Actuarial Report
(22nd)

supplementing the Actuarial Report on the

CANADA PENSION PLAN

As at 31 December 2003

Office of the Superintendent of Financial Institutions Canada
Office of the Chief Actuary

Bureau du surintendant des institutions financières Canada
Bureau de l'actuaire en chef

Canada

Office of the Chief Actuary
Office of the Superintendent of Financial Institutions Canada
16th Floor, Kent Square Building
255 Albert Street
Ottawa, Ontario
K1A 0H2

Facsimile: **613-990-9900**
E-mail: **oca-bac@osfi-bsif.gc.ca**
Web site: **www.osfi-bsif.gc.ca**

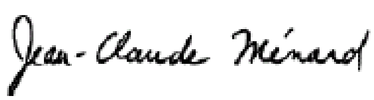
28 November 2006

The Honourable James M. Flaherty, P.C., M.P.
Minister of Finance
House of Commons
Ottawa, Canada
K1A 0G5

Dear Minister:

In accordance with section 115(2) of the *Canada Pension Plan*, which provides that an actuarial report shall be prepared whenever a Bill is introduced in the House of Commons to amend the *Canada Pension Plan*, I am pleased to submit the 22nd Actuarial Report on the Canada Pension Plan.

Yours sincerely,



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

Table of Contents

Page

List of Tables

Page

Executive Summary

This is the 22nd Actuarial Report on the Canada Pension Plan since the inception of the Canada Pension Plan (CPP or the "Plan") in 1966. It has been prepared in compliance with subsection 115(2) of the *Canada Pension Plan*, which provides that:

> "… the Chief Actuary shall, whenever any Bill is introduced in or presented to the House of Commons to amend this Act in a manner that would in the opinion of the Chief Actuary materially affect any of the estimates contained in the most recent report under this section made by the Chief Actuary, prepare, using the same actuarial assumptions and basis as were used in that report, a report setting forth the extent to which such Bill would, if enacted by Parliament, materially affect any of the estimates contained in that report."

The most recent report made pursuant to section 115 was the 21st CPP Actuarial Report as at 31 December 2003, which was tabled in the House of Commons on 8 December 2004. Therefore, this 22nd CPP Actuarial Report has been prepared on the basis of the 21st CPP Actuarial Report to show the effect of Bill C-36 on the long-term financial status of the CPP.

Bill C-36, an Act to amend the *Canada Pension Plan* and the *Old Age Security Act*, amends the CPP to relax the current contributory requirements for disability and disabled contributor's child benefits for individuals who have twenty-five years or more of contributions such that they would meet the contributory requirements if they have valid contributions in three of the last six years. Valid contributions in four of the last six years would continue to be required for all other CPP disability benefit applicants. Applicants would still have to meet the existing medical criteria to qualify for the benefits. The change is to come into force in accordance with section 114(2) of the *Canada Pension Plan* (i.e., following formal provincial consent to the change). For the purpose of this actuarial report and the projections herein, this is assumed to be 1 January 2007.

Bill C-36 amends the *Canada Pension Plan* to bring into operation the existing full funding provision for benefit enhancements or new benefits that is set out in section 113.1(4)*(d)* of the Act. The proposed amendments provide for the calculation and the public reporting of the full funding costs, as well as the integration of these costs into the process for setting the contribution rate.

Bill C-36 also makes changes to the *Canada Pension Plan* of an administrative nature to modernize service delivery. It authorizes the Governor in Council to make regulations respecting the payment of interest on amounts owing to Her Majesty under Part II of the Act. It also addresses anomalies in the Act, amends the penalty provisions and clarifies certain language used in the Act. These proposed changes have no financial implications for the Plan.

Other changes proposed in the Bill relate to the Old Age Security Program and are beyond the scope of this report.

Main Findings

1. The steady-state contribution rate of the current Plan (without the amendment of Bill C-36) for years 2007 and thereafter, which is the lowest rate sufficient to financially sustain the current Plan without further increase, is 9.77%, i.e., the same as estimated in the 21st CPP Actuarial Report.

2. The incremental contribution rate required in accordance with section 113.1(4)*(d)* of the *Canada Pension Plan* to fully fund the increase in benefits resulting from the proposed amendment to the disability contributory requirement is 0.02% for years 2007 and thereafter.

3. The minimum contribution rate required to financially sustain the current Plan and the proposed disability amendment is 9.79% for years 2007 and thereafter.

