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ACTUARIAL REPORT ON THE PENSION PLAN FOR THE FEDERALLY APPOINTED JUDGES AS AT 31 MARCH 2004

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18 February 2005

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

Dear President:

Pursuant to section 6 of the *Public Pensions Reporting Act*, I am pleased to submit this report on the actuarial review as at 31 March 2004 of the pension plan established under the *Judges Act*.

Yours sincerely,

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

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I. Executive Summary

This actuarial report on the pension plan established under the *Judges Act* was made as at 31 March 2004 pursuant to the *Public Pensions Reporting Act* (PPRA). The plan is financed through the Consolidated Revenue Fund (CRF) primarily on a current basis rather than being funded[1] as are the other pension plans sponsored by the Federal Government. The previous review was made as at 31 March 2001. The date of the next periodic review contemplated by the PPRA is 31 March 2007.

A. Purpose of the Report

The main practical purpose of this actuarial report is to show realistic estimates as at the valuation date of the contributions to be made in accordance with the actual financing arrangement in effect.

As well, the PPRA requires that the plan be valued as if it were a funded plan. Accordingly, this report shows theoretical estimates of the balance sheet, projected normal costs, and deficit-amortization payments.

B. Scope of the Report

The previous valuation report was based on the plan provisions as they stood after the enactment of Bill C-23 and Bill C-12 on 29 June 2000 and 14 June 2001, respectively. There were no further changes to the plan provisions since the last valuation. However, the Judicial Compensation and Benefits Commission presented a report that recommends changes to the judges' salaries and plan provisions. This valuation report is based on the plan provisions shown in Appendix 2, that take into account the Commission's recommendations.

C. Main Findings

- The combined contributions to be made by the government and the judges in the 2005 plan year[2] in accordance with the actual financing arrangement are estimated to be 30.82% of payroll, that is $78.9 million, with increases to 32.48% and 34.04% of payroll in the following two plan years.
- If the plan were funded in a similar manner[3] as the other major pension plans sponsored by the government, the normal cost estimated for the 2005 plan year would be 27.36% of payroll that is $70.0 million, with increases to 27.76% and 28.01% of payroll in the following two plan years.

1 A pension plan is said to be *funded* if the contributions are made well in advance of the benefits payments they are intended to cover. A funded pension plan has a funding vehicle, i.e. a Pension Fund is established to earn investment returns.

2 In this report, the 2005 plan year is the 12-month period ending 31 March 2005.

3 The pension plan established under the *Judges Act* is not a registered pension plan under the *Income Tax Act* as are the other major federal public pension plans, benefits in excess of certain limits as described in the *Income Tax Act* were not treated as being provided under retirement compensation arrangements.

- As at 31 March 2004, the plan had a deficit of $1,289.0 million, being the difference between assets of $97.9 million and liabilities of $1,386.9 million.

II. Projected Contributions

Except for the minor Supplementary Retirement Benefits (SRB) Account component described in the next paragraph, the government finances the plan through the Consolidated Revenue Fund (CRF) on a current basis. It makes periodic CRF credits which, when combined with the CRF contributions made by the judges, are equivalent to the benefits paid out in accordance with the terms of the plan.

The plan's only funding vehicle is the SRB Account, into which certain minor prescribed contributions are deposited. Judges appointed after 16 February 1975 contribute 1% of payroll and the government matches the contributions. The deposits would normally finance a material portion of the cost of the benefit indexation provision but in practice are effectively locked in the Account by a legislative anomaly[1].

Based on the data described in Appendix 4 and the assumptions described in Appendices 6 and 7, the projected plan contributions[2] (i.e. to the CRF and the SRB Account together) by the government and the judges combined are as follows:

Table 1 Projected Plan Contributions

	CRF		SRB Account			
Plan Year	Credits ($ millions)	Judges Contributions ($ millions)	Government Contributions ($ millions)	Judges Contributions ($ millions)	Total ($ millions)	Total (% of payroll)
2005	62.8	11.1	2.5	2.5	78.9	30.82
2006	69.0	11.8	2.6	2.6	86.0	32.48
2007	75.3	12.3	2.7	2.7	93.0	34.04
2008	81.6	12.8	2.8	2.8	100.0	35.36
2009	87.9	13.3	2.9	2.9	107.0	36.51
2014	117.9	15.5	3.6	3.6	140.6	39.03
2019	157.3	19.3	4.6	4.6	185.8	40.52

1 Practically the only events to trigger a payment from the Account are the death (with no survivor) or nonvested termination of a judge appointed after 16 February 1975. There were one such death and two such terminations during the triennium, with relatively few such events expected in future years. Moreover, when such a death or termination occurs, only the judge's own accumulated contributions are returned, leaving the government's matching contributions in the Account.

2 These long-term projections are shown for illustrative purposes only. Deviations from expected experience will occur, therefore more credibility should be given to the short-term figures.

The projected pay-as-you-go contributions are all greater than the estimated normal costs (see Cost Certificate in Section III.B) that would be experienced if the plan were funded. The pay-as-you-go approach becomes progressively more expensive because the lack of investment income eventually overwhelms the other costing factors.

The following table shows the allocation of the projected contributions expressed as a percentage of payroll, as well as the ratio of the government contributions (deemed to include CRF credits and government contributions to the SRB Account) to the judges' contributions.

Table 2 Projected Government and Judges Contributions

Plan Year	Government (%)	Judges (%)	Ratio
2005	25.51	5.31	4.8
2006	27.04	5.44	5.0
2007	28.55	5.49	5.2
2008	29.84	5.52	5.4
2009	30.98	5.53	5.6
2014	33.73	5.30	6.4
2019	35.31	5.21	6.8

The initial ratio of 4.8 rises gradually throughout the projection period as the cash requirements of the plan increase. By the 2019 plan year, the government is estimated to contribute 6.8 times as much as the judges.

