Actuarial Report

on the

PENSION PLAN FOR THE PUBLIC SERVICE OF CANADA

As at 31 March 1999

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

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

Canada

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7 September 2000

The Honourable Lucienne Robillard, P.C., M.P.
President of the Treasury Board
Ottawa, Canada
K1A 0R5

Dear Minister:

Pursuant to section 6 of the *Public Pensions Reporting Act*, I am pleased to submit the report on the actuarial review as at 31 March 1999 of the pension plan established under the *Public Service Superannuation Act*.

Yours sincerely,

Jean-Claude Ménard

Jean-Claude Ménard, F.S.A., F.C.I.A.
Chief Actuary
Public Sector Insurance and Pension Programs

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I - Executive Summary

A - Purpose of this Actuarial Report

This actuarial report on the pension plan established under the *Public Service Superannuation Act* (PSSA) was made as at 31 March 1999 pursuant to the *Public Pensions Reporting Act* (PPRA). The previous review was made as at 31 March 1996. The date of the next periodic review contemplated by the PPRA is 31 March 2002.

In accordance with accepted actuarial practice, the main purpose of this actuarial report is to show realistic estimates of:

- the balance sheet of the pension plan as at the valuation date, i.e. its assets, its liabilities, and the surplus or deficit as at that date;
- the annual amount to amortise over a period of years any surplus or deficit revealed as at the valuation date; and
- the projected cost of the plan for each of the next three plan years[1] following the valuation date.

B - Scope of the Report

The previous valuation report was based on the plan provisions as they stood after the enactment of Bill C-31 on 20 June 1996. There were no further changes to the plan provisions until Bill C-71 and Bill C-78 were enacted on 17 June 1999 and 14 September 1999, respectively. The significant plan changes brought about by these two bills are fully described in Appendix 1. This valuation report is based on the plan provisions shown in Appendix 2, which fully reflects the changes brought about by Bill C-71 and Bill C-78 even though both of them were enacted after the valuation date of 31 March 1999. The valuation also incorporates the effects of the Pay Equity Agreement.

C - Main Findings

- As at 31 March 1999, the plan had a surplus of $13 billion resulting from the difference between the assets of $81 billion and the liabilities of $68 billion as at that date.
- The $13 billion surplus could be amortised in 15 equal annual instalments of $1.6 billion beginning 30 September 2000, based upon the yield shown in Appendix 6.

[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.

- The $13 billion surplus could also be partially amortised in 15 equal annual instalments of $1.3 billion beginning 30 September 2000. Under that scenario, the surplus remaining at the end of 15 years is equal to 10% of the liabilities.
- For the plan year ending 31 March 2000, the estimated normal cost of the plan is 17.63% of pensionable payroll, that is $2.11 billion.
- For the plan year 2001, the normal cost is estimated to decrease to 16.99% of pensionable payroll. This is mainly the result of a higher assumed rate of investment earnings from the new Fund compared with the Account.
- For the plan year 2002, the normal cost is estimated to increase marginally to 17.29% of pensionable payroll. This increase in costs mainly reflects a partial transition from current to ultimate economic assumptions.

II - Financial Position of the Plan

A - Balance Sheet as at 31 March 1999

The following balance sheet was prepared using the assets described in Appendix 3, the data described in Appendix 4, the methodology described in Appendix 5, and the assumptions described in Appendices 6 and 7.

		$ millions
Assets		
Balance in Public Service Superannuation Account		80,274.5
Present value of future contributions in respect of elected prior service:		
• Members	357.4	
• Government	424.4	
		781.8
Total Assets		**81,056.3**
Liabilities		
For benefits accrued to, and in respect of:		
• Active contributors	32,811.4	
• Non-active contributors	66.5	
		32,877.9
For benefits payable to, and in respect of:		
• Retirement pensioners (including pensions deferred to age 60)	29,220.9	
• Disability pensioners	1,498.8	
• Surviving dependants	3,763.1	
		34,482.8
Outstanding terminations		163.1
Administrative expenses to be charged to the Public Service Superannuation Account		504.8
Total Liabilities		**68,028.6**
Surplus		**13,027.7**

B - Cost Certificate

The normal costs, assets and liabilities were computed using the assets described in Appendix 3, the data described in Appendix 4, the methodology described in Appendix 5, and the assumptions described in Appendices 6 and 7. Emerging experience, differing from the corresponding assumptions, will result in gains or losses to be revealed in subsequent reports.

1. Normal Cost for Plan Year 2000

Plan year 2000 is the last year in which member and government contributions (except for past service elections made prior to 1 April 2000) will be credited to the Account and for which benefits accrued will be paid from the Account. The normal cost for plan year 2000 reflects the projected yields on the Account.

The normal cost for plan year 2000 was 17.63% of projected pensionable payroll or $2.11 billion.

2. Normal Costs from Plan Year 2001

The following normal costs are expressed as a dollar amount as well as a percentage of the projected pensionable payroll in each given plan year.

Plan Year	% of Pensionable Payroll	Millions of Dollars
2001	16.99	1,734
2002	17.29	1,817
2003	17.50	1,900
2004	17.65	1,985
2005	17.69	2,070
2006	17.68	2,156
2011	17.45	2,587
2016	17.30	3,149

The decrease in normal cost from plan year 2000 to 2001 mainly reflects the difference between the projected yields on the Fund versus the Account. The effect was offset somewhat by partial transition of the other economic assumptions from their select to ultimate values. This latter effect continued until plan year 2006 when the ultimate economic assumptions were all reached.

From plan year 2001, Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation, and Farm Credit Corporation were no longer included in the normal costs, though Canada Post Corporation is expected to remain in the plan until 1 October 2000.

3. Allocation of Normal Costs

The foregoing normal costs are borne jointly by contributors and the government. Contributors make required contributions in accordance with a prescribed formula (see Appendix 2), with the government covering the balance of the normal cost.

The following table shows the allocation of the normal cost expressed as a percentage of pensionable payroll, as well as the ratio of the cost borne by the government to that borne by the contributors. The allocation of normal costs between the government and members is only shown until plan year 2003. The member contribution rates (except for operational service) are known until the end of calendar year 2003.

	Allocation of Normal Costs		
Plan Year	Government	Members	Ratio
	%	%	
2000	12.72	4.91	2.59
2001	12.14	4.85	2.50
2002	12.42	4.87	2.55
2003	12.62	4.88	2.59

4. Normal Cost by Type of Contributor

The normal cost for the plan is the weighted average of the separate normal costs for Correctional Service Canada members in operational service (CSC o/s members) and other members. For example, in the 2001 plan year the overall normal cost of 16.99% of pensionable payroll is the composite of 17.92% for CSC o/s members and 16.95% for other members. The difference in normal costs is chiefly attributable to the more advantageous early retirement provisions available only to CSC o/s members.

5. Summary Balance Sheet

The assets of the plan were $81.06 billion as at 31 March 1999. The total liabilities as at the same date are estimated at $68.03 billion, leaving a surplus of $13.03 billion. If this surplus were to be amortised over 15 years, it would involve annual instalments of approximately $1.61 billion beginning 30 September 2000 which was estimated using the projected yields of the Account shown in Appendix 6-D.

If this surplus were to be partially amortised over 15 years such that the surplus remaining at the end of 15 years equals 10% of the liabilities, it would involve annual instalments of approximately $1.31 billion beginning 30 September 2000.

C - Sensitivity of Normal Cost to Variations in Key Assumptions

The results below measure the effect on the plan year 2006 normal cost if key economic assumptions are increased or decreased by one percentage point per annum starting in plan year 2000. The interest rate used for transfers to a locked-in Registered Retirement Savings Plan is 6.25% per annum in all scenarios. The economic ultimate assumptions are reached in plan year 2006.

Revised economic assumptions	Ultimate Investment Yield	Ultimate Level of Inflation	Ultimate Productivity	Change in plan year 2006 normal cost (from current basis)	Revised plan year 2006 normal cost
Current basis	7.25%	3.00%	1.00%	N/A	17.68%
Return on investments	8.25%	3.00%	1.00%	-2.85%	14.83%
	6.25%	3.00%	1.00%	3.75%	21.43%
Level of inflation	7.25%	4.00%	1.00%	2.60%	20.28%
	7.25%	2.00%	1.00%	-2.08%	15.60%
Productivity	7.25%	3.00%	2.00%	1.21%	18.89%
(real wage increases)	7.25%	3.00%	0.00%	-1.08%	16.60%
Level of inflation and return on investments	6.25%	2.00%	1.00%	-0.14%	17.54%

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

III – Reconciliation of Results with Previous Report

This section describes the various factors reconciling the surplus and normal cost of this valuation with the corresponding items of the previous valuation. Figures in brackets indicate negative amounts. The main items in the table below are explained in the following pages.

	Surplus		Normal Cost
	($ millions)	(% of liabilities as at 31 March 1999)	(% of pensionable payroll)
(as at 31 March 1996)	9,872	**14.5**	
(for plan year 1997)			**15.43**
Data corrections and methodology refinements	(297)	(.4)	.12
Cost/contributions difference	(359)	(.5)	-
Experience gains and losses	185	.3	-
Changes in assumptions and methodology	1,498	2.2	(.54)
Interest on surplus and above adjustments	3,262	4.8	-
Expected normal cost change	-	-	2.30
Developments occurring after the valuation date	(1,133)	(1.7)	.32
(as at 31 March 1999)	**13,028**	**19.2**	
(for plan year 2000)			**17.63**

Explanations of the Above Reconciliation

1. Corrections and Methodology Refinements

The correction of errors (such as coding of status) in the 1996 data as well as valuation methodology refinements resulted in a decrease in the surplus of $297 million.

2. Cost/Contributions Difference

A decrease in the surplus of $359 million resulted from the actual government contributions in the first two fiscal years of the intervaluation period being less than the government portion of the normal cost shown in the previous report cost certificate. This amount includes interest accumulation on that difference to 31 March 1998.

3. Experience Gains and Losses and Effect of Changes in Assumptions and Methodology

The financial analysis of these items, which resulted in an increase of surplus of $185 million and $1,498 million, respectively calculated as of 31 March 1998 and including interest to that date, is shown in Appendix 8.

4. Interest on Surplus and Adjustments

Interest of $3,262 million was earned for the intervaluation period on the surplus (including the item 1 above) and for the plan year 1999 in relation to items 2 and 3 above.

5. Expected Normal Cost Change

The gradual increase of 2.30% of pensionable payroll in the normal cost from plan years 1996 to 1999 projected in the previous report mainly reflects a partial transition from current to ultimate economic assumptions.

6. Changes to the Plan Provisions and the Pay Equity Agreement

The following developments occurred after the valuation date:

- Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation, and Farm Credit Corporation are all establishing their own pension plans in plan year 2001. We have estimated that the surplus will decrease by $75 million and the normal cost from plan year 2000 will increase by 0.09% of pensionable payroll.
- The effect of the Pay Equity Agreement on both active members and annuitants is to increase liabilities by $405 million. Since the pensionable payroll will also increase as a result, there is no change in normal cost as a percentage of pensionable payroll.
- The effect of adopting a five-year averaging period for both the annual pensionable earnings and the Year's Maximum Pensionable Earnings is to

increase the liability by $933 million and the normal cost by 0.51% of pensionable payroll.

- The effect of capitalising administrative expenses expected to be charged to the Account from 1 April 2000 has been to increase the liability by $505 million.
- Liabilities have been increased by $115 million and the normal cost by 0.03% of pensionable payroll for extending payment of survivor benefits to a same-sex spouse.
- With the establishment of the new Fund to accept contributions after plan year 2000, the projected yields on the Account were increased to reflect the fact that it will no longer receive new money to be invested at an assumed rate (6% per annum) lower than the portfolio rate. Accordingly the plan surplus rose by $900 million and the normal cost for the plan year 2000 decreased by 0.31% of pensionable payroll.

IV - Actuarial Opinion and Peer Review

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

- the valuation input data on which it is based are sufficient and reliable;
- the assumptions that have been used are, in aggregate, appropriate;
- the methodology employed is appropriate; and
- the value of assets exceeds the wind-up liabilities at the valuation date.

This report has been prepared, and our opinions given, in accordance with accepted actuarial practice, and particularly with the Canadian Institute of Actuaries' Standard of Practice for the Valuation of Pension Plans.

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Principal Actuary
Public Sector Insurance and Pension Programs
Fellow of the Canadian Institute of Actuaries
Fellow of the Society of Actuaries

Jean-Claude Ménard
Chief Actuary
Office of the Chief Actuary
Fellow of the Canadian Institute of Actuaries
Fellow of the Society of Actuaries

Peer Review

I have reviewed this report, and believe that the actuarial assumptions are appropriate for the purposes of the valuation and the methods used are appropriate for the purposes of the valuation. In my opinion, the report has been prepared, and the actuaries' opinions given, in accordance with accepted actuarial practice.