4. In 2007, the amendment to the disability contribution requirement results in 940 new CPP disability beneficiaries and 260 new disabled contributor's children beneficiaries. By 2050, the number of disability beneficiaries is 13,200 higher (2.5% higher) and the number of disabled contributor's child beneficiaries is 2,800 higher (1.5% higher) than projected under the 21st CPP Actuarial Report.

5. By 2050, annual expenditures are $520 million or 0.2% higher than projected under the 21st CPP Actuarial Report.

6. Under a legislated contribution rate of 9.90% for 2007 and beyond – which federal, provincial and territorial finance ministers confirmed at their June 2006 meeting - the current Plan (without the amendment of Bill C-36) is financed on a steady-state funding basis with a contribution rate of 9.88%, while the amendment to change the contributory requirements for disability benefits is financed on a full funding basis with a contribution rate of 0.02%.

7. By 2050, under the amended Plan and a legislated contribution rate of 9.90%, Plan assets are $29 billion lower than projected under the 21st CPP Actuarial Report and the asset to expenditure ratio is 6.2 or 0.1 lower than the asset to expenditure ratio of 6.3 projected under the 21st CPP Actuarial Report.

I. Introduction

This report has been prepared in compliance with subsection 115(2) of the *Canada Pension Plan*, which provides that:

> "… the Chief Actuary shall, whenever any Bill is introduced in or presented to the House of Commons to amend this Act in a manner that would in the opinion of the Chief Actuary materially affect any of the estimates contained in the most recent report under this section made by the Chief Actuary, prepare, using the same actuarial assumptions and basis as were used in that report, a report setting forth the extent to which such Bill would, if enacted by Parliament, materially affect any of the estimates contained in that report."

The most recent report made pursuant to section 115 was the 21st CPP Actuarial Report as at 31 December 2003, which was tabled in the House of Commons on 8 December 2004. Therefore, this 22nd CPP Actuarial Report has been prepared on the basis of the 21st CPP Actuarial Report to show the effect of Bill C-36 on the long-term financial status of the CPP.

In accordance with subsection 114.(4) of the *Canada Pension Plan*, the provisions of an amending Bill shall come into force:

> "…only on a day to be fixed by order of the Governor in Council, which order may not be made and shall not in any case have any force or effect unless the lieutenant governor in council of each of at least two thirds of the included provinces, having in the aggregate not less than two thirds of the population of all of the included provinces, has signified the consent of that province to the enactment."

II. Description of Bill C-36

In this report, Bill C-36 amends the *Canada Pension Plan* in respect of:

A. Contributory Requirements for Disability Benefits

Since the first disability pensions under the Canada Pension Plan (CPP) were issued in 1970, legislation has required a degree of recentness of workforce attachment in the period leading up to the date of application for disability benefits. The contributory requirements for disability benefits were established with respect to years of contributions made to the CPP. Contributors who become eligible for a disability pension also give rise to disabled contributor's child benefits if their children are under age 18 or aged 18 to 25 and attending school full time.

Legislative changes over the years have resulted in a number of changes to the contributory requirements for disability benefits. From 1970 to 1975, the minimum qualifying period (MQP) was five years; from 1976 to 1986, it was five of the last 10 years with the additional requirement between 1981 and 1983 of having one additional year of contributions if the contributory period was more than 15 years and between 1984 and 1986 of having two additional years of contributions. In 1987, Bill C-116 amended the MQP to broaden eligibility for disability benefits such that applicants were required to make contributions in either five of the last 10 calendar years or two of the last three calendar years.

In 1992, further amendments were made to the CPP to provide protection to late applicants who may have delayed applying for CPP disability benefits but who met the contributory requirement at the time they became disabled. Most recently, in 1997 the federal and provincial governments agreed to a major CPP reform package. These reforms included amendments implemented in 1998 to the contributory requirements for the disability benefit. The amendments have required applicants under section 44.(2) of the legislation to have contributed on earnings not less than 10% of the Years' Maximum Pensionable Earnings, or $4,100 in 2006, in four of the last six calendar years included either wholly or partly in their contributory period.