III. Actuarial Review of Pension Plan

As mentioned in the previous sections, the plan is financed primarily on a current basis. If it were funded in the same manner as the other major federal public sector pension plans, a Pension Fund would be established and credited with:

- normal cost contributions, determined in accordance with the most recent Cost Certificate;
- deficit amortization payments, determined in accordance with the most recent Cost Certificate; and
- the plan's notional assets, which would be transferred from the SRB Account.

The new Fund would be charged with all benefit payments made in accordance with the plan provisions.

This actuarial review was conducted assuming that a Pension Fund is established and that all contributions to the plan are deposited in the Pension Fund to be invested in the financial markets, as has been the case for the other major federal public sector pension plans since 1 April 2000. However, benefits in excess of certain limits as described in the *Income Tax Act* were not treated as being provided under retirement compensation arrangements as the judges pension plan is not a registered pension plan under the *Income Tax Act* as are the other major federal public pension plans.

Another feature that differs from the other major public service plans is that the plan benefits generally do not vary by length of service. To allow use of the projected accrued benefit actuarial cost method (used for the actuarial valuations of the other public service plans), it was necessary to express each judge's projected benefit in unit credit terms, for each type of benefit. The method used is fully described in Appendix 5.

The following results and normal costs are purely hypothetical because the plan lacks a true funding vehicle to accept and accumulate contributions. However, the normal costs can be used to compare the cost of the plan with other public sector and private pension plans.

A. Balance Sheet

The 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.

Table 3 Balance Sheet as at 31 March 2004
($ millions)

Assets		
Balance in SRB Account		97.9
Liabilities		
For benefits accrued by, and in respect of, judges	728.7	
For benefits payable to, and in respect of:		
• Retirement pensioners	460.4	
• Disability pensioners	55.6	
• Surviving dependants	142.2	
Total Liabilities		1,386.9
Surplus (Deficit)		(1,289.0)

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 Costs

The following normal costs[1] are expressed as a dollar amount as well as a percentage of the projected payroll in each given plan year.

Table 4 Projection of Normal Costs

Plan Year	% of Payroll	$ Millions
2005	27.36	70.0
2006	27.76	73.5
2007	28.01	76.5
2008	28.23	79.8
2009	28.45	83.4
2014	28.93	104.2
2019	29.06	133.2

2. Summary Balance Sheet

The assets of the plan were $97.9 million as at 31 March 2004. The total liabilities as at the same date are estimated at $1,386.9 million, leaving a deficit of $1,289.0 million. If this deficit were amortised over 15 years it would involve annual instalments of $133 million (payable monthly and corresponding to 52% of payroll for the 2005 plan year), which was estimated using the projected yields of the Fund shown in Table 8 of Appendix 6.

[1] These long-term projections are shown for illustrative purposes only. Deviations from expected experience will occur, therefore more credibility should be given to the short-term figures.

C. Sensitivity of Normal Costs to Variations in Key Assumptions

The results below measure the effect on the 2005 normal cost of 27.36% of payroll if key economic assumptions are varied by one percentage point per annum from that year onward.

The supplementary estimates shown 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 below 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.

Table 5 Sensitivity of Normal Costs to Variations in Key Assumptions

Assumption(s) Varied	2005 Normal Cost (% of payroll)	Effect of Variation (% of payroll)
None (i.e. current basis)	27.36	None
Investment yield		
- if 1% higher	23.20	(4.16)
- if 1% lower	32.58	5.22
Inflation		
- if 1% higher	29.91	2.55
- if 1% lower	25.14	(2.22)
Salary increases		
- if 1% higher	29.81	2.45
- if 1% lower	25.18	(2.18)
All economic assumptions set to ultimate levels from 2005 onward	28.82	1.46

D. Reconciliation of Results with Previous Report

This section reconciles the deficit and normal cost with the corresponding items of the previous valuation. The main items shown in the following table are explained herein afterward.

Table 6 Reconciliation of Results

	Surplus (Deficit) ($ millions)	Normal Cost (% of payroll)
As at 31 March 2001	(1,054.3)	27.45
Data corrections	(0.2)	-
Interest on initial surplus (deficit)	(222.2)	-
Expected normal cost change	-	0.37
Benefit payments borne by CRF	207.5	-
Cost/contributions difference	(186.5)	-
Experience gains (losses)	2.8	-
Revision of valuation assumptions	26.3	(0.46)
Commission's recommendations	(62.4)	-
As at 31 March 2004	(1,289.0)	27.36

1. Interest on Initial Surplus (Deficit)

The interest to 31 March 2004 on the deficit of $1,054.3 million as at 31 March 2001 amounted to $222.2 million, based on the interest rates assumed in the previous report for the three-year intervaluation period.

2. Expected Normal Cost Change

The gradual increase in the normal cost from 2001 to 2004 projected in the previous report mainly reflected a partial transition from the current to the ultimate economic assumptions and, to a minor degree, the expected changes in the demographic characteristics of the judges.

3. Benefit Payments Borne by Consolidated Revenue Fund

The Consolidated Revenue Fund bears the cost of all benefits paid to or in respect of a member, except for the negligible amounts charged to the SRB Account. Because the plan's only funding vehicle (i.e. the SRB Account) was charged with virtually none of the benefits paid during the intervaluation period, the deficit decreased by $207.5 million.

4. Cost/Contributions Difference

In accordance with the previous cost certificate, the normal cost for the intervaluation period of three years was $183 million. However, the contributions and credits made to the sole funding vehicle (i.e. the SRB Account) amounted to only $11 million. This cost/contributions difference accumulated with interest caused the deficit to rise by $186.5 million.

5. Experience Gains and Losses

Since the previous valuation, experience gains (losses) have decreased the deficit by $2.8 million and had in aggregate no effect on the normal cost. The main items are shown in the following table.

