



Office of the Superintendent of
Financial Institutions Canada

Bureau du surintendant des
institutions financières Canada

Office of the Chief Actuary

Bureau de l'actuaire en chef



ACTUARIAL REPORT

on the Pension Plan for the

FEDERALLY APPOINTED JUDGES

as at 31 March 2016

Office of the Chief Actuary

Office of the Superintendent of Financial Institutions Canada

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Ottawa, Ontario

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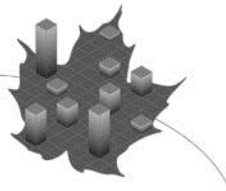
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6 September 2017

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

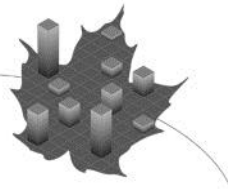
Dear President:

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 2016 of the pension plan established under the *Judges Act*.

Yours sincerely,

A handwritten signature in cursive script that reads "Jean-Claude Ménard".

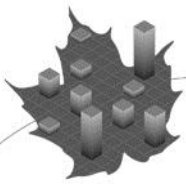
Jean-Claude Ménard, F.S.A., F.C.I.A.
Chief Actuary

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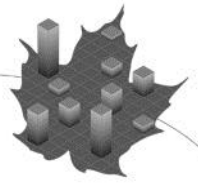


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I. Executive Summary

This actuarial report on the pension plan for the Federally Appointed Judges, established under the *Judges Act*, was made as at 31 March 2016 pursuant to the *Public Pensions Reporting Act* (PPRA). The plan is financed through the Consolidated Revenue Fund (CRF) on a pay-as-you-go basis rather than being financed on the model of a funded pension plan (advanced funding)¹ as are the other major pension plans sponsored by the Federal Government. The previous review was made as at 31 March 2013. The date of the next review is scheduled to occur no later than 31 March 2019.

A. Purpose of the Report

The purpose of this actuarial report is to show estimates as at the valuation date of plan benefits and contributions in accordance with the financing arrangement in effect.

As well, the PPRA requires that a cost certificate be prepared showing the estimated cost of benefits in respect of service. Accordingly, this report shows theoretical estimates of the actuarial liabilities and projected current service costs.

B. Changes since the Last Valuation

The previous valuation report was based on the plan provisions as they stood as at 31 March 2013. There have been no changes to the plan provisions since the previous valuation. This valuation report is based on the plan provisions shown in Appendix 1.

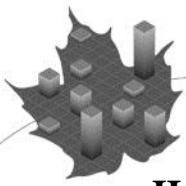
The methodology and most of the assumptions were revised for this valuation. These changes are discussed in Appendices 4, 5 and 6.

C. Main Findings

- The plan benefits are estimated to be \$149.1 million and the judges' contributions are estimated to be \$18.8 million in the 2017 plan year². In accordance with the financing agreement in effect, the government cost is estimated to be \$130.3 million, which corresponds to the difference between the plan benefits and the judges contributions for plan year 2017. Plan benefits are estimated to be \$156.6 million in plan year 2018 and \$165.3 million in plan year 2019.
- Based on the data, methodology and assumptions described in this report, if the plan cost was valued on an accrual basis the current service cost would be 45.5% of payroll for plan year 2017, 45.1% for plan year 2018 and 44.5% for plan year 2019. The actuarial liability would be \$3,468 million as at 31 March 2016.

¹ A pension plan is said to be *funded* if the contributions are made well in advance of the benefit 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 Any reference to a given *plan year* in this report should be taken as the 12-month period ending 31 March of the given year.



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II. Projected Benefits and Contributions

The government finances the plan through the Consolidated Revenue Fund (CRF) on a pay-as-you-go basis as there is no fund to accept contributions or pay the plan benefits other than the minor Supplementary Retirement Benefits (SRB) Account. The prescribed contributions¹ credited to the SRB Account 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 anomaly². Judges contribute 1 % of salary to the SRB Account and contribute 6% of salary to the CRF if not eligible for an immediate (unreduced) annuity. In practice, all judges' contributions including their prescribed contribution to the SRB Account are made to the CRF and all benefits are paid from the CRF.

The following table shows the projected benefits of the plan with the corresponding judges' contributions to the CRF (including the judges recorded contributions to the SRB Account).

Table 1 Projected CRF Benefits and Contributions

Plan Year	Judges Benefits (\$ millions)	Judges Contributions (\$ millions)	Net CRF Cost (\$ millions)	Benefits (% of payroll)	Judges Contributions (% of payroll)	Net CRF Cost (% of payroll)
	(A)	(B)	(A - B)			
2017	149.1	18.8	130.3	41.4%	5.2%	36.2%
2018	156.6	19.3	137.3	42.4%	5.2%	37.2%
2019	165.3	20.0	145.3	43.2%	5.2%	38.0%
2020	175.0	21.0	154.0	44.2%	5.3%	38.9%
2021	184.7	22.0	162.7	45.0%	5.4%	39.6%
2026	246.8	27.5	219.3	49.4%	5.5%	43.9%
2031	309.7	35.5	274.2	50.8%	5.8%	45.0%

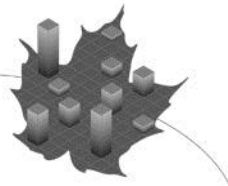
The following table shows the projected judges' contributions and the corresponding government matching contributions to be recorded to the SRB Account.

Table 2 SRB Account Contributions

Plan Year	Judges (\$ millions)	Government (\$ millions)	Total (\$ millions)
2017	3.6	3.6	7.2
2018	3.7	3.7	7.4
2019	3.8	3.8	7.6
2020	4.0	4.0	8.0
2021	4.1	4.1	8.2
2026	5.0	5.0	10.0
2031	6.1	6.1	12.2

¹ Judges contribute 1% of payroll and the government matches those contributions.