A person's "contributory period", for purposes of the disability or disabled contributor's child benefit, commences on 1 January 1966 or at age 18, whichever occurs later, and ends the month the person is deemed to be disabled according to the *Canada Pension Plan*. This period excludes any months from the contributory period by reason of a previous disability and months in which the person was in receipt of family allowance payments or eligible for the Canada Child Tax Benefit while they were raising children under age seven in a year in which the person's unadjusted pensionable earnings were less than the basic exemption for the year, i.e., the "chid-rearing dropout" provisions of subsection 44.(2)(b)(iv) of the *Canada Pension Plan*.

The 1998 changes have placed greater emphasis on recent workforce attachment in the determination of eligibility for CPP disability benefits. Applicants who do not meet the requirements are denied eligibility to disability benefits. Only applicants who meet the contribution requirements are assessed to determine whether their medical condition meets the CPP definition of disability.

Bill C-36 amends the MQP for disability and disabled contributor's child benefits for those contributors with at least 25 years of valid contributions to the Plan. Contributors who fail to meet the four of the last six years requirement but who have at least 25 years of contributions could still qualify if they made valid contributions in three of the last six years included wholly or partly in their contributory period. Valid contributions in four of the last six years would continue to be required for all other CPP disability benefit applicants. As well, all applicants would still have to meet existing medical criteria to qualify for the benefits. The change in the disability contributory requirements would only affect new disability applicants on or after 1 January 2007 (the date assumed in this report to be the coming into force date of this provision).

B. Operationalization of Section 113.1(4)*(d)*

The major CPP reform package agreed to by the federal and provincial governments in 1997 included significant changes to the Plan's financing and funding provisions.

- The introduction of ***steady-state funding*** to replace pay-as-you-go financing to build a reserve of assets (equivalent over time to about five years of benefit expenditures or about 25 per cent of Plan liabilities). Investment earnings on this pool of assets would help to pay benefits when the large cohort of baby boomers retires.

- The introduction of ***incremental full funding*** that requires that changes to the CPP that increase or add new benefits be *fully funded*, i.e., that their costs be paid as the benefit is earned and that any costs associated with benefits that are paid but that have not been earned be amortized and paid for over a defined period of time consistent with common actuarial practice. This refers to section 113.1(4)*(d)* of the *Canada Pension Plan*.

> **113.1(4)** *In conducting any review required by this section and in making any recommendations, ministers shall consider…*
>
> ***(d)*** *that changes to the Act that increase benefits or add new benefits must be accompanied by a permanent increase in the contribution rates to cover the extra costs of the increased or new benefits and by a temporary increase in the contribution rates for a number of years that is consistent with common actuarial practice to fully pay any unfunded liability resulting from the increased or new benefits.*

Both of these funding principles were introduced to improve fairness and equity across generations. The move to steady-state funding eased some of the contribution burden on future generations. Under full funding, each generation that will receive a benefit enrichment is more likely to pay for it in full so that its costs is not passed on to future generations.

Section 113.1(4)*(d)* has been part of the Plan since 1997. Bill C-36 amends the Plan to provide regulation making authority to set out the calculation on the contribution rate Ministers must consider under section 113.1(4)*(d)*. The amendments will also require the Chief Actuary to report these costs in statutory actuarial reports. Other amendments clarify contribution rate setting when these costs are present.

1. Full Funding Trigger

Bill C-36 provides authority to make regulations that would specify the calculation of the full funding provision. Notably, in the view of the Office of the Chief Actuary, a change to the Act that increases benefits or add new benefits is a change that would result in the present value of expenditures over the 75-year projection period being higher than projected in the most recent actuarial report.

2. Full Funding Contribution Rates

Bill C-36 amends the Plan to require the Chief Actuary to report on the temporary and permanent incremental full funding rates required to fully pay for the increase in liabilities due to increase in benefits or new benefits. The temporary incremental full funding rate is the contribution rate required to pay for the increase in liabilities due to Plan participation prior to the effective date of the amendment and is the amount of money that must be set aside to pay for any increase in benefits or new benefits that have not been earned. The permanent incremental full funding rate or "*normal cost*" of the increase in benefits or new benefits is the amount of money that must be set aside each year to pay for the increase in liabilities due to Plan participation on or after the effective date of the amendment.

In the view of the Chief Actuary, possible future revaluation of these rates should be on the advice of the Chief Actuary.

Bill C-36 provides regulation making authority to set out the calculation of the incremental full funding rates. The Act requires that these calculations be in a manner consistent with common actuarial practice. This actuarial report sets out an approach for these calculations for the proposed disability change in Bill C-36.

