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ACTUARIAL REPORT

ON THE

BENEFIT PLAN FINANCED THROUGH THE

ROYAL CANADIAN MOUNTED POLICE (DEPENDANTS) PENSION FUND

AS AT 31 MARCH 2004

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

Canada

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25 February 2005

The Honourable Ralph Goodale, C.P., 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 2004 of the benefit plan established under Part IV of the Act.

Yours sincerely,

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 2004 pursuant to section 56 of the Act. The previous review was made as at 31 March 2001. The date of the next periodic review is 31 March 2007.

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

- to show a reasonable and realistic estimate of the balance sheet (i.e. assets, actuarial liabilities, and actuarial surplus) as at the valuation date, and
- to recommend measures to deal with the actuarial surplus.

B. Scope of the Report

The history of the plan is given in Appendix 1. During the intervaluation period there were no changes to the plan provisions, which are summarized in Appendix 2. However, the Governor in Council made benefit improvements in accordance with the surplus distribution recommendations in the 2001 actuarial report on the plan. The major improvements were effective pension increases of 2.6% as at 1 April 2002, 1 April 2003 and 1 April 2004. 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.

C. Main Findings

- As at 31 March 2004 (i.e. the end of the 2004 plan year[1]), the plan had an actuarial surplus of $3.7 million, being the excess of assets of $30.9 million over actuarial liabilities of $27.2 million.
- Some $1.1 million of actuarial surplus should be used to provide the following benefit improvements:
  i) a pension increase for current and prospective widows and children of 1.5% as at 1 April 2005, 1 April 2006 and 1 April 2007;
  ii) an increase in the lump sum benefit payable upon the death of a member of 1.5% as at 1 April 2005, 1 April 2006 and 1 April 2007; and
  iii) an increased residual amount payable on the death of a widow of a member who dies in the 2006, 2007, or 2008 plan years, to be obtained by deeming the member's contributions to be increased by 1,035%, 1,052%, and 1,069% respectively.

The remaining $2.6 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.

[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.

D. Future of the Plan

The plan membership has been declining steadily since 1948. The growth of the Fund has come to an end and the Fund is estimated to decline steadily until the last dollar is paid to the last widow, estimated to occur in the plan year 2039.

II. Financial Position of the Plan

A. Balance Sheet as at 31 March 2004

The following balance sheet is based on the plan provisions described in Appendix 2, the cumulative dividends in effect as at 1 April 2004 (1,018% for pension and residual benefits, 556% for lump sums payable on member deaths), and the data and actuarial assumptions described in following sections.

Table 1 Balance Sheet
as at 31 March 2004 ($ thousands)

Assets	
Fund balance	30,805
Actuarial present value of instalments in pay by members	53
Total Assets	30,858
Actuarial Liabilities	
Benefits accrued by members	
· widow pensions	6,417
· lump sums on death without a widow	3,506
Widow pensions in pay	16,391
Provision for adverse mortality deviation	742
Outstanding payments	116
Total Actuarial Liabilities	27,172
Actuarial Surplus	3,686

B. Disposition of Actuarial Surplus

The established algorithm for the distribution of actuarial surplus, as described in Appendix 8, indicates that $1.1 million should be distributed over the next three years in the form of pension, residual and lump sum death benefit increases. By far the most costly of these increases are with respect to the widow pensions, which would rise by 1.5% on 1 April 2005, 1 April 2006 and 1 April 2007. Full details of the proposed distribution of actuarial surplus are found in Appendix 8.

C. Sensitivity of Actuarial Liabilities to Variations in Key Assumptions

The supplementary estimates shown below indicate the degree to which the actuarial liabilities of $27.2 million shown in the balance sheet depend on some key assumptions. The actuarial liability changes shown below 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 one-tenth, the actuarial liabilities would increase by $915,000 or 3.4%.

If the assumed improvements in longevity for widows after the 2005 plan year (see Appendix 7) were disregarded, the actuarial liabilities would decrease by $503,000 or 1.9%.

2. **Mortality of Members**

   If the mortality rates assumed for members in each future year were increased by one-tenth, the actuarial liabilities would increase by $356,000 or 1.3%.