² Practically the only events to trigger a debit from the Account are the death (with no survivor) or nonvested termination of a judge. 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.

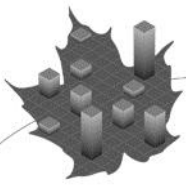


III. Actuarial Review of Pension Plan

The PPRA requires that a cost certificate be prepared showing the estimated cost of benefits in respect of service for the major pension plans sponsored by the Federal Government as well as for the pension plan for the Federally Appointed Judges. However, the judges' plan differs significantly from the major public sector pension plans as it is financed in practice on a pay-as-you-go basis and the plan benefits generally do not vary by length of service.

To conduct this actuarial review on an accrual basis, it was necessary to express each judge's projected benefit in unit credit terms, for each type of benefit. The projected accrued benefit actuarial cost method (used in the actuarial valuations of the major federal public sector pension plans) was used for valuation purposes. The method is fully described in Appendix 4. Based on this methodology, the actuarial liability is deemed to be the government's obligation in respect of all service rendered as at the valuation date and the current service cost is deemed to be the future government's obligation in regards of all future payable benefits considered to accrue in respect of a given year. The valuation discount rate is deemed to be the government's borrowing cost.

The following actuarial liabilities and current service costs required by the *Public Pensions Reporting Act* are purely hypothetical. They were computed using the data described in Appendix 3, the methodology described in Appendix 4, and the assumptions described in Appendices 5 and 6.



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A. Account and Actuarial Liabilities

Table 3 Account and Actuarial Liabilities
(\$ millions)

	As at 31 March 2016	As at 31 March 2013
Balance in SRB Account	215	187
Actuarial Liabilities		
For benefits accrued by, and in respect of, judges	1,695	1,314
For benefits payable to, and in respect of:		
• Retirement pensioners	1,393	1,006
• Disability pensioners	114	77
• Surviving dependants	<u>266</u>	<u>222</u>
Total Actuarial Liabilities	3,468	2,619

B. Cost Certificate

Table 4 Projection of Current Service Costs

Plan Year	Judges Contributions (\$ millions)	Government Current Service Cost (\$ millions)	Total Current Service Cost	
			(\$ millions)	(% of payroll)
2017	19	145	164	45.5%
2018	19	147	166	45.1%
2019	20	150	170	44.5%
2020	21	154	175	44.1%
2021	22	158	180	43.8%
2026	27	187	214	42.8%
2031	35	226	261	42.9%

C. Reconciliation of Results with Previous Report

This section reconciles the actuarial liability and current service cost with the corresponding items of the previous valuation. Details on the experience gains and losses and on the revision of actuarial assumptions are provided herein afterward.

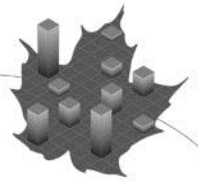


Table 5 Reconciliation of Results

	Actuarial Liability (\$ millions)	Current Service Cost (% of payroll)
As at 31 March 2013	2,619	37.8
Data corrections	15	-
Expected Current Service Costs	382	
Expected Benefit Payments	(401)	
Interest	277	
Expected current service cost change		(0.6)
Expected as at 31 March 2016	2,892	37.2
Experience gains and losses	4	(0.0)
Revision of valuation assumptions	572	8.4
As at 31 March 2016	3,468	45.5

1. Experience Gains and Losses

Since the previous valuation, experience gains or losses have increased the actuarial liability by \$4 million and had no significant impact on the current service cost. The main items shown in the following table are explained afterward.

Table 6 Experience Gains and Losses

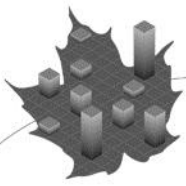
	Impact on Actuarial Liability (\$ millions)	Impact on Current Service Cost (% of payroll)
Pensionable disabilities	1	-
Mortality	24	-
Pensionable retirements	6	-
Proportion Married	4	-
Salary increases	(22)	-
New entrants	4	(0.1)
Age of spouse	(4)	-
Pension indexing	(11)	-
Miscellaneous	2	0.1
Net impact	4	(0.0)

• **Mortality**

The number of deaths among judges, pensioners and surviving spouses was less than anticipated creating a loss of \$24 million on the actuarial liability.

• **Salary Increases**

The judicial salary increases during the intervaluation period were lower than expected producing a gain of \$22 million on the actuarial liability.



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• Pension Indexing

In the previous report, pension indexing was projected to be 1.8% as at 1 January 2015 and 2.0% as at 1 January 2016. The actual indexation of pension was 1.7% as at 1 January 2015 and 1.3% as at 1 January 2016, which resulted in a gain of \$11 million on the actuarial liability.

2. Revision of Valuation Assumptions

Actuarial assumptions were revised based on economic trends and demographic experience as described in Appendices 5 and 6. The impact of the revision of the assumptions is shown in the following table.

Table 7 Revision of Valuation Assumptions

	Impact on Actuarial Liability (\$ millions)	Impact on Current Service Cost (% of payroll)
Mortality projection factors	7	0.2
Mortality of survivors	10	0.1
Economic assumptions	402	6.1
Mortality of healthy members	131	1.7
Mortality of disabled members	22	0.3
Net impact of revision	572	8.4

D. Sensitivity of Valuation Results to Variations in Longevity Improvements

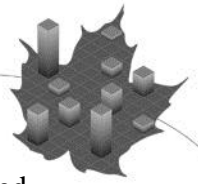
This valuation assumes that the current mortality rates applicable to members of the plan will improve over time. This assumption is based on the mortality improvement scale CPM Improvement Scale B (CPM-B) published by the Canadian Institute of Actuaries. The following table measures the effect of varying the longevity improvement assumptions on the plan year 2017 current service cost and liabilities.