The proposed amendments relating to full funding also require the Chief Actuary to state in actuarial reports the manner in which the incremental full funding rates are calculated. This is parallel to the existing requirement of the Chief Actuary to report the steady-state contribution rate and the manner in which it is calculated for the current structure of benefits, which is set out in regulation.

3. Contribution Rate Setting

Bill C-36 clarifies the provisions relating to the financial review of the Plan by Ministers, notably that Plan benefits are to be financed under one or the other of the Plan's financing objectives. It also ensures that when the scheduled contribution rate is insufficient relative to the rate set out in the most recent actuarial report, the calculation incorporates the contribution rate required to fully fund new or increased benefits.

This actuarial report includes a calculation of the contribution rate that is sufficient to sustain the current Plan under steady-state financial and the disability change under full funding.

III. Results

Throughout this report, the current Plan refers to the Plan as it exists today with its current provisions and excludes the proposed amendment of Bill C-36 to modify the disability contributory requirements for long term contributors. This section presents separate financial projections in respect of the current Plan, the amendment and the current Plan in combination with the amendment. It also shows how the incremental full funding contribution rates for the proposed amendment to the disability contributory requirements were calculated in accordance with section 113.1(4)*(d)*. As is required by the *Canada Pension Plan*, all financial estimates presented in this report are based on the 21st CPP Actuarial Report as at 31 December 2003.

A. Current Plan (Prior to Amendment)

The steady-state contribution rate of the current Plan that is applicable for years 2007 and thereafter and that is the lowest rate sufficient to sustain the current Plan over the foreseeable future without further increase is 9.77% as reported in the 21st CPP Actuarial Report. Table 1 shows the projected financial status of the current Plan with a steady-state contribution rate of 9.77% for years 2007 and thereafter while Table 2 shows the financial status of the current Plan under the legislated contribution rate of 9.90%.

Table 1: Financial Status – Current Plan before Amendment (9.77% steady-state rate)

Year	Contribution Rate	Contributions	Expenditures	Net Cash Flow	Investment Earnings	Assets at 31 Dec.	Asset/ Expenditure Ratio
	(%)	($ million)	($ million)	($ million)	($ million)	($ million)	
2007	9.77	31,469	27,412	4,057	6,848	108,762	3.78
2008	9.77	32,766	28,810	3,956	7,416	120,134	3.97
2009	9.77	34,152	30,292	3,860	8,113	132,106	4.15
2010	9.77	35,653	31,868	3,785	8,871	144,762	4.31
2015	9.77	44,981	42,022	2,959	14,258	220,769	4.96
2020	9.77	56,781	56,253	528	20,701	319,547	5.36
2025	9.77	70,211	74,887	-4,676	27,751	431,966	5.46
2030	9.77	86,855	97,015	-10,160	35,577	553,610	5.44
2050	9.77	204,928	236,858	-31,930	86,386	1,340,954	5.42
2075	9.77	585,990	678,758	-92,768	225,222	3,492,202	4.93

Table 2: Financial Status – Current Plan before Amendment (9.90% contribution rate)

Year	Contribution Rate	Contributions	Expenditures	Net Cash Flow	Investment Earnings	Assets at 31 Dec.	Asset/ Expenditure Ratio
	(%)	($ million)	($ million)	($ million)	($ million)	($ million)	
2007	9.90	31,887	27,412	4,475	6,865	109,198	3.79
2008	9.90	33,202	28,810	4,392	7,460	121,050	4.00
2009	9.90	34,606	30,292	4,314	8,188	133,553	4.19
2010	9.90	36,128	31,868	4,260	8,982	146,795	4.37
2015	9.90	45,579	42,022	3,557	14,635	226,815	5.09
2020	9.90	57,537	56,253	1,284	21,497	332,116	5.57
2025	9.90	71,145	74,887	-3,742	29,177	454,613	5.75
2030	9.90	88,011	97,015	-9,004	37,958	591,404	5.81
2050	9.90	207,655	236,858	-29,203	99,894	1,553,781	6.28
2075	9.90	593,788	678,758	-84,970	313,035	4,871,724	6.88

B. Amendment

Under Bill C-36, the minimum qualifying period for disability and disabled contributor’s child benefits is modified for those contributors with 25 or more years of contributions such that they would meet the minimum contributory requirements if they have valid contributions in three of the last six years. Valid contributions in four of the last six years would continue to be required for all other CPP disability applicants. Applicants would still have to meet the existing medical criteria to qualify for the benefits.

