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

Pension Plan for the Public Service of Canada

Actuarial Report
(including cost certificate)

as at December 31, 1989

Canada

PENSION PLAN

FOR

PUBLIC SERVICE OF CANADA

ACTUARIAL REPORT

(including Cost Certificate)

AS AT DECEMBER 31, 1989

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

Ottawa, Canada
K1A 0H2

June 18, 1991

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

Sir:

Pursuant to section 6 of the Public Pensions Reporting Act, I have the honour to transmit my valuation report on an actuarial review as at December 31, 1989, of the pension plan established under the Public Service Superannuation Act. The report includes a cost certificate required in accordance with section 5 of the Public Pensions Reporting Act.

Subsection 9(1) of the Public Pensions Reporting Act requires a report filed with the Minister while Parliament is sitting to be laid before Parliament within thirty sitting days of its being filed. If Parliament is not then sitting, the Act requires the report to be laid before Parliament on any of the first thirty days thereafter that Parliament is sitting.

Respectfully submitted,

G.W. Poznanski
Chief Actuary

Canada

TABLE OF CONTENTS

APPENDICES

PUBLIC PENSIONS REPORTING ACT

Report on the actuarial review as at December 31, 1989
of the pension plan established under the
Public Service Superannuation Act

I. Introduction

The last actuarial review of the pension plan established under the Public Service Superannuation Act (PSSA) was conducted as at December 31, 1986. Pursuant to paragraphs 3(1)(c) and 3(3)(a) of the Public Pensions Reporting Act (PPRA), the present review was conducted as at December 31, 1989. This report describes the results of the valuation and contains the cost certificate required by section 5 of the PPRA.

For purposes of this report, as required by subsection 3(2) of the PPRA, the plan is deemed to include the related benefits (inflation adjustments) payable under the Supplementary Retirement Benefits Act (SRBA) and the related assets of the Supplementary Retirement Benefits Account (SRB Account).

There was a change in the benefit provisions of the plan since the previous valuation. Bill C-24, which received Royal Assent on June 29, 1989, repealed the provisions for suspending annuity entitlements of surviving spouses upon remarriage and of children between the ages of 18 and 25 in full-time attendance at a school or university upon marriage. Moreover, previously suspended annuities became eligible for reinstatement effective June 29, 1989. The effect of this change in benefit provisions has been valued in this review.

In 1990, "Equal Pay Adjustments" were granted to Public Service employees who are members of the following three occupational groups: Clerical and Regulatory; Secretarial, Stenographic and Typing; and Educational Support. They were awarded retroactive lump sum payments for the period April 1, 1985 to March 31, 1990 as applicable, and ongoing equalization adjustments thereafter. Employees in the Nursing group, the fourth group to benefit from "Equal Pay Adjustments", had been awarded retroactive payments for the period April 1, 1985 to September 30, 1987 in 1987. This group has been receiving an adjustment since October 1, 1987. The effect of the "Equal Pay Adjustments" on the annuities and other benefits payable pursuant to the terms of this pension plan (including indexing) has been taken into account in this actuarial review.

A summary description of the benefits provided under the plan is contained in Appendix 2.

II. Cost Certificate

Based on applying the actuarial methods and assumptions described in Sections IV and V to the data summarized in Appendices 5, 6 and 7, we estimated the normal costs (the annual contributions required to provide all future benefits accruing in respect of a specified year of service) to be the following percentages of pensionable payroll* for the three years following the review date:

Year	Payable by Contributors (%)	Effective Cost to Government (%)	Total Normal Cost (%)
1990	6.10	7.06	13.16
1991	6.02	7.85	13.87
1992	5.98	8.78	14.76

The pensionable payroll for 1990 was estimated to be $10,916.5 million. The 1990 normal cost would therefore be $1,436.6 million (0.1316 times $10,916.5 million).

The corresponding actuarial liability (the present value of future benefits assumed to have accrued in respect of service up to the date of this review) is $40,219.3 million as at December 31, 1989. The unfunded actuarial liability (the excess of actuarial liability over the value of assets of the plan) as of the same date is $2,411.6 million.

The normal cost and the actuarial liability shown above are considered to be realistic at this time because they are determined on "dynamic economic assumptions"** which anticipate that the high real rates of interest (the excess of nominal interest rates over rates of increase in the consumer price index (CPI)), available at the date of valuation, will prevail for some time before they return to more traditional levels. Therefore, the normal cost of 13.16% of pensionable payroll shown for 1990 should not be

* Pensionable payroll equals the total calendar year salary for contributors with less than 35 years of service to their credit.

** The term "dynamic economic assumptions" refers to the fact that the economic assumptions for interest, cost of living and general salary increases vary by calendar year; they do not remain static into the future.

considered as an indicator of the annual cost of this pension plan in the long term. In the long term, the annual cost will tend to approach the level of cost determined on "ultimate" economic assumptions. Section V describes the dynamic economic assumptions for interest, general salary increases and increases in the CPI which "ultimately" reach levels of 5.8%, 4.5% and 3.3%, respectively. If these "ultimate" rates had been assumed to apply beginning at the date of this valuation, the normal costs for this plan would have appeared as the following percentages of pensionable payroll.

Year	Payable by Contributors (%)	Effective Cost to Government (%)	Total Normal Cost (%)
1990	6.10	16.51	22.61
1991	6.05	16.71	22.76
1992	5.99	16.91	22.90

Two additional comments are necessary in respect of the normal costs and the actuarial liability (including the unfunded liability) determined on the dynamic assumptions shown on page 8.

First, an earlier recurrence of more traditional levels of real interest rates than those adopted in the dynamic assumptions would raise both the normal cost of the plan and the actuarial liability. Some protection against this eventuality is provided by the margin in the assumed valuation interest rates. For a number of years these rates are somewhat lower than the projected fund yields. If this margin were removed, total liabilities would be reduced by 11.9% and the total normal cost would be reduced by 16.5% or by 2.17% of pensionable payroll in 1990.

Second, it should be noted that our economic assumptions reach the ultimate real interest rate of approximately 2.5%. If the real interest rate were more in line with the returns realized by private sector pension funds, it would be reasonable to use an assumed interest rate one percentage point higher. In this case, the total normal cost in 1990 on these "ultimate" assumptions would be 17.43% of pensionable payroll rather than 22.61%.

III. Valuation Balance Sheet

Based on the data, actuarial method and the assumptions described in Sections IV and V, the results for the valuation as at December 31, 1989 are summarized here. In this table, PV means Present Value and AA means Annual Allowances.

Assets	($ millions)	Subtotals ($ millions)	Total ($ millions)
Account balances			
- PSS Account*	33,559.6		
- SRB Account	3,702.8	37,262.4	
PV of contributions for prior service**			
- current contributors	217.7		
- former contributors	327.6	545.3	
Total assets			37,807.7
Unfunded liability			2,411.6
Total assets and unfunded liability			40,219.3
Liabilities			
PV of benefits to current contributors			
- contributory status	20,256.1		
- non-contributory status***	196.8	20,452.9	
PV of benefits to former contributors			
- Disabled annuitants	1,022.3		
- Other immediate annuitants including AA recipients and deferred annuitants including those entitled to deferred AA	16,313.9	17,336.2	
PV of benefits to current survivors entitled to AA			
- Spouses	2,328.9		
- Children	12.1	2,341.0	
Outstanding amounts****		89.2	
Total liabilities			40,219.3

* This balance includes outstanding matching government credits in respect of employee contributions up to December 31, 1989 amounting to $367.5 million.

** Due from members and matching government credits.

*** For illustrative purposes, a full-time contributor who has transferred to part-time employment may be in a non-contributory status.

**** Includes outstanding terminations and retroactive pay equity pension amounts.

IV. Data and Actuarial Methods

A. Data

The data required in respect of current contributors, former contributors or their beneficiaries are maintained on computer file by the Superannuation Branch of the Department of Supply and Services. The Pensions and Insurance Products Group of that department is responsible for the computer programs that extract the valuation data. We examined the records that were supplied to us for consistency, interrelationships and general reasonableness and made such adjustments as we considered appropriate.

B. Actuarial Method to Value Liabilities

We used the unit credit cost method to value liabilities in respect of plan benefits for active contributors. This is the usual actuarial method employed in valuing pension plans such as the plan established pursuant to the PSSA. Under this method, the contributions in any year (normal cost) are sufficient to fund all future benefits in respect of pensionable service in that year. The corresponding actuarial liability is the actuarial present value of all future benefits accrued for pensionable service to the valuation date.

The unit credit cost method was applied in this valuation in accordance with the recommendations of the Canadian Institute of Chartered Accountants for accounting for pension obligations in government financial statements, contained in "Public Accounting Statement 5", dated November 1988.

C. Actuarial Method to Value Assets

The assets represent contributions to the plan, net of benefit payments, all accumulated with interest. They are shown at their "book" value; i.e., they are not adjusted to reflect changes in the interest environment. However, by using dynamic interest assumptions we effectively reflect the earning power of these assets.

V. Actuarial Assumptions

This section is divided into four main components: economic assumptions; assumptions for current contributors; assumptions for former contributors; and assumptions for survivors.

A. Economic Assumptions

The basic economic assumptions necessary for the valuation of this pension plan consist of (i) interest rates expected to be obtained on new notional investments in future years, (ii) increases in the CPI, and (iii) general (as distinguished from promotional) salary increases for members of the plan.

From these basic economic assumptions we developed (i) future yields of the fund (i.e., the projected fund yields assumed to be realized in each future year on the notional investments in the fund in that year), (ii) the "dynamic interest assumption" used in the valuation, and (iii) the rate of indexing of benefits.

The projected fund yield for years after 1991 is derived from new money rates and the yields on existing notional investments on the assumption that the assets held on December 31, 1991 in the PSS Account, RCMP Superannuation Account and the Canadian Forces Superannuation Account, and the corresponding portions of the SRB Account, are increased to equal liabilities of the three corresponding pension plans on that date and that no further contributions would be received after 1991. The "dynamic interest assumption" for a particular year is obtained by reducing the corresponding fund yield by one percentage point, but not below 5.8%.

From the CPI we developed pension indexing factors which apply on January 1 of each future year.

The third basic assumption (general salary increases) is incorporated directly in the valuation.

To develop the basic economic assumptions (interest on new investments in future years, CPI and general salary increases), we consulted economic forecasters and researchers, reviewed the projections in the February 26, 1991 federal budget and took into account the late May 1991 Government announcement that there will be no general salary increases during the first year of a three-year wage restraint period. (The general salary increases during the succeeding two years may not exceed 3% per annum).

The general conclusion we reached as a result of our review of long-term economic forecasts was that (i) real interest rates on new (long-term) investments are likely to remain higher than their traditional levels for a relatively long time into the future, (ii) the level of inflation will trend downwards, and (iii) the real general salary increases will continue to be low (or even negative) for some time into the future before they start climbing to reach, ultimately, a level commensurate with the expected increases in productivity which are currently expected to reach, eventually, a level of about 1.2% per annum.