Table 8 Sensitivity of Valuation Results to Variations in Longevity Improvement Factors

Longevity improvement	Current Service Cost (% of payroll)		Actuarial Liability (\$ millions)		Life Expectancy of a Member aged 65 as at 31 March 2016	
	2017	Effect	Effect	Male	Female	
Current basis	45.5	None	3,468	None	24.1	25.0
• if 0%	43.6	(1.9)	3,359	(109)	23.0	24.1
• if ultimate 50% higher	46.1	0.6	3,494	26	24.4	25.3
• if ultimate 50% lower	45.0	(0.5)	3,442	(26)	23.9	24.8
• if kept at 2017 level	46.3	0.8	3,496	28	24.5	25.3

E. Sensitivity to Variations in Key Economic Assumptions

The information required by statute, which is presented in this report, has been derived using best-estimate assumptions regarding future demographic and economic trends. The key best-estimate assumptions, i.e. those for which changes within a reasonable



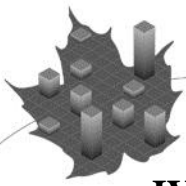
range have the most significant impact on the long-term financial results, are described in Appendices 5 and 6. Given the length of the projection period and the number of assumptions required, it is unlikely that the actual experience will develop precisely in accordance with best-estimate assumptions that underlie the actuarial estimates. Individual sensitivity tests have been performed using alternative assumptions.

The following table measures the effect on the plan year 2017 current service cost and liabilities when key economic assumptions are varied by one percentage point per annum.

Table 9 Sensitivity of Valuation Results to Variations in Key Economic Assumptions

Assumption(s) Varied	Current Service Cost (% of payroll)		Actuarial Liability (\$ millions)	
	2017	Effect		Effect
None (i.e. current basis)	45.5	None	3,468	None
Discount Rate				
• if 1% higher	38.0	(7.5)	3,079	(389)
• if 1% lower	55.2	9.7	3,939	471
Pension indexing				
• if 1% higher	50.3	4.8	3,799	331
• if 1% lower	41.4	(4.1)	3,179	(289)
Salary, YMPE and MPE				
• if 1% higher	49.8	4.3	3,594	126
• if 1% lower	41.8	(3.7)	3,353	(115)
All economic assumptions				
• if 1% higher	41.4	(4.1)	3,183	(285)
• if 1% lower	50.4	4.9	3,799	331

The differences between the results above and those shown in the valuation can also serve as a basis for approximating the effect of other numerical variations in one of the key assumptions to the extent that such effects are linear.



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IV. Actuarial Opinion

In our opinion, considering that this report was prepared pursuant to the *Public Pensions Reporting Act* which requires that the plan be valued on an accrual basis, and that the purpose of this actuarial report is to show estimates of plan contributions in accordance with the financing arrangement (pay-as-you-go basis) in effect,

- the data on which the valuation is based are sufficient and reliable for the purposes of the valuation;
- the assumptions are, in aggregate, appropriate for the purposes of the valuation;
- the methods employed in the valuation are appropriate for the purposes of the valuation; and
- this report has been prepared, and our opinions given, in accordance with accepted actuarial practice in Canada.

In particular, this report was prepared in accordance with the Standards of Practice - General Standards and the Practice – Specific Standards for Pension Plans published by the Canadian Institute of Actuaries.

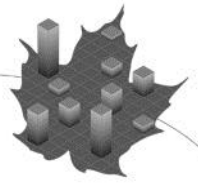
To the best of our knowledge, there were no subsequent events between the valuation date and the date of this report.

The payment of accrued pension benefits being the responsibility of the government, the likelihood of the plan being wound-up and its obligations not being fulfilled is practically nonexistent; also the *Judges Act* does not define the benefits payable upon wind-up. Therefore, a hypothetical wind-up valuation has not been performed.

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

Laurence Frappier, F.S.A., F.C.I.A.
Senior Actuary

Ottawa, Canada
6 September 2017



Appendix 1 – Summary of Plan Provisions

This summary describes the provisions in force as at 31 March 2016 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. The Act shall prevail if there is a discrepancy between this 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 contribute 1% of salary to the Supplementary Retirement Benefits (SRB) Account, and if not eligible for a full annuity, 6% of salary to the CRF.

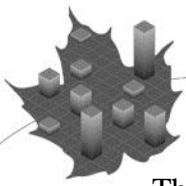
2. Government

The government deemed contributions are the excess of the plan benefits paid from the CRF over the contributions by judges thereto. Government contributions of 1% of salary are also credited to the SRB Account.

C. Summary Description of Benefits

The judges’ pension plan 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 9) or a residual benefit (Note 10) is payable upon the death of the pensioner, and a residual benefit may be payable to the estate upon the death of the last survivor.



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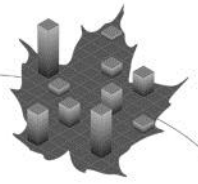
The explanatory notes referred to in this summary description are given in section D.

1. Judges

<u>Type of Termination</u>	<u>Benefit</u>
Normal pensionable retirement (Note 1)	Immediate annuity, reduced pro-rata if under 10 years of service at normal retirement age
Early pensionable retirement (Note 2)	Deferred annuity, or Reduced immediate annuity
Pensionable disability	Immediate annuity
Nonvested termination (Note 4)	Return of contributions (Note 5)
Death leaving no eligible survivor(s) (Notes 6 and 7)	Return of contributions, and Lump sum (Note 8)
Death leaving eligible survivor(s) (Notes 6 and 7)	Annuity to eligible survivor(s) (Note 9), and Lump sum

2. Pensioners

<u>Type of Termination</u>	<u>Benefit</u>
Death leaving no eligible survivor(s) (Notes 6 and 7)	Residual benefit (Note 10), if applicable
Death leaving eligible survivor(s) (Notes 6 and 7)	Annuity to eligible survivor(s) (Note 9)



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.