	Impact on Surplus (Deficit) ($ millions)	Impact on Normal Cost (% of payroll)
Interest rates	(5.7)	-
Salary increases	5.6	-
Pensionable disabilities	7.7	(0.01)
Pensionable retirements	6.2	(0.09)
Pension indexing	(5.4)	-
Mortality	(5.7)	(0.02)
Survivor assumptions	(3.5)	-
New entrants	1.4	0.12
Benefits paid	3.2	-
Miscellaneous	(1.0)	-
Net experience gains (losses)	2.8	-

6. Revision of Valuation Assumptions

Actuarial assumptions were revised based on economic trends and demographic experience as described in Appendix 7. The impact of these revisions on the surplus (deficit) and normal cost is described below.

	Impact on Surplus (Deficit) ($ millions)	Impact on Normal Cost (% of payroll)
Salary increases	16.6	(0.52)
Pension indexing	26.7	(0.68)
Interest rates	(13.2)	0.60
Demographic assumptions	(3.8)	0.14
Net impact of revision	26.3	(0.46)

The net impact of the revision of the assumptions is largely attributable to the changes in economic assumptions. As described in Appendix 7, all economic assumptions made in the previous valuation were revised. The changes to the assumptions are summarized below:

- the ultimate assumed level of inflation was revised from 3.0% to 2.7%;
- the ultimate assumed increase in average earnings was revised from 4.0% to 3.9%;
- the ultimate rate of return on the hypothetical Pension Fund was revised from 7.25% to 7.0%.

7. Recommendations of the Judicial Compensation and Benefits Commission

This valuation fully reflects the recommendations of the Judicial Compensation and Benefits Commission that would increase judges' salaries by 9.4%. These recommendations are discussed in Appendix 1.

IV. Actuarial Opinion

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 is less than 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.

Mario Mercier
Actuary
Office of the Chief Actuary
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

Ottawa, Canada
18 February 2005

Appendix 1 - Recent Plan Amendments

The following developments occurred just after the intervaluation period and were appropriately taken into account (unless noted otherwise) in the determination of both the accrued liabilities and the normal costs.

Judicial Compensation and Benefits Commission's Recommendations

The Judicial Compensation and Benefits Commission submitted a report as at 31 May 2004 that recommends changes to judges' salaries and plan provisions. These recommended changes are summarized below.

- Puisne judges' salaries would increase to $240,000 as of 1 April 2004. This corresponds to an increase of 9.4% from the current level of $219,400 (including statutory indexation) as at 1 April 2004. Other judges' salaries would also increase to maintain the proportionate relationship between their salary and that of puisne judges.
- A judge of the Supreme Court of Canada would be granted the privilege of eligibility for retirement on the full judicial annuity after 10 years of service on the bench, regardless of age. Under the current provisions, a judge must be 65 years of age.
- Upon the breakdown of a spousal union (including common-law), a lump sum could be transferred by court order or by mutual consent to the credit of the former spouse of a judge or pensioner. The maximum transferable amount would be half the value, calculated as at the transfer date, of the retirement pension deemed accrued by the judge or pensioner during the period of cohabitation. The benefits of the judge or pensioner would then be reduced accordingly.

Appendix 2 - Summary of Plan Provisions

This summary describes the provisions in force as at 31 March 2004 of the pension plan established under the *Judges Act* ("Act") and modified under the *Supplementary Retirement Benefits Act*. The first federal statute dealing with pensions for judges was enacted in 1868, with many subsequent amendments. However, the Act shall prevail if there is a discrepancy between the summary and the Act.

A. Membership

Membership in the plan is compulsory for all judges appointed to federal or provincial courts by the Government of Canada.

B. Contributions

1. Judges

Judges appointed before 17 February 1975 contribute 1.5% of salary to the CRF.

All other judges contribute 1% of salary to the SRB Account, and if not eligible for a full annuity, 6% of salary to the CRF.

2. Government

The government contributes to the CRF the excess of the plan benefits paid from the CRF over the contributions by judges thereto, and 1% of salary to the SRB Account for judges appointed after 16 February 1975.

C. Summary Description of Benefits

The pension plan established under the *Judges Act* mainly aims at providing an earnings-related lifetime retirement pension to eligible members of the judiciary. The plan also provides pensions to judges in case of disability and to their spouses and children in case of death.

All annuities are indexed annually to the Consumer Price Index (CPI). They are payable in equal monthly instalments in arrears until the end of the month in which the pensioner or the survivor dies. If applicable, either a survivor annuity (Note 12) or a residual benefit (Note 13) is payable upon the death of the pensioner, and a residual benefit (Note 13) is payable to the estate upon the death of the last survivor.

The explanatory notes referred to in this summary description are given in section D.

1. Judges

Type of Termination	Benefit
Normal pensionable retirement (Note 1)	Immediate annuity (Note 3), reduced pro-rata if under 10 years of service at normal retirement age
Early pensionable retirement (Note 2)	Deferred annuity (Note 4), or Reduced immediate annuity (Note 5)
Pensionable disability	Immediate annuity
Nonvested termination (Note 7)	Return of contributions (Note 8)
Death leaving no eligible survivor(s) (Notes 9 and 10)	Return of contributions, and Lump sum (Note 11)
Death leaving eligible survivor(s)	Annuity to eligible survivor(s) (Note 12), and Lump sum

2. Pensioners

Type of Termination	Benefit
Death leaving no eligible survivor(s)	Residual benefit (Note 13), if applicable
Death leaving eligible survivor(s)	Annuity to eligible survivor(s)

D. Explanatory Notes

1. Normal Pensionable Retirement

Normal pensionable retirement means ceasing to hold judicial office on reaching normal retirement age of 75 years (70 years for certain judges appointed prior to 1 March 1987) or by satisfying the requirement that the sum of age and service (minimum of 15 years) be at least 80 years or, in respect only of a judge of the Supreme Court of Canada, that service be ten years or more.

An immediate annuity is payable upon retirement, except when a judge who has attained the normal retirement age has held judicial office for less than 10 years, in which case a pro-rated portion of the immediate annuity is payable.

