125 at 1 April 2007); this trend is projected to continue until the death of the last member, which is expected in the plan year 2033. The number of widows reached 144 by 1 April 2010 (149 by 1 April 2007). A steady decline is expected thereafter, with the last widow expected to survive to the plan year 2037.

Emerging mortality experience will be subject to statistical fluctuations. Consequently the actual membership statistics will deviate, perhaps materially, due to the relatively small number of participants.

B. Assets Projection

Using the assumptions described in Appendix 4 and 5, the Fund assets were projected assuming that the provision for adverse mortality deviation would be released into actuarial surplus after 2014. The outstanding payments of $162,000 shown in the balance sheet were assumed to be made on 1 April 2010.



The Fund assets reached their maximum of $31.4 million on 31 March 2002. Fund assets are expected to decline steadily until they are exhausted in the plan year 2037.

The actual evolution of the Fund assets will be influenced by several variables, most notably the statistical mortality fluctuations affecting the membership projections.

IV. Actuarial Opinion

In our opinion, for the purposes of the valuation:

- the data upon which the calculations were based are sufficient and reliable;
- the assumptions used are, in aggregate, appropriate;
- the valuation methodology employed is appropriate; 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 published by the Canadian Institute of Actuaries.

To the best of our knowledge there have been no subsequent events between the date of valuation and the date of this report.

Jean-Claude Ménard

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

Michel Rapin

Mario Mercier, F.S.A., F.C.I.A.
Actuary

Michel Rapin, F.S.A., F.C.I.A.
Senior Actuary

Ottawa, Canada
17 September 2010

Appendix 1 - Summary of Plan Provisions

The provisions of the benefit plan governed by Part IV of the *Royal Canadian Mounted Police Pension Continuation Act* (RCMPPCA) are summarized in this appendix. However, the Act shall prevail if there is a discrepancy between it and this summary.

A. History of the Plan

The benefit plan associated with the Royal Canadian Mounted Police (Dependants) Pension Fund was established in 1934 when Part IV was added to the *Royal Canadian Mounted Police Act* (RCMP Act). Plan membership was optional for constables on active duty on 1 October 1934; however, it was mandatory for constables appointed to the Force thereafter.

In 1948, Part V (a new pension arrangement) was added to the RCMP Act. Plan members who elected to become contributors under Part V were required to either suspend or terminate their participation in the plan. Moreover, the plan was then closed to any new entrants except certain constables whose continuous service dated back to 1 October 1934 or earlier. Lastly, the plan was amended so that the government assumed responsibility for any deficit in the Fund.

In 1959, the *Royal Canadian Mounted Police Superannuation Act* and the *Royal Canadian Mounted Police Pension Continuation Act* were enacted to provide for all RCMP pension arrangements. The plan was transferred to the RCMPPCA, where it remains.

In 1975, the age at which the eligibility of a son for survivor benefits expires was raised from 18 years to 21 years, which already applied to a daughter. In addition, survivor benefits were extended to age 25 for unmarried sons and daughters still in school, subject to certain conditions. Lastly, the 4% annual interest rate that had always been applied to the Fund balance was replaced by the rate applied to the three major Superannuation Accounts (Public Service, Canadian Forces – Regular Forces, and Royal Canadian Mounted Police), which is derived from the yield on a notional long-term bond portfolio (see Section II-D). The resulting higher interest credits have flowed through to members and survivors in the form of more generous benefit increases from 1975 onward.

In 1989, marital status was eliminated as a criterion to determine the eligibility for survivor benefits of a son or daughter between ages 21 and 25. Also eliminated was the provision for reducing the pension of a widow more than 20 years younger than her husband at the date of his death.

In 1993, the plan was amended to allow the payment of pension to a widow cohabiting with a man to whom she is not married.

B. Membership

As mentioned above, plan membership was compulsory for constables appointed to the Force from 1934 to 1948. Thereafter, the plan was essentially closed to new entrants. The last plan member retired from active duty in 1987.