Immediate Annuity

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.

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.

i) **Deferred Annuity**

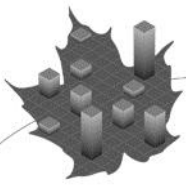
Deferred annuity means an annuity that becomes payable to a former judge who reaches age 60.

The amount of the deferred annuity is calculated by multiplying two thirds of the amount of the salary annexed to the judge's office at the time of the election multiplied by a fraction of which

- (a) the numerator is the number of years, to the nearest one tenth of a year, during which the judge has continued in judicial office, and
- (b) the denominator is the number of years, to the nearest one tenth of a year, during which the judge would have been required to continue in judicial office in order to be eligible for an unreduced pension.

ii) **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.



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3. 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.

4. Nonvested Terminations

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

5. 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.

6. 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.

7. 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.

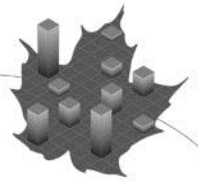
8. Lump Sum

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.

9. 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 judge (pensioner). 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.

A pensioner can elect an enhanced surviving spouse benefit with a maximum of 75% of his pension as actuarially reduced to fund the enhancement.

**10. Residual Benefit**

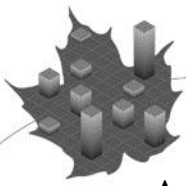
Residual benefit is equal to the amount, if any, by which the return of contributions exceeds the aggregate of all amounts paid to and in respect of a pensioner until the death of the pensioner, or, if applicable, until the subsequent death or loss of eligibility of the last survivor entitled to an annuity.

11. 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.

12. Division of Pension with Former Spouse

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 of the actuarial value, calculated as at the transfer date, of the retirement pension deemed accrued by the judge or pensioner during the period of cohabitation.



Appendix 2 – Supplementary Retirement Benefits Account

The SRB Account was established by the government to track its pension benefit obligation with respect to the indexation provision of the plan. Judges contribute 1% of payroll and the government matches those contributions. These credits would normally track a material portion of the cost of the benefit indexation provision but in practice are effectively locked in the Account by a legislative anomaly. Practically the only events to trigger a debit from the Account are the death (with no survivor) or nonvested termination of a judge. 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. In practice, all judges contributions are made to the CRF and all benefits under the plan are borne by the CRF when they become due.

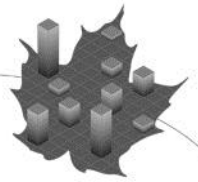
The SRB Account, which forms part of the Public Accounts of Canada, tracks individual balances held in respect of judges. Each such balance is the cumulative excess of the prescribed interest credits and SRB contributions over the benefits charged to the SRB Account in respect of the given judge. No formal debt instrument is issued to the Account by the government in recognition of the amounts therein. 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.

Table 10 Reconciliation of Balances in the SRB Account¹
(\$ Millions)

Plan Year	<u>2014</u>	<u>2015</u>	<u>2016</u>
Account Opening Balance	186.9	196.6	206.4
Judges contributions	3.3	3.4	3.6
Government contributions	3.3	3.4	3.6
Interest credits	3.2	3.0	1.6
Account Closing Balance	196.6	206.4	215.1

The rates of return on the Account in plan years 2014, 2015 and 2016 were 1.7%, 1.5% and 0.7% respectively. They were calculated based on the assumption that contributions were made in the middle of the year.

¹ Numbers may not add up due to rounding.



Appendix 3 – Membership Data

A. Sources and Validation of Membership Data

The Office of the Commissioner of Federal Judicial Affairs provided relevant valuation input data on judges and on the corresponding pensioners and survivors.

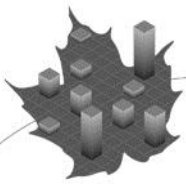
We performed certain tests of consistency with the data used in the previous valuation, with respect to membership reconciliation, basic information (date of birth, date of hire, date of termination, sex, etc.), salary levels, and pensions to survivors and pensioners. Based on the omissions and discrepancies identified by these and other tests, appropriate adjustments were made to the basic data after consulting with the data providers.

B. Summary of Membership Data

A summary of the valuation data as at 31 March 2016 and the reconciliation of judges, pensioners, and survivors during the period from April 2013 to March 2016 inclusive are shown in this section. Relevant detailed statistics on judges, pensioners and survivors are shown in Appendix 7.

Table 11 Summary of Membership Data

	As at 31 March 2016	As at 31 March 2013
Judges		
· Number	1,139	1,101
· Average Salary	\$309,700	\$289,500
· Average Age	61.8	61.6
· Average Service	11.3	11.5
Retirement Pensioners		
· Number	587	524
· Average Pension	\$189,400	\$177,200
· Average Age	79.1	79.1
Disability Pensioners		
· Number	44	41
· Average Pension	\$176,000	\$165,300
· Average Age	75.7	74.8
Surviving Spouses		
· Number	317	297
· Average Pension	\$81,600	\$78,400
· Average Age	81.9	81.0
Surviving Children		
· Number	4	6
· Average Pension	\$23,500	\$21,300



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Table 12 Reconciliation of Membership

	Judges	Retirement Pensioners	Disability Pensioners	Surviving Spouses	Surviving Children
At 31 March 2013	1,101	524	41	297	6
Data updates				17	
New entrants	193	1			
Pensionable retirements	(134)	134			
Pensionable disabilities	(5)		5		
Nonvested terminations	(1)				
New survivors				55	
Deaths	(15)	(72)	(2)	(52)	
Loss of eligibility					(2)
At 31 March 2016	1,139	587	44	317	4