2. Early Pensionable Retirement

Early pensionable retirement means ceasing to hold judicial office and becoming entitled to a deferred annuity or a reduced immediate annuity before normal pensionable retirement by satisfying the requirement that age be at least 55 years with service of 10 years or more.

3. Immediate Annuity[1]

Immediate annuity means an annuity that becomes payable immediately upon a normal pensionable retirement or a disability retirement. The initial annual amount of the annuity is equal to two-thirds of the judge's annual salary at the time of ceasing to hold office, or in the case of a supernumerary judge of the then current salary applicable to a higher judicial office, if such higher office was formerly held.

4. Deferred Annuity

Deferred annuity means an annuity that becomes payable to a former judge who reaches age 60. The amount of deferred annuity is calculated by multiplying two-thirds of the judge's salary at the time of the early retirement election by a fraction calculated as the number of years of service divided by the total number of years (minimum is 15) of service necessary to become eligible for an unreduced pension.

5. Reduced Immediate Annuity

Reduced immediate annuity means a reduced annuity that becomes payable immediately upon early pensionable retirement. The initial annual amount of the annuity is equal to the amount of deferred annuity but is reduced by 5% for every year that the annuity commences in advance of age 60.

[1] For purposes of this summary, immediate annuity also includes the return of contributions (Note 8) payable when a pensioner who was appointed as a judge prior to 17 February 1975 first confirms that no survivor annuity would arise in the event of death.

6. **Service**
   Service means holding the office of judge of a superior or county court or of the Tax Court of Canada, and includes the office of a person who is a deputy judge by virtue of section 60 of the *Federal Court Act.* Superior court is interpreted to include the Supreme Court of Canada; county court includes any district court.

7. **Nonvested Terminations**
   Nonvested termination means ceasing to hold judicial office under any circumstance other than pensionable retirement, pensionable disability, or death.

8. **Return of Contributions**
   Return of contributions means the payment of an amount equal to the accumulated contributions paid into the plan by a judge. Interest is credited at the specified rate each 31 December on the accumulated contributions as at the preceding 31 December. The specified rate is the one applied under the *Income Tax Act* in respect of refunds of overpayments of tax.

9. **Eligible Surviving Spouse**
   A person who was married to the judge at the time of the judge's death or who establishes that he or she was cohabiting with the judge in a conjugal relationship at the time of the judge's death and had so cohabited for a period of at least one year is eligible for a survivor annuity when the judge dies. An annuity may also be granted to a survivor who became a spouse or began to cohabit with the judge in a conjugal relationship after the judge ceased to hold office if the former judge elects to reduce his annuity so that an annuity may be paid to that person.

10. **Eligible Surviving Children**
    Eligible surviving children of a judge or pensioner include each child under age 18 and any child under age 25 who is in full-time attendance at a school or university, having been in attendance substantially without interruption since reaching 18 or, if more recent, since the death of the judge or pensioner.

11. **Lump Sum**
    If a judge dies, a lump sum equal to one-sixth of the yearly salary of the judge is paid to the surviving spouse or, if there is no survivor, to the estate or succession of the judge.

12. **Annuities to Eligible Survivor(s)**
    Annuities to the eligible surviving spouse and children of a judge or pensioner become payable immediately upon the death of that individual. The annuity to the eligible surviving spouse is equal to one-third of the annual salary of the judge or to one-half of the pensioner′s annuity, as applicable at the time of death. An eligible child receives an annuity equal to 20% of the surviving spouse′s annuity, subject to reduction if there are

more than four eligible children in the same family. The annuity otherwise payable to an eligible child is doubled if that child is an orphan.

Judges can elect an enhanced surviving spouse benefit up to 75% of the judge's pension as actuarially reduced to fund the enhancement.

13. Residual Benefit

Residual benefit is equal to the amount, if any, by which the return of contributions exceeds the aggregate of all amounts paid to and in respect of a pensioner until the death of the pensioner, or, if applicable, until the subsequent death or loss of eligibility of the last survivor entitled to an annuity.

14. Indexation

All annuities payable under the plan are adjusted every January to the extent warranted by the increase, as at 30 September of the previous year, in the 12-month average CPI. If the indicated adjustment is negative, annuities are not decreased for that year; however, the next following positive adjustment is diminished accordingly. Moreover, the first annual adjustment is prorated to reflect the number of whole months since the date of termination of service.

Appendix 3 - Plan Assets

A. Assets

The only assets of the plan are the individual balances held in the SRB Account in respect of judges appointed after 16 February 1975. Each such balance is the cumulative excess of the prescribed interest credits and SRB contributions over the benefits charged to the SRB Account. No formal debt instrument is issued to the Account by the government in recognition of the amounts therein.

B. Investment Earnings

Interest is credited quarterly on the minimum monthly balances in the SRB Account at the monthly rate corresponding to the effective annual yield, reduced by 0.125%, available at the end of the month on 5-year Government of Canada bonds. The credited rates have been as follows:

Plan Year	Rate
2002	4.97%
2003	4.54
2004	3.92

C. Benefits

Virtually all benefits under the plan are borne by the CRF when they become due, including all indexation-related payments to pensioners and survivors. Only some minor benefits are charged to the SRB Account, notably the full or partial return of a judge′s accumulated SRB contributions (1% of salary) if there are no survivors or if a judge appointed after 16 February 1975 terminates and is entitled only to a return of contributions.

Appendix 4 - Membership Data

A. Sources of Membership Data

The Office of the Registrar of the Supreme Court of Canada provided relevant valuation input data on Supreme Court judges and on the corresponding pensioners and survivors. The Office of the Commissioner of Federal Judicial Affairs provided similar data for all other federally appointed judges and for the corresponding pensioners and survivors.

B. Validation of Membership Data

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

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

C. Reconciliation of Membership

The following table, derived from the basic data, shows the reconciliation of judges, pensioners, and survivors during the period from April 2001 to March 2004 inclusive. Relevant statistics on contributors, pensioners and survivors are shown in Appendix 8.