1. Assumptions

To estimate the cost impact of the amendment, it is necessary to evaluate the projected increase in the number of contributors who would potentially qualify for disability benefits on the basis of having sufficient contributions as a result of the new contributory requirements for disability benefits. To evaluate the increase in the number of qualifying contributors, the most recent database of record of earnings of CPP contributors was used.

The proposed amendment to the contributory requirements for disability benefits provides more flexibility for qualifying for disability benefits for contributors with 25 or more years of contributions. These contributors would meet the minimum contributory requirements for disability and disabled contributor’s child benefits if they have valid contributions in three of the last six years. Valid contributions in four of the last six years would continue to be required for all other CPP disability applicants. Applicants would still have to meet existing medical criteria to qualify for the benefits.

Tables 3 and 4 show the increase in the number and proportions of individuals qualifying due to the change in the contributory requirements for disability benefits. Under the amended contributory requirements, an additional 79,000 individuals would qualify in 2003 (28,000 females and 51,000 males). About 67,000 would have an attained age of 50 and over in 2003.

Table 3: Increase in Qualifying Individuals in 2003 (Age and Sex)

Attained Age as at 31 Dec. 2003	Increase in Number Qualifying			Increase in Proportion Qualifying		
	Females	Males	Both Sexes	Females	Males	Both Sexes
Less than 40	-	-	-	-	-	-
40-49	4,093	7,610	11,703	0.2%	0.4%	0.3%
50-54	8,099	14,527	22,626	1.2%	1.9%	1.6%
55-59	13,730	22,715	36,445	2.7%	3.7%	3.2%
60-64	2,453	5,958	8,411	1.5%	2.6%	2.1%
All Ages	**28,375**	**50,810**	**79,185**	**0.5%**	**0.7%**	**0.6%**

Table 4: Increase in Qualifying Individuals in 2003 (Years of Contributions)

Number of Years of Contributions as at 31 Dec. 2003	Increase in Number Qualifying			Increase in Proportion Qualifying		
	Females	Males	Both Sexes	Females	Males	Both Sexes
Less than 25	-	-	-	-	-	-
25 and Over	28,375	50,810	79,185	2.2%	2.4%	2.3%
All Years	**28,375**	**50,810**	**79,185**	**0.5%**	**0.7%**	**0.6%**

Adjustments to Disability Eligibility Rates

Table 5 shows the adjustment factors by age and sex that are used to increase the 21st CPP Actuarial Report disability eligibility rates for years 2007 and thereafter to reflect the amended contributory requirements. The adjustments are derived as the ratio of the number of individuals qualifying under the amended contributory requirements to those qualifying under the current contributory requirements. Note that the disability eligibility rates only relate to the proportion of individuals who meet the disability benefit contribution requirements. These individuals would still need to qualify for medical reasons to receive a disability benefit. For this purpose, the disability incidence rates of the 21st CPP Actuarial Report remain unchanged. Sensitivity tests using alternative disability incidence rates are presented in section IV.

The adjustment factors for 2003 are projected for years 2004 and thereafter using historical trends observed over the last 10 years (1994-2003). The 2003 disability eligibility adjustment factors for males are projected for 10 years and are assumed to remain at their projected 2013 levels for thereafter. To account for the projected increase in the labour force participation of females and the fact that the proportion of females with 25 years or more of participation will increase in the future, the difference between female and male adjustment factors is assumed to gradually reduce until 2030.

Table 5: Disability Eligibility Rates Adjustment Factors (2007+)

	Eligibility Rates Adjustment Factors for Years 2007 and Thereafter			
	Females		Males	
Age Group	**2007**	**2030+**	**2007**	**2013+**
Less than 40	1.000	1.000	1.000	1.000
40-44	1.000	1.000	1.000	1.000
45-49	1.007	1.011	1.011	1.013
50-54	1.017	1.031	1.027	1.035
55-59	1.037	1.060	1.052	1.066
60-64	1.022	1.042	1.038	1.048

2. Incremental Full Funding Rates in Respect of Section 113.1(4)*(d)*

Bill C-36 is the first amendment to the Plan since 1 January 1998 that invokes the application of section 113.1(4)*(d)* of the *Canada Pension Plan.* Table 6 below presents the projected expenditures under both the current Plan (i.e., as shown in the 21st Actuarial Report) and under the amended Plan. The present value of the difference in expenditures between the amended Plan and current Plan as at 1 January 2007, using a discount rate equal to the projected overall rate of return on CPP assets, is also presented. As shown, the present value as at 1 January 2007 of the difference in expenditures over the projection period is greater than zero, and thus triggers the application of section 113.1(4)*(d)*. Since the application of section 113.1(4)*(d)* is triggered, the next step is to determine the required temporary and permanent incremental full funding rates.