Table 13 Reconciliation of Judges

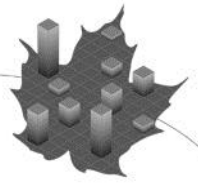
	Male	Female	Total
At 31 March 2013	737	364	1,101
New entrants	119	74	193
Pensionable retirements	(106)	(28)	(134)
Pensionable disabilities	(4)	(1)	(5)
Nonvested terminations	(1)	-	(1)
Deaths	(14)	(1)	(15)
At 31 March 2016	731	408	1,139

Table 14 Reconciliation of Retirement Pensioners

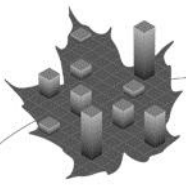
	Male	Female	Total
At 31 March 2013	464	60	524
Data updates	-	1	1
New pensioners	106	28	134
Deaths	(70)	(2)	(72)
At 31 March 2016	500	87	587

Table 15 Reconciliation of Disability Pensioners

	Male	Female	Total
At 31 March 2013	31	10	41
New pensioners	4	1	5
Deaths	(2)	-	(2)
At 31 March 2016	33	11	44

**Table 16 Reconciliation of Surviving Spouses**

	Male	Female	Total
At 31 March 2013	7	290	297
Data updates	-	17	17
New surviving spouses	1	54	55
Deaths	(1)	(51)	(52)
At 31 March 2016	7	310	317



Appendix 4 – Methodology

A. Actuarial Cost Method

Although the plan provides benefits that do not vary by length of service, the projected accrued benefit actuarial cost method (also known as the projected unit credit) was used, as in the previous valuation, to compute current service costs and actuarial liabilities.

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

Consistent with this cost method, earnings are projected up to retirement using the assumed annual increases in average earnings.

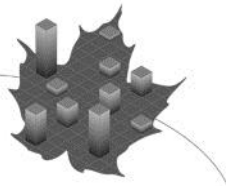
1. Current Service Cost

Under the projected accrued benefit actuarial cost method, the current service cost, also called normal cost, computed in respect of a given year is the sum of the value, discounted in accordance with the actuarial assumptions, of all future payable benefits considered to accrue in respect of that year’s service.

All other things being equal, the current service cost for the total population, expressed as a percentage of total payroll, can be expected to remain stable as long as the average age and service of the total population remains constant.

2. Actuarial Liability

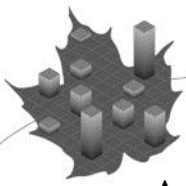
The actuarial liability with respect to contributors corresponds to the value, discounted in accordance with the actuarial assumptions, of all future payable benefits accrued as at the valuation date in respect of all previous service. For pensioners and survivors, the actuarial liability corresponds to the value, discounted in accordance with the actuarial assumptions, of future payable benefits.

**3. Balancing Item**

Under the projected accrued benefit actuarial cost method, a balancing item that corresponds to the difference between the assets and liabilities would normally be calculated to estimate the necessary adjustments. As the plan is financed on a pay-as-you-go basis, actuarial deficits and amortization payments are not required and hence not presented in this report.

B. Membership Data

The membership data shown in Appendix 7 were provided as at 31 March 2016. Individual data on each member were used.



Appendix 5 – Economic Assumptions

A. Inflation-Related Assumptions

1. Level of Inflation

Price increases, as measured by changes in the Consumer Price Index (CPI), tend to fluctuate from year to year. In 2016, the Bank of Canada and the Government renewed their commitment to keep inflation between 1% and 3% until the end of 2021.

However, with the level of inflation currently lower than the 2% target, it is assumed that the level of inflation will increase from 1.6% in 2017 to its ultimate rate of 2.0% in 2018. The ultimate rate of 2.0% is 0.2% lower than the assumed rate in the previous valuation.

2. Pension Indexing

The year's pension indexing factor is required in the valuation process by virtue of its role in maintaining the purchasing power of pensions. It was derived by applying the indexation formula described in Appendix 1, which relates to the assumed Consumer Price Index increases over successive 12-month periods ending on 30 September.

B. Employment Earnings Increases

1. Average Canadian Wage Increase

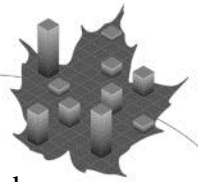
The real-wage differential (i.e. increase in average employment earnings in excess of inflation) is developed taking into account historical trends, a possible labour shortage and an assumed moderate economic growth for Canada. Thus, a real-wage differential of 0.6% is assumed for 2018, and is assumed to gradually increase to the ultimate assumption of 1.1% by 2024 (1.2% by 2018 in the previous valuation). The ultimate real-wage differential assumption combined with the ultimate price increase assumption results in an assumed annual increase in nominal wages of 3.1% in 2024 and thereafter.

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 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. 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.

C. Valuation Interest Rates

The judges' plan differs significantly from the major public sector pension plans as it is financed in practice on a pay-as-you-go basis. However, the *Public Pensions Reporting Act* requires that a cost certificate be prepared showing the estimated cost of benefits in respect of service for the major pension plans sponsored by the Federal Government as well as for the pension plan for the Federally Appointed Judges. Since benefits paid from the plan are paid with borrowed money (i.e. there are no invested assets), the actuarial liabilities and current service costs are valued using the government's long term cost of borrowing.



The government’s real¹ cost of borrowing is equal to the new money rate less the assumed rate of inflation. The new money rate is the nominal yield on 10-year-plus Government of Canada bonds and is set for each year in the projection period.