C. Contributions

1. Member Contributions

a) Current Service

To purchase current service benefits, a member on active duty contributed 5% of pay together with any supplementary amounts in accordance with the scale set out in the RCMPPCA.

b) Past Service

A member on active duty could elect to contribute, either in a lump sum or by equivalent[1] instalments, to purchase benefits in respect of any period of eligible past service, based on his rate of pay at the date of election. Similarly, on promotion to or within the ranks of non-commissioned officers, he could elect to partially or fully upgrade the accrued benefits.

2. Government Contributions

The RCMPPCA requires the Government of Canada to make contributions only to restablish the solvency of the Fund. Every valuation to date has revealed a surplus and therefore no government contribution has ever been credited to the Fund.

D. Interest Earnings

1. Interest Rate on New Money

The prescribed interest rate on the newly issued notional bonds (see Section II-D) is the average rate on outstanding Government of Canada bonds with 20 or more years to maturity.

2. Allocation of Interest Credits

Interest is credited every three months to the Fund on the basis of the yield in the preceding quarter on the notional bond portfolio underlying the combined Superannuation Accounts of the Public Service, Canadian Forces – Regular Forces, and Royal Canadian Mounted Police pension plans.

E. Basic Death Benefits

The amount of basic benefit is determined solely in accordance with the terms of the RCMPPCA, without reference to any cumulative dividend (see subsection F below) that may be payable. A lump sum or pension benefits, as applicable, are payable on the death of a member who has made the scheduled contributions and had left them in the Fund.

1. Widow Pensions

A widow is entitled to the pension purchased by the member’s contributions at the rates specified in Table II of the Schedule to the RCMPPCA. In many cases, the pension is approximately equal to 1.5% of the member’s final pay multiplied by his years of credited service. The pension is payable for life. If a widow dies before receiving payments at least equal to the member’s contributions, then a residual amount is payable.

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[1] Based on the mortality rates of the CM(5) Table with interest at 4% per annum.

2. **Lump Sum Benefits**

   If a member is not survived by a widow, a lump sum payment is made to the dependants and relatives of the member who are, in the opinion of the Minister having control and management of the Force, best entitled to share the benefit. The lump sum amount is equal to the present value[1] of a hypothetical pension payable to a 75 year old widow.

3. **Benefit Limitation**

   The basic pension payable to the widow of a member who married after age 60 is reduced to ensure that the present value[1] of her pension does not exceed the lump sum otherwise payable on his death.

F. Cumulative Dividends on Basic Death Benefits

If the Fund is substantially in excess of the amount required to make adequate provision for the prospective payments to be made out of it, the Governor in Council may by order increase all the plan benefits, or any of them, in such manner as may appear equitable and expedient.

Until 31 March 1991, the benefit increases took the form of cumulative dividend percentages applied equally to all basic death benefits except the residual amount payable on the early death of a widow. Effective 1 April 1991, separate cumulative dividend percentages for lump sum benefits and for pensions to widows were introduced. At the same time, cumulative dividends first became applicable to the residual amount payable on the early death of a widow. Current dividend rates are 1,148% for pension and residual benefits, and 632% for lump sums payable on member deaths.

The cumulative dividends that may be declared are not subject to the limitations on the basic death benefits described in subsection E.3 above.

G. Withdrawal Benefits

A member can elect at any time to withdraw his contributions from the Fund, without interest; neither he nor any of his dependants has any entitlement under the plan thereafter.

H. Instalment Payments

A member can elect at any time to discontinue instalment payments being made in respect of a past service election. The present value[2] of the discontinued payments is thereupon converted into an equivalent[3] amount of basic death benefit and his accrued basic death benefit is reduced accordingly. In turn, this causes a reduction in the amount of the cumulative dividend.

If a member dies while making instalment payments, his entitlement under the plan remains unchanged because all required payments are deemed to have been made.

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1 Based on the mortality rates of the a(f) Ultimate Table with interest at 4% per annum.
2 Based on the mortality rates of the CM(5) Table with interest at 4% per annum.
3 Based on the rates in Table II of the RCMPPCA.