Table 6: Change in Expenditures due to Amendment

Year	**Current Plan Expenditures**	**Amended Plan Expenditures**	**Change in Expenditures**
	($ million)	**($ million)**	**($ million)**
2007	27,412	27,417	5
2008	28,810	28,823	13
2009	30,292	30,313	21
2010	31,868	31,897	29
2015	42,022	42,089	67
2020	56,253	56,360	107
2025	74,887	75,032	145
2030	97,015	97,207	192
2050	236,858	237,378	520
2075	678,758	680,207	1,448
Present value as at 1/1/2007 of the change in expenditures over the projection period			**2,660**

Temporary Full Funding Rate

Since new disability benefits coming into pay on or after the assumed effective date of the amendment (1 January 2007) are based on disabled contributors' Plan participation both before and after the effective date of the amendment, there is a portion of the projected increase in liabilities that relates to Plan participation prior to the effective date. The increase in past liabilities is calculated as the present value as at 1 January 2007 of the projected increase in expenditures relating to Plan participation prior to the effective date and is estimated at $123 million.

The increase in past liabilities is amortized over fifteen years (2007-2021) with a temporary full funding contribution rate of 0.0030%. This amortization period is consistent with common actuarial practice, as provided in the legislation, and is appropriate in this circumstance since the change does not put the financial sustainability of the plan at risk. The temporary full funding rate is equal to the ratio of the increase in past liabilities to the present value as at 1 January 2007 of contributory earnings over the period 2007 through 2021.

Permanent Full Funding Rate or "Normal Cost"

The increase in liability due to the disabled contributors' Plan participation on or after 1 January 2007 is estimated at $2.5 billion and is fully funded with a permanent contribution rate of 0.0188%. This rate is referred to as the "*normal cost*" of the amendment. The normal cost is equal to the ratio of the increase in liabilities due to future participation to the present value of future contributory earnings as at 1 January 2007.

The sum of the permanent and temporary incremental full funding rates for the first fifteen years (2007-2021) is 0.0218% (0.0030% plus 0.0188%) and 0.0188% for years 2022 and thereafter. The rounded incremental full funding rates are 0.02% for years 2007 through 2021 and 0.02% for years 2022 and thereafter. The Office of the Chief Actuary will review the incremental full funding rates on a periodic basis to account for actual experience and any change in assumptions.

Table 7 below summarizes the above results while Table 8 presents the same information but in the form of a financial balance sheet as at 31 December 2006.

Table 7: Incremental Full Funding Rates in Respect of Section 113.1(4)*(d)*

Present Value of Contributory Earnings (2007-2021)	Increase in Liability due to Participation Prior to Effective Date	Temporary Full Funding Rate (2007-2021)	Present Value of Contributory Earnings (2007+)	Increase in Liability due to Participation on or After the Effective Date	Permanent Full Funding Rate or "Normal Cost" (2007+)	Permanent and Temporary Cost (2007-2021)
(A)*	**(B)****	**(C) = (B)/(A)**	**(D)***	**(E)****	**(F) = (E)/(D)**	**(G) = (C) + (F)**
($ billion)	($ million)		($ billion)	($ million)		
4,062	123	0.0030%	13,477	2,537	0.0188%	0.0218%

* As at 1/1/2007 based on the contributory earnings as projected under the 21st CPP Actuarial Report using a discount rate equal to the overall rate of return on CPP assets.

** Present value taken as at 1/1/2007 using a discount rate equal to the overall rate of return on CPP assets of the increase in benefits due to participation prior to the effective date (B) or on or after the effective date (E).