Recognizing recent experience, the annual real yield on 10-year-plus federal bonds is assumed to be 0.3% in plan year 2017, and is assumed to increase gradually to its ultimate level of 2.7% first attained in plan year 2028. This increase is consistent with the average of private sector forecasts. The real yield on 10-year-plus bonds is based on historical yields. The ultimate real yield was 3.1% in the previous valuation.

The resulting assumed valuation interest rate in plan year 2017 is 1.9%, gradually increasing to its ultimate value of 4.7% in plan year 2028.

D. Summary of Economic Assumptions

The economic assumptions used in this report are summarized in the following table.

Table 17 Summary of Economic Assumptions²

Plan Year	Inflation (%)		Employment Earnings Increase (%)		Interest (%)
	CPI Increase	Pension Indexing ³	Industrial Aggregate	Judicial Salaries ⁴	Valuation Rate
2017	1.6	1.3	0.8	1.8	1.9
2018	2.0	1.9	2.6	1.7	2.4
2019	2.0	2.0	2.7	2.7	2.9
2020	2.0	2.0	2.8	2.8	3.3
2021	2.0	2.0	2.9	2.9	3.5
2022	2.0	2.0	3.0	3.0	3.8
2023	2.0	2.0	3.0	3.0	4.0
2024	2.0	2.0	3.1	3.1	4.1
2025	2.0	2.0	3.1	3.1	4.3
2026	2.0	2.0	3.1	3.1	4.5
2027	2.0	2.0	3.1	3.1	4.6
2028+	2.0	2.0	3.1	3.1	4.7

As a reference, for the period ending December 2015, the following table was prepared based on the Canadian Institute of Actuaries Report on Canadian Economic Statistics 1924-2015.

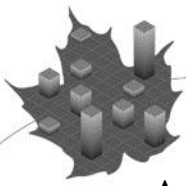
Period of Years Ending December 2015	15	25	50
Level of Inflation	1.8%	1.9%	4.1%
Real Increases in Average Earnings	0.7%	0.5%	0.8%
Real Yield of Long-Term Canada Bonds	2.1%	3.4%	3.2%
Real Return on Long-Term Canada Bonds	5.1%	7.0%	4.0%

¹ Note that all of the real rates referred to in this report are actually real differentials.

² Bold figures denote actual experience.

³ Assumed to be effective as at 1 January.

⁴ Assumed to be effective as at 1 April.



Appendix 6 – 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 past experience to the extent that it was deemed credible.

A. New Entrants

The assumptions in respect of new entrants were not changed from the previous valuation. The total number of judges is assumed to increase by 0.8% per annum and it is assumed that there will be an equal number of male and female judges by 2035. The number of male judges is assumed to decrease by 0.5% per annum from 2017 to 2035 and the number of female judges is assumed to rise by 3% in plan year 2017, with smaller increases thereafter until the ultimate increase of 0.8% is first attained in 2035. By 2035, both the number of male and female judges is assumed to increase by 0.8 % per annum.

For each sex, the age distribution of the future new judges was based on that of the actual new judges in the April 2013 to March 2016 period. The initial salary of new judges was assumed to be \$314,100 for plan year 2017, with increases in future plan years in accordance with the assumption for judges’ salary increases.

B. Nonvested Termination

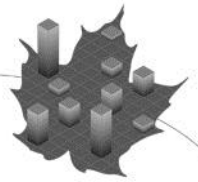
There was only one nonvested termination, during the three years ended 31 March 2016, which is in line with the 0.9 expected. Rates of nonvested termination are not changed. They are 3 per 1,000 judges for the first year, 2 per 1,000 judges for the second year and 1 per 1,000 judges up to 9 years on the bench. Nonvested terminations rates are assumed to be nil after 10 years on the bench.

C. Disability Retirement

During the three years ended 31 March 2016, the 4 reported disabilities were in line with the 3.7 expected. The disability incidence rates for both males and females were not changed from the previous valuation.

Table 18 Rates of Pensionable Disability
(per 1,000 judges)

Age Last Birthday	Male	Female
40	0.2	0.4
50	0.7	1.0
60	2.0	3.1
70	6.4	10.1
74	10.3	16.1



D. Pensionable Retirement

During the three years ended 31 March 2016, the 137 reported pensionable retirements amounted to 109% of the 125.8 expected. Assumed pensionable retirement rates are unchanged from the previous valuation.

Table 19 Rates of Pensionable Retirement
(per 1,000 judges)

Age Last Birthday	Completed Years of Service											
	9-13	14	15	16	17	18	19	20	21	22	23	24+
55	5	5	5	5	5	5	5	5	5	5	150	150
60	5	5	5	5	5	110	130	10	10	20	20	20
65	5	60	30	30	40	40	50	50	50	50	60	60
70	5	120	40	80	80	80	80	80	80	80	80	80
74 ¹	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

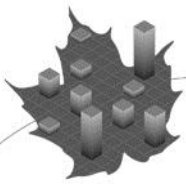
E. Mortality Rates and Longevity Improvement Factors

In the prior valuation, mortality rates were based on the plan’s own experience. Mortality rates for judges, pensioners and surviving spouses were changed for this valuation. Given the small size of the population, the available data is not sufficient to build a credible mortality experience study. In the absence of credible plan experience, it was decided to use the mortality rates of the 2014 Canadian Pensioners Mortality Table (CPM2014) published by the Canadian Institute of Actuaries as a starting point. These mortality rates were developed from combined experience exhibited under public and private sector plans. Pension size adjustment factors were applied to the CPM2014 base mortality rates for judges and pensioners to reflect the correlation between pension amounts and life expectancy. The weighted adjustments for males and females are 0.74 and 0.92 respectively. No size adjustment was applied to the mortality rates for surviving spouses. Mortality rates for disabled pensioners are equal to the mortality rates of healthy pensioners as the CPM2014 reflects the combined expected rates of mortality for all retired members, including those who were disabled prior to retirement.

