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ACTUARIAL REPORT

on the Benefit Plan Financed Through the

ROYAL CANADIAN MOUNTED POLICE (DEPENDANTS) PENSION FUND

as at 31 March 2013

Canada

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Cat. No. IN3-16/21-2013E-PDF
ISSN 2291-949X

27 September 2013

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 2013 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
Office of the 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 2013 pursuant to section 56 of the Act. The previous review was made as at 31 March 2010. The date of the next periodic review is 31 March 2016.

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 2010 actuarial report on the benefit plan. The major improvements were effective pension increases of 2.0% as at 1 April 2011, 1 April 2012 and 1 April 2013. 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 2013 (i.e. the end of the 2013 plan year[1]), the plan had an actuarial surplus of $1.3 million ($2.7 million as at 31 March 2010), being the excess of assets of $22.7 million over actuarial liabilities of $21.4 million.
- It is recommended that $0.6 million of actuarial surplus be used to provide the following benefit improvements:
  - i) a pension increase for current and prospective widows of 1.2% as at 1 April 2014, 1 April 2015 and 1 April 2016;
  - ii) an increase in the lump sum benefit payable upon the death of a member of 1.2% as at 1 April 2014, 1 April 2015 and 1 April 2016; 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 2015, 2016, or 2017 plan years, obtained by deeming the member's contributions, which have not been credited with interest, to be increased by 1,240%, 1,256%, and 1,272% respectively (note that this is equivalent to an increase of 1.2% per year to the member's deemed contributions as at 1 April 2013).

The remaining $0.7 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 2044, 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.

In the previous valuations reports, an additional actuarial liability had been set up as a provision to absorb the financial impact of random adverse mortality deviations. As the average age of members and widows is close to 90 in this valuation, the provision for adverse mortality deviations has been released into actuarial surplus with the objective of paying the last dollar to the last widow without giving special treatment for that widow.

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 2013, and the data and actuarial assumptions described in following sections. Previous valuation results as at 31 March 2010 are shown for comparison.

Table 1 Balance Sheet
($ dollars)

	As at 31 March 2013	**As at 31 March 2010**
Assets		
Fund balance	22,677,000	26,972,000
Actuarial value of instalments in pay by members	17,000	24,000
Total Assets	**22,694,000**	**26,996,000**
Actuarial Liabilities		
Benefits accrued by members		
· widow pensions	3,177,000	4,559,000
· lump sums on death without a widow	3,305,000	3,679,000
Widow pensions in pay	14,546,000	14,999,000
Provision for adverse mortality deviation	-	932,000
Outstanding payments[1]	323,000	162,000
Total Actuarial Liabilities	**21,351,000**	**24,331,000**
Actuarial Surplus	**1,343,000**	**2,665,000**

The actuarial surplus of $1.3 million represents 6% of the actuarial liabilities of $21.4 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 2013 for member or widow deaths that occurred before that date.

Table 2 Reconciliation of Financial Position
As at 31 March 2013 ($ dollars)

Actuarial surplus as at 31 March 2010	**2,665,000**
Data corrections	(2,000)
Cost of 2011, 2012 and 2013 benefit increases	(1,075,000)
Updated actuarial surplus as at 31 March 2010	**1,588,000**
Interest on surplus	310,000
Expected actuarial surplus as at 31 March 2013	**1,898,000**
Experience gains and losses	(257,000)
Change in actuarial assumptions	(1,412,000)
Change in provision for adverse mortality deviation	1,114,000
Actuarial surplus as at 31 March 2013	**1,343,000**

1. **Data corrections**
The outstanding payments of $162,000 shown as a liability in the previous valuation were corrected to $164,000 and the surplus as at 31 March 2010 has decreased by $2,000.

2. **Cost of 2011, 2012 and 2013 Benefits Increases**
Benefit improvements in accordance with the surplus distribution recommendations of the previous report were approved and the surplus as at 31 March 2010 has decreased by $1,075,000.

3. **Interest on Surplus**
The expected interest to 31 March 2013 on the updated surplus of $1,588,000 as at 31 March 2010 amounts to $310,000.

4. **Experience Gains and Losses**
Since the previous valuation, the actuarial surplus decreased by $257,000 due to actuarial gains and losses as described in the following table.

Table 3 Experience Gains and Losses
($ dollars)

Mortality of widows	(74,000)
Age of new widows	(68,000)
Mortality of members	(41,000)
Proportion married	(34,000)
Interest rates	(19,000)
Miscellaneous	(21,000)
Net experience gains	(257,000)

(a) Mortality of Widows
During the three years ended 31 March 2013, the 34 reported widow deaths amounted to 85% of the 39.9 deaths expected in accordance with the assumption in the previous valuation. The plan recorded an experience loss of $74,000.