Table 7 Reconciliation of Membership

	Judges	Retirement Pensioners	Disability Pensioners	Surviving Spouses	Surviving Children
At 31 March 2001	1,027	318	41	253	10
Data corrections	-	(1)	1	-	-
New entrants	146	-	-	-	-
Pensionable retirements	(101)	101	-	-	-
Pensionable disabilities	(9)	-	9	-	-
Nonvested terminations	(2)	-	-	-	-
New survivors	-	-	-	48	3
Deaths	(13)	(42)	(7)	(44)	-
Loss of eligibility	-	-	-	-	(5)
At 31 March 2004	1,048	376	44	257	8

Appendix 5 - Methodology

A. Assets

The plan's assets are deemed equal to the sum of the individual balances in the SRB Account in respect of the judges. The Account:

- consists of notional assets, meaning that no debt instrument has been issued to the Account by the government in recognition of the amounts therein;
- is the only account set up for the plan; and
- is maintained only in respect of a portion of the indexation provision.

These assets are shown at book value, as opposed to market value, because the government securities in the SRB Account are entirely notional.

B. Normal Costs

Although the plan provides benefits that do not vary by length of service, the projected accrued benefit (also known as the projected unit credit) actuarial cost 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 assumed interest rates described in section D below, of all future benefits considered to accrue in respect of that year's service. Consistent with this cost method, salaries are projected up to retirement using the assumed annual increases in average salaries.

To allow use of the projected accrued benefit actuarial cost method, it was necessary to express each judge's projected benefit in unit credit terms, for each type of benefit. To do so, the benefit projected in respect of a given judge was considered to have accrued uniformly from the date of the judge's appointment to the commencement date of that benefit. For example, a retirement pension commencing at age 75 was deemed to accrue at the following rates, expressed as a percentage of salary throughout a judge's career.

Assumed Annual Accrual Rates

Age at Appointment	Annual Accrual
40	1.9 %
45	2.2
50	2.7
55	3.3
60	4.4
65	6.7

C. Liabilities

1. Judges

Consistent with the projected unit credit actuarial cost method employed to estimate normal costs, the plan's liabilities in respect of active judges as at the valuation date correspond to the value, discounted in accordance with the assumed interest rates described in section D below, of all future benefits considered to have accrued as at that date in respect of all prior years' service.

2. Pensioners and Survivors

Consistent with accepted actuarial practice and standards, the plan's liabilities as at the valuation date in respect of pensioners and survivors correspond to the value, discounted in accordance with the assumed interest rates described in section D below, of all periodic benefits already in pay as at the valuation date.

D. Assumed Interest Rates

The rates of interest (see Appendix 6) assumed in computing the present value of benefits involved in the projection of the normal costs and liabilities mentioned in sections B and C above are the projected Pension Funds yields that would be used for the statutory actuarial valuation of the plans established under the Public Service, Canadian Forces, and Royal Canadian Mounted Police Superannuation Acts. These three plans were deemed the most appropriate model for any future funding arrangement to replace the current financing arrangement, which amounts to a pay-as-you-go basis.

E. Membership Data

The member data shown in Appendix 4 were provided as at 31 March 2004. Individual data on each member were used.

Appendix 6 - Economic Assumptions

A summary of the economic assumptions required for valuation purposes are shown in the following table. They were derived from the key assumptions. Key and derived assumptions are explained herein afterward.

Table 8 Summary of Economic Assumptions

	Inflation (%)		Employment Earnings Increase (%)		Interest (%)
Plan Year	CPI Increase	Pension Indexing[1]	Industrial Aggregate	Judicial Salaries[2]	Valuation Rate
2005	2.0	1.7	1.8	10.8[3]	6.3
2006	2.0	2.0	2.3	1.7	6.3
2007	2.0	2.0	2.5	2.2	6.3
2008	2.0	2.0	2.7	2.4	6.4
2009	2.0	2.0	2.9	2.6	6.5
2010	2.1	2.1	3.1	2.8	6.6
2011	2.2	2.2	3.3	3.0	6.7
2012	2.3	2.3	3.5	3.2	6.8
2013	2.4	2.4	3.6	3.4	6.9
2014	2.5	2.5	3.7	3.6	7.0
2015	2.6	2.6	3.8	3.7	7.0
2016	2.7	2.7	3.8	3.8	7.0
2017+	2.7	2.7	3.9	3.9	7.0

A. Key Economic Assumptions

The following key economic assumptions are required for valuation purposes.

1. Level of Inflation

Price increases, as measured by changes in the CPI, tend to fluctuate from year to year. Based on historical trends, the renewed commitment of the Bank of Canada and the government to keep inflation between 1% and 3% over the next five years and judgement about the long-term outlook for inflation, an ultimate rate of price increase of 2.7% was assumed for 2016 and thereafter. Recognizing past experience, the rate of price increase is assumed at 2.0% for plan years 2005 to 2009. From 2010 the rate is then uniformly increased to its ultimate level of 2.7% in 2016. In the previous valuation, the ultimate rate of price increase was assumed to be 3.0%.

1 Assumed to be effective as at 1 January.

2 Assumed to be effective as at 1 April.

3 Includes statutory indexation as at 1 April 2004 and the salary increase proposed by the Judicial Compensation and Benefits Commission for 1 April 2004.

2. **Average Canadian Wage Increase**
The assumed ultimate productivity rate (i.e. real increase in average employment earnings in excess of inflation) was assumed at 1.2% per annum. This is close to the average Canadian experience of the past 50 years (1.15% per annum). Low current real increases in average earnings were assumed to rise gradually over a 12-year select period to reach the ultimate level of 1.2% per annum in plan year 2017. In the previous valuation, the ultimate productivity rate was assumed to be 1.0%.

3. **Real[1] Rate of Return**
On the basis of the hypothetical Pension Fund holding a diversified mixture of assets, its real return was assumed at 4.3% net of investment expenses (ultimate level of inflation being 2.7%). In the previous valuation, the ultimate real rate of return was assumed to be 4.25% (ultimate level of inflation being 3.0%).