The mortality rates are projected from 2014 using the mortality improvement scale CPM Improvement Scale B (CPM-B). The CPM-B was published by the Canadian Institute of Actuaries and is based on the C/QPP study which reviewed trends of mortality experience since 1967. In the prior valuation, mortality rates were reduced in the future in accordance with the same mortality improvement assumption as that made for the 25th Actuarial Report on the Canada Pension Plan as at 31 December 2009.

A sample of the resulting mortality rates for plan year 2017 is shown in the table below. The following two tables provide a sample of the mortality improvement factors and the calculated life expectancies based on the mortality assumption described above and based on the mortality assumption of the previous valuation.

¹ Retirement becomes compulsory on the 75th birthday.



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Table 20 Rates of Mortality
For 2017 Plan Year (per 1,000 individuals)

Age Last Birthday	<u>Judges and Pensioners</u>		<u>Surviving Spouses</u>	
	Male	Female	Male	Female
40	1.0	0.6	1.3	0.6
50	2.0	1.2	2.7	1.3
60	4.5	3.3	6.2	3.6
70	9.4	8.3	12.7	9.0
80	29.7	26.0	40.2	28.2
90	120.5	101.8	145.9	107.4
100	376.3	326.6	376.3	326.6
110	585.2	535.7	585.2	535.7

Table 21 Mortality Improvement Factors

Age Last Birthday	Initial and Ultimate Plan Year Mortality Reductions ¹ (%)			
	Male		Female	
	2017	2030+	2017	2030+
40	2.08	0.80	1.27	0.80
50	1.27	0.80	1.03	0.80
60	2.03	0.80	1.36	0.80
70	2.41	0.80	1.52	0.80
80	2.28	0.80	1.52	0.80
90	0.83	0.48	0.83	0.48
100	0.10	0.30	0.10	0.30
110+	0.08	0.23	0.08	0.23

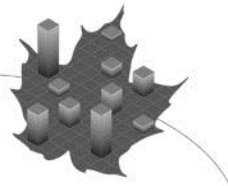
Table 22 Life Expectancy of Judges
(Years)

Age	<u>As at 31 March 2016</u>				<u>As at 31 March 2030</u>			
	<u>Current Valuation</u>		<u>Prior Valuation</u>		<u>Current Valuation</u>		<u>Prior Valuation</u>	
	Male	Female	Male	Female	Male	Female	Male	Female
60	28.8	29.8	26.6	28.9	29.5	30.5	27.4	29.6
65	24.1	25.0	22.0	24.2	24.8	25.7	22.7	24.9
70	19.6	20.5	17.5	19.7	20.3	21.1	18.3	20.4
75	15.3	16.1	13.6	15.5	15.9	16.7	14.2	16.1
80	11.3	12.1	10.1	11.8	11.8	12.6	10.7	12.3
85	7.9	8.6	7.3	8.6	8.3	9.0	7.7	9.0
90	5.2	5.9	5.2	6.2	5.4	6.1	5.5	6.4

F. Family Composition

Assumptions for the proportion of members leaving, upon death, a spouse eligible for a survivor pension and the age of the survivor spouse are unchanged from the previous valuation. The number of new widows and widowers (60) was 108% of expected during the three years ended 31 March 2016; their age was slightly higher than expected (89.6 vs.

¹ The mortality rate reduction applicable during any plan year within the select period is found by linear interpolation between the figures for plan years 2017 and 2030.



88.9 years).

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.

Table 23 Assumptions for Survivor Benefits

Age Last Birthday at Death	Male				Female			
	Eligible Surviving Spouse	Spouse Age Difference ¹	Eligible Children		Eligible Surviving Spouse	Spouse Age Difference ²	Eligible Children	
			Number	Avg. Age			Number	Avg. Age
40	0.90	(2)	3.07	12	0.90	3	1.54	14
50	0.95	(3)	1.98	18	0.90	3	0.74	20
60	0.98	(3)	0.47	20	0.83	3	0.07	22
70	0.88	(3)	0.03	21	0.61	2	-	-
80	0.74	(5)	-	-	0.35	0	-	-
90	0.47	(6)	-	-	0.14	(2)	-	-
100	0.17	(9)	-	-	0.02	(7)	-	-

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 current service cost is immaterial because relatively few pensioners in the early years of retirement die without leaving an eligible survivor.

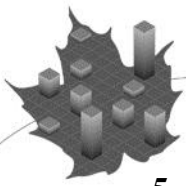
3. Special Retirement Provisions

Plan provisions allow certain 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.



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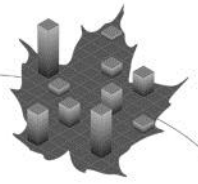
5. Pension Benefits Division / Optional Survivor Benefit / Enhanced Survivor Benefit

No future pension benefits divisions were assumed in estimating current service costs and liabilities. Actual pension benefit divisions that occurred before 1 April 2016 were fully reflected in liabilities.

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

6. Sex of Surviving Spouses

Each eligible surviving spouse is assumed to be of the opposite sex to that of the member.