Michel Rapin
Principal Actuary
Public Sector Insurance and Pension Programs
Fellow of the Canadian Institute of Actuaries
Fellow of the Society of Actuaries

Ottawa, Canada
7 September 2000

APPENDICES

Appendix 1 - Developments Occurring After 31 March 1999

The following important developments occurred after the valuation date of 31 March 1999, but were appropriately taken into account in the determination of both the accrued liabilities and the normal costs.

1. Pay Equity Agreement

On 29 October 1999 agreement was reached between the Government and The Public Service Alliance of Canada on the implementation of the Canadian Human Rights Tribunal ruling of 29 July 1998. Covered under the agreement are all current and former employees in the Clerical and Regulatory, Educational Support, Hospital Services, Library Sciences and Secretarial, Stenographic and Typing groups and the Data Processing subgroup, in departments and agencies listed in Schedule I, Part I of the *Public Service Staff Relations Act.*

2. Bill C-71

Bill C-71, which received Royal Assent on 17 June 1999, includes the following provisions:

(a) For members terminating their employment on or after this date, benefits will be based on the highest average annual pensionable earnings of the member over any consecutive five years. Previously this was over six years.

(b) For members whose pensions had not been reduced by that date, the reduction in pension plan benefits at age 65 (earlier if the plan member becomes entitled to Canada Pension Plan/Quebec Pension Plan disability benefits) will be based on the five-year average of the Year's Maximum Pensionable Earnings (YMPE) rather than a three-year average.

3. Bill C-78

Bill C-78, which received Royal Assent on 14 September 1999, includes the following provisions:

(a) Employee contribution rate change from 1 January 2000
For calendar years 2000 to 2003 inclusive, employee contributions become 4% of salary up to YMPE and 7.5% of salary above. From calendar year 2004, Treasury Board can set employee contribution rates as necessary subject to two limitations. The first is that no single contribution rate increase will exceed 0.4% of salary in any given year, and the second is that rates will not increase past the point where employees are paying 40% of the current service costs.

(b) Canada Post Corporation (CPC) leaving by 1 October 2000
CPC must establish at least one pension plan providing benefits equal to, and at the same employee costs as, those under the *Public Service Superannuation Act*.

(c) Public Service Corporations are being required to contribute at a rate equal to 60% of the normal cost rather than matching employees' contributions from 1 April 2000. Several public service corporations including Export Development Corporation, Farm Credit Corporation and St. Lawrence Seaway Authority will also be leaving the *Public Service Superannuation Act* and setting up their own plans.

(d) Public Service Pension Fund
Beginning on 1 April 2000, employer and employee contributions to the plan will no longer be credited to the Public Service Superannuation Account. Rather, they will be deposited in the newly created Public Service Pension Fund to be invested in financial markets.

For investment purposes, the amended legislation includes a provision to establish the Public Sector Pension Investment Board (PSPIB). The PSPIB will operate at arm's length from the government and plan members. The PSPIB will be responsible for investing employer and employee contributions in financial markets with a view to achieving maximum rates of return without undue risk.

(e) Management of Superannuation Account Surpluses
The amended legislation gives the government the authority to debit the current surplus from the Public Service Superannuation Account in instalments over a period of up to 15 years. The legislation also allows maintaining a surplus equal to 10% of the liabilities at the end of the period.

(f) Management of Public Service Pension Fund Surpluses
The amended legislation gives Treasury Board the authority to deal with any surpluses in the new Public Service Pension Fund as they occur, either by reducing employee and/or employer contributions or by withdrawing amounts from the Fund.

(g) Management of Pension Deficits
The government will continue to assume sole responsibility for deficits in the Public Service Superannuation Account and the Public Service Pension Fund.

(h) Administrative expenses will be charged effective 1 April 2000
Those expenses attributable to program management and delivery will be allocated between the Account and the Fund according to the proportion of plan members' service acquired before and after 1 April 2000.

(i) Beneficiary changes

The amended *Public Service Superannuation Act* permits payment of survivor benefits to a same-sex survivor as if that person were an opposite-sex partner in a common-law relationship.

Appendix 2 - Summary of Plan Provisions

The federal government has been providing its employees with a pension plan since 1870. The current pension arrangements for employees of the Public Service of Canada are provided through the *Public Service Superannuation Act* (PSSA) as enacted on 1 January 1954 and modified thereafter. The current provisions of the pension plan established under the PSSA are summarised in this Appendix. However, the Act shall prevail if there is a discrepancy between it and the summary.

A - Membership

Subject to the exceptions mentioned in the next paragraph, membership in the plan is compulsory for all full-time and part-time employees working 12 or more hours per week (except those who were grandfathered as at 4 July 1994 but were eligible to join on a voluntary basis for two years) in the Public Service. This includes all positions in any department or portion of

- the executive government of Canada;
- the Senate and the House of Commons;
- the Library of Parliament; and,
- any board, commission or corporation listed in a *Schedule to the Act*, as well as those designated as contributors by the President of the Treasury Board either individually or as members of a class for persons engaged as sessional employees, postmasters or assistant postmasters in revenue post offices and some others.

The main groups of persons employed in the Public Service to which the Act does not apply are part-time employees working less than 12 hours per week, persons locally engaged outside Canada and employees of some Crown corporations, boards or commissions covered by their own pension plans.

B - Contributions

1. Members

During the first 35 years of pensionable service, contributors make required contributions as follows:

- up to 31 December 1999, 7.5% of pensionable earnings minus their contributions to the CPP/QPP;
- for calendar years 2000 to 2003 inclusive, 4% of pensionable earnings up to the YMPE and 7.5% of salary above; and
- from calendar year 2004, as set by Treasury Board but subject to the limitations that no single contribution rate increase will exceed 0.4% of salary in any given

year and that rates will not increase past the point where employees are paying 40% of the current service costs.

After 35 years of pensionable service, contributors make required contributions of 1% of pensionable earnings. If eligible, a contributor may elect to contribute for prior service.

2. Government

(a) Current Service

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

(b) Elected Prior Service

The government credits to the Account in respect of elected prior service are analogous to those already described in respect of current service, except that from 1 April 2000 the government will match member contributions made to the Account for prior service elections.

(c) Surpluses

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

- debit surpluses from the Public Service Superannuation Account in instalments over a period of up to 15 years; and,
- deal with any surpluses in the new Public Service Pension Fund as they occur, either by reducing employee and/or employer contributions or by withdrawing amounts from the Fund.

(d) Unfunded Liability

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

C - Summary Description of Benefits

The pension plan established under the *Public Service Superannuation Act* mainly aims at providing an employment earnings-related lifetime retirement pension to the eligible members of the Public Service. The plan also provides benefits to members in case of disability and to the spouse and children in case of death.

Subject to its integration with the pensions paid by the Canada Pension Plan and the Quebec Pension Plan, the initial rate of retirement pension is equal to 2% of the highest average of annual pensionable earnings over any period of six[1] consecutive years, multiplied by the number of years of pensionable service not exceeding 35. Once in pay, the pension is indexed annually with the Consumer Price Index. Such indexation also applies to deferred pensions during the deferral period.

[1] If the number of years of pensionable service is less than six, then the averaging is over the entire period of pensionable service. Note that for members retiring after 16 June 1999 the six years become five.

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

Contributor's Type of Termination		Types of Benefit
With less than two years of service[1]		Return of contributions (ROC)
With two or more years of service[1]**; and**		
• Disability		Immediate annuity
• Death leaving no surviving spouse or eligible children		Minimum benefit
• Death leaving surviving spouse and/or eligible children		Survivor annual allowance(s)
• Leaving prior to age 50, except for death or disability		Deferred annuity (DA) or transfer value (TV)
• Leaving from age 50, except for death or disability, and	• age 60 or more; or • age 55 or more and service 30 years or more	Immediate annuity
	• otherwise	DA or annual allowance
• Leaving with operational service[2] (o/s), and	• age 50 or more and o/s 25 years or more	Operational service immediate annuity
	• age 45 or more and o/s 20 years or more	Operational service annual allowance

Deferred and Immediate Pensioner's Type of Termination	Types of Benefit
Disability before age 60 while entitled to a deferred annuity or an annual allowance	Immediate annuity
Death leaving no surviving spouse or eligible children	Minimum benefit
Death leaving surviving spouse and/or eligible children	Survivor annual allowance(s)

[1] Thresholds are determined using total pensionable service including operational service.

[2] Thresholds and benefits are determined using operational service only. Note that Air Traffic Controllers who terminate involuntarily may qualify for benefits described in the explanatory notes.

D - Explanatory Notes

1. Pensionable Earnings

Pensionable earnings means the annual employment earnings (excluding overtime but including pensionable allowances such as bilingual bonuses) of a contributor, subject for tax purposes to a prescribed yearly maximum after 14 December 1994. The maximum is $99,300 for the 2000 calendar year.

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

2. Indexation

(a) Level of Indexation Adjustments

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

(b) First Indexation Adjustment

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

(c) Commencement of Indexation Payments

The indexation portion of a retirement, disability or survivor pension normally starts being paid when the pension is put into pay. However, regarding an operational service retirement pension, the pensioner must be either

- at least 55 years old provided the sum of age and pensionable service is at least 85;
- or at least 60 years old.

This restriction does not apply to an Air Traffic Controller who resigned involuntarily.

3. Pensionable Service and Operational Service

Pensionable service of a contributor includes any period of service in the Public Service for which the contributor has been required to contribute or has elected to contribute, if eligible to do so, and such other types of service for which the contributor has elected to make the required special contributions to the Public Service Superannuation Account. Pensionable service is limited to 35 years.

The amount of any annuity or allowance to which a contributor or the surviving spouse or children may become entitled and, in some cases, the early retirement reduction factor used for determining the amount of an annual allowance payable to a contributor depend on the pensionable service to the credit of the contributor at the date employment in the Public Service ceased.

Operational service means, in the case of Correctional Service Canada employees, the number of years of pensionable service by employees other than those engaged in Staff Colleges or national or regional headquarters. In the case of Transport Canada employees, it means pensionable service that requires a valid Air Traffic Controller License or a letter of authority issued by the Department of Transport. Note that these services are subject to minor restrictions (as per the regulations) not described here. A member may elect to remove the operational service designation from any period of service, which then becomes pensionable service.

4. Return of Contributions

Return of contributions means the payment of an amount equal to the total contributions, accumulated with interest, made by a given member. Interest is credited quarterly in accordance with the investment return on the funding vehicle (Public Service Superannuation Account or Public Service Pension Fund) to which the contribution was made. The interest calculation is based on the payment date.

5. Immediate Annuity

Immediate annuity means an unreduced pension (see Notes 8 and 9 below) that becomes payable immediately upon a pensionable retirement or pensionable disability. The annual amount is normally equal to 2% of the highest average of annual pensionable earnings (calculated without reference to the yearly maximum described in Note 1) of the contributor over any period of six[1] consecutive years, multiplied by the number of years of pensionable service not exceeding 35. However, if such highest six-year earnings average exceeds the yearly maximum prescribed for the calendar year in which service is terminated, then the annual amount is reduced by 2% of such excess, multiplied by the number of years of pensionable service since 15 December 1994. For contributors with periods of part-time pensionable service, earnings used in the six-year average are based on a full-time scheduled workweek but the resulting average is multiplied by the ratio of the

[1] If the number of years of pensionable service is less than six, then the averaging is over the entire period of pensionable service. Note that for members terminating employment after 16 June 1999 the six years become five.

number of hours worked per week averaged over the entire pensionable service to the position's full time scheduled workweek hours.

When a pensioner attains age 65 or becomes entitled to a disability pension from the Canada Pension Plan or the Quebec Pension Plan, the annual amount of pension is reduced by 0.7% of the *indexed C/QPP annual pensionable earnings*[1] (or, if lesser, the indexed six-year pensionable earnings average on which the immediate annuity is based), multiplied by the *years of C/QPP pensionable service*[2] .

Annuities are payable in equal monthly instalments in arrears until the end of the month in which the pensioner dies or recovers from disability. Upon the death of the pensioner, either a survivor allowance (Note 10) or a residual benefit (Note 11) may be payable.

When a contributor, being entitled while still under age 60 to an immediate annuity in respect of a disability, recovers from that disability, the disability annuity payments are terminated and the contributor becomes entitled to a retirement annuity deferred to the applicable retirement age.