   If the assumed improvements in longevity for members after the 2005 plan year (see Appendix 7) were disregarded, the actuarial liabilities would increase by $203,000 or 0.7%.

3. **Proportion of Married Members**

   If the proportion of members married at death were increased by one-tenth, then the actuarial liabilities would increase by $221,000 or 0.8%.

4. **Widow Age Difference**

   If the age of each future new widow were reduced by one-year, then the actuarial liabilities would increase by $222,000 or 0.8%.

The investment yield assumption is no longer considered to be a key assumption. Per Appendix 5D, the Superannuation Accounts from which the Fund's quarterly interest rates are derived are now almost only credited with interest. 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. Reconciliation of Results with Previous Report

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

Table 2 Reconciliation of Financial Position
as at 31 March 2004 ($ thousands)

Actuarial surplus as at 31 March 2001	**4,818**
Data corrections and refinement of methodology	294
Interest on corrected surplus	1,426
Cost of 2002, 2003 and 2004 benefit increases	(2,175)
Experience gains and losses	(615)
Change in actuarial assumptions	(56)
Change in provision for adverse mortality deviation	110
Outstanding Payments	(116)
Actuarial surplus as at 31 March 2004	**3,686**

1. **Data Corrections and Refinements of Methodology**

   The correction of data upon which the 2001 report was based resulted in an increase of $101,000 in the actuarial surplus. Refinements to the methodology resulted in an increase of $193,000 in the actuarial surplus.

2. **Interest on corrected Surplus**

   The expected interest to 31 March 2004 on the 31 March 2001 corrected surplus, i.e. taking into account the data corrections and the refinements of methodology, is $1,426,000.

3. **Cost of 2002, 2003 and 2004 Benefits Increases**

   Benefit improvements in accordance with the surplus distribution recommendations resulted in an increase of benefits paid of $219,000 with interest since last valuation and in an increase of the liabilities of $1,956,000 for a total of $2,175,000.

4. **Experience Gains and Losses**

   Since the previous valuation, the actuarial surplus decreased by $615,000 due to actuarial losses as described in the following table.

Table 3 Experience Gains and Losses
($ thousands)

Mortality of widows	(650)
Interest rates	(54)
Mortality of members	(135)
Proportion married	(138)
Withdrawals	(30)
Age of new widows	283
Actual versus expected benefit paid	109
Net experience losses	**(615)**

a) **Mortality of Widows**

   During the three years ended 31 March 2004, the 23 reported widow deaths amounted to 76% of the 30.2 deaths expected in accordance with the assumption in the previous valuation. As a result the plan recorded an experience loss of $650,000.

b) **Interest Rates**

   In the previous valuation the Fund was assumed to earn interest at an average annual rate of 8.55% during the three years ended 31 March 2004. The actual interest rates were modestly lower (average 8.50%), causing an experience loss of $54,000.

c) **Mortality of Members**

   During the three years ended 31 March 2004, the 31 reported member deaths amounted to 102% of the 30.5 deaths expected in accordance with the assumption in the previous valuation. As a result the plan recorded an experience loss of $135,000.

d) Proportion Married

The 24 new widows during the three-year period ended 31 March 2004 were 2.6 more than expected. As a result the plan recorded an experience loss of $138,000.

e) Withdrawals

In the previous valuation each member was assumed to be subject to a future withdrawal rate of 0.15%. There was no withdrawal during the three years ended 31 March 2004, causing an experience loss of $30,000.

f) Age of New Widows

The 24 new widows during the three-year period ended 31 March 2004 were on average 1.0 year older than expected. As a result the plan recorded an experience gain of $283,000.

g) Actual Versus Expected Benefit Paid

According to financial statements, benefits paid during the three-year period ended 31 March 2004 were less than expected. As a result the plan recorded an experience gain of $109,000.

5. Change in Actuarial Assumptions

The actuarial surplus decreased by $56,000, due to the following revisions.