Table 8: Balance Sheet as at 31 December 2006 in Respect of Amendment

Assets	**($ million)**
Assets as at 31 December 2006	-
Present value of temporary contributions (2007-2021)	123
Present value of permanent contributions (2007+)	2,537
Total Assets	**2,660**
Actuarial Liabilities	
Liability due to participation prior to 1 January 2007	123
Liability due to participation on or after 1 January 2007	2,537
Total Actuarial Liabilities	**2,660**
Funding Ratio (ratio of assets to liabilities)	**100%**

3. Financial Status

Table 9 shows the projected financial status of the amendment using the rounded full funding contribution rate of 0.02% for years 2007 and thereafter.

Table 9: Financial Status – Amendment

Year	**Full Funding Rates**	**Contributions**	**Expenditures**	**Net Cash Flow**	**Investment Earnings**	**Assets at 31 Dec.**	**Asset/ Expenditure Ratio**
	(%)	($ million)	($ million)	($ million)	($ million)	($ million)	
2007	0.02	64	5	59	2	62	4.77
2008	0.02	67	13	54	6	122	5.81
2009	0.02	70	21	49	9	181	6.24
2010	0.02	73	29	44	13	238	6.61
2015	0.02	92	67	25	33	526	7.01
2020	0.02	117	107	10	54	832	7.30
2025	0.02	144	145	-1	76	1,179	8.24
2030	0.02	178	192	-14	102	1,590	8.32
2050	0.02	420	520	-100	248	3,852	7.58
2075	0.02	1,201	1,449	-248	708	10,997	7.78

C. Current Plan with Amendment

This section presents the number of disability beneficiaries and disabled contributor's child beneficiaries resulting from the amendment as well as the financial status of the Plan under three possible contribution rate scenarios (i.e., 9.79%, 9.92% or 9.90%) all of which ensure the financial sustainability of the Plan.

The number of disability beneficiaries and disabled contributor's child beneficiaries depends on the provision of the Plan and not the funding approach. Table 10 shows the projected number of disability beneficiaries under the current Plan and the additional beneficiaries resulting from the amendment. In 2007, there would be 940 new disability beneficiaries and 260 new disabled contributor's child beneficiaries. By 2050, the number of additional disability beneficiaries would be 13,200 higher (2.5% higher) while the number of additional disabled contributor's child beneficiaries would be 2,800 higher (1.5% higher) than projected for the current Plan.

Table 10: Number of Disability Beneficiaries

	Disability Beneficiaries				Disabled Contributor's Child Beneficiaries			
Year	Current Plan	Increase due to Amendment		Total	Current Plan	Increase due to Amendment		Total
	#	#	%	#	#	#	%	#
2007	368,704	940	0.3%	369,644	123,834	257	0.2%	124,091
2008	377,933	1,880	0.5%	379,813	124,720	477	0.4%	125,197
2009	387,418	2,793	0.7%	390,211	125,584	667	0.5%	126,251
2010	396,951	3,695	0.9%	400,646	126,418	839	0.7%	127,257
2015	429,300	7,553	1.8%	436,853	131,217	1,493	1.1%	132,710
2020	454,874	9,841	2.2%	464,715	138,596	1,832	1.3%	140,428
2025	462,112	10,730	2.3%	472,842	148,578	2,022	1.4%	150,600
2030	457,019	10,760	2.4%	467,779	159,953	2,229	1.4%	162,182
2050	526,456	13,212	2.5%	539,668	178,434	2,784	1.6%	181,218
2075	580,907	14,277	2.5%	595,184	200,283	3,045	1.5%	203,328

1. Financial Status with a Minimum Contribution Rate of 9.79%

Under this funding approach, the current Plan contribution rate is set to the minimum value that Ministers shall consider when making recommendations, i.e., to the steady-state contribution rate of 9.77% with the rounded incremental full funding rate of 0.02% added. Under this approach, the total contribution rate becomes 9.79% for years 2007 and thereafter.

As presented in Tables 11 and 12, the financial status of the amended Plan using a minimum contribution rate of 9.79% would be as follows:

- By 2050, expenditures are $520 million or 0.2% higher than projected for the current Plan.
- By 2050, the asset to expenditure ratio would be 5.42, the same as projected for the current Plan using the 9.77% steady-state contribution rate.