6. Deferred Annuity

Deferred annuity means an annuity that becomes payable to a former contributor upon reaching age 60. The annual amount of the annuity is described in Note 5 above but is also increased (per Note 2 above) to reflect indexation from date of termination to the commencement of benefit payments.

7. Transfer Value

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

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

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[1] *Indexed C/QPP annual pensionable earnings* means the average of the YMPE, as defined in the C/QPP, over the last three years of pensionable service, increased by indexation proportionate to that accrued in respect of the immediate annuity. Note that three years is replaced by five if the reduction commences after 16 June 1999.

[2] *Years of C/QPP pensionable service* means the number of years of pensionable service after 1965 or after attaining age 18, whichever is later, but not exceeding 35.

8. Annual Allowance For Members

Annual allowance means an annuity payable immediately on retirement or upon attaining age 50, if later. The amount of the allowance is equal to the amount of the deferred annuity to which the member would otherwise be entitled, reduced by 5% of such annuity multiplied by the difference between 60 and the age when the allowance becomes payable. However, if the member is at least 50 years old at termination, and has at least 25 years of pensionable service[1] , then the difference is reduced (subject to the above as a maximum) to the greater of

- 55 minus the age, and
- 30 minus the number of years of pensionable service[1].

The Treasury Board can waive all or part of the reduction for members who are involuntarily retired at ages 55 and over with at least ten years of Public Service employment.

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

9. Operational Service Immediate Annuity and Annual Allowance

These operational service-related benefits are calculated in relation to operational service only.

The operational service-related annual allowance reduction number is calculated for Air Traffic Controllers, in case of *involuntary retirement*, as 20 minus the years of operational service (subject to a minimum of ten years). In case of voluntary retirement for Air Traffic Controllers and voluntary or involuntary retirement for Correctional Service Canada operational employees, this number is equal to the greater of 50 minus the contributor’s age, and 25 minus the years of operational service[1].

An Air Traffic Controller who involuntarily ceases to be employed in operational service may, after becoming employed elsewhere in the Public Service in non-operational service, choose to receive a benefit based on up to fifty per cent of

[1] For privatised members who elected not to transfer their benefits accrued under the *Public Service Superannuation Act* to their new employer’s pension plan, service (including any operational) with the new employer is included.

past operational service. This benefit is known as an "Income - Smoothing Benefit" and is payable immediately at the time of choosing it. It represents a portion of whatever operational service benefit the employee would have been entitled to receive, had the employee ceased to be employed in the Public Service. In this case, the benefit would be either an immediate annuity or an annual allowance.

10. Annual Allowance for Eligible Survivors

Annual allowance means, for the eligible surviving spouse and children of a contributor or pensioner, an annuity that becomes payable immediately upon the death of that individual. The amount of the allowance is determined with reference to a *basic allowance* that is equal to 1% of the highest average of annual pensionable earnings, without regard to the yearly maximum (Note 1), of the contributor over six consecutive years, multiplied by the number of years of pensionable service not exceeding 35. If such highest six[1] -year earnings average exceeds the yearly maximum prescribed for the calendar year in which service is terminated, then the annual amount is reduced by 2% of such excess, multiplied by the number of years of pensionable service since 15 December 1994.

The annual allowance for a spouse is equal to the basic allowance unless the spouse became eligible as a result of an optional survivor benefit election, in which case it is equal to the percentage of the basic allowance specified by the pensioner making the election. If a member marries after having become entitled to an annuity or annual allowance, the surviving spouse is not entitled to the annual allowance unless, after the marriage, the member was either re-employed as a contributor (in such cases, a common-law union is accepted) or made an optional survivor benefit election. The latter provision is meant to be cost neutral, the full cost being borne by the member electing the option through an actuarial reduction being made to the member's own pension. This reduction is reversed if and when the new spouse predeceases the pensioner or the spousal union is terminated for reason other than death.

The annual allowance for an eligible surviving child is equal to 20% of the basic allowance, subject to a reduction if there are more than four eligible surviving children in the same family. The allowance otherwise payable to an eligible surviving child is doubled if the child is an orphan. The allowance is payable to children until they reach age 18, and to students under age 25 who are in full-time attendance at school or university.

Survivor annual allowances are not integrated with the Canada Pension Plan or the Quebec Pension Plan and are payable in equal monthly instalments in arrears until the end of the month in which the survivor dies or otherwise loses eligibility. If

[1] If the number of years of pensionable service is less than six, then the averaging is over the entire period of pensionable service. Note that for members terminating employment after 16 June 1999 the six years become five.

applicable, a residual benefit (Note 11) is payable to the estate upon the death of the last survivor.

11. Minimum Death Benefit

If an active contributor or a pensioner dies without leaving an eligible survivor, there is paid a lump sum equal to the greater of:

- the return of contributions, and
- five times the basic annuity[1] to which the contributor would have been entitled, or the pensioner was entitled, at the time of death.

less all amounts (excluding indexation adjustments) already paid to the pensioner.

The same formula is used to determine the minimum benefit payable in a lump sum upon the death of an eligible survivor, except that all amounts (excluding indexation adjustments) already paid to the survivor are also subtracted.

12. Division of Pension with Former Spouse

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

[1] The basic annuity is the initial annual amount of immediate annuity, ignoring any offsets that might be applicable (see Note 5).

Appendix 3 – Plan Assets

A - Public Service Superannuation Account

Until 31 March 2000, the plan was entirely financed through the Public Service Superannuation Account, which forms part of the Public Accounts of Canada. The Account is:

- credited with all contributions made by members and the Government up to 31 March 2000 (and prior service contributions in respect of elections made prior to 1 April 2000 or leave without pay contributions for periods before 1 April 2000 but remitted after that date);
- charged with the benefit payments when they become due for service earned under the Account; 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 Royal Canadian Mounted Police pension plans.

1. Reconciliation of Account Balances

The following table shows the reconciliation of assets in the Public Service Superannuation Account from the last valuation date to the current valuation date[1]. Since the last valuation, the Account balance has grown by $15.2 billion (i.e. a 23.4% increase) to reach $80.3 billion as at 31 March 1999. The net growth in the Account balance is to a large extent the result of interest credits made.

The Account entries shown below were taken from the Public Accounts of Canada. In accordance with section 8 of the *Public Pensions Reporting Act*, the Office of the Comptroller General of Canada provided a certification of the assets of the plan as at 31 March 1999.

[1] Some totals in this page might err by a margin of $0.1 million due to rounding.

				(in millions of dollars)
Account Balance as at 31 March 1996				65,033.6
Less contributions receivable				36.3
Plan year	**1997**	**1998**	**1999**	**1996-1999**
Public Accounts opening balance	64,997.3	70,313.7	74,808.7	64,997.3
INCOME				
Employee contributions	702.4	669.1	692.3	2,063.8
Employer contributions	1,114.0	1,196.5	1,491.5	3,802.0
Transfers from other pension funds	6.4	11.8	12.6	30.8
Investment earnings	6,562.6	6,889.6	7,131.1	20,583.3
Subtotal	8,385.4	8,767.0	9,327.4	26,479.8
EXPENDITURES				
Annuities	2,876.8	3,021.6	3,171.1	9,069.4
Cash termination allowances	0.1	0.0	0.1	0.2
Minimum benefits	15.5	12.6	12.8	40.9
Pension division	36.4	32.4	32.1	100.8
Transfer values	0	191.9	550.2	742.1
Returns of contributions	84.9	45.6	24.7	155.2
Transfers to other pension funds	55.3	967.9	70.8	1,094.0
Subtotal	3,069.0	4,272.0	3,861.6	11,202.6
Public Accounts closing balance	70,313.7	74,808.7	80,274.5	80,274.5
Account balance as at 31 March 1999			80,274.5	80,274.5

2. Rates of Return

The following rates of return on the Account by plan year were calculated using the foregoing entries. These results will differ somewhat from those shown in the future actuarial reports as at 31 March 1999 and 2000, respectively, on the Royal Canadian Mounted Police and Canadian Forces pension plans even though the quarterly yields used to compute actual investment earnings are identical for all three plans. The main reasons for this discrepancy are that:

(a) the uniform quarterly yields are applied only to the opening balance of the Accounts, thereby ignoring the cash flows during the quarter, and

(b) the results below were computed assuming a uniform distribution of cash flows during the plan year by imputing to them one-half year of interest.

Plan Year	Return
1997	10.19%
1998	9.97%
1999	9.64%

3. Account Projections

The following table shows a projection of the Account over 16 years commencing 1 April 1999. This projection is based on the assumption that the surplus will be withdrawn in 15 equal annual instalments beginning 30 September 2000 and that the transfers in respect of Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation and Farm Credit Corporation will be made over the plan years 2001, 2002 and 2003 on 30 September.

(in billions of dollars)

Plan Year	Beginning Account Assets	Beginning Net Liabilities[1]	Beginning Surplus	Benefit Payments	Investment Earnings	Pension Plan Transfers	Instalments
2000	$80.27	$67.25	$13.03	$1.49[2]	$7.41	$0.00	$0.00
2001	$86.19	$71.95	$14.24	$3.63	$7.30	$2.69	$1.61
2002	$85.56	$71.71	$13.84	$3.68	$7.10	$2.69	$1.61
2003	$84.67	$71.29	$13.38	$3.76	$6.83	$2.69	$1.61
2004	$83.45	$70.61	$12.84	$3.85	$6.67	$0.00	$1.61
2005	$84.70	$72.48	$12.22	$3.97	$6.59	$0.00	$1.61
2006	$85.71	$74.17	$11.53	$4.11	$6.47	$0.00	$1.61
2007	$86.46	$75.70	$10.76	$4.27	$6.38	$0.00	$1.61
2008	$86.96	$77.05	$9.91	$4.43	$6.27	$0.00	$1.61
2009	$87.20	$78.21	$8.98	$4.59	$6.14	$0.00	$1.61
2010	$87.14	$79.16	$7.97	$4.76	$5.99	$0.00	$1.61
2011	$86.75	$79.88	$6.87	$4.92	$5.81	$0.00	$1.61
2012	$86.03	$80.35	$5.69	$5.08	$5.50	$0.00	$1.61
2013	$84.85	$80.45	$4.40	$5.21	$5.31	$0.00	$1.61
2014	$83.34	$80.31	$3.03	$5.32	$5.11	$0.00	$1.61
2015	$81.51	$79.95	$1.56	$5.42	$4.92	$0.00	$1.61
2016	$79.40	$79.40	$0.00				

The following table is similar to the first except that the surplus remaining at the end of 16 years is equal to 10% of the liabilities.

(in billions of dollars)

Plan Year	Beginning Account Assets	Beginning Net Liabilities[1]	Beginning Surplus	Benefit Payments	Investment Earnings	Pension Plan Transfers	Instalments
2000	$80.27	$67.25	$13.03	$1.49[2]	$7.41	$0.00	$0.00
2001	$86.19	$71.95	$14.24	$3.63	$7.32	$2.69	$1.31
2002	$85.87	$71.71	$14.16	$3.68	$7.14	$2.69	$1.31
2003	$85.33	$71.29	$14.04	$3.76	$6.90	$2.69	$1.31
2004	$84.48	$70.61	$13.87	$3.85	$6.77	$0.00	$1.31
2005	$86.13	$72.48	$13.66	$3.97	$6.72	$0.00	$1.31
2006	$87.57	$74.17	$13.39	$4.11	$6.63	$0.00	$1.31
2007	$88.78	$75.70	$13.08	$4.27	$6.57	$0.00	$1.31
2008	$89.77	$77.05	$12.73	$4.43	$6.50	$0.00	$1.31
2009	$90.53	$78.21	$12.32	$4.59	$6.40	$0.00	$1.31
2010	$91.03	$79.16	$11.87	$4.76	$6.28	$0.00	$1.31
2011	$91.24	$79.88	$11.36	$4.92	$6.14	$0.00	$1.31
2012	$91.14	$80.35	$10.80	$5.08	$5.85	$0.00	$1.31
2013	$90.61	$80.45	$10.17	$5.21	$5.69	$0.00	$1.31
2014	$89.79	$80.31	$9.48	$5.32	$5.53	$0.00	$1.31
2015	$88.69	$79.95	$8.74	$5.42	$5.38	$0.00	$1.31
2016	$87.34	$79.40	$7.94				

1 Net liabilities represent liabilities net of present value of future contributions in respect of elected prior service.

2 In the first year, the amount shown is the difference between the benefits paid and the contributions credited to the Account. For the future years the contributions will be deposited in a newly created pension fund to be invested in financial markets.