For the period ending December 2003, the following table was prepared based on the Canadian Institute of Actuaries Report on Canadian Economic Statistics 1924-2003.

Period of Years Ending December 2003	15	25	50
Level of Inflation	2.40%	4.09%	4.06%
Real[2] Increases in Average Earnings	0.00%	0.00%	1.15%
Average Real[2] Return on Diversified Portfolios	7.46%	7.36%	4.24%[3]

B. Derived Economic Assumptions

1. **Projected Yields on the Fund**
These yields are required for the computation of present values of benefits to determine the plan's normal costs and they are derived from the assumed future level of inflation and the real return on the hypothetical Fund. The assumed yield of 6.3% per annum for plan year 2005 is expected to increase gradually to 7.0% per annum by plan year 2014.

2. **Judicial Salary Increase**
The judicial salary increase is a key assumption in determining the estimated initial amount of annuity payable to a pensioner or survivor. Judicial salaries are expected to follow much the same pattern of increase as the Industrial Aggregate (see foregoing discussion of average Canadian wage increase assumption) to which they are indexed with a lag of a few months. However, the projected increase as at 1 April 2004 takes into account both the actual statutory indexation of 1.3% as of 1 April 2004 and the

[1] Note that all of the real rates of return referred to in this report are actually real-return differentials. This differs from the technical definition of the real rate of return, which, in the case of the ultimate real rate of return assumption, would be 4.19% (derived from 1.070/1.027).

[2] These real rates are calculated after the level of inflation is removed geometrically.

[3] Averaged over the last 40 years.

salary increase of 9.8% proposed by the Judicial Compensation and Benefits Commission. As in previous valuations, a promotional salary increase scale was not included because elevation to a higher court or to such positions as Chief Justice or Associate Chief Justice occurs only rarely.

3. **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 CPI increases over successive 12-month periods ending on 30 September.

Appendix 7 - Demographic Assumptions

Except where otherwise noted, all demographic assumptions were determined from the plan's own experience as was done in the past. Assumptions of the previous valuation were updated to reflect the experience of April 2001 to March 2004 to the extent that it was deemed credible.

A. New Entrants

The assumed male and female population annual increases are respectively 1% and 7% for plan year 2005. Thereafter, it was assumed that the total judges population would increase by 1% per annum; male judges population is assumed to decrease by 1% per annum whereas that of female judges is assumed to rise by 6% in plan year 2006, with smaller increases thereafter until the ultimate increase of 1% is first attained in the 2023 plan year.

For each sex, the age distribution of the future new judges was based on that of the actual new judges in the April 2001 to March 2004 period. The initial salary of new judges was assumed to be $240,000 for the 2005 plan year, with increases in future plan years in accordance with the assumption for judges' salary increases.

B. Nonvested Termination

Rates of nonvested termination are unchanged from the previous valuation. They are 5 per 1,000 judges for the first year on the bench grading down uniformly to the ultimate level of 1 per 1,000 judges after 4 years on the bench. Nonvested terminations rates are assumed to be nil after 10 years on the bench.

C. Disability Retirement

The disability incidence rates are unchanged from the previous valuation. A sample of pensionable disability rates is shown in the following table.

Table 9 Assumed Rates of Pensionable Disability[1]
(per 1,000 judges)

Age Last Birthday	Male	Female
40	0.7	1.1
45	1.1	1.7
50	2.0	3.0
55	3.5	5.2
60	6.1	9.2
65	10.9	16.5
70	19.9	30.2
74	31.9	48.4

[1] The rate is set to zero for each plan year in which the sum of the judge's age last birthday and service last anniversary (minimum of 15 years), both calculated at the beginning of the year, is at least 79 years. As well, it is set to zero for half of the plan year, if any, in which that sum is 78 years or in which that sum is at least 79 years but service last anniversary is only 14 years.

D. Pensionable Retirement

Except for early retirement rates, which were increased by 25%, pensionable retirement rates are not materially different compared to those used in the previous valuation. They are as follows.

Table 10 Assumed Rates of Pensionable Retirement[1]
(per 1,000 judges)

Age Last Birthday	Completed Years of Service											
	9-13	14	15	16	17	18	19	20	21	22	23	24+
54	5	5	5	5	5	5	5	5	5	5	5	150
55	5	5	5	5	5	5	5	5	5	5	150	150
56	5	5	5	5	5	5	5	5	5	150	150	10
57	5	5	5	5	5	5	5	5	140	150	10	10
58	5	5	5	5	5	5	5	130	150	10	10	10
59	5	5	5	5	5	5	120	140	10	10	10	10
60	5	5	5	5	5	110	130	10	10	20	20	20
61	5	5	5	5	90	120	10	20	20	20	20	20
62	5	5	5	80	100	10	20	30	30	30	30	30
63	5	5	70	90	20	20	30	40	40	40	40	40
64	5	50	80	30	30	30	40	50	50	50	50	50
65	5	60	30	30	40	40	50	50	50	50	60	60
66	5	70	30	60	50	60	50	60	60	60	70	70
67	5	80	30	60	60	60	60	60	60	60	70	70
68	5	90	40	70	70	70	70	70	70	70	80	80
69	5	100	40	80	80	80	80	80	80	80	80	80
70	5	120	40	80	80	80	80	80	80	80	80	80
71	5	130	50	90	90	90	90	90	90	90	90	90
72	5	140	50	90	90	90	90	90	90	90	100	100
73	5	150	50	100	100	100	100	100	100	100	100	100
74[2]	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

E. Mortality

The mortality basis deemed to apply to judges is also assumed to apply to pensioners and surviving spouses. As in the previous valuation, the mortality assumptions take into account the expected continued future reductions in the rates of mortality at the various ages.

1. Mortality of judges, retirement pensioners and surviving spouses

Mortality rates for males were modified. For ages 60 to 85, they are between 1% and 3% lower than those projected in the previous valuation.