If we adopted for this valuation economic assumptions derived from this "current view of the future", their effect on the valuation results would be very significant as compared to the results that would have been obtained on the basis of economic assumptions adopted for the previous valuation which was done as at December 31, 1986. Because future economic conditions cannot be predicted with a high degree of probability, and because it is inadvisable to make large changes in assumptions from one actuarial review to the next, we decided, for this valuation, to modify the economic assumptions used in the previous actuarial review only part way to those that, on the basis of our research, would reflect the current view of expected future economic levels and relationships.

If the evidence at the next actuarial review, scheduled to be as at December 31, 1992, confirms that the currently anticipated future economic relationships are materializing and are expected to continue into the future, a further adjustment to the economic assumptions may well be made at that time. Should the economic trends at the time of the next review suggest a reversal in the currently anticipated trends, this can also be reflected in the choice of assumptions at that time.

For this valuation, we have adopted the following economic assumptions.

	Rates of Interest					
Year	New Money (%)	Projected Fund Yield* (%)	Valuation Rate (%)	CPI Increases** (%)	January 1 Pension Indexing*** (%)	General Salary Increases** (%)
1990	10.9****	11.0	10.0	4.8****	4.7****	4.6****
1991	10.1	11.0	10.0	5.7	4.8****	0.3
1992	9.8	10.9	9.9	3.4	5.5	2.9
1993	9.3	10.9	9.9	3.1	4.0	3.0
1994	8.8	10.8	9.8	2.8	3.2	3.1
1995	8.5	10.7	9.7	2.9	2.9	3.3
1996	8.3	10.5	9.5	3.0	2.9	3.5
1997	7.9	10.4	9.4	3.1	3.0	3.7
1998	7.4	10.2	9.2	3.2	3.1	3.9
1999	6.9	10.0	9.0	3.3	3.2	4.1
2000	6.3	9.7	8.7	3.3	3.3	4.3
2001	5.8	9.4	8.4	3.3	3.3	4.5
2002	5.8	9.0	8.0	3.3	3.3	4.5
2003	5.8	8.6	7.6	3.3	3.3	4.5
2004	5.8	8.4	7.4	3.3	3.3	4.5
2005	5.8	8.1	7.1	3.3	3.3	4.5
2006	5.8	7.9	6.9	3.3	3.3	4.5
2007	5.8	7.7	6.7	3.3	3.3	4.5
2008	5.8	7.5	6.5	3.3	3.3	4.5
2009	5.8	7.3	6.3	3.3	3.3	4.5
2010	5.8	7.1	6.1	3.3	3.3	4.5
2011	5.8	6.9	5.9	3.3	3.3	4.5
2012	5.8	6.5	5.8	3.3	3.3	4.5
Ultimate	5.8	5.8*****	5.8	3.3	3.3	4.5

* Projected fund yields for the combined Public Service, Canadian Forces and RCMP Superannuation Accounts and the corresponding portions of the SRB Account.

** On calendar year basis.

*** Pension indexing assumptions are based on 12-month average CPI increases, ending September of the previous year.

**** These figures represent actual experience.

***** Projected fund yield declines from 6.5% in 2012 to 5.8% by 2019.

B. Assumptions for Current Contributors

1. Promotional salary increases

The promotional salary increases were set equal to the graduated experience of promotional increases from 1986 to 1987, 1987 to 1988, and 1988 to 1989 year-ends. The experience included approximately 80% of the population of the PSSA for which general salary increases by job classifications were removed and salaries then analyzed for promotional increases. The assumptions for promotional salary increases, based on service, are shown in Appendix 3A.

2. Short-term rates of termination

Subject to certain minor exceptions, a return of contributions is the only benefit applicable in respect of a contributor who dies or otherwise ceases to be employed in the Public Service before he has to his credit five years of pensionable service. Thus, for valuation purposes, the rates of termination required for each of the first five years of pensionable service are the rates at which contributors cease to be employed for any reason. These rates are referred to in this report as "short-term rates of termination".
The assumptions for the short-term rates of termination were set equal to:

- 50% of the graduated 1981-86 experience, plus,
- 50% of the graduated 1987-89 experience.

The assumptions were calculated by age and service. They are shown in Appendix 3B.

3. Rates of termination for reasons other than age, age and service, disability or death, after five or more years of pensionable service.

a. Rates of termination

As described in the "Summary of Benefits" in Appendix 2, contributors who terminate service for reasons other than age, age and service, disability or death, and have five or more years of pensionable service, have the option of electing a return of contributions, a deferred annuity to commence at age 60, or an annual allowance that may commence immediately if the contributor's age is 50 or over, but not before age 50 if the contributor's age is under 50. Contributors terminating after age 45 with at least 10 years of pensionable service must elect a deferred annuity or an annual allowance in respect of service after September 30, 1967.

The assumptions were set equal to:

- 50% of the graduated 1981-86 experience, plus
- 50% of the graduated 1987-89 experience.

The rates were calculated by age and service. Rates by service were assumed to be constant after 12 years of service. See Appendices 3C and 3D for the assumptions.

b. Proportions of terminating contributors electing to take a deferred annuity or annual allowance

The amount of an annual allowance is determined by the application of stipulated factors (see Note 8, in Appendix 2), based on age and length of service to the amount of the deferred annuity to which a terminating contributor is entitled. As in the preceding valuation, annual allowances were assumed to be actuarially equivalent to deferred annuities.

As a result of our analysis, the proportions were set equal to the graduated 1981-86 experience, except for males for whom they were increased from ages 50 to 59 inclusive. The increase was 4% at age 50 and it increased linearly until it reached 40% at age 59. See Appendices 3C and 3D for the assumptions.

It should be noted that above age 44 these factors are applicable only in the case of terminations with five to ten years of service.

4. Rates of retirement because of age or age and service

a. Rates of retirement

In this report, the expression "retirement because of age" applies to contributors entitled to an immediate annuity because of attainment of age 60 and completion of at least five years of pensionable service. In general the expression "retirement because of age and service" applies to retirements with entitlement to an immediate annuity at ages 55 to 59 with at least 30 years of pensionable service (see Note 3 in Appendix 2).

The rates were set equal to the graduated 1987-89 experience. They were calculated by age and service and are shown in Appendix 3E.

b. Integration with Canada/Quebec Pension Plan

As described in Note 4 of Appendix 2, the basic annuity of a retired contributor reaching age 65 or becoming entitled to a disability pension under the Canada/Quebec Pension Plan (CPP/QPP) is reduced by reason of the co-ordination of the Public Service Superannuation Plan with the CPP/QPP.

To value the liability for future benefits, it was necessary to develop assumptions as to

(i) the proportions of contributors, by age, whose highest six-year average salary is below the final three-year Average CPP Maximum Pensionable Earnings, and

(ii) the average ratios of the six-year average salary of such contributors to the three-year average CPP Maximum. As at January 1, 1990, the CPP Maximum Pensionable Earnings were $28,900 and were designed to increase approximately in proportion to average industrial wages and salaries. For purposes of this report, it was assumed that increases would be equal to the assumed general salary increases.

The assumptions that were adopted are shown in Appendix 3F.

5. Rates of retirement because of disability

Based on a review of the recent disability retirement experience, we retained the assumptions used in the previous valuation which reflected the 1984-86 experience. The rates vary by age and are shown in Appendix 3G. We further assumed that 70% of disability retirements would be eligible for immediate CPP/QPP disability benefits, the same assumption as we used in the previous valuation.

6. Rates of mortality and mortality projection factors

Contributor mortality for the 1987-89 period was considerably lower than that for the 1981-86 period. On the basis of our analysis, we decided to assume that contributor mortality rates for base year 1990, varying by age, would be equal to 95% of the graduated 1984-89 experience. These rates are shown in Appendix 3H.

Beginning with this valuation, the mortality assumption for current contributors takes into account the expected continued reductions in the rates of mortality at the various ages. (In the previous valuation, the mortality reduction factors were used only in respect of retired lives and spouses.)

Mortality rates after 1990 were adjusted by assuming constant annual percentage decreases of such rates, varying by age. The projection factors shown in Appendix 3I were used in conjunction with the 1990 mortality rates for current contributors, former contributors and surviving spouses. The projection scale used is a modification of Projection Scale H of the Society of Actuaries. The projection factors used for males aged 55 to 91 inclusive and for females aged 56 to 85 inclusive are somewhat higher than those used in the previous valuation.

7. Survivor assumptions

a. Proportions of current contributors married at death

Our analysis indicated that the graduated rates based on 1981-86 experience were appropriate for this valuation. The assumptions were calculated by age. See Appendix 3J for sample assumptions of the proportions of current contributors married at death.

b. Number of children at death of contributor

The assumptions for the number of children at death of the contributor were set

- for males, at the graduated 1984-89 experience;
- for females, at 110% of the graduated 1981-86 experience.

Experience included both current and former contributors and the number of children at death of a contributor was applicable for both groups. The assumptions were applied by age. See Appendix 3K for sample assumptions of the number of children at death of the contributor.

c. Average age of spouse at death of contributor

The assumptions for the average age of the spouse at the death of the contributor were set equal to the graduated 1981-86 experience of both current and former contributors. The assumptions were applicable for both groups. See Appendix 3J for sample assumptions of average age of spouse at the death of the contributor.

d. Average age of children at death of contributor

The assumptions for the average age of children at the death of the contributor were set equal to 95% the 1981-86 graduated experience of current and former contributors and rounded to the next lower integral age. The assumptions were applicable for both groups. See Appendix 3K for sample assumptions of the average age of children at the death of the contributor.

C. Assumptions for Former Contributors

1. Rates of mortality

On the basis of our analysis, rates of mortality for former contributors (except disabled annuitants) for base year 1990 were set at 97% of the rates of the 1983 Group Annuity Mortality Basic Table*.

Rates of mortality for disabled annuitants for base year 1990 were set equal to:

- for males, 80.75% of the 1984-86 graduated experience rates, for durations 2 or greater;
- for females, 110% of the previous valuation assumptions.

See Appendix 3H for sample rates of mortality.

2. Proportions of former contributors married at death

Assumptions for the proportions married at death were set equal to:

- for males, 105% of the 1978-80 graduated experience;
- for females, 125% of the 1978-80 graduated experience.

See Appendix 3J for sample proportions of former contributors married at death.

3. Other assumptions

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

- rate of disablement for non-disabled former contributors;
- rate of recovery for disabled annuitants.

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* The 1983 Group Annuity Mortality Table was developed by the Society of Actuaries from group annuity mortality experience and may be applied, where appropriate, to the valuation of pension plans.

The following assumptions for former contributors were assumed to be the same as for current contributors:

- mortality projection factors;
- average age of spouse at death of contributor;
- number of children at death of contributor;
- average age of children at death of contributor.