Appendix 2 - Membership Data

A. Source

The individual data in respect of members and widows were provided as at 31 March 2010, and are shown in the summaries of data in this appendix. All data were supplied by the consulting firm Morneau Sobeco, which is responsible for the administration of the plan. The data reflect deaths that were reported as of June 2010.

B. Validation

We performed certain tests of internal consistency, as well as tests of consistency with the data used in the previous valuation, with respect to membership reconciliation, basic information (date of birth, sex, etc.) and pensions to survivors.

Based on the omissions and discrepancies identified by these and other tests, appropriate adjustments were made to the basic data after consulting with the data provider.

C. Data Summary

In this report, *member* means a former contributor whose contributions are still credited to the Fund and *widow* means a widow whose pension is charged against the Fund. All members are males and all surviving spouses are widows. There is no child annuity in course of payment as at 31 March 2010.

The membership data is summarized in the following tables.

Table 7 Members Data
As at 31 March 2010

Age Last Birthday	Number[2]	Spouse's Accrued Annual Pension[1] Average ($)	Total ($)
75-79	2	17,500	35,000
80-84	45	23,000	1,035,000
85-89	28	20,500	574,000
90-94	17	14,900	253,000
95+	5	19,400	97,000
All ages	97	20,600	1,994,000

Average age: 86.4 years

1 Amounts reflect the basic pension together with the 1,148% cumulative dividend effective as at 1 April 2010.
2 Of these members, 26 were making instalment payments for life in respect of past service elections. The aggregate annual amount was $5,058 (average was $195).

Table 8 Widows Data
As at 31 March 2010

Age Last Birthday	Number	Annual Pension Payments[1]	
		Average ($)	Total ($)
70-74	6	20,200	121,000
75-79	15	24,300	365,000
80-84	40	19,300	772,000
85-89	50	16,900	845,000
90-94	25	15,500	388,000
95-99	7	10,600	74,000
100+	1	9,000	9,000
All ages	144	17,900	2,574,000

Average age: 86.0 years

D. Reconciliation

The following table derived from the basic data reconciles the numbers of members and widows as at 31 March 2010 with the numbers shown in the previous report.

Table 9 Reconciliation of Membership

	Members	Widows
As at 31 March 2007	125	154
Data updates[2]	-	(5)
New survivors		19
Deaths	(28)	(24)
As at 31 March 2010	97	144

1 Amounts reflect the basic pension together with the 1,148% cumulative dividend effective as at 1 April 2010.
2 Including four widows for whom pensions had been suspended before April 2007 and are deemed to have died.

Appendix 3 - Methodology

A. Assets

The principal asset of the plan consists of the recorded balance in the Royal Canadian Mounted Police (Dependants) Pension Fund, which forms part of the Public Accounts of Canada. This balance is equal to the book value of the portfolio of long-term bonds considered to be held by the Fund, as described in Section II-D.

The only other asset consists of the value, discounted in accordance with the projected Fund yields described in Section D below and shown in Appendix 4, of all future instalment payments by members in respect of past service elections made by 31 March 1987, which is when the last plan member retired from active duty.

B. Actuarial Liabilities

1. Members

The actuarial liabilities in respect of the members as at the valuation date correspond to the value, discounted in accordance with the actuarial assumptions, of all future benefits accrued as at that date in respect of service as an active member of the Force. The last benefit improvements approved by the Governor in Council were assumed to be fixed at 1,148% for pensions and 632% for lump sums payable on member deaths.

2. Widows

The actuarial liabilities in respect of the widows as at the valuation date correspond to the value, discounted in accordance with the actuarial assumptions, of all future benefits as at that date to which those widows are entitled. The last benefit improvements approved by the Governor in Council were assumed to be fixed at 1,148%.

For consistency, the actuarial liabilities are discounted at assumed interest rates, described in Section D below, that fully reflect the earning power of the assets.