Appendix 7 – Detailed Information on Membership Data

Table 24 Number of Male Judges
As at 31 March 2016

Age Last Birthday	Completed Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	
35-39								0
40-44	6	1						7
45-49	26	2						28
50-54	48	20	1					69
55-59	48	49	23	2	2			124
60-64	34	76	38	26	7			181
65-69	15	53	50	43	34	8	2	205
70-74	1	8	14	37	35	15	7	117
All Ages	178	209	126	108	78	23	9	731

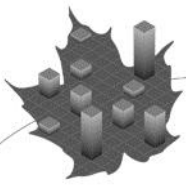
Average age: 63.0 years
 Average service: 11.0 years
 Average salary: \$309,800¹
 Total payroll: \$226,462,300

Table 25 Number of Female Judges
As at 31 March 2016

Age Last Birthday	Completed Years of Service								Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	
40-44	4	1							5
45-49	35	5							40
50-54	30	26	4						60
55-59	20	32	31	5	4				92
60-64	9	17	27	41	22	2			118
65-69	0	7	8	27	21	9	2		74
70-74	0	2	2	6	4	2	2	1	19
All Ages	98	90	72	79	51	13	4	1	408

Average age: 59.6 years
 Average service: 11.8 years
 Average salary: \$309,600¹
 Total payroll: \$126,322,800

¹ The average salary and total payroll both exclude the salary increase effective 1 April 2016.



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Pension Plan for the **FEDERALLY APPOINTED JUDGES**
as at 31 March 2016

Table 26 Male Pensioners
As at 31 March 2016

Age Last Birthday	Retirement Pensioners			Disability Pensioners		
	Number	Annual Pension		Number	Annual Pension	
		Average (\$)	Total (\$)		Average (\$)	Total (\$)
Less than 60	-	-	-	2	200,900	401,800
60-64	1	203,400	203,400	2	205,200	410,400
65-69	35	195,700	6,850,800	3	182,900	548,800
70-74	48	197,800	9,494,100	4	186,700	746,900
75-79	144	198,100	28,533,400	7	176,700	1,236,800
80-84	153	189,700	29,028,300	10	167,800	1,677,900
85-89	93	176,500	16,417,500	3	148,900	446,600
90-94	20	161,500	3,230,500	1	155,100	155,100
95-99	4	152,000	607,900	1	128,700	128,700
100-104	2	169,700	339,300	-	-	-
All Ages	500	189,400	94,705,200	33	174,300	5,753,000

Retirement Pensioners

Average age at 31 March 2016: 80.3 years
Average age at retirement: 72.1 years

Disability Pensioners

Average age at 31 March 2016: 76.9 years
Average age at disability: 61.9 years

Table 27 Female Pensioners
As at 31 March 2016

Age Last Birthday	Retirement Pensioners			Disability Pensioners		
	Number	Annual Pension		Number	Annual Pension	
		Average (\$)	Total (\$)		Average (\$)	Total (\$)
55-59	1	135,400	135,400	-	-	-
60-64	9	179,000	1,610,800	3	191,600	574,700
65-69	33	191,600	6,323,000	4	183,500	774,100
70-74	17	191,700	3,259,500	1	188,200	188,200
75-79	16	196,000	3,135,200	1	150,400	150,400
80-84	4	189,300	757,000	1	147,900	147,900
85-89	5	181,600	907,900	-	-	-
90-94	2	158,200	316,300	1	155,400	155,400
All Ages	87	189,000	16,445,100	11	181,000	1,990,700

Retirement Pensioners

Average age at 31 March 2016: 72.0 years
Average age at retirement: 66.3 years

Disability Pensioners

Average age at 31 March 2016: 72.1 years
Average age at disability: 61.0 years

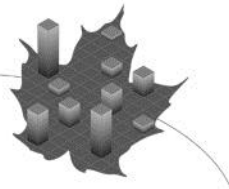


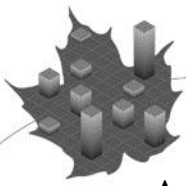
Table 28 Eligible Survivors
As at 31 March 2016

Age Last Birthday	Number	Annualized Amount	
		Average (\$)	Total (\$)
50-54	1	19,700	19,700
55-59	3	18,900	56,700
60-64	9	80,000	720,300
65-69	31	85,700	2,656,400
70-74	31	91,600	2,840,300
75-79	41	85,100	3,489,900
80-84	68	83,400	5,669,900
85-89	77	80,900	6,226,500
90-94	38	76,200	2,896,700
95-99	14	71,400	999,000
100-105	4	71,600	286,400
Widows ¹	317	81,600	25,861,800
Children	4	23,500	94,100

Average age of spouses:

At 31 March 2016: 81.9 years
At death of member: 70.2 years

¹ All but seven surviving spouses are females.



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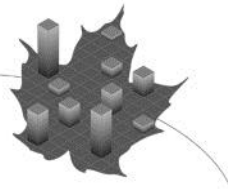
Pension Plan for the **FEDERALLY APPOINTED JUDGES**
as at 31 March 2016

Appendix 8 – Pensioner Mortality Rates for Division of Pension

The following pensioner mortality rates are to be used when a division of pension is requested upon the breakdown of a spousal union. These mortality rates apply to both retirement and disability pensioners. Plan year 2017 mortality rates shown below are projected in accordance with the assumed mortality improvement factors in Appendix 6-E.

**Table 29 Pensioner Mortality Rates for Division of Pension
For plan year 2017**
(per 1,000 individuals)

Age Last Birthday	<u>Pensioners</u>	
	Male	Female
40	1.0	0.6
50	2.0	1.2
60	4.5	3.3
70	9.4	8.3
80	29.7	26.0
90	120.5	101.8
100	376.3	326.6
110+	585.2	535.7



Appendix 9 – Acknowledgements

The Office of the Comptroller General of Canada provided the SRB Account balance as at 31 March 2016.

The Office of the Commissioner for Federal Judicial Affairs provided relevant valuation input data for all federally appointed judges and for the corresponding pensioners and survivors.

The co-operation and able assistance received from the above mentioned data provider deserve to be acknowledged.

The following individuals assisted in the preparation of this report:

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