D. Assumptions for Survivors

1. Rates of mortality

On the basis of our analysis, we set the rates of mortality for surviving spouses, for base year 1990, equal to:

- for widowers, 100% of the 1980-82 Canada Life Table rates;
- for widows, 90% of the 1980-82 Canada Life Table rates.

See Appendix 3H for sample assumptions of rates of mortality.

To determine mortality rates for surviving spouses after 1990 the same mortality projection factors as for current contributors were used.

In the current as well as preceding valuations, mortality was ignored in determining the value of allowances payable to children and students because such allowances are not payable after the 25th birthday, and the effect of mortality at the relevant ages would have been negligible.

2. Proportions of students remaining eligible for allowances

Because payment of an allowance to a child between ages 18 and 25 is conditional on the child being in full-time attendance at school, probabilities of a child at any age continuing to be eligible during the next year of age are needed.

The assumptions for the proportions of students remaining eligible for an allowance, given entitlement to the allowance, were set equal to the 1981-86 graduated experience. See Appendix 3K for samples of these assumptions.

E. Administrative Expenses

No provision was made in the liabilities or in the normal cost with respect to the cost of administering the plan.

VI. Experience Gains and Losses and Changes in Actuarial Assumptions

The following is an analysis of the effect on the unfunded liability and the normal cost of the experience gains and losses (i.e., actual experience during the three year intervaluation period being different from the actuarial assumptions used in the valuation report as at December 31, 1986) and of the changes in actuarial assumptions. (The figures in brackets indicate decreases in unfunded liability or normal cost, as the case may be.)

	Unfunded Liability ($ millions)	Total Normal Cost (% of Pensionable Payroll)
Experience gains and losses		
- Economic experience		
- Interest earnings	(803.5)	--
- Pension indexing	105.8	--
- General salary increases	130.7	--
- Demographic experience		
- Promotional salary increases	70.6	--
- Termination, less than 5 years	(18.6)	--
- Termination, 5 or more years (excluding retirement and death)	(178.0)	--
- Termination elections	145.4	--
- Retirement (non-disability)	246.6	--
- Retirement (disability)	(6.7)	--
- Mortality	78.7	--
- Proportions of contributors married at death	14.0	--
- Integration with CPP/QPP	(17.8)	--
- Miscellaneous	146.2	--
Subtotal	(86.6)	--
Changes in actuarial assumptions		
- Economic assumptions	(2,709.4)	(2.16)
- Demographic assumptions		
- Promotional salary increases	65.3	0.25
- Termination, less than 5 years	(10.6)	(0.06)
- Termination, 5 or more years (excluding retirement and death)	(243.4)	(0.24)
- Termination elections	76.0	--
- Retirement (non-disability)	859.6	0.42
- Mortality (for base year 1990)	491.1	0.16
- Mortality projection factors	394.6	0.21
- Proportions of contributors married at death	216.9	0.06
- Number of children at death of contributor	(3.8)	(0.01)
- Integration with CPP/QPP	(17.5)	--
Subtotal	(881.2)	(1.37)
Total	(967.8)	(1.37)

A. Economic Experience and Assumptions

During the intervaluation period, interest credited to the PSS Account was in excess of that assumed. This excess accounted for a decrease in the unfunded liability of $803.5 million. An increase in the unfunded liability of $105.8 million resulted from pension indexing increases greater than assumed. An increase in the unfunded liability of $130.7 million resulted from general salary increases that were greater than expected.

The changes in economic assumptions as described in Section V A resulted in a decrease in the unfunded liability of $2,709.4 million and a decrease in the normal cost of 2.16% of pensionable payroll.

B. Demographic Experience and Assumptions

1. Promotional salary increases

The experience with respect to promotional salary increases during the three year intervaluation period resulted in an experience loss of $70.6 million.

The assumptions were changed from the previous valuation. At service durations up to 22 for males and 18 for females, the current assumptions provide for increases equal to or greater than the previous assumptions. For later service durations, the current assumptions provide for smaller increases than the previous assumptions. The change in assumptions caused an increase in the unfunded liability of $65.3 million and an increase in normal cost of 0.25% of pensionable payroll.

2. Short-term rates of termination

The short-term rates of termination experience during the three year intervaluation period resulted in an experience gain of $18.6 million.

The assumptions were changed because the previous termination rates were not representative of the 1987-89 experience by service. Even though the total number of actual terminations compared reasonably well with the total number of expected terminations using the previous rates, these rates were not representative of the incidence by duration. The change in assumptions caused a decrease in the unfunded liability of $10.6 million and a decrease in the normal cost of 0.06% of pensionable payroll.

3. Rates of termination for reasons other than age, age and service, disability or death after five or more years of pensionable service

   The termination experience during the three-year intervaluation period resulted in an experience gain of $178.0 million.

   The assumptions were changed from the previous valuation due to the significant increase in the number of terminations during 1987-89 as compared to 1981-86. Due to the cyclical nature of experience, 50% credibility was given to each of the periods to determine the current valuation assumptions. The change in assumptions caused a decrease in the unfunded liability of $243.4 million and a decrease in the normal cost of 0.24% of pensionable payroll.

4. Proportions of terminating contributors electing to take a deferred annuity or annual allowance (including the effect of reciprocal transfer agreements and privatizations)

   The experience during the three-year intervaluation period resulted in an experience loss of $145.4 million. This includes the effect of reciprocal agreements and of privatizations of Teleglobe Canada and Northwest Territories Power Corporation. It also includes an additional settlement of $12.6 million to Sunnybrook Hospital.

   The assumptions were changed only for males from ages 50 to 59 to reflect the 1987-89 experience. In addition, we assumed that for service prior to October 1, 1967, terminating members would not elect a return of contributions. The change in assumptions caused an increase in the unfunded liability of $76.0 million but no increase in the normal cost.

5. Retirement because of age or age and service

   The three-year intervaluation experience indicated a substantial increase in rates of retirement at all ages up to 63, including all durations. The rates of retirement above age 64 decreased. The result was an increase in the unfunded liability of $246.6 million.

   We changed our assumptions with respect to "retirement because of age or age and service" to reflect the experience of the intervaluation period and the fact that service under the Canadian Forces Superannuation Act and the Royal Canadian Mounted Police Superannuation Act should not be included for purposes of the PSSA. The change in the assumptions caused an increase in unfunded liability of $859.6 million and an increase in the normal cost of 0.42% of pensionable payroll.

6. Retirement because of disability

Disability retirement rates during the intervaluation period were somewhat higher than expected on the basis of the previous valuation assumptions. However, the average salaries of new disability retirees were somewhat lower than those for the general active population of the plan which more than offset the loss resulting from the higher retirement rates. The net result was a modest experience gain of $6.7 million for the three year intervaluation period. Consequently, it was decided to retain the assumptions used in the last report for this valuation.

7. Mortality (for base year 1990)

This assumption represents mortality for current contributors, former contributors and surviving spouses for base year 1990.

The assumption was changed to reflect the improvement in mortality for the period 1987-89 compared with the 1981-86 experience. Current contributors, non-disabled former contributors, disabled male former contributors and female surviving spouses experienced mortality improvements. Margins for other groups were adjusted for consistency.

The following table shows the breakdown of the change in the unfunded liability as a result of mortality experience losses during the intervaluation period and the change in the unfunded liability and normal cost as a result of changes in mortality assumptions for base year 1990.

	Experience	Assumption Changes	
Group	Unfunded Liability ($ millions)	Unfunded Liability ($ millions)	Normal Cost (%)
Current Contributors	11.5	47.4	0.03
Former Contributors	58.7	386.1	0.12
Surviving Spouses	8.5	57.6	0.01
Total	78.7	491.1	0.16

8. Mortality Projection Factors

In the previous valuation no mortality improvement factors were used for current contributors. We have introduced in this valuation such factors for this group and changed the mortality improvement assumptions from the previous valuation for former contributors and surviving spouses. As compared to the projection factors used in the previous valuation, the current factors are somewhat higher for males aged 55 to 91 inclusive and for females aged 56 to 85 inclusive.

The change in assumptions for current contributors, former contributors and surviving spouses caused an increase in the unfunded liability of $394.6 million and an increase in the normal cost of 0.21% of pensionable payroll.

9. Proportions of contributors married at death

The assumptions for current contributors married at death were changed from the previous valuation to decrease the expected proportions married at death.

The assumptions for former contributors married at death were changed for males to increase the expected proportions married at death, but remained the same for females.

The following table shows the breakdown of the change in unfunded liability as a result of the experience during the intervaluation period (including not only the experience relative to the proportions of contributors married at death but also the experience relative to average ages of spouse at death of contributor), and the changes in unfunded liability and normal costs resulting from assumption changes relative to proportions of contributors married at death.

Group	Experience Unfunded Liability ($ millions)	Assumption Changes Unfunded Liability ($ millions)	Assumption Changes Normal Cost (%)
Current Contributors	(2.1)	(9.7)	(0.01)
Former Contributors	16.1	226.6	0.07
Total	14.0	216.9	0.06

10. Number of children at death of contributor

For males, the assumptions were changed to decrease the expected number of children at death of the contributor. For females the assumptions were the same as in the previous valuation. The change in assumptions caused a decrease in the unfunded liability of $3.8 million and a decrease in the normal cost of 0.01% of pensionable payroll.

11. Integration with CPP/QPP

The experience during the intervaluation period resulted in a gain of $17.8 million. As a result, the previous assumptions for the "proportion of contributors whose highest 6-year average salary is below the final 3-year CPP Maximum Pensionable Earnings" were modified to reflect the current experience. This decreased the unfunded liability by $17.5 million but made no change to normal cost.

12. Miscellaneous

This experience item includes all other demographic factors of lesser importance. The experience loss was $146.2 million.

VII. Reconciliation of Unfunded Liability and Normal Cost

This section describes the various factors reconciling the changes in the unfunded liability and total normal cost between the last valuation (as at December 31, 1986) and this one.

	Unfunded Liability ($ millions)	Total Normal Cost (% of Pensionable Payroll)
At December 31, 1986	4,220.9	12.64
Data and assumption corrections	(784.9)	0.02
Interest on unfunded liability	1,149.8	--
Increase in normal cost to December 31, 1989 due to dynamic economic assumptions	--	1.73
Normal cost payments not made	293.4	--
Change in demographic characteristics (age-sex-service distribution) of active members	(6.2)	0.10
Change in benefits, Bill C-24 and Equal Pay Adjustments	295.9	0.04
Annuity payments made from Consolidated Revenue Fund	(1,789.5)	--
Experience gains and losses (see section VI)	(86.6)	--
Changes in actuarial assumptions (see section VI)	(881.2)	(1.37)
At December 31, 1989	2,411.6	13.16

A. Data and Assumption Corrections

Correcting errors in the data used in the previous valuation resulted in a decrease in the unfunded liability of $924.5 million. Refining the application of assumptions to the data resulted in an increase in unfunded liability of $139.6 million. These two changes produced a net decrease in the unfunded liability of $784.9 million.