Table 4 Change in Actuarial Assumptions
($ thousands)

Interest rates	(64)
Improvements in longevity	141
Withdrawals	(133)
Net impact of revision	**(56)**

a) Interest Rates

The interest rates for this valuation were developed by the procedure described in Appendix 5D. Adopting this revised interest assumption caused the actuarial surplus to decrease by $64,000.

b) Improvements in Longevity

Annual reduction factors, applying to mortality rates in subsequent years, were revised in this valuation, as a result the actuarial surplus increased by $141,000.

c) Withdrawals

For this valuation the withdrawal rate was deemed to be null, it was 0.15% in the previous valuation. This revised assumption caused the actuarial surplus to decrease by $133,000.

6. Provision for Adverse Mortality Deviation

In this valuation the provision for adverse mortality deviation is $742,000, which is $110,000 less than the previous provision of $852,000 (including interest to 31 March 2004). 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 eventually (perhaps 10 years hence) 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.

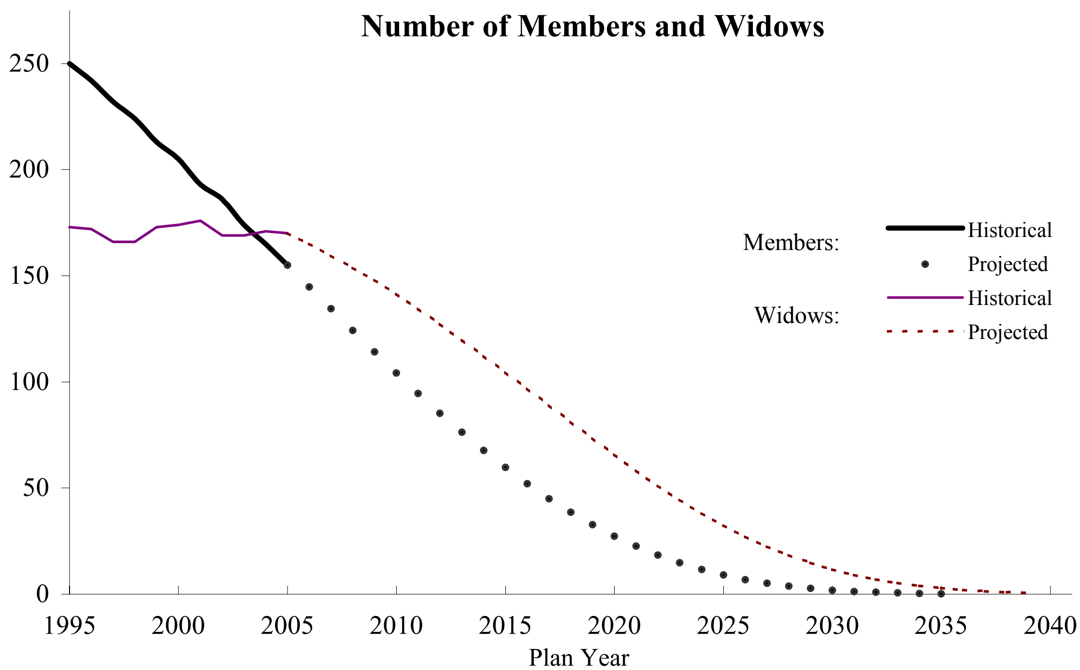
7. Outstanding Payments

For valuation purposes, the provision for outstanding payments is $116,000.

III. Demographic and Financial Projections

A. Membership Projections

On the basis of the demographic assumptions described in Appendix 7, the member and widow populations were projected over the remaining lifetime of the plan.



Over the last decade the number of members has fallen steadily so that only 155 remain at 1 April 2004; this trend is projected to continue until the death of the last member, which is expected in the plan year 2032. The number of widows reached 170 on 1 April 2004. A steady decline is expected thereafter, with the last widow expected to survive to the plan year 2039.