(b) Age of New Widows

The 22 new widows during the three-year period were on average 1.8 year younger than expected. The plan recorded an experience loss of $68,000.

(c) Mortality of Members

During the three years ended 31 March 2013, the 32 reported member deaths amounted to 110% of the 29.0 deaths expected in accordance with the assumption in the previous valuation. The plan recorded an experience loss of $41,000.

(d) Proportion Married

During the three years ended 31 March 2013, the 22 new widows were 144% of the 15.3 expected; the plan recorded an experience loss of $34,000.

(e) Interest Rates

In the previous valuation, the Fund was assumed to earn interest at an average annual rate of 6.13% during the three years ended 31 March 2013. The actual interest rates were just below the expected rates (average 6.08%), causing an experience loss of $19,000.

5. Change in Actuarial Assumptions

Actuarial assumptions were revised as described in Appendix 4 and Appendix 5. The actuarial surplus decreased by $1,412,000, due to the following revisions.

Table 4 Change in Actuarial Assumptions
($ dollars)

Widow mortality	(912,000)
Interest rates	(532,000)
Member mortality	32,000
Net impact of revision	**(1,412,000)**

(a) Widow Mortality

Both components of the mortality basis for widows, namely the rates assumed for the 2014 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 $850,000 and $62,000, respectively, for a total decrease of $912,000.

(b) 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 5.2% to 5.0% causing the Fund yield to be on average 0.6% lower than in the previous valuation over the next 15 years. The adoption of the revised interest assumption caused the actuarial surplus to decrease by $532,000.

(c) Member Mortality

Both components of the mortality basis for members, namely the rates assumed for the 2014 plan year and the annual reduction factors applying to those rates in subsequent years, were revised. As a result, the actuarial surplus increased by $14,000 and $18,000, respectively, for a net increase of $32,000.

6. **Change in Provision for Adverse Mortality Deviation**

   In the previous valuation report, an additional actuarial liability of $932,000 had been set up as a provision to absorb the financial impact of random adverse mortality deviations. As the average age of members and widows is close to 90 in this valuation, the provision for adverse mortality deviations has been released into actuarial surplus. The release of this provision together with interest, which amounts to $182,000, increases the surplus by $1,114,000.

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 $21,351,000 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. **Interest rates**

   If the interest rates assumption would increase by 1% in each future year, the actuarial liabilities would decrease by $1,044,000 (i.e. by 4.9%).

   If the interest rates assumption would decrease by 1% in each future year, the actuarial liabilities would increase by $1,151,000 (i.e. by 5.4%).

2. **Mortality of Widows**

   If the mortality rates assumed for widows in each future year were reduced by 10%, the actuarial liabilities would increase by $921,000 (i.e. by 4.3%).

   If the assumed improvements in longevity for widows after the 2014 plan year (see Appendix 5) were not realized, the actuarial liabilities would decrease by $228,000 (i.e. by 1.1%).

3. **Mortality of Members**

   If the mortality rates assumed for members in each future year were increased by 10%, the actuarial liabilities would increase by $148,000 (i.e. by 0.7%).

   If the assumed improvements in longevity for members after the 2014 plan year (see Appendix 5) were not realized, the actuarial liabilities would increase by $40,000 (i.e. by 0.2%).

4. **Proportion of Married Members**

   If the proportion of members married at death were increased by 10%, then the actuarial liabilities would increase by $102,000 (i.e. by 0.5%).

5. **Widow Age Difference**

   If the age of each future new widow were reduced by one year, then the actuarial liabilities would increase by $132,000 (i.e. by 0.6%).

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, 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 is 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 $4,295,000 (i.e. 16%) to $22,677,000 as at 31 March 2013.

Table 5 Fund Balance
($ dollars)

	Plan year		
	2011	**2012**	**2013**
Opening Balance	26,972,269	25,297,146	23,939,819
Receipts and other credits			
Contributions	4,929	3,953	3,719
Interest	1,683,870	1,464,314	1,297,701
Total	28,661,068	26,765,413	25,241,239
Payments and other charges			
Annuities	2,570,644	2,517,340	2,488,037
Lump sum payments	793,278	308,254	398,891
Return of Contributions	-	-	-
Total	3,363,922	2,825,594	2,886,928
Net Assets Available for Benefits	**25,297,146**	**23,939,819**	**22,354,311**
Accounts Payable	793,278	229,690	322,571
Closing Balance	**26,090,424**	**24,169,509**	**22,676,882**

3. Rates of Return

The rates of return on the Fund in plan years 2011, 2012 and 2013 were 6.6%, 6.0% and 5.7% 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 2015, 2016, and 2017 plan years is $0.6 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 1.2% on 1 April 2014, 1 April 2015 and 1 April 2016.