The refinement in the application of assumptions to the data increased the normal cost by 0.02% of Pensionable Payroll.

B. Interest on Revised Unfunded Liability of $3,436.0 million ($4,220.9 - 784.9 million)

An increase in unfunded liability of $1,149.8 million is the result of interest on the unfunded liability as at December 31, 1986 not being paid. We calculated this interest for the three years to December 31, 1989 based on the interest rate assumption used in the 1986 valuation report.

C. Increase in Normal Cost to December 31, 1989 due to Dynamic Economic Assumptions

The normal cost calculated on the basis of dynamic economic assumptions adopted for the valuation as at December 31, 1986 was expected to increase during each of the three succeeding years almost entirely as a result of the gradual transition from dynamic to ultimate assumptions. The normal cost rose by 1.73% of pensionable payroll from December 31, 1986 to December 31, 1989.

D. Normal Cost Payments not Made

An increase in the unfunded liability of $293.4 million is the result of a portion of the normal cost payments not being made. This occurred because the government only matched member contributions to the PSS Account and SRB Account and did not contribute at the rates shown in the 1986 Cost Certificate for the three succeeding years. The amount of $293.4 million includes interest accumulations on normal cost payments not made.

E. Change in Demographic Characteristics (age-sex distribution) of Active Members

An increase in the normal cost of 0.10% of Pensionable Payroll is due to the active membership at December 31, 1989 having a different distribution of ages, a different proportion of female members and a different distribution of service as compared to the membership in the 1986 valuation. The cost of benefits being earned in respect of a member depends on the member's age, sex, and service.

The previous valuation assumed that certain changes in the demographic characteristics of active members would require an increase in normal cost. The actual changes that took place required a smaller increase. Consequently there was a gain of $6.2 million and the unfunded liability was reduced by a like amount.

F. Change in Benefits: Bill C-24 and Equal Pay Adjustments

See Section VIII for a detailed description of the effect of the change in benefits due to Bill C-24. (The increase in the unfunded liability was $188.2 and the increase in the normal cost 0.03% of pensionable payroll).

The effect of "Equal Pay Adjustments", as described in Section I, was to increase unfunded liabilities and normal costs as percentages of pensionable payroll as follows:

	Unfunded Liabilities ($ millions)	Normal Cost (%)
Current contributors	96.5	0.01
Former contributors	11.2	--
Total	107.7	0.01

Liabilities for former contributors include an outstanding amount of $1.2 million for retroactive pension adjustments.

The total effect of Bill C-24 and Equal Pay Adjustments was to increase the unfunded liability by $295.9 million and the normal cost by 0.04% of pensionable payroll.

G. Annuity Payments Made from the Consolidated Revenue Fund

Supplementary retirement benefits payable in excess of contributions by and in respect of members (including interest) made to the SRB Account are charged directly to the Consolidated Revenue Fund. Since these benefits are not paid by the plan, the plan gained $1,789.5 million and the unfunded liability decreased by a like amount.

VIII. Effect of Bill C-24

Bill C-24, which received Royal Assent on June 29, 1989, repealed the provisions for suspending annual allowance entitlements of surviving spouses upon remarriage and of children between the ages of 18 and 25 in full-time attendance at a school or university upon marriage. Moreover, previously suspended allowances became eligible for reinstatement effective June 29, 1989.

We have been informed that as of June 29, 1989, the annual allowances of 1,510 surviving spouses, with total annual payments of $6.5 million as of December 31, 1989, had been reinstated as a result of Bill C-24. These were taken into account in this valuation. The resulting liability as at December 31, 1986 is $78.2 million, including payments made since June 29, 1989.

To reflect the effects of Bill C-24 on benefits payable following its enactment, we eliminated remarriage rates from our calculations as remarriage is no longer a cause for terminating surviving spouses allowances. This increased liabilities in respect of existing and prospective annual allowances to surviving spouses by $110.0 million. It also increased the normal cost by 0.03% of pensionable payroll.

The total increase in liability as of December 31, 1989 in respect of surviving spouses, consequent on the enactment of Bill C-24, was therefore $188.2 million.

As to children, we have been informed that no children's allowances were reinstated as a result of Bill C-24. We believe that any effect this Bill might have on the liability in respect of children's allowances would be negligible and we have not quantified it.

All the costs quoted in this section were calculated as at December 31, 1989 and are not materially different from the costs that would have been calculated as at June 29, 1989, the effective date of Bill C-24.

IX. Acknowledgements

We wish to acknowledge the co-operation and able assistance received from the Pensions and Insurance Products Group of Supply and Services Canada during the course of this actuarial review.

X. Actuarial Opinion

In my opinion, for the purpose of this actuarial report

(a) the data on which this report is based are sufficient and reliable,

(b) the assumptions that have been used are adequate and appropriate, and

(c) the methods that have been employed are consistent with sound actuarial principles.

This report has been prepared and this opinion has been given in accordance with generally accepted actuarial principles and the Recommendations for Valuation of Pension Plans of the Canadian Institute of Actuaries.

Respectfully submitted,

G.W. Poznanski, F.S.A., F.C.I.A.
Chief Actuary

Ottawa, Canada
June 18, 1991

APPENDIX 1

Estimates relating to existing financing provisions of Public Service Superannuation Act

The PSSA requires the determination of actuarial liabilities relating to basic PSSA benefits, but not those relating to indexing under SRBA. (The PPRA requires the determination of actuarial liabilities including both the basic PSSA benefits and those relating to indexing pursuant to SRBA. The information in the main body of the report conforms to the requirement of PPRA).

The PSSA provides for the liquidation of any unfunded actuarial liability for basic benefits and for the payments of special credits to the PSS Account relating to salary increases in excess of the rates assumed in the preceding actuarial report.

On the basis of the assumptions described in the report, it was estimated that as at December 31, 1989, the assets relating to the PSSA amounting to $34,091.8 million exceeded the actuarial liabilities for basic benefits by about $4,823.1 million.

It was also estimated, on the basis of the same assumptions, that general salary increases in excess of the rate assumed for a year would generate additional liabilities that would require a special credit to the PSS Account equal to 0.976 times the increase in the effective payroll resulting from such excess salary increases, to the extent that there is insufficient surplus to absorb such additional liabilities.

APPENDIX 2

Summary of provisions of the pension plan established under the Public Service Superannuation Act and the relevant provisions of the Supplementary Retirement Benefits Act

Note: In this Appendix, unless the text specifies otherwise, the term "contributor" includes persons employed in the Public Service but who, having 35 or more years of pensionable service, are no longer required to contribute to the PSS Account.

A. Coverage

Persons covered by this plan include:

(a) current contributors who are full-time employees in the Public Service (subject to a few exceptions) who have attained age 18 or are otherwise designated as contributors by the President of the Treasury Board.

The term Public Service as used in the PSSA includes all positions in any department or portion of the executive Government of Canada, or the Senate and House of Commons, the Library of Parliament and any board, commission or corporation listed in a Schedule to the Act.

Persons engaged as sessional employees, postmasters or assistant postmasters in revenue post offices and some others may be designated as contributors by the President of the Treasury Board either individually or as members of a class.

The main groups of persons employed in the Public Service to which the Act does not apply are part-time employees, persons engaged locally outside Canada and employees of some Crown Corporations, boards or commissions covered by separate pension plans.

(b) former contributors who are entitled to annuities or annual allowances payable under the PSSA. (In the case of former contributors, annual allowances are annuities that are reduced because they commenced earlier than at pensionable age.)

(c) surviving spouses and children of former contributors who are entitled to annual allowances payable as defined in the PSSA.

B. Credits and charges to the PSS Account and the SRB Account

1. Contributions from Contributors

Contributions for current service are required at the following rates in respect of salary:

	Account to Which Contributions are Credited	
Group	PSS Account	SRB Account
Air Traffic Controllers (ATC)	8.5% less CPP/QPP* contributions for maximum of 35 years**	1%
Others	6.5% less CPP/QPP* contributions for maximum of 35 years**	1%

A contributor may elect to contribute for prior service.

2. Government Contributions

(a) The government and the public service corporations, as employers, match contributors' current service contributions to the PSS Account and the SRB Account. The "matching credits" are made in the fiscal year following the year in which the contributions were made by employees.

(b) Supplementary Retirement Benefits (see D below) payable in excess of contributions by and in respect of contributors (including interest) are charged directly to the Consolidated Revenue Fund.

* CPP/QPP refers to the Canada Pension Plan or the Quebec Pension Plan as the case may be.

** 35 years include years in which contributions were made under the Canadian Forces Superannuation Act and/or the Royal Canadian Mounted Police Superannuation Act.

(c) Government credits the PSS Account with such amounts as, in the opinion of the Minister of Finance, are required to provide for the increase in cost of the benefits payable under the PSSA as a result of any salary increase applicable to at least one percent of the contributors (in practice limited to global increases at rates in excess of those assumed in the preceding actuarial report) or are required to meet the cost of benefits payable under the Act (i.e., unfunded actuarial liabilities) as shown by the most recent actuarial report on the PSS Account. The PSS Account is credited with the full amount estimated to be required in the fiscal year that the salary increase is authorized or the actuarial report is laid before Parliament and such amounts are charged to the Consolidated Revenue Fund in five equal annual instalments beginning in such fiscal year.

3. Interest

In its role as custodian of the account, the government credits the PSS Account with amounts representing interest on the balance in the PSS Account from time to time, calculated at the interest rate assumed in the preceding actuarial valuation and at such supplementary rate that may be provided by regulation. However, the Minister may apply such supplementary interest to reduce the instalments being charged to the Consolidated Revenue Fund in respect of increases in costs due to salary increases and in respect of unfunded actuarial liabilities indicated in statutory actuarial reports.

Until the quarter ending June 30, 1969, interest was credited to the PSS Account on the last day of each quarter in the fiscal year at the rate of one percent of the balance to the credit of the PSS Account on the last day of the preceding quarter; i.e., approximately 4% per annum. The total rate at which interest is now credited to the PSS Account changes every three months and is calculated as if the amounts not required for payment of benefits in each quarter pursuant to the PSSA and the Canadian Forces and RCMP Superannuation Acts had been invested on a basis similar to the one used for the Canada Pension Plan; i.e., in twenty-year bonds having a yield equivalent to the average yield on Government of Canada bonds with 20 or more years to maturity outstanding at that time.

Interest is credited to the SRB Account at the end of each quarter. The amount of the interest is calculated monthly on the minimum balance at a rate of interest representative of the yield on outstanding Government of Canada bonds having a term to maturity of five years, less 0.125%.

4. Payments of Benefits

All payments pursuant to the PSSA (i.e., excluding indexing) are charged to the PSS Account. Benefits resulting from indexing pursuant to the SRBA are charged to the SRB Account only until the accumulated total paid in respect of a former contributor equals the aggregate of all amounts credited to the SRB Account in respect of that person, including interest. SRBA benefits paid in excess of that aggregate are then charged directly to the Consolidated Revenue Fund.