B - Public Service Pension Fund

Beginning on 1 April 2000, government and member contributions (except for prior service elections made prior to 1 April 2000) to the pension plan will no longer be credited to the Public Service Superannuation Account. Rather, they will be deposited in a newly created Public Service Pension Fund to be invested in financial markets with a view to achieving maximum rates of return without undue risk. The new Fund will be charged with the benefit payments and administrative expenses when they become due for service earned under the new Fund.

Appendix 4 – Membership Data

A - Sources of Membership Data

The valuation input data required in respect of contributors (both active and non-active), pensioners and survivors are extracted from master computer files maintained by the Superannuation Directorate of the Department of Public Works and Government Services Canada. The Compensation Systems Branch of that department is responsible for the computer programs that extract the valuation data from the master files.

The main valuation data file supplied by the Superannuation Directorate contained all the status information of a member during the period from 1 April 1996 to 31 March 1998. Another data file was supplied in respect of Early Retirement Incentive terminations from 1 April 1998. For Canada Post, salaries at 1 April 1999 were obtained through the actuarial consultants to Canada Post.

These data were projected to the 31 March 1999 valuation date generally using the demographic assumptions of the current valuation and the actual economic experience (1.6% indexation increase for pensioners and 2% for general pay increases for contributors except Canada Post) for the relevant one-year projection period. Actual Canada Post membership at 31 March 1999 was used.

B - Validation of Membership Data

1. Status-Related Tests

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

(a) a consistency check that a status could be established for each record of a member. The status of a member may change over time but at a given point in time it can be only one of the following: contributor, outstanding termination, pensioner, dead leaving an eligible survivor;

(b) a consistency check of the changes in status of a member during the intervaluation period; e.g.,

- if a contributor record indicated that the member retired, then a pensioner record should exist;
- if a contributor or pensioner record indicated that the member died leaving an eligible survivor, then a corresponding survivor record should exist;

(c) a reconciliation between the status of members as at 1 April 1996 from the current valuation data and the status of the members as at 31 March 1996 from the previous valuation data; and

(d) a comparison of members' valuation data as at 31 March 1998 with the membership shown in the Report on the Administration of the Public Service Account for the fiscal year ending 31 March 1998.

2. Benefit-Related Tests

Consistency tests were made to ensure that all proper information to value the members' benefits based on their status as at 31 March 1998 was included:

(a) For Active Members

- verifying that the pensionable service was reasonable in relation to the attained age;
- verifying that the salary of the member was included and, if not, updating a salary rate from a previous year with an average earnings increase or failing that, using the average salary rate for that sex;
- verifying that salaries included negotiated increases in effect and increasing the salary rates accordingly if this was not the case; and
- adjusting salaries for the pay equity increase.

(b) For Pensioners and Survivors in Receipt of an Annuity

- verifying that the amount of the annuity, including indexation, was included;
- increasing pensions for pay equity adjustments; and
- verifying that the benefits were indexed up to 1 January 1998.

(c) Outstanding Terminations

- verifying that the lump sum payment was included (an adjustment was also made for future retroactive pay equity settlements).

(d) Adjustments to Status and Benefit Data

Based on the omissions and discrepancies identified by the tests mentioned above and several additional tests, appropriate adjustments were made to the basic data after consulting with the data providers.

C - Membership Data

The following tables 4A to 4J show the detailed reconciliation of membership data since the last valuation as well as the detailed membership data upon which this valuation is based.

Table 4A

Reconciliation of Contributors

	Numbers		
	Male	Female	Total
As at 31 March 1996[1]	159,057	129,795	288,852
Data corrections	(244)	3,164	2,920
From 1 April 1996 to 31 March 1998			
New members	16,937	23,841	40,778
Cash benefit - return of contributions or transfer value	(11,622)	(15,526)	(27,148)
Disability annuity	(669)	(640)	(1,309)
Annuity or annual allowance (except disabled)			
Early Retirement Incentive program	(4,032)	(2,821)	(6,853)
Otherwise	(7,406)	(3,458)	(10,864)
Employment transferred to NAVCAN			
Pension benefits transferred to NAVCAN pension plan	(4,088)	(1,003)	(5,091)
Special deferred annuity	(829)	(197)	(1,026)
Deferred annuity (other than NAVCAN employment transfer)	(706)	(487)	(1,193)
Death with no eligible survivor	(133)	(76)	(209)
Death with survivor annual allowance(s)	(418)	(195)	(613)
Benefit option not yet chosen	(1,650)	(1,858)	(3,508)
As at 31 March 1998	**144,197**	**130,539**	**274,736**
Since 1 April 1998 due to Early Retirement Incentive program			
Annuity or annual allowance (except disabled)	(844)	(480)	(1,324)
As at 31 March 1998 less Early Retirement Incentive	**143,353**	**130,059**	**273,412**
- Non-active status	1,073	2,948	4,021
- Active status			
Export Development Corporation	380	353	733
Farm Credit Corporation	402	522	924
Canada Post Corporation	32,105	18,080	50,185
St. Lawrence Seaway Authority	526	134	660
Correctional Service Canada operational service	5,230	2,694	7,924
Other	103,637	105,328	208,965
Total active contributors	**142,280**	**127,111**	**269,391**

[1] Includes those in both active and non-active statuses.

Table 4B

Reconciliation of Pensioners

	Deferred Annuity or Deferred AA[1]			Disability Annuity			Immediate Annuity or AA[1]		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
As at 31 March 1996	3,645	2,549	6,194	7,586	4,847	12,433	97,865	42,012	139,877
Data corrections	(328)	(259)	(587)	112	136	248	(260)	76	(184)
From 1 April 1996 to 31 March 1998									
Transfer from contributor status	1,535	684	2,219	669	640	1,309	11,438	6,279	17,717
Transfer from deferred status	-	-	-	0	0	0	392	195	587
Transfer from annuity status	0	0	0	2	0	2	-	-	-
Transfer to current contributor status	0	(1)	(1)	0	(1)	(1)	(15)	(15)	(30)
Transfer to disabled status	0	0	0	-	-	-	(2)	0	(2)
Transfer to annuity or AA[1] status	(392)	(195)	(587)	0	0	0	-	-	-
Transfer value	(114)	(92)	(206)	0	0	0	0	0	0
Death with no survivors	(7)	(7)	(14)	(283)	(197)	(480)	(2,494)	(1,856)	(4,350)
Death with survivors	(18)	(6)	(24)	(511)	(84)	(595)	(4,834)	(367)	(5,201)
As at 31 March 1998	4,321	2,673	6,994	7,575	5,341	12,916	102,090	46,324	148,414
Since 1 April 1998 due to ERI or TB[2] approved									
Transfer from Contributor status	0	0	0	0	0	0	844	480	1,324
As at 31 March 1998 less ERI or TB approved	4,321	2,673	6,994	7,575	5,341	12,916	102,934	46,804	149,738

[1] AA means Annual Allowance.

[2] ERI or TB means Early Retirement Incentive or Treasury Board.

Table 4C

Reconciliation of Survivors

	Surviving Spouses			Children and Students		
	Widows	Widowers	Total	Children	Students	Total
As at 31 March 1996	47,149	2,060	49,209	1,436	1,044	2,480
Data corrections	420	95	515	260	27	287
From 1 April 1996 to 31 March 1998						
New survivors from current contributors	394	178	572	363	118	481
New survivors from former contributors	5,335	455	5,790	123	81	204
Surviving spouses' deaths	(4,401)	(211)	(4,612)	-	-	-
Children attaining age 18 and terminating	-	-	-	(125)	-	(125)
Children attaining age 18 and becoming students	-	-	-	(602)	602	0
Students terminating	-	-	-	-	(676)	(676)
As at 31 March 1998	48,897	2,577	51,474	1,455	1,196	2,651

Table 4D

Number and Average Annual Earnings[1] of Male Contributors on 31 March 1998 (Excludes Crown Corporations Leaving Plan)[2]

	Years of Service[3]								All Years
Age[3]	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	of Service
0-24	1,254	8							1,262
	$34,323	$38,578							$34,350
25-29	4,427	1,160	23						5,610
	$37,878	$40,404	$40,177						$38,410
30-34	3,999	5,676	1,432	97					11,204
	$40,343	$43,932	$44,282	$44,413					$42,700
35-39	3,135	5,375	4,742	3,448	231				16,931
	$41,400	$45,299	$47,242	$46,198	$43,900				$45,285
40-44	2,321	3,642	4,086	6,581	4,623	264			21,517
	$42,337	$46,020	$48,724	$50,197	$47,149	$49,110			$47,694
45-49	1,660	2,554	2,662	4,424	8,379	4,452	287		24,418
	$43,011	$46,742	$48,134	$51,961	$53,558	$52,438	$50,528		$51,008
50-54	1,078	1,829	1,605	2,241	3,802	4,169	1,781	65	16,570
	$44,788	$47,658	$49,078	$52,392	$57,693	$60,576	$55,020	$56,132	$54,627
55-59	559	958	995	1,124	1,547	1,620	1,153	214	8,170
	$45,261	$46,847	$47,866	$50,319	$55,448	$63,643	$64,835	$56,161	$55,082
60-64	219	413	371	414	430	358	332	97	2,634
	$49,561	$48,102	$49,344	$50,463	$55,137	$61,381	$67,578	$71,107	$55,025
65-69	51	88	79	74	65	65	41	29	492
	$54,686	$49,665	$51,896	$49,446	$59,250	$69,358	$66,278	$64,452	$56,635
70+	12	11	4	7	8	8	5	4	59
	$45,206	$60,018	$70,583	$63,860	$60,251	$59,246	$64,784	$56,139	$58,245
All ages	18,715	21,714	15,999	18,410	19,085	10,936	3,599	409	108,867
combined	$40,571	$45,314	$47,794	$50,124	$52,923	$57,518	$59,107	$60,289	$48,749

Average age last birthday = 43.6 years   Average pensionable service last anniversary= 14.0 years

Total PBDA[4] indexed reduction to basic annuity = $5,727,854
Total PBDA indexed reduction adjustment = $1,289,459
(i.e. adjustment to CPP/QPP offset to basic annuity)

[1] Earnings shown here are the pensionable earnings of contributors except that they are not adjusted in respect of the maximum level of earnings prescribed for tax purposes.
[2] Canada Post Corporation, Farm Credit Corporation, Export Development Corporation, and St. Lawrence Seaway Authority.
[3] Expressed in completed years.
[4] PBDA means the *Pension Benefits Division Act*.

Table 4E

Number and Average Annual Earnings[1] of Female Contributors on 31 March 1998

(Excludes Crown Corporations Leaving Plan)[2]

	Years of Service[3]								All Years
Age[3]	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	of Service
0-24	1,782 $31,693	19 $33,601							1,801 $31,713
25-29	5,228 $36,044	2,335 $37,065	67 $36,718						7,630 $36,363
30-34	4,534 $37,318	7,116 $40,447	2,571 $39,525	333 $38,867					14,554 $39,273
35-39	4,100 $35,887	5,818 $40,992	5,106 $42,888	5,383 $40,352	684 $40,300				21,091 $40,273
40-44	3,555 $35,779	4,707 $39,696	3,931 $43,272	5,654 $43,909	5,445 $42,062	654 $42,727			23,946 $41,317
45-49	2,537 $35,792	3,524 $39,135	3,033 $41,023	3,783 $43,235	4,516 $47,090	3,273 $44,945	384 $43,577		21,050 $42,432
50-54	1,408 $36,408	2,125 $38,074	1,922 $40,124	2,162 $41,334	1,710 $45,616	1,193 $48,645	707 $45,037	37 $41,354	11,264 $41,554
55-59	596 $34,822	853 $36,803	952 $38,942	1,098 $39,452	802 $43,070	430 $45,649	174 $46,245	61 $41,628	4,966 $39,729
60-64	175 $33,714	250 $35,482	247 $36,184	341 $38,449	225 $41,362	107 $43,083	74 $42,760	19 $38,804	1,438 $37,995
65-69	41 $33,395	32 $40,572	37 $36,313	49 $41,889	49 $45,280	21 $47,496	10 $49,014	13 $49,095	252 $41,302
70+	10 $29,957	3 $43,540	5 $41,083	3 $29,807	5 $34,842	0 $0	1 $38,422	3 $39,175	30 $35,173
All ages Combined	23,966 $35,836	26,782 $39,611	17,871 $41,535	18,806 $42,003	13,436 $44,172	5,678 $45,495	1,350 $44,677	133 $41,823	108,022 $40,451

Average age last birthday = 41.2 years — Average pensionable service last anniversary = 11.6 years