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 2014	16%	1,240%	1.2%
1 April 2015	16%	1,256%	1.2%
1 April 2016	16%	1,272%	1.2%

Increase in lump sum payable upon death of a member

Effective Date	Dividend Increase	Cumulative Dividend	Effective Increase
1 April 2014	9%	686%	1.2%
1 April 2015	9%	695%	1.2%
1 April 2016	10%	705%	1.2%

The remaining $0.7 million of actuarial surplus should be sufficient to provide future increases of 1.2% per year from 1 April 2017 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*
2013	*65*	*132*
Projected		
2016	43	105
2019	26	78
2022	14	54
2025	7	34
2028	3	19
2031	1	10
2044	-	-

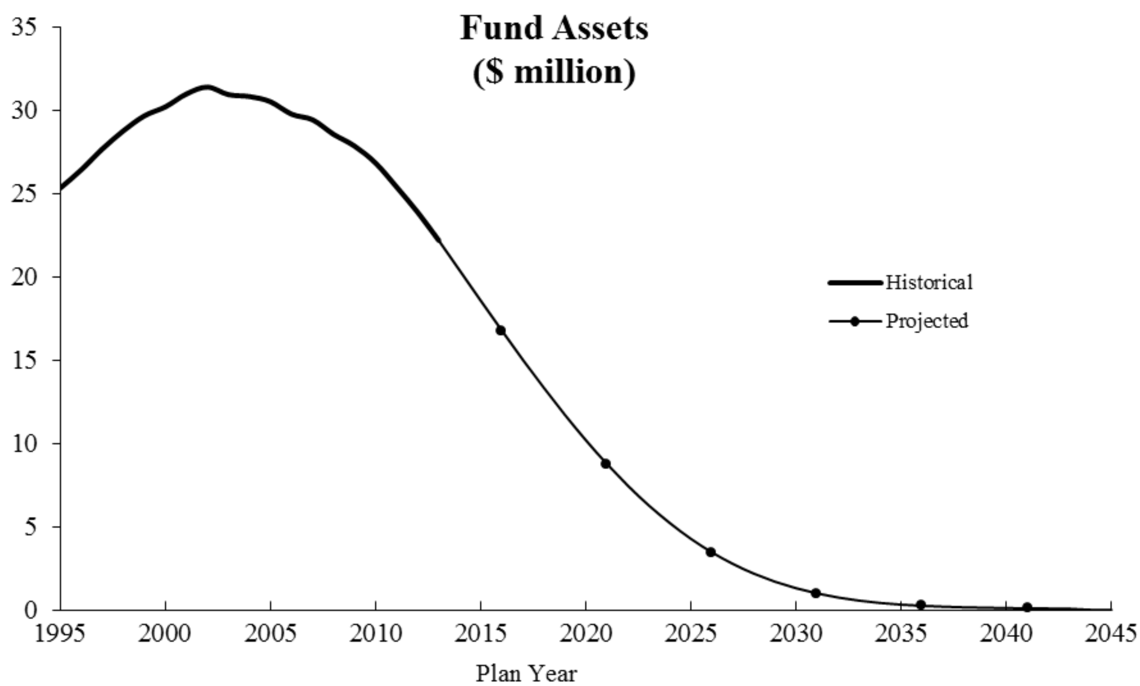
Over the last decade, the number of members has fallen steadily so that only 65 remain at 1 April 2013 (97 at 1 April 2010); this trend is projected to continue until the death of the last member, which is expected in the plan year 2033. The number of widows reached 132 by 1 April 2013 (144 by 1 April 2010). A steady decline is expected thereafter, with the last widow expected to survive to the plan year 2044 (2037[1] in the 2010 valuation).

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.

1 The expected last payment to be made has been deferred by seven years in this valuation mainly because a new survivor is much younger than expected.

B. Assets Projection

Using the assumptions described in Appendix 4 and 5, the Fund assets were projected. The total outstanding payments of $323,000 shown in the balance sheet were assumed to be made on 1 April 2013.



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 2044.

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, F.S.A., F.C.I.A.
Chief Actuary

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

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

Ottawa, Canada
27 September 2013

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 1,224% for pension and residual benefits, and 677% 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 as at 31 March 2013 are shown in the summaries of data in this appendix. Data on widows were supplied by the consulting firm Morneau Shepell, which is responsible for the administration of the plan. The data reflect deaths up to 31 March 2013 that were reported as of July 2013.

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 2013.

The membership data is summarized in the following tables.