C. Summary of Benefits*
(The explanatory notes referred to in this summary are given in Section E of this Appendix).

(1) Contributors with less than five years of pensionable service (Note 1)

With a few exceptions, the only benefit to which a contributor in this category is entitled upon termination of service is a "return of contributions" (Note 2).

(2) Contributors with five or more years of pensionable service

Contingency	Benefit
Retirement because of age or age and service (Note 3)	Immediate annuity (Note 4)
Retirement because of disability	At option of contributor (Note 5): (A) immediate annuity (Note 4), or (B) cash termination allowance (Note 6) or return of contributions, whichever is greater
Termination for reasons other than age, age and service, disability, misconduct or death	At option of contributor (Note 5): (A) return of contributions, or (B) deferred annuity (Note 7), or (C) annual allowance payable immediately, if age 50 or over, and otherwise upon attaining age 50 (Note 8)

* All annuities and annual allowances described herein are subject to indexing according to the provisions of the SRBA from the moment the contributor terminates his or her employment.

Dismissal because of misconduct	(A) return of contributions, or (B) with the consent of the Treasury Board, the whole or part specified by the Treasury Board of any benefit to which the contributor would have been entitled if employment had ceased for a reason other than misconduct (Note 9)
Death leaving no surviving spouse or eligible children	Minimum benefit (Note 12)
Death leaving surviving spouse and/or eligible children	Annual allowances (Notes 10, 11 and 12)

(3) Former contributors entitled to annuities or annual allowances

Contingency	Benefit
Disability before age 60 while entitled to a deferred annuity or an annual allowance	Immediate annuity (Note 4)
Death leaving no surviving spouse or eligible children	Minimum benefit (Note 12)
Death leaving surviving spouse and/or eligible children	Annual allowances (Notes 10, 11 and 12)

D. Supplementary Retirement Benefits (Indexing)

Pursuant to the SRBA, benefit adjustments corresponding to increases in the Benefit Index are provided in respect of the basic allowances payable from the PSS Account to former contributors and their survivors.

For purposes of administering the SRBA, the Benefit Index, in respect of each calendar year, is normally calculated as the Benefit Index for the preceding year multiplied by the average of the CPI for the 12 month period ending on September 30 of that preceding year, all divided by the average for a corresponding period one year earlier*.

* As part of a general economic restraint program, increases for 1983 and 1984 were limited to 6.5% and 5.5% respectively.

The SRBA provides for a return of contributions paid by a member to the SRB Account with interest to the extent that such contributions exceed any benefit that has been or may be paid to or in respect of the member.

E. Explanatory Notes

Note 1: Pensionable Service

"Pensionable Service" of a contributor is defined in the PSSA and includes in general terms 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 PSS Account.

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 reduction factor used in determining the amount of an annual allowance payable to a contributor, depend on the number of years of pensionable service to the credit of the contributor at the date employment in the Public Service ceased.

Note 2: Return of Contributions

"Return of Contributions" means the payment of an amount equal to the total current and prior service contributions plus interest credited to December 31st of the year immediately preceding the year the contributor ceased to be employed in the Public Service. Interest at the rate of 4% per annum is credited each December 31st (beginning in 1974) on the accumulated contributions with interest as at the prior December 31st.

Note 3: Retirement because of age or age and service

In this summary, "retirement because of age or age and service" means ceasing to be employed in the Public Service, for any reason other than misconduct or death, at age 60 or over with at least five years of pensionable service, or at ages 55 to 59 with pensionable service of 30 years or more. In the case of Air Traffic Controllers it also means ceasing to be employed after completion of 20 years of operational service in case of "involuntary retirement" or after attainment of age 50 and completion of 25 years of operational service in case of "voluntary retirement".

Note 4: Immediate annuity

"Immediate annuity" means an annuity that becomes payable to a contributor immediately upon his becoming entitled thereto. The annual amount of "basic annuity" is equal to 2% of average annual salary in respect of any selected six-year period of pensionable service multiplied by the number of years of pensionable service up to a maximum of 35. If a contributor has less than six years of pensionable service, the average annual salary is based on salary in respect of the contributor's total pensionable service. Any annuity or annual allowance is ordinarily payable in equal monthly instalments in arrears until the end of the month in which the person receiving it dies or ceases to be entitled thereto.

When a contributor entitled to an annuity or annual allowance, has reached age 65 or has become entitled to a disability pension under the terms of CPP/QPP, the annuity or annual allowance is reduced by an amount equal to 0.7% of the average six year salary, as defined in the preceding paragraph, multiplied by the number of years of pensionable service after 1965 that are counted in the calculation of the basic annuity, provided that the average salary used in this calculation will have a maximum value of the "Average Maximum Pensionable Earnings". The latter amount is the average of the "Year's Maximum Pensionable Earnings" as defined in the Canada Pension Plan for the year in which the contributor ceased to be employed in the Public Service and for each of the two preceding years.

When a contributor under age 60 and entitled to an immediate annuity in respect of a disability is certified in accordance with regulations to have regained his or her health as to be capable of performing the duties of his or her former position in the Public Service or any other position in the Public Service commensurate with the contributor's qualifications, entitlement to that annuity ceases and entitlement to a deferred annuity becomes effective.

When a contributor entitled to a deferred annuity or annual allowance becomes disabled before age 60, the contributor 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 contributor may have received prior to becoming disabled.

Note 5: Restriction on Contributor's options

If on termination of employment, a contributor has attained age 45 and has 10 or more years of pensionable service, then the contributor's right to select a "return of contributions" or a "cash termination allowance" benefit is limited to the period of pensionable service prior to October 1, 1967. With respect to the service on and after that date, the benefit must be an annuity or an annual allowance.

Note 6: Cash termination allowance

"Cash termination allowance" means an amount equal to one month's salary for each year of pensionable service (in the usual case at the rate of salary authorized to be paid to the contributor at the time that the contributor ceases to be employed in the Public Service) less an amount equal to the reduction in contributions paid to the PSS Account because of co-ordination with the Canada Pension Plan and the Quebec Pension Plan.

Note 7: 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 computed as described in Note 4.

Note 8: Annual allowance to contributor

The amount of the annual allowance is equal to the amount of the deferred annuity which the contributor could have elected to receive, reduced by the product obtained by multiplying 5% of that amount by a factor varying with age and length of pensionable service at retirement.

For a contributor age 50 or more with not less than 25 years of credited pensionable service, the factor is the greater of 55 minus the age and 30 minus the number of years of pensionable service, but not greater than 60 minus the contributor's age.

For a contributor age 55 or more who has been employed in the Public Service on a full-time basis for a period or periods totalling at least 10 years and who does not retire voluntarily the factor is 30 minus the number of years of pensionable service, but not greater than 60 minus the contributor's age. In any such case the whole or part of the reduction calculated using this factor may be waived by the Treasury Board.

For all other cases the factor is 60 minus the contributor's age.

In all cases, the factor is determined by expressing age or length of service to the nearest one-tenth of a year.

Note 9: Dismissal because of misconduct

In the case of dismissal because of misconduct, the capitalized value of any annuity or annual allowance granted by the Treasury Board computed in accordance with regulations on the basis of the a(f) and a(m) Ultimate Tables of mortality and interest at 4% per annum may not be less than the "return of contributions" as defined in Note 2.

Note 10: Annual allowance to surviving spouse

"Annual allowance" to the surviving spouse of an active contributor or a former contributor entitled to receive an annuity or annual allowance means one-half of the annual amount of "basic annuity" computed as described in Note 4. This is termed the "basic allowance".

No allowance is payable to the widower of a female contributor, unless the contributor was employed in the Public Service and had 35 years of pensionable service or was required to contribute to the PSS Account on or after December 20, 1975.

Also, if a contributor marries after having become entitled to an annuity or annual allowance, the surviving spouse is not entitled to any annual allowance unless, after the marriage, the former contributor again became a contributor.

Note 11: Annual allowance to surviving children

"Annual allowance" to each child of a deceased contributor means one-fifth of the "basic allowance" described above, or if there is no living spouse, two-fifths of the basic allowance. The allowance is payable to any children under age 18 until they reach their 18th birthday, and to any children 18 years or older until they reach their 25th birthday provided they have been in full-time attendance at school or university substantially without interruption since their 18th birthday or the death of the contributor whichever occurred later. The total amount of allowance payable to the eligible children of a deceased contributor may not exceed that which would be payable if there were four eligible children.

A child born to the widow of a contributor is not entitled to an annual allowance unless the child was conceived before the death of the contributor. Also a child who was born to or adopted by a contributor or who became the stepchild of a contributor after the contributor ceased to be employed in the Public Service is not entitled to an annual allowance unless, in the case of a child born to a contributor, the child was conceived before the contributor ceased to be employed.

Note 12: Minimum benefit

If upon the death of a contributor there is no person to whom an allowance provided under the terms of the PSSA may be paid, or if the persons to whom such allowances may be paid die or cease to be entitled thereto and no other amount may be paid to them, there is paid to the estate of the contributor:

(1) if the contributor was not employed in the Public Service on or after December 20, 1975, any amount by which the amount of "return of contributions" exceeds the aggregate of all amounts paid to those persons and to the contributor; or

(2) if the contributor was employed in the Public Service on or after December 20, 1975, an amount similar to (1) above, except that in respect of the PSSA the "return of contributions" is taken as equal to at least five times the annual amount of the basic immediate annuity to which the contributor was or would have been entitled at the time of his death.