Mortality rates that apply to females were also modified. For ages 65 to 90, they are between 1% and 2% higher than those projected in the previous valuation.

1 Rates shown for duration 9 and age 54 are halved in practice to recognize that pensionable retirement can occur only after 10 years of service have been completed or age 55 attained, respectively.

2 Retirement becomes compulsory on the 75th birthday.

A sample of mortality rates for healthy males and females is shown in the following table.

Table 11 Assumed Rates of Mortality for 2005 Plan Year
(per 10,000 individuals)

Age Last Birthday	Male	Female
40	11	7
45	13	9
50	21	12
55	36	20
60	61	40
65	103	79
70	172	131
75	289	218
80	518	381
85	923	671
90	1,532	1,154
95	2,343	1,860
100	3,252	2,783
105	4,259	3,870
110	4,865	4,575
115	10,000	10,000

2. Mortality of disabled pensioners
The rates for disability pensioners are a multiple of assumed mortality rates for healthy members, being 7.0 up to age 60, then grading uniformly to 3.0 at age 70 and then 1.0 at age 90 and over. These multiples are unchanged from the previous valuation.

3. Assumed mortality improvement factors
The mortality improvement assumption is unchanged from the last valuation. It is based on a 25-year select period with an ultimate mortality improvement of 0.5% at most ages for years 2025 and over. The first-year improvement factors (i.e. for year 2000) reflect the mortality improvement of the 1995-97 Life Table for Canada relative to the 1985-87 Table. The intermediate factors were obtained by linear interpolation between the first-year and ultimate factors. The ultimate factors were derived from an analysis of the Canadian and U.S. experience of the last century.

A sample of assumed mortality improvement factors is shown in the following table.

Table 12 Assumed Mortality Improvement Factors

Age Last Birthday	Annual % Mortality Rate Reductions[1]			
	Male		Female	
	2000	2025	2000	2025
40	1.00	0.50	1.25	0.50
45	1.75	0.50	1.75	0.50
50	2.50	0.50	2.00	0.50
55	2.75	0.50	1.75	0.50
60	2.75	0.50	1.50	0.50
65	2.50	0.50	1.50	0.50
70	2.00	0.50	1.50	0.50
75	1.50	0.50	1.25	0.50
80	1.25	0.50	1.00	0.50
85	0.75	0.50	0.75	0.50
90	0.50	0.50	0.50	0.50
95	0.25	0.25	0.25	0.25
100	0.25	0.25	0.25	0.25
105+	0.00	0.00	0.00	0.00

F. Family Composition

Assumptions for the proportion of members leaving, upon death, a spouse eligible for a survivor pension are unchanged from the previous valuation.

The surviving spouse of a male judge or pensioner aged 72 to 83 at death, is expected to be one year younger than assumed in the previous valuation. The assumed age of a surviving spouse at death of a female judge or pensioner is unchanged from the previous valuation.

Assumptions with respect to the number of eligible children and their age are unchanged from the previous valuation. As in the previous valuation, to determine the value of pensions payable to eligible children, the rates of pension termination were assumed to be zero prior to age 17 and 15% per annum thereafter until expiry of the benefit on the 25th birthday.

Assumptions for survivor benefits in respect of judges or pensioners are summarized in the following table.

1 The mortality rate reduction applicable during any year within the 25-year select period is found by linear interpolation between the figures for 2000 and 2025.

Table 13 Assumptions for Survivor Benefits

	Males				Females			
Age Last Birthday at Death	Eligible Surviving Spouse	Widow Age Difference[1]	Eligible Children Number	Eligible Children Average Age	Eligible Surviving Spouse	Widow Age Difference[1]	Eligible Children Number	Eligible Children Average Age
40	0.90	(2)	3.07	12	0.90	3	1.54	14
45	0.94	(3)	2.71	16	0.91	3	1.24	18
50	0.95	(3)	1.98	18	0.90	3	0.74	20
55	0.99	(3)	0.80	18	0.90	3	0.29	21
60	0.98	(3)	0.47	20	0.83	3	0.07	22
65	0.94	(3)	0.13	21	0.73	2	0.01	23
70	0.88	(3)	0.03	21	0.61	2	-	-
75	0.82	(4)	-	-	0.46	1	-	-
80	0.74	(5)	-	-	0.35	0	-	-
85	0.62	(5)	-	-	0.24	(1)	-	-
90	0.47	(6)	-	-	0.14	(2)	-	-
95	0.31	(7)	-	-	0.06	(4)	-	-
100	0.17	(9)	-	-	0.02	(7)	-	-
105	0.08	(12)	-	-	0.01	(11)	-	-
110	0.03	(16)	-	-	0.03	(16)	-	-
115	0.01	(21)	-	-	0.01	(21)	-	-

Other Assumptions

1. **Reversals and Recoveries**
   It is assumed that no pensioners will return to the bench.

2. **Minimum Death Benefit**
   This valuation does not take into account the minimum death benefit in respect of deaths occurring after retirement. The resulting understatement of accrued liability and normal cost is immaterial because relatively few pensioners in the early years of retirement die without leaving an eligible survivor.

3. **Special Retirement Provisions**
   Certain plan provisions allow judges to retire on a full pension before satisfying the normal requirement that the sum of age and service (minimum of 15 years) be at least 80 years. These provisions have been ignored in the valuation because only a handful of judges will retire thereunder.

4. **Early Retirement Provisions**
   It is assumed that judges retiring under the early retirement provisions will choose a reduced immediate annuity.

[1] Age of surviving spouse less age of judge or pensioner, both calculated at death of judge or pensioner.

5. **Pension Benefits Division / Optional Survivor Benefit / Enhanced Survivor Benefit**
   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.

   Two other provisions, namely the optional survivor benefit and the enhanced survivor benefit, were also treated like pension benefits divisions for the same reason. However, past elections were fully reflected in liabilities.