C. Margins Against Adverse Fluctuations

1. Provision for Adverse Mortality Deviation

A best-estimate mortality assumption is good in projecting the mortality experience of a sufficiently large group of individuals. As the group size diminishes, random fluctuations play a larger role in mortality experience. Therefore, the best-estimate mortality assumption used in this valuation is not necessarily a good indicator of the future mortality experience of the relatively small number of members and widows remaining in the plan.

As in the previous valuation report, an additional actuarial liability has been set up to absorb the financial impact of random adverse mortality deviations. The amount of this provision was set equal to the loss that would occur if there were no deaths in the widow population in the plan year following the valuation date. As the group size diminishes, the relative value of the provision will increase but may also prove to be insufficient to ensure the future solvency of the plan in accordance with the RCMPPCA. At such time, the solvency of the plan can only be assured by the government assuming the mortality risk, which would allow the provision to be released into actuarial surplus.

2. **Other Margins**

   While adverse mortality deviations are the principal risk to the solvency of the plan, there are also less important risks such as adverse deviations in the proportion-married and widow age experience. These risks can be dealt with by curtailing the future annual benefit increases generated by the surplus, if need be. The probability of any decrease in benefit in the future is therefore considered remote.

D. Projected Yields on the Fund

The government applies the same quarterly interest rates to the Fund as it does to the three major Superannuation Accounts (Public Service, Canadian Forces – Regular Forces, and Royal Canadian Mounted Police). The projected yields (shown in Appendix 4) assumed in computing the present value of benefits involved in estimating the liabilities are the projected annual yields on the combined book value of the three major Superannuation Accounts.

The projected yields were determined by an iterative process involving the actual interest earnings on the combined assets of the three accounts as at the valuation date, the assumed future new money interest rates (also shown in Appendix 4), and the assumed future combined cash flows for the three accounts. This approach is in accordance with legislation, common to the three foregoing pension plans, stipulating that the average yield on the combined accounts is to be used in allocating aggregate interest earnings to each of the three accounts.

E. Utilization of Actuarial Surplus

The recommended benefit increases herein are intended to distribute actuarial surplus as it is earned, based on our developed procedure described below.

1. Distribute the very small amount of actuarial surplus necessary to ensure that the residual benefit payable on the death of a new widow will on average be equal to the lump sum death benefit otherwise payable on the death of her husband.
2. Determine the level annual effective benefit increase that can be provided if the future experience is in accordance with the economic and demographic assumptions made in this report. Apply the amount of surplus sufficient to provide the level annual effective benefit increases for plan years 2012, 2013 and 2014.
3. Retain the remaining surplus for future benefit increases.

Appendix 4 - Economic Assumptions

A. Interest Assumptions

The interest assumptions were changed for this valuation. Recognizing recent experience, the rate of return on long-term government of Canada Bonds (new money) is assumed to be 4.4% for plan years 2011 and 2012. The rate then increases gradually and reaches its ultimate rate of 5.2% (based on historical returns) per annum in 2016. The Fund yield assumptions, derived as described in Appendix 3-D, are lower than those used in the previous valuation (on average 0.2% lower for the 10 years following the valuation date and on average 0.3% lower thereafter). They are as follows.

Table 10 Economic Assumptions

	Interest Rates (%)	
Plan Year	New Money	Fund Yield
2011	4.4	6.52
2012	4.4	6.05
2013	4.7	5.82
2014	5.0	5.65
2015	5.1	5.49
2016	5.2	5.28
2017	5.2	5.12
2018	5.2	5.01
2019	5.2	4.96
2020	5.2	4.93
2021	5.2	4.87
2022	5.2	4.85
2023	5.2	4.84
2024	5.2	4.82
2025	5.2	4.81
2026	5.2	4.82
2027	5.2	4.86
2028	5.2	4.90
2029	5.2	4.95
2030	5.2	5.02
2031	5.2	5.09
2032	5.2	5.18
2033	5.2	5.20
2034+	5.2	5.20

B. Administrative Expenses

As in the previous valuation, the expenses incurred for the administration of the plan are assumed to be nil. These expenses, which are not charged against the Fund, are borne entirely by the government and are commingled with all other government expenses.