APPENDIX 3A

Promotional Salary Increases

Service (years)	Males (%)	Females (%)
0	5.10	6.00
1	4.40	5.20
2	3.70	4.40
3	3.10	3.70
4	2.60	3.00
5	2.10	2.50
6	1.80	2.10
7	1.60	1.80
8	1.40	1.60
9	1.30	1.50
10	1.20	1.40
11	1.10	1.30
12	1.00	1.20
13	1.00	1.20
14	0.90	1.10
15	0.90	1.10
16	0.80	1.00
17	0.80	1.00
18	0.80	0.90
19	0.70	0.90
20	0.70	0.80
21	0.70	0.80
22	0.70	0.80
23	0.60	0.70
24	0.60	0.70
25	0.60	0.70
26	0.60	0.70
27	0.60	0.70
28	0.60	0.60
29	0.60	0.60
30	0.60	0.60
31	0.60	0.60
32	0.70	0.60
33	0.70	0.60
34	0.70	0.60
35	0.80	0.70
36	0.80	0.70
37	0.80	0.70
38	0.90	0.70
39	0.90	0.70
40	0.90	0.70
41	0.90	0.70
42	0.90	0.70
43	0.90	0.70
44	0.90	0.70

APPENDIX 3B

Short-term rates of termination (for all reasons)

	Males					Females				
	Years of pensionable service					Years of pensionable service				
Age	0	1	2	3	4	0	1	2	3	4
18	0.304	0.192	0.160			0.233	0.155	0.119		
19	0.291	0.183	0.149	0.114		0.239	0.157	0.119	0.087	
20	0.277	0.174	0.139	0.107	0.088	0.243	0.160	0.119	0.088	0.066
21	0.264	0.165	0.130	0.100	0.082	0.248	0.162	0.119	0.089	0.067
22	0.253	0.158	0.120	0.094	0.075	0.253	0.166	0.119	0.090	0.069
23	0.242	0.150	0.112	0.087	0.069	0.259	0.170	0.121	0.091	0.071
24	0.235	0.145	0.104	0.082	0.064	0.263	0.174	0.124	0.093	0.073
25	0.228	0.141	0.099	0.077	0.060	0.266	0.176	0.127	0.096	0.075
30	0.211	0.131	0.096	0.074	0.058	0.257	0.166	0.126	0.099	0.080
35	0.201	0.128	0.098	0.076	0.062	0.243	0.151	0.110	0.089	0.072
40	0.204	0.128	0.093	0.074	0.060	0.231	0.138	0.098	0.077	0.061
41	0.204	0.126	0.091	0.073	0.059	0.230	0.137	0.097	0.074	0.059
42	0.205	0.124	0.089	0.072	0.059	0.229	0.136	0.096	0.073	0.058
43	0.206	0.122	0.088	0.071	0.058	0.229	0.135	0.095	0.072	0.058
44	0.206	0.121	0.087	0.069	0.057	0.229	0.134	0.096	0.072	0.057
45	0.207	0.119	0.086	0.068	0.055	0.230	0.135	0.096	0.072	0.057
46	0.208	0.118	0.084	0.067	0.053	0.231	0.136	0.097	0.073	0.058
47	0.208	0.117	0.084	0.066	0.052	0.232	0.138	0.099	0.074	0.060
48	0.209	0.116	0.083	0.065	0.050	0.235	0.141	0.100	0.076	0.062
49	0.209	0.115	0.082	0.064	0.049	0.237	0.144	0.101	0.077	0.064
50	0.208	0.115	0.081	0.063	0.048	0.240	0.146	0.102	0.078	0.065
51	0.208	0.115	0.081	0.063	0.048	0.245	0.148	0.103	0.080	0.067
52	0.207	0.115	0.081	0.063	0.047	0.250	0.151	0.104	0.081	0.069
53	0.207	0.115	0.083	0.064	0.048	0.255	0.152	0.104	0.083	0.070
54	0.209	0.116	0.084	0.066	0.049	0.260	0.154	0.106	0.084	0.071
55	0.213	0.119	0.086	0.068	0.050	0.267	0.155	0.110	0.086	0.073
56	0.221	0.123	0.090	0.071	0.053	0.274	0.159	0.114	0.090	0.076
57	0.232	0.129	0.096	0.077	0.058	0.284	0.161	0.119	0.095	0.079
58	0.248	0.136	0.104	0.085	0.063	0.293	0.165	0.127	0.100	0.084
59	0.268	0.146	0.114	0.095	0.071	0.305	0.171	0.136	0.108	0.088
60	0.291	0.158	0.128	0.107	0.080	0.318	0.178	0.148	0.117	0.095
61	0.318	0.170	0.144	0.122	0.091	0.333	0.186	0.162	0.128	0.102
62	0.348	0.184	0.161	0.139	0.105	0.350	0.195	0.178	0.140	0.112
63	0.379	0.198	0.181	0.158	0.120	0.367	0.231	0.196	0.154	0.122
64	0.459	0.310	0.290	0.260	0.210	0.458	0.300	0.260	0.210	0.170
65	0.590	0.470	0.430	0.380	0.320	0.590	0.480	0.450	0.420	0.390
66+	0.600	0.300	0.260	0.230	0.190	0.590	0.390	0.340	0.280	0.220

APPENDIX 3C

Rates of termination for reasons other than age, age and service*, disability or death

Age	Males								Proportions electing deferred annuity or annual allowance**
	Years of pensionable service								
	5	6	7	8	9	10	11	12+	
21	0.058	-	-	-	-	-	-	-	.0001
22	0.054	0.033	-	-	-	-	-	-	.0001
23	0.051	0.033	0.026	-	-	-	-	-	.0001
24	0.048	0.034	0.026	0.013	-	-	-	-	.0009
25	0.045	0.034	0.027	0.016	0.012	-	-	-	.0027
26	0.043	0.034	0.027	0.019	0.012	0.010	-	-	.0046
27	0.042	0.034	0.028	0.022	0.016	0.010	0.010	-	.0067
28	0.041	0.035	0.028	0.023	0.019	0.015	0.010	0.009	.0091
29	0.041	0.035	0.028	0.024	0.021	0.017	0.013	0.013	.0120
30	0.041	0.035	0.028	0.024	0.022	0.019	0.016	0.015	.0148
31	0.042	0.035	0.028	0.024	0.022	0.019	0.017	0.016	.0183
32	0.043	0.036	0.029	0.024	0.022	0.019	0.017	0.015	.0226
33	0.045	0.037	0.030	0.025	0.022	0.019	0.017	0.014	.0271
34	0.045	0.037	0.031	0.026	0.022	0.020	0.017	0.012	.0317
35	0.046	0.038	0.032	0.026	0.023	0.021	0.017	0.012	.0367
36	0.046	0.039	0.033	0.027	0.023	0.022	0.017	0.011	.0434
37	0.046	0.039	0.034	0.028	0.024	0.022	0.017	0.011	.0525
38	0.046	0.040	0.034	0.029	0.024	0.023	0.017	0.011	.0637
39	0.046	0.040	0.034	0.030	0.025	0.024	0.017	0.011	.0752
40	0.046	0.040	0.034	0.030	0.025	0.024	0.017	0.011	.0854
41	0.046	0.039	0.034	0.030	0.026	0.024	0.017	0.011	.0941
42	0.046	0.039	0.034	0.030	0.026	0.024	0.017	0.010	.1007
43	0.046	0.038	0.033	0.030	0.025	0.023	0.017	0.010	.1058
44	0.045	0.038	0.032	0.029	0.025	0.022	0.017	0.010	.1100
45	0.043	0.036	0.030	0.027	0.024	0.020	0.016	0.009	.1147
46	0.042	0.035	0.029	0.026	0.023	0.019	0.015	0.008	.1268
47	0.040	0.033	0.027	0.024	0.022	0.017	0.014	0.006	.1468
48	0.038	0.032	0.026	0.023	0.021	0.016	0.014	0.007	.1770
49	0.037	0.031	0.025	0.022	0.021	0.016	0.014	0.008	.2158
50	0.036	0.030	0.024	0.021	0.021	0.017	0.015	0.012	.2710
51	0.036	0.029	0.024	0.021	0.021	0.018	0.017	0.015	.3265
52	0.036	0.029	0.023	0.022	0.022	0.019	0.019	0.018	.3869
53	0.037	0.029	0.024	0.022	0.022	0.020	0.020	0.023	.4503
54	0.038	0.029	0.024	0.023	0.023	0.022	0.022	0.024	.5169
55	0.040	0.030	0.025	0.024	0.024	0.023	0.023	0.025	.5866
56	0.042	0.031	0.026	0.025	0.024	0.024	0.023	0.024	.6595
57	0.045	0.032	0.027	0.025	0.025	0.024	0.023	0.024	.7357
58	0.047	0.033	0.027	0.026	0.025	0.023	0.022	0.023	.8152
59	0.050	0.035	0.028	0.026	0.024	0.022	0.018	0.022	.8981

* See Note 3 in Appendix 2

** These rates apply to individuals who retain the right to obtain a return of contributions, except for service prior October 1967 where the percentage assumed was 100%.

APPENDIX 3D

Rates of termination for reasons other than age, age and service*, disability or death

	Females								Proportions electing deferred annuity or annual allowance**
	Years of pensionable service								
Age	5	6	7	8	9	10	11	12+	
21	0.050	-	-	-	-	-	-	-	.0004
22	0.052	0.040	-	-	-	-	-	-	.0009
23	0.055	0.043	0.030	-	-	-	-	-	.0015
24	0.057	0.046	0.035	0.028	-	-	-	-	.0022
25	0.060	0.050	0.039	0.032	0.027	-	-	-	.0039
26	0.063	0.052	0.043	0.037	0.028	0.027	-	-	.0056
27	0.065	0.054	0.046	0.040	0.032	0.028	0.026	-	.0076
28	0.066	0.054	0.048	0.043	0.036	0.033	0.030	0.023	.0097
29	0.065	0.054	0.048	0.044	0.038	0.036	0.033	0.027	.0123
30	0.065	0.053	0.048	0.043	0.039	0.037	0.034	0.030	.0148
31	0.064	0.052	0.047	0.042	0.039	0.037	0.033	0.030	.0178
32	0.063	0.051	0.047	0.041	0.039	0.036	0.032	0.029	.0217
33	0.061	0.050	0.046	0.040	0.037	0.035	0.030	0.027	.0258
34	0.060	0.049	0.044	0.039	0.036	0.033	0.028	0.025	.0297
35	0.058	0.048	0.043	0.038	0.034	0.032	0.027	0.023	.0337
36	0.055	0.046	0.042	0.036	0.032	0.030	0.026	0.021	.0390
37	0.053	0.044	0.041	0.035	0.031	0.029	0.025	0.020	.0461
38	0.050	0.043	0.039	0.033	0.030	0.027	0.025	0.019	.0545
39	0.048	0.042	0.038	0.033	0.030	0.027	0.025	0.018	.0630
40	0.047	0.041	0.037	0.032	0.030	0.027	0.025	0.017	.0701
41	0.046	0.040	0.036	0.031	0.030	0.027	0.025	0.017	.0759
42	0.045	0.040	0.036	0.031	0.031	0.027	0.025	0.017	.0805
43	0.045	0.039	0.035	0.031	0.031	0.027	0.025	0.017	.0844
44	0.045	0.039	0.035	0.031	0.031	0.026	0.024	0.017	.0884
45	0.045	0.039	0.035	0.031	0.031	0.025	0.023	0.016	.0937
46	0.046	0.038	0.034	0.031	0.031	0.024	0.022	0.014	.1030
47	0.047	0.039	0.034	0.030	0.030	0.023	0.020	0.013	.1213
48	0.047	0.039	0.034	0.030	0.029	0.023	0.020	0.013	.1509
49	0.049	0.039	0.034	0.030	0.030	0.024	0.021	0.016	.1913
50	0.050	0.040	0.035	0.031	0.030	0.025	0.023	0.020	.2414
51	0.052	0.041	0.036	0.032	0.031	0.027	0.025	0.024	.2951
52	0.054	0.043	0.038	0.034	0.034	0.030	0.028	0.029	.3548
53	0.056	0.045	0.039	0.035	0.035	0.033	0.031	0.034	.4201
54	0.058	0.046	0.041	0.037	0.037	0.036	0.035	0.039	.4898
55	0.060	0.048	0.043	0.039	0.039	0.039	0.039	0.043	.5627
56	0.062	0.049	0.045	0.041	0.041	0.041	0.041	0.045	.6379
57	0.065	0.050	0.047	0.043	0.043	0.043	0.043	0.046	.7141
58	0.067	0.052	0.049	0.045	0.044	0.044	0.043	0.045	.7904
59	0.069	0.054	0.051	0.047	0.043	0.041	0.041	0.040	.8666

* See Note 3 in Appendix 2

** These rates apply to individuals who retain the right to obtain a return of contributions, except for service prior to October 1967 where the percentage assumed was 100%.