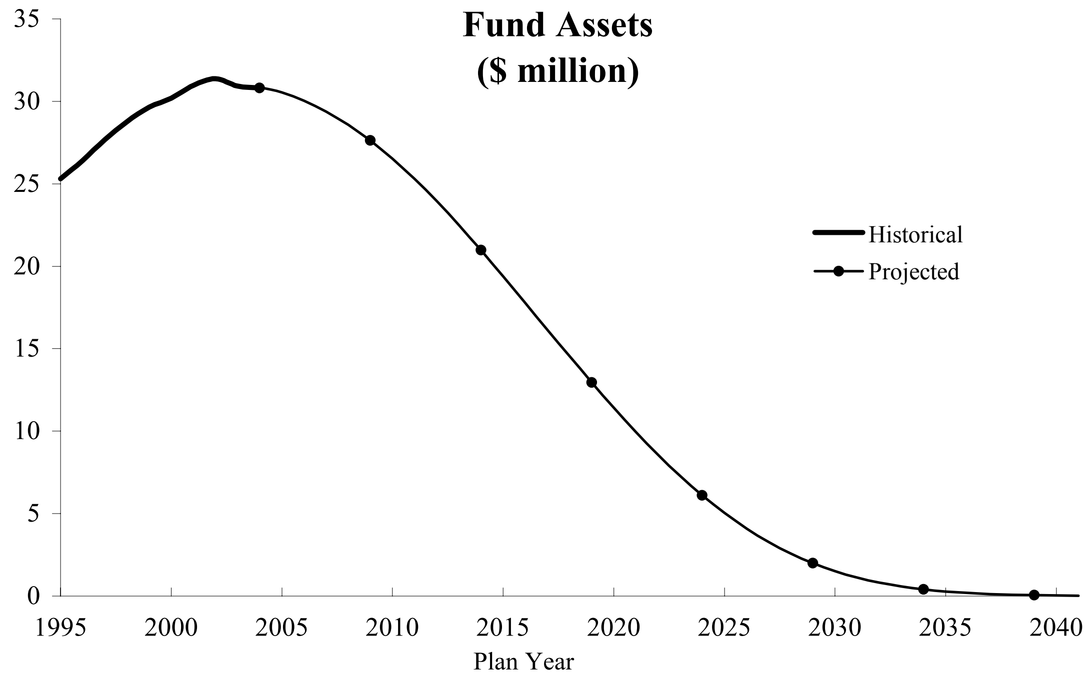
Emerging mortality experience will be subject to random fluctuations. Consequently the actual membership statistics will deviate, perhaps materially due to the relatively small number of participants.

B. Benefit Improvement Projections

In accordance with the recommended disposition of actuarial surplus, the widow pensions and the lump sum benefit payable upon the death of a member were projected to increase at 1.5% per annum for plan years 2006, 2007, and 2008. The remaining $2.6 million of actuarial surplus should be sufficient to provide future increases of 2.0% a year from 1 April 2008 onward if the assumptions on which this valuation is based are realized.

C. Asset Projections

Using the assumptions described in Appendix 6 and in Appendix 7 and the foregoing benefit improvement projections, the Fund assets were projected. It should be noted that the outstanding payments of $116,000 shown on the balance sheet were assumed to be made on 1 April 2004.



Under this projection the Fund assets reached their maximum of $31.0 million on 31 March 2001. They are now expected to decline steadily until the Fund is exhausted in the plan year 2039.

The actual progress of the Fund assets will be subject to several influences, most notably the random mortality fluctuations affecting the membership projections.

IV. Actuarial Opinion

In our opinion, for the purposes of this report:

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

This report has been prepared, and our opinions given, in accordance with accepted actuarial practice, and particularly with the Recommendations of the Canadian Institute of Actuaries for Actuarial Advice given with respect to Self-Insured Employee Benefit Plans.

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Actuary
Office of the Chief Actuary
Fellow of the Canadian Institute of Actuaries

Jean-Claude Ménard
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Ottawa, Canada
25 February 2005

Appendix 1 – 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* (RCMPPCA) 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, and Royal Canadian Mounted Police), which is derived from the yield on a notional long-term bond portfolio (see Appendix 2). 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 in determining 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.

Appendix 2 – Summary of Plan Provisions

The current provisions of the benefit plan governed by Part IV of the RCMPPCA are summarized in this appendix. However, the Act shall prevail if there is a discrepancy between it and the summary.