Total PBDA[4] indexed reduction to basic annuity = $475,350

Total PBDA indexed reduction adjustment = $142,475
(i.e. adjustment to CPP/QPP offset to basic annuity)

1 Earnings shown here are the pensionable earnings of contributors except that they are not adjusted in respect of the maximum level of earnings prescribed for tax purposes.
2 Canada Post Corporation, Farm Credit Corporation, Export Development Corporation, St. Lawrence Seaway Authority.
3 Expressed in completed years.
4 PBDA means *Pension Benefits Division Act.*

Table 4F

Number and Average Annual Earnings[1] of Male Contributors on 31 March 1998

(Only Crown Corporations Leaving Plan)[2]

	Years of Service[3]								All Years
Age[3]	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	of Service
0-24	130 $43,669								130 $43,669
25-29	726 $42,176	150 $40,774	6 $37,553						882 $41,906
30-34	1,155 $40,777	810 $42,734	441 $40,532	17 $45,106					2,423 $41,417
35-39	1,052 $39,708	938 $42,539	1,318 $42,037	1,129 $40,838	138 $44,023				4,575 $41,369
40-44	801 $40,687	809 $42,623	1,204 $42,397	2,037 $41,669	3,020 $40,080	176 $43,374			8,047 $41,217
45-49	552 $39,280	503 $43,162	776 $44,631	1,246 $40,810	3,329 $40,810	1,797 $42,309	191 $43,335		8,394 $41,582
50-54	292 $38,978	272 $44,351	457 $46,870	528 $40,861	1,258 $41,535	1,249 $42,178	1,662 $41,428	27 $38,248	5,745 $41,994
55-59	121 $38,289	119 $43,016	216 $43,526	282 $40,102	480 $39,124	495 $39,269	541 $39,074	92 $38,208	2,346 $39,784
60-64	52 $42,808	38 $41,887	99 $42,365	132 $38,892	192 $38,329	124 $38,701	86 $38,461	36 $38,491	759 $39,522
65-69	7 $35,926	9 $38,690	9 $37,011	17 $35,425	22 $37,760	16 $35,487	8 $39,031	2 $37,339	90 $36,894
70+	4 $33,140	2 $37,116	2 $42,582	6 $33,724	2 $35,167	2 $35,685	1 $36,856	3 $37,224	22 $35,661
All ages Combined	4,892 $40,488	3,650 $42,746	4,528 $42,981	5,394 $41,050	8,441 $40,548	3,859 $41,778	2,489 $40,951	160 $38,249	33,413 $41,351

Average age last birthday = 44.7 years

Average pensionable service last anniversary =16.6 years

Total PBDA[4] indexed reduction to basic annuity = $1,647,439

Total PBDA indexed reduction adjustment = $514,669

(i.e. adjustment to CPP/QPP offset to basic annuity)

[1] Earnings shown here are the pensionable earnings of contributors except that they are not adjusted in respect of the maximum level of earnings prescribed for tax purposes.
[2] Canada Post Corporation, Farm Credit Corporation, Export Development Corporation, and St. Lawrence Seaway Authority.
[3] Expressed in completed years.
[4] PBDA means *Pension Benefits Division Act*.

Table 4G

Number and Average Annual Earnings[1] of Female Contributors on 31 March 1998

(Only Crown Corporations Leaving Plan)[2]

Age[3]	Years of Service[3] 0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	All Years of Service
0-24	138 $41,691	5 $36,435							143 $41,507
25-29	637 $40,800	189 $42,839	4 $37,994						830 $41,251
30-34	920 $38,269	605 $43,635	285 $41,261	26 $41,810					1,836 $40,551
35-39	1,218 $37,002	667 $40,541	705 $40,807	671 $40,522	90 $40,702				3,351 $39,482
40-44	1,192 $36,506	612 $39,755	756 $39,847	1,026 $39,738	784 $39,695	39 $42,857			4,409 $39,070
45-49	780 $36,109	467 $38,732	622 $39,261	776 $38,727	700 $39,276	188 $42,419	24 $48,015		3,557 $38,715
50-54	458 $34,738	303 $38,832	449 $37,825	636 $37,933	465 $38,690	146 $42,013	73 $39,056	3 $35,997	2,533 $37,848
55-59	236 $33,858	166 $37,050	273 $37,433	458 $37,026	340 $37,340	95 $39,549	23 $39,981	6 $35,143	1,597 $36,882
60-64	106 $32,870	48 $36,798	108 $35,862	247 $36,193	141 $36,822	29 $37,308	13 $36,216	8 $36,852	700 $35,861
65-69	10 $31,292	7 $35,335	19 $35,390	39 $35,180	30 $36,008	6 $40,801	3 $36,184		114 $35,424
70+	4 $27,429	0 $0	4 $33,841	3 $36,970	3 $37,331	3 $33,175	0 $0	2 $30,223	19 $33,050
All ages Combined	5,699 $37,113	3,069 $40,426	3,225 $39,929	3,882 $38,796	2,553 $38,914	506 $41,430	136 $40,459	19 $35,479	19,089 $38,841

Average age last birthday = 43.8 years   Average pensionable service last anniversary = 11.1 years

Total PBDA[4] indexed reduction to basic annuity = $28,619
Total PBDA indexed reduction adjustment = $9,798
(i.e. adjustment to CPP/QPP offset to basic annuity)

[1] Earnings shown here are the pensionable earnings of contributors except that they are not adjusted in respect of the maximum level of earnings prescribed for tax purposes.
[2] Canada Post Corporation, Farm Credit Corporation, Export Development Corporation, St. Lawrence Seaway Authority.
[3] Expressed in completed years.
[4] PBDA means *Pension Benefits Division Act.*

Table 4H

Retired Male Members As At 31 March 1998

	Pensioners (Other Than Disabled)			Disability Pensioners		
		Average Amounts[1]			Average Amounts[1]	
Age[2]	Number	Gross	Offsets	Number	Gross	Offsets
25-29	26	$2,674	$873	1	$3,376	$1,179
30-34	87	$4,609	$1,410	13	$4,909	$2,237
35-39	169	$8,506	$2,406	57	$7,137	$2,755
40-44	442	$11,716	$3,071	208	$9,879	$3,697
45-49	1,297	$18,303	$5,450	488	$12,161	$4,368
50-54	8,246	$24,731	$11,029	805	$15,261	$4,900
55-59	12,694	$27,364	$7,649	1,097	$15,777	$4,526
60-64	16,615	$25,846	$5,715	1,300	$15,965	$3,961
65-69	18,628	$23,384	$5,596	1,264	$13,942	$3,473
70-74	18,637	$22,207	$3,755	1,052	$13,588	$2,243
75-79	17,413	$21,085	$2,801	894	$13,023	$1,588
80-84	8,794	$19,333	$1,916	314	$11,950	$963
85-89	3,242	$17,843	$1,241	66	$10,736	$0
90-94	837	$15,107	$0	14	$11,256	$0
95-99	107	$11,130	$0	1	$3,558	$0
100-104	20	$13,582	$0	1	$5,339	$0
105-109	1	$12,153	$0	0	$0	$0
All ages	107,255	$23,036	$5,001	7,575	$14,129	$3,386
	Average age last birthday = 68.0 years			Average age last birthday = 63.6 years		

The total immediate annual pension payable as at 31 March 1998 for male immediate pensioners was $2,086.3 million and for male disability pensioners was $86.2 million.

[1] The average amounts of pension:

- are annualised;
- include accrued indexation (even if not due) to 1 January 1998;
- include deferred annuities to age 60; and
- show offsets that include annual allowance adjustments, PBDA reductions, and CPP/QPP offsets whether or not they are in effect at valuation date.

[2] Expressed in completed years.

Table 4I

Retired Female Members As At 31 March 1998

	Pensioners (Other Than Disabled)			Disability Pensioners		
		Average Amounts[1]			Average Amounts[1]	
Age[2]	Number	Gross	Offsets	Number	Gross	Offsets
20-24	1	$2,429	$851	0	$0	$0
25-29	27	$3,032	$1,041	2	$4,578	$1,610
30-34	73	$5,335	$1,695	24	$5,553	$2,378
35-39	176	$7,392	$2,316	111	$8,003	$3,198
40-44	415	$10,085	$2,998	330	$9,399	$3,485
45-49	899	$13,108	$4,646	491	$10,512	$3,675
50-54	4,920	$17,411	$9,537	612	$11,580	$4,088
55-59	5,895	$16,890	$6,466	784	$11,306	$3,664
60-64	7,315	$15,241	$4,784	850	$10,546	$3,085
65-69	7,586	$13,883	$4,749	715	$9,959	$2,838
70-74	7,987	$13,171	$3,362	543	$9,503	$1,861
75-79	6,757	$12,458	$2,576	467	$8,739	$1,272
80-84	4,284	$11,394	$1,716	277	$8,489	$863
85-89	2,155	$10,876	$1,071	103	$8,104	$0
90-94	784	$8,556	$0	26	$9,701	$0
95-99	160	$7,614	$0	6	$11,479	$0
100-104	40	$6,880	$0	0	$0	$0
105-109	2	$5,211	$0	0	$0	$0
All ages	49,477	$13,946	$4,373	5,341	$10,133	$2,861

Average age last birthday = 67.6 years   Average age last birthday = 61.5 years

The total immediate annual pension payable as at 31 March 1998 for female immediate pensioners was $530.2 million and for female disability pensioners was $41.8 million.

[1] The average amounts of pension:

- are annualised;
- include accrued indexation (even if not due) to 1 January 1998;
- include deferred annuities to age 60; and
- show offsets that include annual allowance adjustments, PBDA reductions, and CPP/QPP offsets whether or not they are in effect at valuation date.

[2] Expressed in completed years.

Table 4J

Surviving Spouses as at 31 March 1998

	Widows		Widowers	
Age[1]	Number	Average Allowance[2]	Number	Average Allowance[2]
25-29	8	$5,385	0	$0
30-34	38	$4,175	9	$3,901
35-39	140	$4,907	34	$3,878
40-44	397	$5,885	83	$4,211
45-49	733	$7,561	143	$4,956
50-54	1,149	$8,091	190	$5,270
55-59	1,820	$8,758	211	$5,011
60-64	2,912	$8,487	315	$5,871
65-69	5,600	$8,421	358	$5,755
70-74	9,378	$8,264	445	$5,609
75-79	11,259	$8,054	442	$5,251
80-84	8,246	$7,678	242	$4,911
85-89	4,561	$6,987	84	$4,640
90-94	1,966	$6,160	17	$4,420
95-99	521	$5,507	3	$4,944
100-104	160	$5,565	1	$3,571
105-109	7	$5,488	0	$0
110-114	2	$6,068	0	$0
All ages	48,897	$7,877	2,577	$5,310
	Average age last birthday: 74.4 years		Average age last birthday: 66.9 years	

The total annual allowance payable as at 31 March 1998 for widows was $385.2 million and for widowers was $13.8 million.

[1] Expressed in completed years.

[2] The average annual allowance includes accrued indexation to 1 January 1998.

Appendix 5 - Methodology

A - Assets

The assets of the plan consist essentially of the recorded balance in the Public Service Superannuation Account, which forms part of the Public Accounts of Canada. These assets are shown at the book value of the underlying notional bond portfolio described in Appendix 3. For consistency, both the normal cost for plan year 2000 and the liabilities are determined using the projected Account yields, described in Appendix 6, that fully reflect the earning power of the assets. If a market value approach had been taken, the resulting higher asset value would have been largely offset by the higher liabilities attributable to discounting at market new money interest rates, which were lower than the projected yields assumed for this valuation.

The only other plan asset consists of the discounted value of future member contributions, and government credits in respect of prior service elections. There are two changes in methodology from the previous valuation, as follows:

- A discount rate of 6.0% per annum is used. The rate previously used was the projected yield on the Account.
- All future government credits were previously assumed to be 183% of member contributions. In this valuation, the government is assumed to contribute at 242% of member contributions for plan year 2000, and to match member contributions from plan year 2001.

B - Normal Costs

The projected accrued benefit actuarial cost method (also known as the projected unit credit method) was used to compute normal costs. Under this method, the normal cost computed in respect of a given year corresponds to the value, discounted in accordance with the projected yields described in section D below and shown in Appendix 6, of all future benefits considered to accrue in respect of that year's service. Consistent with this cost method, pensionable earnings are projected up to retirement using the assumed annual increases in average pensionable earnings (including seniority and promotional increases). The method used for projecting future employment earnings in excess of the prescribed yearly maximum pensionable earnings is described in section C-2 below.

Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation and Farm Credit Corporation are setting up their own pension plans in plan year 2000. These groups have been excluded from the normal cost calculations from 1 April 2000.