APPENDIX 3E

Rates of retirement because of age or age and service*

MALES

Age	5-9	10-14	15-19	20-24	25-29	30	31	32-34	35	36+
	Years of pensionable service									
54	-	-	-	-	-	.08	.09	.09	.20	.20
55	-	-	-	-	-	.28	.27	.27	.61	.49
56	-	-	-	-	-	.33	.21	.21	.51	.33
57	-	-	-	-	-	.33	.21	.21	.51	.33
58	-	-	-	-	-	.33	.21	.21	.51	.33
59	.05	.05	.05	.07	.10	.33	.21	.21	.51	.33
60	.19	.19	.19	.25	.34	.46	.33	.33	.61	.39
61	.17	.17	.17	.21	.27	.34	.32	.32	.58	.41
62	.17	.17	.17	.21	.27	.30	.29	.29	.53	.41
63	.21	.21	.21	.26	.30	.43	.33	.33	.60	.41
64	.45	.45	.45	.48	.51	.61	.55	.55	.78	.55
65	.67	.67	.67	.73	.76	.79	.70	.70	.85	.68
66	.34	.34	.34	.36	.39	.48	.46	.46	.50	.43
67-69	.34	.34	.34	.36	.39	.48	.46	.46	.50	.43
70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

FEMALES

Age	5-9	10-14	15-19	20-24	25-29	30	31	32-34	35	36+
	Years of pensionable service									
54	-	-	-	-	-	.07	.08	.08	.12	.18
55	-	-	-	-	-	.24	.29	.29	.57	.45
56	-	-	-	-	-	.30	.19	.19	.44	.27
57	-	-	-	-	-	.30	.19	.19	.44	.27
58	-	-	-	-	-	.30	.19	.19	.44	.27
59	.03	.06	.07	.08	.11	.30	.19	.19	.44	.27
60	.12	.19	.25	.29	.33	.46	.32	.32	.64	.35
61	.12	.17	.20	.24	.27	.36	.28	.35	.48	.37
62	.12	.17	.20	.24	.27	.34	.23	.29	.43	.31
63	.15	.20	.23	.28	.32	.34	.23	.29	.43	.31
64	.36	.45	.47	.53	.56	.60	.48	.54	.65	.48
65	.65	.72	.73	.74	.76	.80	.65	.75	.90	.50
66	.37	.41	.43	.45	.48	.50	.40	.45	.60	.30
67	.26	.30	.32	.34	.37	.40	.30	.35	.50	.20
68-69	.19	.23	.25	.27	.30	.35	.25	.30	.45	.15
70	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

* See Note 3 in Appendix 2.

APPENDIX 3F

Age	(A) Proportion of contributors whose highest 6-year average salary is below the final 3-year CPP Maximum Pensionable Earnings*		(B) Ratio of 6-year average salary for proportion in (A) to final 3-year CPP maximum*	
	Males	Females	Males	Females
20	.921	.994	.763	.728
25	.533	.773	.836	.808
30	.301	.575	.850	.835
35	.191	.486	.851	.824
40	.147	.512	.852	.816
45	.143	.556	.852	.814
46	.144	.562	.851	.814
47	.146	.569	.850	.814
48	.150	.576	.850	.814
49	.152	.581	.848	.814
50	.155	.585	.848	.812
51	.157	.589	.848	.812
52	.160	.593	.846	.812
53	.164	.598	.846	.814
54	.168	.602	.844	.815
55	.171	.605	.844	.816
56	.184	.609	.844	.816
57	.200	.614	.842	.816
58	.211	.618	.840	.816
59	.223	.619	.838	.816
60	.235	.619	.836	.815
61	.246	.620	.832	.813
62	.257	.622	.828	.810
63	.264	.624	.822	.806
64	.267	.625	.814	.800
65	.270	.625	.806	.792
66	.270	.625	.796	.784
67	.270	.625	.785	.774
68	.270	.625	.772	.760
69	.270	.625	.758	.756

* Average of the "Year's Maximum Pensionable Earnings" as defined in the Canada Pension Plan for the year of retirement or death and those for the two preceding years.

APPENDIX 3G

Rates of retirement because of disability

Age	Males	Females
21	.0002	--
22	.0002	--
23	.0002	.0001
24	.0002	.0001
25	.0002	.0002
26	.0002	.0002
27	.0002	.0003
28	.0002	.0003
29	.0002	.0004
30	.0003	.0004
31	.0003	.0005
32	.0003	.0005
33	.0003	.0005
34	.0003	.0005
35	.0004	.0006
36	.0004	.0006
37	.0005	.0007
38	.0006	.0008
39	.0007	.0009
40	.0008	.0011
41	.0010	.0013
42	.0012	.0015
43	.0014	.0018
44	.0016	.0021
45	.0020	.0025
46	.0024	.0030
47	.0029	.0036
48	.0035	.0043
49	.0042	.0051
50	.0051	.0059
51	.0061	.0069
52	.0071	.0079
53	.0083	.0089
54	.0094	.0099
55	.0106	.0109
56	.0119	.0119
57	.0132	.0128
58	.0145	.0136
59	.0157	.0144

APPENDIX 3H

Sample Rates of Mortality Assumed Applicable in 1990

	Current Contributors		Former Contributors (other than disabled)		Former Contributors (disabled)		Surviving Spouses	
Age	Male	Female	Male	Female	Male	Female	Male	Female
25	.0008	.0004	.0005	.0003	.0061	.0076	.0015	.0004
30	.0008	.0005	.0007	.0004	.0092	.0081	.0013	.0005
35	.0008	.0006	.0009	.0005	.0123	.0087	.0015	.0007
40	.0011	.0009	.0013	.0007	.0152	.0095	.0022	.0012
45	.0018	.0014	.0024	.0011	.0182	.0106	.0037	.0019
50	.0028	.0021	.0042	.0018	.0211	.0120	.0063	.0030
55	.0057	.0029	.0066	.0027	.0237	.0141	.0103	.0048
60	.0086	.0045	.0099	.0046	.0283	.0173	.0163	.0072
65	.0139	.0075	.0168	.0076	.0380	.0223	.0255	.0113
69	.0218	.0116	.0267	.0118	.0513	.0285	.0360	.0163
75	-	-	.0481	.0259	.0736	.0441	.0593	.0289
80	-	-	.0798	.0463	.0977	.0682	.0894	.0486
85	-	-	.1238	.0754	.1366	.1153	.1320	.0810
90	-	-	.1792	.1204	.1867	.1938	.1898	.1292
95	-	-	.2523	.1966	.2693	.3170	.2223	.1552
100	-	-	.3440	.3181	.3939	.4943	.7411	.6516
105	-	-	.5061	.5258	.5432	.7145	1.0000	.9000
109	-	-	1.0000	1.0000	1.0000	1.0000	n/a	1.0000

See Appendix 3I for sample mortality projection factors.
For more information on the sources of the above rates, please refer to the pertinent portions of Section V (Actuarial Assumptions).

APPENDIX 3I

Sample Mortality Projection Factors

Age	Reduction % P.A.	
	Males	Females
25	.10	.50
30	.50	.75
35	.75	1.25
40	1.00	1.75
45	1.50	1.75
50	1.50	1.50
55	1.30	1.50
60	1.30	1.50
65	1.30	1.50
70	1.25	1.50
75	1.25	1.45
80	1.20	1.45
85	.90	1.05
90	.55	.70
95	.10	.30
100	.00	.00
105	.00	.00
109	.00	.00

APPENDIX 3J

Proportions of contributors married at death and Average ages of spouses corresponding to ages of contributors at death

Age of Contributor	Proportion Married Current Contributors Male	Proportion Married Current Contributors Female	Proportion Married Former Contributors Male	Proportion Married Former Contributors Female	Average Age of Spouse Male	Average Age of Spouse Female
25	.528	.470	.349	.318	26	24
30	.607	.546	.490	.393	32	29
35	.687	.554	.601	.479	37	33
40	.763	.538	.685	.560	42	38
45	.791	.537	.754	.603	47	43
50	.811	.532	.810	.591	53	48
55	.840	.482	.849	.511	58	53
60	.848	.394	.870	.370	63	57
65	.796	.302	.862	.245	67	62
69	.758	.230	.828	.178	71	65
75	-	-	.727	.111	76	70
80	-	-	.609	.074	79	75
85	-	-	.494	.044	82	79
90	-	-	.392	.017	86	84
95	-	-	.313	-	-	88
100	-	-	.252	-	-	92
105	-	-	-	-	-	-
109	-	-	-	-	-	-

APPENDIX 3K

Number and average age of children at death of contributor

	Number of Children		Average Age of Children	
Age of Contributor	Male Contributors	Female Contributors	Male Contributors	Female Contributors
25	.482	.297	2	1
30	.866	.551	5	5
35	1.156	.750	8	10
40	1.300	.815	11	13
45	1.089	.663	14	16
50	.711	.374	16	17
55	.421	.145	17	18
60	.200	.034	18	19
65	.071	.007	19	21
70	.024	.005	21	23
75	.009	.000	23	n/a
80	.000	.000	n/a	n/a

Proportions of Students Entitled to Allowances Remaining Eligible for Allowances Throughout the Following Year

Age	Proportion
18	0.68
19	0.78
20	0.80
21	0.76
22	0.71
23	0.68
24	0.58

APPENDIX 4A

Reconciliation of Current Contributors

	Males	Females	Total
At December 31, 1986*	189,904	124,011	313,915
New Entrants	35,910	43,098	79,008
Reinstatement to current contributor status	810	1,121	1,931
Subtotal	226,624	168,230	394,854
Terminations			
Return of contributions**			
- less than 5 years of pensionable service	(14,923)	(20,080)	(35,003)
- 5 years and over of pensionable service	(7,708)	(8,751)	(16,459)
Deferred, annuity or deferred annual allowance	(1,104)	(720)	(1,824)
Disability annuity	(1,407)	(770)	(2,177)
Annuity or annual allowance (except disabled)	(17,070)	(6,119)	(23,189)
Option not yet chosen	(1,132)	(1,377)	(2,509)
Terminations that subsequently returned to current contributor status	(793)	(1,105)	(1,898)
Death with survivor annual allowance	(953)	(186)	(1,139)
Subtotal of terminations	(45,090)	(39,108)	(84,198)
At December 31, 1989*	181,534	129,122	310,656
- non-contributory status only	1,804	4,381	6,185
- contributory status only	179,730	124,741	304,471

* Includes those in both contributory and non-contributory status. An example of non-contributory status would be a full-time contributor who transfers into a part-time and therefore a non-contributory position.