A. Membership

As mentioned in Appendix 1, 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 1978.

B. Assets

The plan is financed through the Royal Canadian Mounted Police (Dependants) Pension Fund, which forms part of the Accounts of Canada. The Fund is credited with all instalment payments made by the members, and charged with all benefit payments when they become due. The Fund is also credited with investment earnings as though net cash flows were invested quarterly in 20-year Government of Canada bonds issued at prescribed interest rates and held to maturity. No formal debt instrument is issued to the Fund by the government in recognition of the amounts therein.

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 if the Fund becomes insolvent. Every valuation to date has revealed a surplus and therefore the government has never contributed directly to the Fund.

D. Investment Earnings

1. Interest Rate on New Money

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

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

2. Allocation of Investment Earnings

Investment earnings are 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, 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 next subsection) that may be payable. The following lump sum and pension benefits, as applicable, are payable on the death of a member who has made the scheduled contributions and left them in the Fund. In light of the advanced ages of the current members, any survivor benefits payable to a child or eligible student are ignored.

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.

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 relevant Minister, best entitled to share the benefit. The lump sum amount is equal to the present value[1] of a pension to a hypothetical widow 75 years of age.

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.

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

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[1] of the discontinued payments is thereupon converted into an equivalent[2] 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.

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

Appendix 3 – Plan Assets

A. RCMP (Dependants) Pension Fund

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

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

B. Reconciliation

Table 5 Fund Balance
($ thousands)

Plan year	2002	2003	2004	2002-2004
Fund Opening Balance	30,961	31,370	30,919	30,961
Income				
Instalment payments	11	10	10	31
Investment earnings	2,638	2,481	2,477	7,596
Subtotal	2,649	2,491	2,487	7,627
Expenditures				
Survivor pension benefits	2,240	2,780	2,430	7,450
Lump sum payments	-	163	170	333
Subtotal	2,240	2,942	2,601	7,783
Fund Closing Balance	31,370	30,919	30,805	30,805

The foregoing table shows the reconciliation of the Fund from the previous valuation date to the current valuation date. During that period, the Account balance decreased by $156,000 (i.e. 0.5%) to reach $30,805,000 as at 31 March 2004.

C. Rates of Return

The rates of return on the Fund in plan years 2002, 2003 and 2004 were 8.81%, 8.30% and 8.32% respectively. They were calculated on the assumption that instalment payments and survivor pension benefits were paid at the end of the month while lump sum benefits were paid in the middle of the month.

D. Source of Data

The Fund entries shown in Section B above were taken from the financial statements prepared in respect of the plan by the Office of the Auditor General.

Appendix 4 – Membership Data

A. Source

The individual data in respect of members and widows were provided as at 31 March 2004, and are shown in the summaries of data in this appendix. All data were supplied by the consulting firm Morneau Sobeco that is responsible for the administration of the plan, with the exception of deaths occurred during 2002 and 2003 plan year, where the information was provided by the RCMP Services Section of Public Works and Government Services Canada. The data reflect deaths that were reported by 15 November 2004.

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 providers.

C. Reconciliation

In this report, *member* means a former contributor whose contributions remain in the Fund and *widow* means a widow whose pension is payable from the Fund.

There were no female constables when the Fund was open to new entrants; it follows that all current members are males and that all surviving spouses are widows.

The following table derived from the basic data reconciles the numbers of members and widows as at 31 March 2004 with the numbers shown in the previous report. There is no child annuity in course of payment as at 31 March 2004.

Table 6 Reconciliation of Membership

	Members	Widows
As at 31 March 2001	186	173
Data Corrections	-	(4)
Deaths	(31)	(23)
New survivors	-	24
As at 31 March 2004	155	170

D. Data Summary

The membership data is summarized in the following tables.