Table 7 Members Data
As at 31 March 2013

Age Last Birthday	Number[2]	Spouse's Accrued Annual Pension[1] Average ($)	Total ($)
80-84	11	21,497	236,470
85-89	31	24,916	772,381
90-94	20	20,224	404,483
95+	3	8,665	25,994
All ages	65	22,144	1,439,328

Average age: 88.5 years

1 Amounts reflect the basic pension together with the 1,224% cumulative dividend effective as at 1 April 2013.
2 Of these members, 19 were making instalment payments for life in respect of past service elections. The aggregate annual amount was $3,694 (average was $194).

Table 8 Widows Data
As at 31 March 2013

Age Last Birthday	Number	Annual Pension Payments[1] Average ($)	Total ($)
Less than 75	2	19,431	38,863
75-79	7	18,386	128,701
80-84	27	24,136	651,673
85-89	47	18,005	846,250
90-94	35	17,634	617,201
95-99	11	17,725	194,978
100+	3	8,410	25,229
All ages	132	18,961	2,502,895

Average age: 87.8 years

D. Reconciliation

The following table derived from the basic data reconciles the numbers of members and widows as at 31 March 2013 with the numbers shown in the previous report.

Table 9 Reconciliation of Membership

	Members	Widows
As at 31 March 2010	97	144
New survivors		22
Deaths	(32)	(34)
As at 31 March 2013	65	132

[1] Amounts reflect the basic pension together with the 1,224% cumulative dividend effective as at 1 April 2013.

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 1,224% for pensions and 677% 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 1,224%.

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. 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.

D. 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 2015, 2016 and 2017.
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 3.0% for plan year 2014. The rate then increases gradually and reaches its ultimate rate of 5.0% (based on historical returns) per annum in 2021. The Fund yield assumptions, derived as described in Appendix 3-D, are lower than those used in the previous valuation (on average 0.6% lower over the next 15 years). They are as follows.

Table 10 Economic Assumptions

	Interest Rates (%)	
Plan Year	New Money	Fund Yield
2014	3.0	5.4
2015	3.4	5.1
2016	3.8	4.8
2017	4.2	4.6
2018	4.6	4.5
2019	4.8	4.4
2020	4.9	4.3
2021	5.0	4.2
2022	5.0	4.2
2023	5.0	4.2
2024	5.0	4.1
2025	5.0	4.1
2026	5.0	4.1
2027	5.0	4.1
2028	5.0	4.1
2030	5.0	4.1
2035	5.0	4.8
2040+	5.0	5.0

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. They correspond to the plan year 2014 mortality rates for male Regular Members from the actuarial report on the pension plan for the Royal Canadian Mounted Police as at 31 March 2012. They are on average 1% lower than those assumed for that plan year in the previous valuation.

Assumed rates of mortality applicable to widows were also changed for this valuation. They correspond to the plan year 2014 mortality rates for surviving spouses from the actuarial report on the pension plan for the Public Service of Canada as at 31 March 2011. They are on average 10% lower than those assumed for that plan year in the previous valuation.

Table 11 Plan Year 2014 Mortality Rates
(per 1,000 individuals)

Age Last Birthday	Plan Year 2014 Mortality Rates Members	Widows
55	2.7	3.2
65	7.7	8.0
75	25.2	20.4
85	89.0	61.2
95	204.9	186.7
105	500.0	500.0
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 25th Actuarial Report on the Canada Pension Plan. For both members and widows, the improvement factors are significantly higher than those used in the previous valuation which were based on the 23th Actuarial Report. The ultimate rates of improvement for years 2031 and thereafter were established by analysing the trend by age and sex of Canadians experienced over the period 1921 to 2006. Improvement factors for plan year 2012 were assumed to be those experienced on average over the 15-year period 1991 to 2006. After plan year 2012, the factors were assumed to reduce gradually to their ultimate level by plan year 2031. Assumed future annual reductions are shown in the following table.

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

Age Last birthday	Members 2014	Members 2031+	Widows 2014	Widows 2031+
55	1.93	0.80	1.26	0.80
65	2.35	0.80	1.37	0.80
75	2.09	0.74	1.38	0.74
85	1.52	0.58	1.10	0.58
95	0.64	0.34	0.35	0.34
105	0.13	0.30	0.05	0.30
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
80	0.77	(4)
85	0.66	(5)
90	0.49	(5)
95	0.31	(6)
100	0.16	(8)
105	0.07	(11)
110	0.03	(14)
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

In the 2010 valuation it was assumed that four widows for whom pension payments were suspended had died at the time pension payments were suspended. The death of three widows has been confirmed. The widow for whom the death has not been confirmed is assumed to have died at the time the payments were suspended. If this assumption is not realized, the future surplus distributions will be affected accordingly.

1 The mortality rate reduction applicable during any plan year within the 17-year select period is found by linear interpolation between the figures for plan years 2014 and 2031.

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 2013 upon which the income statement and Fund balance were based.

The consulting firm Morneau Shepell, 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.

The following individuals assisted in the preparation of this report:

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