C - Liabilities

1. Active Contributors

Consistent with the projected accrued benefit actuarial cost method employed to estimate normal costs, the plan's liabilities in respect of active contributors as at the valuation date correspond to the value, discounted in accordance with the projected yields on the Account described in D below and shown in Appendix 6, of all future benefits accrued as at that date in respect of all previous years' service. If an active contributor is currently in operational service, all the member's previous service is deemed operational. Similarly, if a contributor is not currently in operational service, all previous service is deemed regular.

With respect to Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation, and Farm Credit Corporation, which are establishing their own pension plans, it was assumed that all members will transfer. For these members, the actuarial liability at the valuation date and the normal cost for plan year 2000 are based on the economic assumptions to be used for the transfer and the demographic assumptions from the previous valuation. In the case of Canada Post Corporation, the negotiated termination rates were used.

2. Salary Cap for Active Contributors

A yearly maximum salary cap is now prescribed for Public Service Superannuation Act purposes. Benefits earned on and after 15 December 1994 will be limited by this salary rate. The formula for calculating the prescribed yearly salary cap is

[{A minus (.013 times B)}divided by .02] plus B; rounded to next highest $100

where A is the defined benefit maximum as per the *Income Tax Act* (currently fixed at $1,722.22 until 2005, and then increasing in line with the Industrial Aggregate),

and B is the Year's Maximum Pensionable Earnings for the C/QPP.

For calendar year 2000, the prescribed salary cap is $99,300, which was obtained as [($1,722.22 – 0.013 x $37,600)/.02] + $37,600

The cost effect of the salary cap is applied as an offset to the liabilities and normal costs calculated without consideration of the cap. The offset is based on the projected expected benefits in excess of the cap. Assumed general merit and promotion increases were not used in this projection; instead, actual salaries at the valuation date were replaced by assumed salaries at termination, expressed in current dollars. The assumptions used to derive the assumed salaries at termination were as follows:

- Only members with earnings of $40,000 or more at the valuation date were assumed to be able to attain a salary by termination in excess of the salary cap. Therefore only those members were included in the offset calculation.
- A pyramid organisational structure of hierarchy exists in the Public Service. This hierarchical structure was based on members falling in different salary ranges, where level 1 is defined as $40,000 to $50,000, level 2 is defined as $50,000 to $60,000, and so on up to level 10, which is $150,000 or more.
- Members at a certain salary level and service range at the valuation date would never advance beyond a maximum salary level. For example, at salary level 3 with 16 to 19 years of service at the valuation date, the maximum attainable level was assumed to be level 7. The table below illustrates the maximum attainable salary levels:

Table of Maximum Attainable Salary Levels

		Years of Service								
Salary Level	***Salary range (thousands)***	***0-3***	***4-7***	***8-11***	***12-15***	***16-19***	***20-22***	***23-25***	***26-28***	***29+***
1	**(40-50)**	9	8	7	6	5	4	3	2	1
2	**(50-60)**	10	9	8	7	6	5	4	3	2
3	**(60-70)**	10	10	9	8	7	6	5	4	3
4	**(70-80)**	10	10	10	9	8	7	6	5	4
5	**(80-90)**	10	10	10	10	9	8	7	6	5
6	**(90-100)**	10	10	10	10	10	9	8	7	6
7	**(100-110)**	10	10	10	10	10	10	9	8	7
8	**(110-130)**	10	10	10	10	10	10	10	9	8
9	**(130-150)**	10	10	10	10	10	10	10	10	9
10	**(150+**	10	10	10	10	10	10	10	10	10

In general, the probability of a member currently at salary level i and a specific service range terminating at any attainable salary level j (where $j \geq i$) was determined as:

{number of members currently at salary level j} divided by {number of members currently at levels i to m inclusive}

where m is the assumed maximum attainable salary level for a member currently at salary level i and the specific service range.

The number of members in the cell (i.e. at salary level i and the specific service range) whose salaries are replaced with the average salary at salary level j is equal to the number of members in that cell times the appropriate probability.

3. Non-Active Contributors

These members are still employed but are not actively contributing to the plan. Their benefits have been valued assuming that they terminated on the valuation date and elected an immediate annuity (deferred if not yet age 60).

4. Pensioners and Survivors

Consistent with accepted actuarial practice and standards, the plan's liabilities as at the valuation date in respect of pensioners (including deferred annuitants) and survivors correspond to the value, using the projected yields described in section D below and shown in Appendix 6, of all future benefits.

D - Projected Yields

The projected yields (shown in Appendix 6) assumed in computing the present value of benefits involved in estimating the normal cost for plan year 2000 and the liabilities mentioned in sections B and C above are the projected annual yields on the combined book value of the Superannuation Accounts of the pension plans established under the *Public Service, Canadian Forces, and Royal Canadian Mounted Police Superannuation Acts*. The normal costs from plan year 2001 are based on the expected Fund yield of 7.25% per annum.

The projected Account yields were determined by an iterative process involving the actual investment earnings on the combined existing assets of the three Accounts as at the valuation date, the assumed future new money interest rates (also shown in Appendix 6), and all future contributions until 31 March 2000 as well as all future expected benefits payable in respect of all pension entitlements accrued up to 31 March 2000. It also takes into consideration the effect of the transfer of liabilities to the new pension plans for Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation, and Farm Credit Corporation.

Because interest is not charged to the negative cash flows the Account will suffer in future quarters, we have added 0.03% per annum up to and including plan year 2014 and 0.04% per annum thereafter to the projected yields on the Account. Note that this adjustment is not shown in Appendix 6-D in the column “Yield Projected on Account”. This is a change in methodology from the previous report.

In the previous report, the Account yields were determined using the open-group approach, meaning that all expected future contributions (including those of future new entrants) to the plans were taken into account. As a result of the new Public Service Pension Fund commencing 1 April 2000, the open-group approach is no longer appropriate.

E - Membership Data

For valuation purposes, data for active contributors were grouped by individual age and number of years of service and by $5,000 annual salary ranges.

The member data shown in Appendix 4 were provided as at 31 March 1998, which is one year earlier than the valuation date of this report. These data were accordingly projected to the 31 March 1999 valuation date generally using the demographic assumptions of the current valuation and the actual economic experience for the relevant one-year projection period.

Outstanding terminations as at 31 March 1999 was determined from payments made after that date in respect of terminations on or before that date.

Members’ future contributions in respect of elected prior service as at 31 March 1999 were deemed equal to those in respect of elected prior service as at 31 March 1998 but reduced by one year.

Appendix 6 - Economic Assumptions

A- Key Economic Assumptions

The following key economic assumptions are required for valuation purposes:

1. Level of Inflation

The ultimate level of inflation was assumed at 3% per annum. Given the prospects of stable, moderate inflation for the foreseeable future and the average Canadian experience over the last 75[1] years (3.10% per annum), this seems appropriate. Current lower levels of inflation were assumed to trend to 3% per annum over a five-year select period.

2. Real Increases in Average Earnings

The assumed ultimate productivity rate (i.e. real increase in average employment earnings in excess of inflation) was assumed at 1% per annum. This lies about midway between the average Canadian experience of the past 25[1] years (0.40% per annum) and 75[1] years (1.53 % per annum). Low current real increases in average earnings were assumed to rise gradually over a five-year select period to reach an ultimate level of 1% per annum.

The assumed increase in contributors' average annual employment earnings would normally, for any year, be the same as the assumed increase in the Industrial Aggregate of Average Weekly Earnings. However, it was adjusted for the first two years to reflect current contract settlements in the Public Service.

3. Real Rate of Return on Long-Term Government of Canada Bonds

The ultimate real rate of return on long-term Government of Canada bonds was assumed at 3% per annum. This appears reasonable considering the average experience of the last 75[1] years (2.92% per annum). Current higher real rates of return were assumed to trend to 3% per annum over a five-year select period.

4. Real Rate of Return on Fund

It was assumed that the ultimate real return on the Fund would be 4.25% per annum. This is based on the Fund holding a diversified mixture of assets. This appears reasonable considering the average experience over 25[1] years for diversified

[1] For the period ending December 1998, according to the Report on Canadian Economic Statistics 1924-1998 published by the Canadian Institute of Actuaries.

portfolios of Canadian pension plans (5.6% per annum) and current real rate of return assumptions used in actuarial reports of other Canadian pension plans. Current higher real rates of return were assumed to trend to 4.25% per annum over a five-year select period.

Note that all of the real rates of return referred to in this report are actually real-return differentials, i.e., the difference between the effective annual rate of return on investments and the rate of increase in prices. This differs from the technical definition of the real rate of return, which, in the case of the ultimate Fund assumption, would be (1.0725 ÷ 1.03) – 1 = 4.126% rather than 4.25%.

Number of Years Ending 1998	25	50	75
Level of Inflation	5.40%	4.13%	3.10%
Real[1] Increases in Average Earnings	0.40%	1.58%	1.53%
Real[1] Return on Long-Term Canada Bonds	5.19%	2.53%	2.92%
Average Real[1] Return on Diversified Portfolios	5.60%	4.53%[2]	N/A

B - Derived Economic Assumptions

The following assumptions were derived from the key economic assumptions:

1. Projected Yields on Account

These yields are required for the computation of present values of benefits to determine the plan's liabilities and normal costs. The methodology used to determine the projected yields on the Account is described in Appendix 5-D.

2. Projected Yields on Fund

These yields are assumed at 7.25% per annum from plan year 2001, derived from the assumed future level of inflation and the real return on the Fund.

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

The YMPE is involved in the valuation process because the plan is integrated with the Canada/Quebec Pension Plan. The assumed increase in the YMPE for a given year was derived, in accordance with the *Canada Pension Plan Act*, to correspond to the increase in the assumed Industrial Aggregate of Average Weekly Earnings over successive 12-month periods ending on 30 June.

[1] These real rates are calculated after the level of inflation is removed geometrically.
[2] Average over the last 35 years.

4. Year's Increase in Pension Indexing Factor

The year's pension indexing factor is involved in the valuation process by virtue of its role in the pension inflation adjustments. It was derived by applying the indexation formula described in Appendix 2, which relates to the assumed Consumer Price Index increases over successive 12-month periods ending on 30 September.

5. Interest Discount Assumption for Transfers to RRSPs

For terminating members who elect to transfer the commuted value of their pension benefits to an RRSP, the interest discount rate used in the valuation is 6.25% per annum (including inflation) to be consistent with the actual economic assumption basis used.

C - Margin Against Adverse Fluctuations

The economic assumptions used in this valuation contain a measure of prudence, as is the norm for other pension plans in Canada.

D - Summary of Key and Derived Economic Assumptions

	Inflation		Employment Earnings			Interest		
Plan Year	CPI Increase %	Pension Indexing[1] %	Industrial Aggregate %	YMPE %	Average Pensionable Earnings[2] %	New Money Interest %	Yield Projected on Account %	Yield Projected on Fund %
2000	2.2[3]	1.5[3]	1.4	0.5[3]	2.0	6.0	9.28[3]	N/A
2001	2.1	2.2	2.8	2.1	2.4	6.0	8.99	7.25
2002	2.4	2.3	2.8	2.8	2.8	6.0	8.75	7.25
2003	2.6	2.5	3.2	2.9	3.2	6.0	8.46	7.25
2004	2.8	2.7	3.6	3.3	3.6	6.0	8.23	7.25
2005	3.0	2.9	3.9	3.7	4.0	6.0	8.01	7.25
2006	3.0	3.0	4.0	4.0	4.0	6.0	7.78	7.25
2007	3.0	3.0	4.0	4.0	4.0	6.0	7.60	7.25
2008	3.0	3.0	4.0	4.0	4.0	6.0	7.44	7.25
2009	3.0	3.0	4.0	4.0	4.0	6.0	7.27	7.25
2010	3.0	3.0	4.0	4.0	4.0	6.0	7.10	7.25
2011	3.0	3.0	4.0	4.0	4.0	6.0	6.93	7.25
2012	3.0	3.0	4.0	4.0	4.0	6.0	6.62	7.25
2013	3.0	3.0	4.0	4.0	4.0	6.0	6.48	7.25
2014	3.0	3.0	4.0	4.0	4.0	6.0	6.36	7.25
2015	3.0	3.0	4.0	4.0	4.0	6.0	6.26	7.25
2016	3.0	3.0	4.0	4.0	4.0	6.0	6.12	7.25
2017	3.0	3.0	4.0	4.0	4.0	6.0	6.03	7.25
2018	3.0	3.0	4.0	4.0	4.0	6.0	5.98	7.25
2019	3.0	3.0	4.0	4.0	4.0	6.0	5.98	7.25
2020	3.0	3.0	4.0	4.0	4.0	6.0	5.99	7.25
2021+	3.0	3.0	4.0	4.0	4.0	6.0	6.00	7.25

1 Assumed to be effective as at 1 January.
2 Exclusive of seniority and promotional increases.
3 These figures reflect actual experience.