6. **Sex of Surviving Spouses**
   Each eligible surviving spouse is assumed to be of the opposite sex.

Appendix 8 - Detailed Information on Membership Data

Table 14 Reconciliation of Judges by Sex

	Males	Females	Total
At 31 March 2001	786	241	1,027
New entrants	96	50	146
Pensionable retirements	(95)	(6)	(101)
Pensionable disabilities	(8)	(1)	(9)
Nonvested terminations	(1)	(1)	(2)
New survivors	-	-	-
Deaths	(10)	(3)	(13)
At 31 March 2004	768	280	1,048

Table 15 Reconciliation of Retirement Pensioners

	Males	Females	Total
At 31 March 2001	308	10	318
Data corrections	(1)	-	(1)
New pensioners	95	6	101
Deaths	(42)	-	(42)
At 31 March 2004	360	16	376

Table 16 Reconciliation of Disability Pensioners

	Males	Females	Total
At 31 March 2001	37	4	41
Data corrections	1	-	1
New pensioners	8	1	9
Deaths	(7)	-	(7)
At 31 March 2004	39	5	44

Table 17 Number of Male Judges as at 31 March 2004

Age Last Birthday	Completed Years of Service								All Durations
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	
40-44	2	-	-	-	-	-	-	-	2
45-49	25	4	1	-	-	-	-	-	30
50-54	52	31	12	2	-	-	-	-	97
55-59	57	63	47	11	4	-	-	-	182
60-64	19	47	56	26	17	2	-	-	167
65-69	5	24	35	26	28	22	2	-	142
70-74	-	1	31	37	39	25	14	1	148
All Ages	160	170	182	102	88	49	16	1	768

Average age last birthday: 61.8 years
Average last anniversary of service: 11.8 years
Average salary: $217,700[1]
Total payroll: $167,222,800

Table 18 Number of Female Judges as at 31 March 2004

Age Last Birthday	Completed Years of Service						All Durations
	0-4	5-9	10-14	15-19	20-24	25-29	
40-44	2	-	-	-	-	-	2
45-49	39	14	2	-	-	-	55
50-54	34	47	35	5	-	-	121
55-59	15	24	15	10	3	-	67
60-64	1	5	6	8	4	1	25
65-69	-	2	-	-	3	1	6
70-74	-	-	-	1	1	2	4
All Ages	91	92	58	24	11	4	280

Average age last birthday: 53.6 years
Average last anniversary of service: 8.1 years
Average salary: $217,400[1]
Total payroll: $60,875,400

[1] The average salary and total payroll both exclude the salary increase effective 1 April 2004 and the salary increase proposed by the Judicial Compensation and Benefits Commission.

Table 19 Male Pensioners as at 31 March 2004

Age Last Birthday	Retirement Pensioners			Disability Pensioners		
		Annual Pension			Annual Pension	
	Number	Average ($)	Total ($)	Number	Average ($)	Total ($)
55-59	-	-	-	1	128,400	128,400
60-64	7	137,300	961,100	2	132,000	264,000
65-69	21	140,400	2,948,400	10	133,100	1,331,000
70-74	51	136,400	6,956,400	12	131,200	1,574,400
75-79	143	136,400	19,505,200	7	127,700	893,900
80-84	77	123,700	9,524,900	4	112,800	451,200
85-89	43	124,000	5,332,000	2	98,000	196,000
90-94	14	115,500	1,617,000	1	55,000	55,000
95-99	2	106,400	212,800	-	-	-
100-104	2	113,900	227,800	-	-	-
All Ages	360	131,300	47,285,600	39	125,500	4,893,900

Average age last birthday:

Retirement Pensioners:
At 31 March 2004: 78.4 years
At retirement: 71.9 years

Disability Pensioners:
At 31 March 2004: 72.9 years
At disability: 62.2 years

Table 20 Female Pensioners as at 31 March 2004

Age Last Birthday	Retirement Pensioners			Disability Pensioners		
		Annual Pension			Annual Pension	
	Number	Average ($)	Total ($)	Number	Average ($)	Total ($)
50-54	-	-	-	1	147,200	147,200
55-59	-	-	-	1	124,200	124,200
60-64	2	136,400	272,800	-	-	-
65-69	1	144,200	144,200	1	122,200	122,200
70-74	1	142,300	142,300	1	120,100	120,100
75-79	5	147,500	737,500	-	-	-
80-84	7	131,200	918,400	1	126,200	126,200
All Ages	16	138,500	2,215,200	5	128,000	639,900

Average age last birthday:

Retirement Pensioners:
At 31 March 2004: 75.2 years
At retirement: 69.9 years

Disability Pensioners:
At 31 March 2004: 66.0 years
At disability: 59.8 years

Table 21 Eligible Survivors as at 31 March 2004

Age Last Birthday	Number	Annualized Amount	
		Average ($)	Total ($)
40-44	2	72,600	145,200
45-49	1	71,900	71,900
50-54	1	60,100	60,100
55-59	14	64,600	904,400
60-64	10	61,700	617,000
65-69	19	64,900	1,233,100
70-74	38	65,100	2,473,800
75-79	63	60,100	3,786,300
80-84	44	57,200	2,516,800
85-89	35	56,500	1,977,500
90-94	17	54,700	929,900
95-99	11	52,300	575,300
100-104	2	37,300	74,600
Widows[1]	257	59,800	15,365,900
Children	8	15,300	122,700

Average age last birthday of spouses:

At 31 March 2004:	77.5 years
At death of member:	65.7 years

1 All but four surviving spouses are females.

Appendix 9 - Acknowledgements

The Office of the Comptroller General of Canada provided a certification of the assets of the plan as at 31 March 2004.

The Office of the Registrar of the Supreme Court of Canada provided relevant valuation input data on Supreme Court judges and on the corresponding pensioners and survivors. The Office of the Commissioner for Federal Judicial Affairs provided similar data for all other federally appointed judges and for the corresponding pensioners and survivors.

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