Table 7 Members Data
as at 31 March 2004

Age Last Birthday	Number[2]	Spouse's Accrued Annual Pension[1] Average ($)	Total ($)
70-74	8	18,773	150,000
75-79	59	21,099	1,245,000
80-84	49	16,815	824,000
85-89	26	15,078	392,000
90-94[3]	13	14,919	194,000
All ages	155	18,096	2,805,000

Average age last birthday: 81.1 years

Table 8 Widows Data
as at 31 March 2004

Age Last Birthday	Number	Annual Pension Payments[1] Average ($)	Total ($)
65-69	8	17,647	141,000
70-74	15	19,543	293,000
75-79	41	16,367	671,000
80-84	54	14,228	768,000
85-89	37	13,464	498,000
90-94[4]	15	8,088	121,000
All ages	170	14,666	2,492,000

Average age last birthday: 81.3 years

1 Amounts reflect the basic pension together with the 1,018% cumulative dividend effective from 1 April 2004.
2 Of these members, 50 were making instalment payments for life in respect of past service elections. The aggregate annual amount was $9,415 (average was $188).
3 Includes one member age 95.
4 Includes one widow age 95.

Appendix 5 – 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 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 Appendix 3. 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.

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 6, of all future instalment payments by members in respect of past service elections made by 31 March 1978, 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 projected Fund yields described in Section D below and shown in Appendix 6, of all future benefits accrued as at that date in respect of service as an active member of the Force. The cumulative dividend was assumed to be fixed at 1,018% for pensions and at 556% for lump sums payable on member deaths.

2. Widows

Consistent with accepted actuarial practice and standards, the actuarial liabilities in respect of the widows as at the valuation date correspond to the value, discounted in accordance with the projected Fund yields described in Section D below and shown in Appendix 6, of all future benefits to which those widows are entitled. The cumulative dividend was assumed to be fixed at 1,018%.

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 insureds or pensioners. 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 not sufficient to ensure the future solvency of the plan. 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 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 future benefit decrease 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, and Royal Canadian Mounted Police), which were effectively closed to new money from 1 April 2000 onward. The projected yields (shown in Appendix 6) 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 accounts.

The projected yields were determined by an iterative process involving the actual investment 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 6), and the assumed future combined cash flows for the three accounts. This approach is in accordance with the plan provision, common to the three pension plans, stipulating that the average yield on the combined accounts is to be used in allocating aggregate investment earnings to each of the three accounts.

Appendix 6 – Economic Assumptions

A. Interest Assumptions

The economic assumptions for this valuation are summarized in the table below. They are taken from the actuarial report as at 31 March 2004 on the pension plan for Members of Parliament.

Table 9 Economic Assumptions

		Interest Rates	
Plan Year	Inflation Rate	New Money	Fund Yield
2005	2.00%	5.00%	8.04%
2006	2.00%	5.00%	7.79%
2007	2.00%	5.00%	7.58%
2008	2.00%	5.10%	7.39%
2009	2.00%	5.20%	7.18%
2010	2.10%	5.30%	6.98%
2011	2.20%	5.40%	6.78%
2012	2.30%	5.50%	6.39%
2013	2.40%	5.60%	6.21%
2014	2.50%	5.70%	6.08%
2015	2.60%	5.70%	5.94%
2016	2.70%	5.70%	5.76%
2017	2.70%	5.70%	5.62%
2018	2.70%	5.70%	5.53%
2019	2.70%	5.70%	5.51%
2024	2.70%	5.70%	5.47%
2029	2.70%	5.70%	5.61%
2033+	2.70%	5.70%	5.70%

B. Administrative Expenses

For this valuation, the expenses incurred for the administration of the plan were ignored. These expenses, which are not charged against the Fund, are borne entirely by the government and are commingled with all other government expenses.

Appendix 7 – Demographic Assumptions

Except where otherwise noted, all demographic assumptions were determined from the plan's own experience. The assumptions made in the previous valuation were updated to reflect the experience of April 2001 to March 2004.

A. New Entrants

Because the Fund has been closed to new entrants since 1959, the assumption that there would be no future new entrants was retained from the previous valuation.

B. Members

1. Mortality

Table 10 shows the assumed rates of mortality applicable to members in the 2005 plan year; rates are as projected for that plan year in the previous valuation. Subsequent plan years mortality rates were obtained by applying the accompanying annual reduction factors to the 2005 mortality rates.