Appendix 5 - Demographic Assumptions

Except where otherwise noted, all demographic assumptions were determined from the plan's own experience.

A. New Entrants

Because the Fund is closed to new entrants, the assumption that there would be no future new entrants was retained from the previous valuation.

B. Withdrawal Rates

As in the previous valuation, no members are assumed to withdraw from the plan.

C. Mortality

Assumed rates of mortality applicable to members were changed for this valuation. For plan year 2011, they are equal to the corresponding rates from the actuarial report on the pension plan for the Royal Canadian Mounted Police as at 31 March 2008 applicable to male Regular Members. Up to age 85, plan year 2011 rates are on average 2% lower than those assumed for that plan year in the previous valuation. For ages over 85, plan year 2011 rates are on average 2% higher than those assumed for that plan year in the previous valuation.

Assumed rates of mortality applicable to widows were also changed for this valuation. For plan year 2011, they are equal to the corresponding rates from the actuarial report on the pension plan for the Public Service of Canada as at 31 March 2008 applicable to female surviving spouses. Up to age 85, plan year 2011 rates are on average 4% lower than those assumed for that plan year in the previous valuation; at more advanced ages, they are not materially different than those assumed for that plan year in the previous valuation.

Table 11 Plan Year 2011 Mortality Rates
(per 1,000 individuals)

Age Last Birthday	Plan Year 2011 Mortality Rates	
	Members	Widows
65	8.6	8.4
75	26.9	23.3
85	92.8	71.8
95	208.1	204.2
105	371.0	499.7
115	1,000.0	1,000.0

Mortality rates are reduced in the future in accordance with the same mortality improvement assumption as that made for the 23rd Actuarial Report on the Canada Pension Plan. Up to age 95, for both males and females, the improvement factors are higher than those used in the previous valuation. The ultimate rates of improvement for years 2029 and thereafter were established by analysing the trend by age and sex of Canadians experienced over the last 30 years. Rates of improvement for the period 2005 to 2009 were assumed to be those experienced on average over the last 15 years (1989 to 2004). After 2009, the rates were assumed to reduce gradually to their ultimate level by year 2029. Assumed future annual reductions are shown in the following table.

Table 12 Future Annual Mortality Rate Reductions[1]
(in percentage)

Age Last Birthday	Members		Widows	
	2011	2029+	2011	2029+
65	2.26	0.70	1.22	0.70
75	1.96	0.70	1.20	0.70
85	1.01	0.64	0.69	0.64
95	0.22	0.40	0.13	0.40
105	0.04	0.40	0.04	0.40
115	-	-	-	-

D. Prospective Widows and Eligible Children

Table 13 shows the proportion of members assumed to leave, upon death, a widow eligible for a pension from the Fund. Also shown is the assumed age difference between spouses. Both assumptions are unchanged from the previous valuation.

Table 13 Assumptions for Prospective Widows

Age Last Birthday of Member at Death	Proportion of Members Married	Age[2] Difference
65	0.96	(3)
75	0.84	(3)
85	0.66	(5)
95	0.31	(6)
105	0.07	(11)
115	0.01	(18)

Taking into account the advanced ages of the current members, the assumption that no member would be survived by a child or student eligible to receive an annuity was retained from the previous valuation.

E. Widow Pension Suspensions

It is assumed that widows for whom pension payments were suspended had died at the time pension payments were suspended. If this assumption is not realized, the future surplus distributions will be affected accordingly.

1 Mortality reduction is based on an 18-year select period during which the annual mortality reductions are found by linear interpolation between the figures for 2011 and 2029.

2 Age of widow less age of participant, both calculated at death of participant.

Appendix 6 - Acknowledgements

The RCMP Pension Accounting Unit provided and certified the financial statements as at 31 March 2010 upon which the income statement and Fund balance were based.

The consulting firm Morneau Sobeco, responsible for the administration of the plan, provided relevant valuation input data in respect of members and widows.

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

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