** With respect to terminations with 5 years or more of pensionable service, return of contributions includes cash termination allowances in case of disability, or minimum pension guarantee in case of death with no survivors.

APPENDIX 4B

Reconciliation of Former Contributors

Note: In this table, AA means Annual Allowance

	Deferred annuity or Deferred AA			Disability annuity			Annuity or AA		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
At December 31, 1986	2,821	1,465	4,286	7,020	3,278	10,298	72,898	27,445	100,343
Transfer from current contributor	1,104	720	1,824	1,407	770	2,177	17,070	6,119	23,189
Transfer from deferred status	n/a	n/a	n/a	12	9	21	653	405	1,058
Transfer from disabled status	8	3	11	n/a	n/a	n/a	0	0	0
Transfer to current contributor status	0	(3)	(3)	0	0	0	(17)	(13)	(30)
Transfer to deferred status	n/a	n/a	n/a	(8)	(3)	(11)	0	0	0
Transfer to disabled status	(12)	(9)	(21)	n/a	n/a	n/a	0	0	0
Transfer to annuity or AA status	(653)	(405)	(1,058)	0	0	0	n/a	n/a	n/a
Death with no survivors	(28)	(4)	(32)	(289)	(244)	(533)	(2,860)	(1,976)	(4,836)
Death with survivors	(28)	(3)	(31)	(748)	(77)	(825)	(5,954)	(219)	(6,173)
At December 31, 1989	3,212	1,764	4,976	7,394	3,733	11,127	81,790	31,761	113,551

APPENDIX 4C

Reconciliation of Survivors

	Surviving Spouses			Children and Students		
	Widows	Widowers	Total	Children	Students	Total
At December 31, 1986*	37,374	714	38,088	1,688	1,868	3,556
Reinstatements	1,414	96	1,510	n/a	n/a	n/a
New survivors from current contributors	907	163	1,070	643	242	885
New survivors from former contributors	6,675	283	6,958	162	227	389
Surviving spouses' deaths	(4,567)	(120)	(4,687)	n/a	n/a	n/a
Children attaining age 18 and terminating	n/a	n/a	n/a	(277)	n/a	(277)
Children attaining age 18 and becoming students	n/a	n/a	n/a	(721)	721	0
Students terminating	n/a	n/a	n/a	n/a	(1,740)	(1,740)
At December 31, 1989	41,803	1,136	42,939	1,495	1,318	2,813

* Does not include those surviving spouses at December 31, 1986 that terminated after December 1, 1986 due to remarriage and were subsequently reinstated. These surviving spouses are included only under reinstatements.

APPENDIX 5A

Number of male active current contributors and average salary on December 31, 1989

Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35 and over	All Years of Service
	Years of Service								
to 24	2,731 $27,619	61 30,415							2,792 $27,680
25-29	8,718 $30,909	4,124 33,460	290 32,149						13,132 $31,738
30-34	7,696 $33,561	9,875 36,804	6,830 34,955	837 34,433					25,238 $35,236
35-39	5,362 $35,603	7,673 39,417	10,939 39,215	10,581 38,589	383 40,807				34,938 $38,533
40-44	3,782 $37,926	4,812 41,423	6,688 42,009	12,501 44,846	6,761 41,836	501 41,937			35,045 $42,466
45-49	2,389 $39,115	2,822 41,311	3,212 42,483	5,763 47,456	6,545 46,752	3,883 43,179	618 43,314		25,232 $44,403
50-54	1,594 $38,851	2,231 39,835	2,194 39,813	3,207 44,811	3,514 47,749	3,524 46,468	3,363 44,187	525 44,089	20,152 $43,924
55-59	1,256 $39,680	1,937 37,934	2,054 37,514	2,261 42,156	2,289 44,980	1,979 45,613	2,115 46,357	1,085 45,565	14,976 $42,494
60-64	559 $40,242	1,095 38,273	1,210 36,727	1,272 40,615	1,127 44,406	872 44,388	735 47,523	563 53,186	7,433 $42,262
65+	45 $53,843	102 41,713	127 46,918	134 46,289	121 48,527	103 49,642	75 52,961	85 54,934	792 $48,567
All Ages	34,132 $34,210	34,732 38,298	33,544 39,031	36,556 42,897	20,740 44,896	10,862 44,791	6,906 45,224	2,258 47,475	179,730 $40,129

Average Age = 42.2 Average Service = 13.2 years

APPENDIX 5B

Number of female active current contributors and average salary on December 31, 1989

Age	Years of Service 0-4	5-9	10-14	15-19	20-24	25-29	30-34	35 and over	All Years of Service
to 24	4,587	195							4,782
	$25,662	27,330							$25,729
25-29	9,840	6,344	644						16,828
	$28,584	29,872	29,439						$29,102
30-34	7,444	8,736	7,275	1,157					24,612
	$30,021	33,186	31,504	32,107					$31,681
35-39	5,888	6,163	6,263	6,522	437				25,273
	$29,714	33,630	35,068	34,864	34,428				$33,406
40-44	4,779	4,822	4,038	4,263	2,401	338			20,641
	$29,529	32,787	34,562	38,802	35,881	35,216			$34,022
45-49	2,616	3,240	2,709	2,262	1,199	789	264		13,079
	$29,538	31,345	32,750	36,777	39,137	35,347	36,484		$33,273
50-54	1,270	1,862	2,107	1,911	920	530	632	153	9,385
	$29,129	29,959	30,640	33,063	35,680	36,058	35,507	34,328	$31,982
55-59	627	1,169	1,518	1,499	843	417	306	202	6,581
	$28,836	29,071	29,984	31,895	33,371	34,498	35,087	33,783	$31,222
60-64	203	532	667	856	460	233	150	120	3,221
	$30,685	28,820	29,311	31,008	32,053	33,041	33,443	34,845	$30,828
65+	17	60	55	78	51	28	27	23	339
	$29,126	30,543	28,904	32,736	34,382	44,249	34,140	32,935	$32,868
All Ages	37,271	33,123	25,276	18,548	6,311	2,335	1,379	498	124,741
	$28,912	31,960	32,730	35,218	35,743	35,215	35,349	34,167	$31,988

Average Age = 38.9 Average Service = 9.4 years

APPENDIX 6A

Former contributors as at December 31, 1989 other than disability pensioners

Immediate Pensioners

Age	Number of Pensioners: Male	Female	Total	Annual Pension*: PSSA ($)	SRBA** ($)
40-44	16	2	18	121,004	12,907
45-49	13	3	16	116,250	7,619
50-54	887	483	1,370	15,491,250	1,246,117
55-59	6,232	1,973	8,205	143,725,606	14,016,107
60-64	13,237	5,047	18,284	252,194,542	47,373,859
65-69	23,999	8,367	32,366	310,578,780	121,334,835
70-74	18,822	6,630	25,452	171,799,999	141,458,643
75-79	11,023	4,614	15,637	71,316,060	109,798,628
80-84	4,909	2,780	7,689	23,701,414	55,221,801
85-89	1,838	1,257	3,095	7,013,556	19,299,167
90-94	559	445	1,004	2,004,763	6,169,872
95-99	233	136	369	657,506	2,260,103
100-104	22	24	46	67,956	261,397
TOTAL	81,790	31,761	113,551	998,788,686	518,461,055

Deferred Pensioners

Age	Number of Pensioners: Male	Female	Total	Annual Pension: PSSA ($)	SRBA** ($)
25-29	0	9	9	23,197	1,522
30-34	34	54	88	354,729	37,024
35-39	160	163	323	1,647,348	303,531
40-44	483	298	781	4,828,811	1,243,358
45-49	877	416	1,293	10,575,851	2,566,511
50-54	807	415	1,222	9,031,381	3,218,651
55-59	756	369	1,125	5,974,027	3,749,492
60-64	95	40	135	687,956	381,390
TOTAL	3,212	1,764	4,976	33,123,300	11,501,479

* Amounts of pension reflect the CPP/QPP integration adjustments.

** Accumulated indexing includes increase effective January 1, 1990.

APPENDIX 6B

Former Contributors as at December 31, 1989
Disability Pensioners

	Number of Pensioners			Annual Pension*	
Age	Male	Female	Total	PSSA ($)	SRBA** ($)
25-29	0	2	2	3,551	469
30-34	18	27	45	129,601	12,850
35-39	59	93	152	513,117	65,245
40-44	135	106	241	1,092,540	140,670
45-49	266	166	432	2,370,660	374,553
50-54	561	304	865	6,820,264	1,030,566
55-59	1,259	597	1,856	13,521,488	3,119,717
60-64	1,604	687	2,291	13,288,058	6,108,641
65-69	1,762	663	2,425	9,330,061	11,159,384
70-74	1,144	544	1,688	4,611,806	8,527,288
75-79	429	329	758	1,645,545	4,194,217
80-84	95	137	232	479,660	1,425,541
85-89	36	42	78	102,204	357,060
90-94	12	27	39	51,507	195,302
95-99	13	9	22	26,981	91,411
100-104	1	0	1	1,884	6,170
TOTAL	7,394	3,733	11,127	53,988,927	36,809,084

* Reflects reductions related to CPP/QPP integration where CPP/QPP disability pension is payable or at age 65 and over.

** Accumulated indexing includes increase effective January 1, 1990.

APPENDIX 7

Surviving spouses eligible for allowances as at December 31, 1989

	Widows			Widowers		
Age	Number	PSSA ($)	SRBA* ($)	Number	PSSA ($)	SRBA* ($)
25-29	13	30,926	3,652	2	2,402	439
30-34	98	260,392	39,510	10	17,240	4,983
35-39	194	579,540	122,914	33	76,926	12,214
40-44	419	1,564,201	472,006	54	129,649	26,124
45-49	600	2,526,710	903,884	50	135,364	27,284
50-54	1,037	4,116,198	1,792,215	77	238,262	60,827
55-59	2,084	8,164,784	4,319,442	110	376,345	112,480
60-64	4,494	15,453,547	11,509,906	170	527,572	184,723
65-69	7,743	22,479,132	24,523,633	231	627,424	303,577
70-74	7,864	18,420,468	28,077,402	215	509,526	300,824
75-79	6,787	11,988,255	25,000,316	110	210,695	176,587
80-84	5,043	7,062,396	18,344,674	59	108,247	105,373
85-89	3,237	3,571,328	10,923,351	14	23,932	23,137
90-94	1,461	1,475,791	5,293,348	0	0	0
95-99	634	595,672	2,300,334	1	248	690
100-104	92	86,982	327,863	0	0	0
105-109	3	3,310	10,634	0	0	0
TOTAL	41,803	98,379,632	133,965,084	1,136	2,983,832	1,339,262

* Accumulated indexing includes increases effective January 1, 1990.