Table 10 Assumed Mortality of Members
(per 1,000 members)

Age Last Birthday	Current[1] Annual Rates	Future[1] Annual Rate Reductions[2]	
		2000	2025+
70	18.8	2.00%	0.50%
75	29.4	1.50%	0.50%
80	54.4	1.25%	0.50%
85	87.4	0.75%	0.50%
90	134.8	0.50%	0.50%
95	228.3	0.25%	0.25%
100	311.9	0.25%	0.25%
105	415.2	-	-
110	495.7	-	-
115	1000.0	-	-

2. Prospective Widows

Table 11 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 as assumed in the previous valuation.

[1] Current means the 2005 plan year and future means the plan years thereafter.
[2] Mortality reduction is based on a 25-year select period during which the annual mortality reductions are found by linear interpolation between the figures for 2000 and 2025.

Table 11 Assumptions for Prospective Widows

Age Last Birthday of Member at Death	Proportion of Married Members	Widow Age Difference
70	0.91	(3)
75	0.84	(3)
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)

3. Eligible Children

The assumption that no member would be survived by a child or student eligible to receive an annuity was retained from the previous valuation.

4. Withdrawal Rates

Each member was assumed to be subject to a null withdrawal rate, the corresponding rate in the previous valuation was 0.15%.

C. Widow Mortality

Table 12 shows the rates of mortality assumed applicable to widows in the 2005 plan year; rates are as projected for that plan year in the previous valuation. Subsequent plan years rates were obtained by applying the annual reduction factors to the 2005 mortality rates.

Table 12 Assumed Mortality of Widows
(per 1,000 widows)

Age Last Birthday	Current[1] Annual Rates	Future[1] Annual Rate Reductions[2]	
		2000	2025+
65	9.4	1.50%	0.50%
70	15.3	1.50%	0.50%
75	26.5	1.25%	0.50%
80	44.1	1.00%	0.50%
85	73.3	0.75%	0.50%
90	125.7	0.50%	0.50%
95	213.2	0.25%	0.25%
100	301.2	0.25%	0.25%
105	401.9	-	-
110	485.5	-	-
115	1000.0	-	-

[1] Current means the 2005 plan year and future means the plan years thereafter.
[2] Mortality reduction is based on a 25-year select period during which the annual mortality reductions are found by linear interpolation between the figures for 2000 and 2025.

Appendix 8 – Disposition of Actuarial Surplus

The actuarial surplus of $3.7 million estimated for this report is 13.6% of the actuarial liabilities of $27.2 million.

The recommended benefit increases herein are intended to distribute actuarial surplus as it is earned, based on the following procedure.

- Firstly, 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.
- Secondly, increase or decrease the expected benefit increases of the previous valuation taking into account actuarial gains or losses that occurred during the intervaluation period.

Based on the foregoing procedure, the amount of actuarial surplus recommended for distribution in the 2006, 2007, and 2008 plan years is $1.1 million, which could provide the recommended benefit improvements shown. The remaining $2.6 million of actuarial surplus should be sufficient to provide future increases of 2.0% a year from 1 April 2008 onward if the assumptions on which this valuation is based are realized.

Table 13 Recommended Benefit Improvements

Pension and residual amount increase for current and prospective widows

Effective Date	Dividend Increase	Cumulative Dividend	Effective Increase
1 April 2005	17%	1,035%	1.5%
1 April 2006	17%	1,052%	1.5%
1 April 2007	17%	1,069%	1.5%

Increase in lump sum payable upon death of a member

Effective Date	Dividend Increase	Cumulative Dividend	Effective Increase
1 April 2005	10%	566%	1.5%
1 April 2006	10%	576%	1.5%
1 April 2007	10%	586%	1.5%

Appendix 9 – Acknowledgements

The Office of the Auditor General provided the financial statements upon which the income statement and Fund balance were based.

The counselling firm Morneau Sobeco responsible for the administration of the plan and the RCMP Services Section of Public Works and Government Services Canada provided relevant valuation input data in respect of members and widows.

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