Appendix 7 - Demographic and Other Assumptions

A. Demographic Assumptions

For Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation, and Farm Credit Corporation, the demographic assumptions used in the previous valuation were maintained except for the negotiated Canada Post Corporation termination and retirement rates for reasons other than mortality or disability.

Except where otherwise noted, all demographic assumptions were determined from the plan's own experience as was done in the past. Where applicable, assumptions of the previous valuation were updated to reflect the available intervaluation experience (usually April 1996 to March 1998). Assumptions related to causes of termination of employment and the assumed benefit election are described below:

Termination Cause	Rate Basis	Comments	Benefit Election Assumed	Rates Shown
Service less than 2 years All causes	Service	Rates were increased 15% from the previous valuation, giving partial credibility to the intervaluation experience.	Return of contributions	7B
Service from 2 years; and				
Other than disability or mortality Age less than 50 -Main group	Service, Sex	- Rates were increased 30% for males and 15% for females from the previous valuation, giving partial credibility to the intervaluation experience.	- Transfer value	7C
-Operational service (o/s)		- Special rates, no change from previous valuation.	- o/s pension, if eligible	7C
Other than disability or mortality Age from 50 -Main group	Age, Sex and Service	-No select period rates since ERI program has expired. Some minor changes to previous male assumption were made to graduate more smoothly with the termination rates below age 50.	-Pension commencing immediately	7D&E
-Operational service (o/s)		-Special rates, no change from previous valuation	-o/s pension, if eligible	7D&E
Disability	Age, Sex	The definition of disability has changed as of 1 January 1996 under the *Public Service Superannuation Act*. The disability incidence rates were revised to reflect the intervaluation period experience from 1996 to 1998.	Disability pension	7F
Mortality	Age, Sex and Year	To be consistent with recent mortality studies by the Society of Actuaries and others, the base year table was extended for this valuation to age 114 and set to a maximum mortality of 50% per annum until that age and 100% at age 115.	Survivor annual allowance, if eligible	7G
		Mortality improvement was based on a 25-year select period with an ultimate mortality improvement of 0.5% at ages up to 105 years. The first year was based on Canadian mortality improvement experience since 1985.		7H

Assumptions related to benefits are described in the table below:

Benefit	Related Assumptions	Rate Basis	Comments	Rates shown
Pension	Mortality	Age, Sex and Year	Same rates as mortality-in-service.	7G
Disability pension	Disabled life mortality	Age, Sex	Female base rates projected from previous valuation base rates; Male rates were only projected one year. The base year table was extended to age 115, Similar to mortality-in-service. Mortality improvement was the same as for mortality-in-service.	7G 7H
	Canada Pension Plan/Quebec Pension Plan disability benefits		75% of new disabilities, previous valuation used 80%.	
Surviving spouse annual allowance	Proportion of members married at death	Member's Age, Sex	This benefit is being extended to same-sex couples. As a result, the previous valuation rates were increased by 1.5 % up to age 60 and progressively smaller increases beyond age 60, based on the assumed mortality rates of the same-sex partner.	7I
	Average age of spouse at death of member	Member's Age, Sex	No change for males from the previous valuation. For females, the age differences were increased compared to the previous valuation and were based on the 1996-1998 experience.	7I
	Spouse mortality	Member's Age, Sex and Year	The previous valuation base year rates were projected three years. The base year table was extended to age 115, similar to mortality-in-service. Mortality improvement was the same as for mortality-in-service.	7G 7H
Surviving children annual allowance	Average number of children at death of member	Member's Age, Sex	No change in rates from the previous valuation.	7J
	Average age of children at death of member	Member's Age, Sex	No change in rates from the previous valuation.	7J
	Proportions of children remaining eligible for allowances over age 17	Age of Child	The payment of an allowance to a child between ages 18 and 25 is conditional on the child attending school full-time. The proportions of students remaining eligible for an allowance were set equal to the graduated average 1996-1998 experience, which represents an increase compared with the previous valuation.	7J

1. Other Demographic Assumptions for Contributors

The following demographic assumptions used for pensioners were also used for contributors:

- proportions married at death;
- average age of spouse at death of contributor;
- number of children at death of contributor; and
- average age of children at death of contributor.

(a) Seniority and Promotional Salary Increases

The rates were revised based on the experience for plan years 1997 and 1998. Canada Post was excluded from the experience study. The graduated rates were set back two years to reflect the two year suspension in seniority increases with no retroactive catch-up when the suspension ceased in 1996. The assumptions for seniority and promotional increases, broken down by years of service, are shown in table 7A.

(b) New Members

It was assumed that the distribution of new members by age, sex and initial salary rate would be the same as that of members with less than one year of service at the valuation date.

It was also assumed that the number of new entrants would be equal to the year’s number of terminations.

2. Other Demographic Assumptions for Pensioners

Considering their negligible effect on liabilities and normal costs, the following rates were assumed to be zero:

- disability incidence rates for non-disabled pensioners; and
- recovery rates for disabled pensioners.

B. Other Assumptions

(1) Pension Benefits Division / Optional Survivor Benefit / Leave Without Pay

Pension benefits divisions have almost no effect on the valuation results because the plan liabilities are reduced on average by roughly the amount paid to the credit of the former spouse. Consequently, no future pension benefits divisions were assumed in estimating normal costs and liabilities. However, past pension benefits divisions were fully reflected in liabilities.

Two other provisions, namely the optional survivor benefit and the suspension of membership while on leave without pay, were also treated like pension benefits divisions for the same reason.

(2) Minimum Death Benefit

This valuation does not take into account the minimum death benefit, described in Note 11, section D of Appendix 2, in respect of deaths occurring after retirement. The resulting understatement of accrued liability and normal cost is not material because a majority of the relatively few pensioners who die in the early years of retirement do leave an eligible survivor.

(3) Maximum Pensionable Earnings

The tax-related limit of $99,300 prescribed for the 2000 calendar year was assumed to rise very slowly until 1 January 2005, and to rise thereafter in accordance with the assumed increase in the Industrial Aggregate of Average Weekly Earnings, as prescribed under the current legislation.

(4) Administrative Expenses

From 1 April 2000 administrative expenses are to be charged to the plan. This is to be split between the Account and the Fund in portion to total service for contributors (including former contributors). It is estimated that expenses will be 0.3% of pensionable payroll and that in the first plan year the Account will be charged with 99% of the total expenses. The percentage charged to the Account is expected to decrease by an annual factor of

- 2% for plan years 2001 to 2010 inclusive
- 4% for plan years 2011 to 2020 inclusive
- 5% for plan years 2021 to 2030 inclusive
- 6% for plan years 2031 to 2040 inclusive
- 7% for plan years 2041 to 2050 inclusive
- 8% thereafter

The future expenses expected to be charged to the Account have been capitalised and shown as a liability on the balance sheet, whereas the expenses to the Fund have been added to the normal cost for the year being expensed.

(5) Funding of Elected Prior Service

The government credits to the Account in the plan year 2000 in respect of prior service elections are assumed to be 242% of the corresponding contributions made by the contributors making the elections. Thereafter the multiple is assumed to be 100%.

(6) Outstanding Terminations

Amounts paid from 1 April 1999 for terminations that occurred prior to that date were estimated from historical trends.

Table 7A

Assumed Seniority and Promotional Salary Increases

Service[1]	Male (%)	Female (%)
0	5.20	5.80
1	4.60	5.00
2	4.00	4.25
3	3.45	3.55
4	3.00	3.00
5	2.60	2.70
6	2.25	2.50
7	2.00	2.30
8	1.85	2.15
9	1.70	2.00
10	1.55	1.90
11	1.45	1.80
12	1.35	1.70
13	1.25	1.60
14	1.20	1.55
15	1.15	1.50
16	1.10	1.45
17	1.05	1.40
18	1.00	1.35
19	0.95	1.30
20	0.90	1.25
21	0.90	1.20
22	0.85	1.20
23	0.80	1.15
24	0.80	1.10
25	0.80	1.05
26	0.80	1.00
27	0.80	1.00
28	0.80	1.00
29	0.80	1.00
30	0.80	1.00
31	0.80	1.00
32	0.80	1.00
33	0.80	1.00
34	0.80	1.00
35	0.80	1.00
36	0.80	1.00
37	0.80	1.00
38+	0.80	1.00

[1] Expressed in completed years calculated as at the beginning of the plan year.

Table 7B

Assumed Rates of Termination without Right to a Pension (per 1,000 people)

	Main Group[1]		ATC[2] and CSC[2] (o/s)	
Service[3]	Male	Female	Male	Female
0	207	230	135	150

Table 7C

Assumed Rates of Termination (for Reasons Other than Disability and Death) Prior to Age 50 with Right to a Pension (per 1,000 people)

	Main Group[1]		ATC[2] and CSC[2] (o/s)	
Service[3]	Male	Female	Male	Female
1	137	144	79	94
2	104	104	60	68
3	85	83	49	54
4	72	71	41	47
5	60	63	35	41
6	52	56	30	37
7	46	51	26	33
8	40	46	23	30
9	35	41	20	27
10	30	38	17	25
11	26	35	15	23
12-18	18	29	11	19
19+	18	29	14	25

1 Excludes Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation and Farm Credit Corporation.
2 Air Traffic Controllers and Correctional Service Canada members in operational service.
3 Expressed in completed years calculated at the beginning of the plan year.

Table 7D

Assumed Rates of Retirement (for Reasons Other than Disability and Death) at Age 50 and Over with Right to a Pension (per 1,000 people)

Male Members – Main Group[1]

Age[2]	Years of Service[2] 1-3	4-8	9-13	14-18	19-23	24-28	29	30	31	32	33	34	35+
49	100	40	30	20	15	25	40	50	50	50	60	120	100
50	100	40	30	20	15	30	45	55	55	60	65	140	100
51	100	40	30	20	15	35	65	65	65	75	85	140	140
52	100	40	30	20	15	40	70	70	80	90	120	170	170
53	100	40	30	25	15	45	80	100	120	120	150	200	200
54	100	40	30	25	20	45	270	270	270	350	350	600	550
55	120	60	30	30	20	40	250	250	250	270	320	550	500
56	120	60	30	30	30	40	250	250	250	270	320	500	450
57	140	80	40	30	30	45	250	250	250	270	320	500	450
58	140	80	40	40	40	50	250	250	250	270	320	500	450
59	190	190	210	210	210	310	410	410	410	370	350	600	500
60	190	190	210	210	210	310	350	350	370	340	320	550	450
61	180	180	180	180	220	280	310	310	310	310	310	500	410
62	200	200	200	200	240	280	340	360	380	380	380	500	410
63	250	250	250	250	270	310	350	350	370	370	370	600	480
64	500	500	500	500	600	600	600	600	650	650	650	700	600
65	400	400	400	400	450	450	500	500	500	500	500	650	480
66	400	400	400	400	400	400	500	500	500	500	500	650	480
67	400	400	400	400	400	400	500	500	500	500	500	650	480
68	400	400	400	400	400	400	500	500	500	500	500	650	480
69	400	400	400	400	400	400	500	500	500	500	500	650	480

Male Members - CSC and ATC Members in Operational Service

Age[2]	Years of Service[2] 1-3	4-8	9-13	14-18	19-23	24-28	29	30	31	32	33	34	35+
49	60	25	15	11	15	50	80	80	80	80	80	190	170
50	60	25	15	11	15	60	80	80	80	80	80	190	170
51	60	25	15	11	20	70	90	90	90	90	90	190	170
52	60	25	15	11	20	80	120	120	120	120	120	190	170
53	60	25	15	11	30	100	150	150	150	150	150	255	185
54	80	40	20	20	50	125	240	240	240	240	240	650	550
55	90	60	20	25	60	145	320	320	320	320	320	650	550
56	90	60	30	25	60	160	320	320	320	320	320	650	550
57	110	80	40	25	70	170	320	320	320	320	320	650	550
58	110	80	40	35	70	185	320	320	320	320	320	650	550
59	190	190	210	210	210	310	410	410	410	370	350	600	500
60	190	190	210	210	210	310	350	350	370	340	320	550	450
61	180	180	180	180	220	280	310	310	310	310	310	500	410
62	200	200	200	200	240	280	340	360	380	380	380	500	410
63	250	250	250	250	270	310	350	350	370	370	370	600	480
64	500	500	500	500	600	600	600	600	650	650	650	700	600
65	400	400	400	400	450	450	500	500	500	500	500	650	480
66	400	400	400	400	400	400	500	500	500	500	500	650	480
67	400	400	400	400	400	400	500	500	500	500	500	650	480
68	400	400	400	400	400	400	500	500	500	500	500	650	480
69	400	400	400	400	400	400	500	500	500	500	500	650	480

[1] Excludes Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation and Farm Credit Corporation.
[2] Expressed in completed years calculated at the beginning of the plan year.

Table 7E

Assumed Rates of Retirement (for Reasons Other Than Disability and Death) at Age 50 and Over with Right to a Pension (per 1,000 people)

Female Members – Main Group[1]

	Years of Service[2]												
Age[2]	1-3	4-8	9-13	14-18	19-23	24-28	29	30	31	32	33	34	35+
49	100	40	30	30	25	40	60	60	60	65	70	140	110
50	120	45	35	35	25	40	70	70	70	75	80	150	120
51	120	45	35	35	25	40	70	80	80	85	90	160	130
52	120	45	35	35	30	50	70	80	80	85	90	160	130
53	120	45	35	35	35	55	90	90	90	95	100	200	160
54	130	50	40	40	40	70	300	300	300	300	300	600	450
55	140	55	50	50	50	80	270	270	270	270	230	500	400
56	140	55	50	50	50	80	270	270	270	270	230	500	400
57	140	55	50	50	50	80	270	270	270	270	230	500	400
58	140	60	60	60	60	90	300	300	300	300	260	500	400
59	150	150	200	230	290	360	380	380	380	380	300	640	440
60	150	150	200	230	290	330	330	330	330	330	330	580	350
61	150	150	200	230	290	330	330	330	330	330	330	580	350
62	150	150	200	230	290	330	330	330	330	330	330	580	350
63	150	150	200	230	290	330	330	330	330	330	330	580	350
64	500	500	600	600	600	600	600	600	600	600	600	700	500
65	400	400	400	400	420	420	480	480	480	480	480	600	480
66	300	300	350	350	350	350	350	350	400	400	400	600	400
67	300	300	350	350	350	350	350	350	400	400	400	600	400
68	300	300	350	350	350	350	350	350	400	400	400	600	400
69	300	300	350	350	350	350	350	350	400	400	400	600	400

Female Members - CSC and ATC Members in Operational Service

	Years of Service[2]												
Age[2]	1-3	4-8	9-13	14-18	19-23	24-28	29	30	31	32	33	34	35+
49	90	35	25	19	25	50	80	80	80	80	80	190	170
50	90	35	25	19	25	60	80	80	80	80	80	190	170
51	90	35	25	19	25	70	90	90	90	90	90	190	170
52	90	35	25	19	30	80	120	120	120	120	120	190	170
53	90	35	25	19	35	100	150	150	150	150	150	255	185
54	100	45	30	25	50	125	240	240	240	240	240	650	550
55	110	50	40	40	60	145	320	320	320	320	320	650	550
56	110	50	40	40	60	160	320	320	320	320	320	650	550
57	110	50	40	40	70	170	320	320	320	320	320	650	550
58	110	55	50	40	70	185	320	320	320	320	320	650	550
59	150	150	200	230	290	360	380	380	380	380	300	640	440
60	150	150	200	230	290	330	330	330	330	330	330	580	350
61	150	150	200	230	290	330	330	330	330	330	330	580	350
62	150	150	200	230	290	330	330	330	330	330	330	580	350
63	150	150	200	230	290	330	330	330	330	330	330	580	350
64	500	500	600	600	600	600	600	600	600	600	600	700	500
65	400	400	400	400	420	420	480	480	480	480	480	600	480
66	300	300	350	350	350	350	350	350	400	400	400	600	400
67	300	300	350	350	350	350	350	350	400	400	400	600	400
68	300	300	350	350	350	350	350	350	400	400	400	600	400
69	300	300	350	350	350	350	350	350	400	400	400	600	400

[1] Excludes Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation and Farm Credit Corporation.
[2] Expressed in completed years calculated at the beginning of the plan year.

Table 7F

Assumed Rates of Termination with Right to a Disability Pension[1]
(per 1,000 people)

Age[2]	Male	Female
25 (and under)	0.3	0.1
26	0.3	0.2
27	0.3	0.2
28	0.3	0.4
29	0.3	0.4
30	0.3	0.5
31	0.3	0.6
32	0.4	0.6
33	0.4	0.7
34	0.5	0.8
35	0.6	1.0
36	0.8	1.2
37	1.0	1.4
38	1.2	1.6
39	1.3	1.8
40	1.4	2.0
41	1.5	2.1
42	1.7	2.3
43	1.8	2.5
44	2.0	2.8
45	2.2	3.1
46	2.3	3.4
47	2.5	3.8
48	3.0	4.3
49	3.5	4.8
50	4.0	5.3
51	4.5	5.9
52	5.0	6.5
53	5.5	7.2
54	6.0	8.0
55	6.7	8.9
56	7.5	9.9
57	8.5	10.9
58	9.5	12.0

Assumptions above are not applicable to members employed by Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation and Farm Credit Corporation.

1 For ages 55 and over, the rates are applicable only if service is less than 30 years.
2 Expressed in completed years calculated at the beginning of the plan year.

Table 7G

Sample of Assumed Mortality Ratesfor 2000 Plan Year (per 1,000 people)

	Current and Former Contributors (other than disabled)		Former Contributors (disabled)		Surviving Spouses	
Age[1]	Male	Female	Male	Female	Male	Female
20	0.4	0.2	3.1	6.6	0.9	0.3
25	0.5	0.3	6.2	7.1	1.1	0.4
30	0.7	0.4	9.3	7.7	1.2	0.5
35	0.9	0.4	12.3	8.1	1.5	0.7
40	1.2	0.6	15.0	8.6	1.7	0.9
45	1.6	1.1	17.7	9.5	2.6	1.5
50	2.3	1.7	20.1	11.0	3.9	2.5
55	3.9	2.6	22.6	13.4	6.7	4.2
60	8.2	5.0	27.5	16.5	11.5	6.6
65	15.5	8.9	37.6	21.5	18.6	10.8
70	26.1	14.7	54.1	29.4	28.9	16.5
75	43.4	24.0	71.9	42.6	46.2	26.9
80	72.2	44.0	97.2	66.8	75.4	46.3
85	112.3	79.5	137.3	114.9	118.4	78.9
90	172.0	130.2	208.3	181.1	178.5	132.6
95	254.9	194.6	315.0	283.4	257.1	210.0
100	354.7	318.3	475.1	443.9	355.3	318.5
105	500.0	500.0	500.0	500.0	500.0	500.0
114	500.0	500.0	500.0	500.0	500.0	500.0
115	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0

Assumptions above are not applicable to members employed by Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation and Farm Credit Corporation.

[1] Expressed in completed years calculated at the beginning of the plan year.

Table 7H

Sample of Assumed Longevity Improvement Factors

Age[2]	Annual % Mortality Reduction[1]			
	Male		Female	
	2001	2026+	2001	2026+
20	2.50	0.50	1.50	0.50
25	1.50	0.50	1.25	0.50
30	0.50	0.50	1.00	0.50
35	0.25	0.50	1.25	0.50
40	1.00	0.50	1.25	0.50
45	2.00	0.50	1.50	0.50
50	2.50	0.50	1.25	0.50
55	2.25	0.50	1.50	0.50
60	2.25	0.50	1.00	0.50
65	2.00	0.50	1.25	0.50
70	2.00	0.50	1.50	0.50
75	1.75	0.50	1.25	0.50
80	1.25	0.50	1.25	0.50
85	1.00	0.50	1.00	0.50
90	0.75	0.50	0.75	0.50
95	0.50	0.50	0.50	0.50
100	0.25	0.50	0.25	0.50
105+	0	0	0	0

Assumptions above are not applicable to members employed by Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation and Farm Credit Corporation.

[1] Mortality improvement is based on a 25-year select period with an ultimate annual mortality improvement of 0.5% at all ages. During the select period, the annual mortality reduction is linearly interpolated between 2001 and 2026.

[2] Expressed in completed years calculated at the beginning of the plan year.

Table 7I

Assumed Number of Married Members at Death (per 1,000 people) and Assumed Average Age of Surviving Spouse

Age[1] of Deceased Member	Number of Married Members		Average Age[1] of Surviving Spouse	
	Male	Female	Male	Female
25	340	565	26	24
30	429	565	31	29
35	483	565	37	34
40	569	565	43	39
45	665	565	47	43
50	742	565	53	47
55	785	565	58	52
60	799	515	63	57
65	793	467	67	63
70	767	401	71	67
75	716	317	75	71
80	642	222	80	75
85	534	128	84	79
90	396	56	87	83
95	248	18	89	88
100	97	1	94	92
105	6	0	99	-
109	6	0	103	-
110	0	0	-	-

Assumptions above are not applicable to members employed by Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation and Farm Credit Corporation.

[1] Expressed in completed years calculated at the beginning of the plan year.

Table 7J

Assumed Average Number of Children (per 1,000 people) and Average Age of Children at Death of Member

Age[1] of Deceased Contributor	Average Number of Children		Average Age[1] of Children	
	Male Members	Female Members	Male Members	Female Members
25	271	438	2	1
30	670	702	5	5
35	925	794	8	10
40	1,020	726	11	13
45	927	538	14	16
50	665	311	16	17
55	358	129	17	18
60	136	28	18	19
65	36	0	19	21
70	11	0	21	23
75	6	0	23	-
80	0	0	-	-

Assumed Number of Children Remaining Eligible (on account of school attendance) for Allowances Throughout the Following Year (per 1000 children)

Age[1]	Number
17 – 23	840
24	0

Assumptions above are not applicable to members employed by Canada Post Corporation, St. Lawrence Seaway Authority, Export Development Corporation and Farm Credit Corporation.

[1] Expressed in completed years calculated at the beginning of the plan year.

Appendix 8 - Experience Gains and Losses and Effect of Changes in Assumptions and Methodology

The table below summarises the analysis of the effect on the surplus and the normal cost of other experience gains (actual experience during the plan years 1997 and 1998 differing from that expected in the valuation report as at 31 March 1996) and of other changes in assumptions and methodology. Figures in brackets indicate decreases in surplus or normal cost.

Experience Gains and Losses and Effect of Changes in Assumptions and Methodology (in millions of dollars)

	Effect of Experience Gains and Losses on Surplus	Comments	Effect of Changes in Assumptions & Methods	
			Surplus	**Normal Cost**
Economic				
Combined select period changes	N/A	Combined effect on interest, pension indexing, earnings assumptions.	1,397.1	(.44)
Interest	65.3	Method change on future interest on cash flows	252.1	(.10)
Pension indexing	27.6		-	-
Average earnings & YMPE increases	NIL when combined with seniority and promotional salary increases	The economic salary increase freeze, which began in late May 1991 and extended for five but not necessarily consecutive years, expired during the intervaluation period.	-	-
Discount rate in respect of elected prior service	N/A	Discount rate changed from Account yield to 6% per annum.	135.8	-
Demographic				
Effect of projection of population and expected versus actual assets from 31 March 1998 to 31 March 1999			(107.1)	-
Seniority and promotional salary increases	NIL when combined with average earnings & YMPE increases	*The seniority salary increase freeze, which began in June 1994 and extended for two years, expired during the intervaluation period, with no retroactive catch-up.	(205.2)	.21
Mortality; base year and mortality improvement factors	121.8		185.0	(.12)
Termination other than death or disability	44.2	*The Early Retirement Incentive program and the Early Departure Incentive program both began in 1995 and ended in 1998. *Bill C-31, which received Royal Assent on 20 June 1996, included: Pensionable rights after two years Portability of pension benefits (i.e. right to transfer benefits to RRSP) for members who terminate under age 50.	15.5	(.06)
Government future contributions in respect of elected prior service	N/A	Previous valuation assumed government would contribute at a constant 183% of member prior service contributions.	(209.5)	-
Conformance with *Income Tax Act* maximum survivor benefits for service after 1991, excess now from RCA			74.3	(.12)
Miscellaneous	(74.3)		(40.0)	.09
Totals	184.6		1,498.0	(.54)

***** Liability and normal cost estimates were included in the previous valuation results.

Appendix 9 - Acknowledgements

As described in Appendices 3 and 4, the data were supplied by:

- Office of the Comptroller General of Canada;
- Superannuation Directorate of the Department of Public Works and Government Services Canada (including Compensation Systems Branch); and
- actuarial consultants to Canada Post.

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