Table 11: Financial Status – (amended Plan with 9.79% rate)

	Current Plan: Steady-State Funding				Amendment: Full Funding				Amended Plan
Year	Contri-bution Rate	Contri-butions	Expen-ditures	Assets at 31 Dec.	Contri-bution Rate	Contri-butions	Expen-ditures	Assets at 31 Dec.	Total Assets at 31 Dec.
	(%)	($ million)	($ million)	($ million)	(%)	($ million)	($ million)	($ million)	($ million)
2007	9.77	31,469	27,412	108,762	0.02	64	5	62	108,824
2008	9.77	32,766	28,810	120,134	0.02	67	13	122	120,256
2009	9.77	34,152	30,292	132,106	0.02	70	21	181	132,287
2010	9.77	35,653	31,868	144,762	0.02	73	29	238	145,000
2015	9.77	44,981	42,022	220,769	0.02	92	67	526	221,295
2020	9.77	56,781	56,253	319,547	0.02	117	107	832	320,379
2025	9.77	70,211	74,887	431,966	0.02	144	145	1,179	433,145
2030	9.77	86,855	97,015	553,610	0.02	178	192	1,590	555,200
2050	9.77	204,928	236,858	1,340,954	0.02	420	520	3,852	1,344,806
2075	9.77	585,990	678,758	3,492,202	0.02	1,201	1,449	10,997	3,503,199

Table 12: Asset to Expenditure Ratios (amended Plan with 9.79% rate)

Year	Current Plan with a Contribution Rate of 9.77% for 2007+	Amendment on a Stand-Alone Basis with a Contribution Rate of 0.02% for 2007+	Amended Plan with a Contribution Rate of 9.79% for 2007+
2007	3.78	4.77	3.78
2008	3.97	5.81	3.97
2009	4.15	6.24	4.15
2010	4.31	6.61	4.32
2015	4.96	7.01	4.96
2020	5.36	7.30	5.36
2025	5.46	8.24	5.47
2030	5.44	8.32	5.44
2050	5.42	7.58	5.42
2075	4.93	7.78	4.94

2. Financial Status with a Contribution Rate of 9.92%

Tables 13 and 14 present the financial status of amended Plan if the current legislated rate of 9.90% for the current Plan remains unchanged and the incremental full funding rate of 0.02% is added to it. The total contribution rate becomes 9.92% for years 2007 and thereafter. Under this approach, the manoeuvring room between the current legislated rate of 9.90% and the steady-state contribution rate of 9.77% is not used to finance the benefit improvement and as a result, the projected financial status of the current Plan remains unchanged.

The financial status of the amended Plan with a contribution rate of 9.92% would be as follows:

- By 2050, expenditures are $520 million or 0.2% higher than projected for the current Plan.

- By 2050, assets would be 3.9 billion higher than projected for the current Plan using the legislated contribution rate of 9.90%.

- By 2050, the asset to expenditure ratio would be 6.28, the same as projected for the current Plan using the legislated contribution rate of 9.90%.

Table 13: Financial Status – (amended Plan with 9.92% rate)

	Current Plan: Steady-State Funding				Amendment: Full Funding				Amended Plan
Year	Contri-bution Rate	Contri-butions	Expen-ditures	Assets at 31 Dec.	Contri-bution Rate	Contri-butions	Expen-ditures	Assets at 31 Dec.	Total Assets at 31 Dec.
	(%)	($ million)	($ million)	($ million)	(%)	($ million)	($ million)	($ million)	($ million)
2007	9.90	31,887	27,412	109,198	0.02	64	5	62	109,260
2008	9.90	33,202	28,810	121,050	0.02	67	13	122	121,172
2009	9.90	34,606	30,292	133,553	0.02	70	21	180	133,733
2010	9.90	36,128	31,868	146,795	0.02	73	29	237	147,032
2015	9.90	45,579	42,022	226,815	0.02	92	67	526	227,341
2020	9.90	57,537	56,253	332,116	0.02	117	107	832	332,948
2025	9.90	71,145	74,887	454,613	0.02	144	145	1,178	455,791
2030	9.90	88,011	97,015	591,404	0.02	178	192	1,590	592,994
2050	9.90	207,655	236,858	1,553,781	0.02	420	520	3,853	1,557,634
2075	9.90	593,788	678,758	4,871,724	0.02	1,201	1,449	11,000	4,882,724

Table 14: Asset to Expenditure Ratios (amended Plan with 9.92% rate)

Year	Current Plan with a Contribution Rate of 9.90% for 2007+	Amendment on a Stand-Alone Basis with a Contribution Rate of 0.02% for 2007+	Amended Plan with a Contribution Rate of 9.92% for 2007+
2007	3.79	4.77	3.79
2008	4.00	5.81	4.00
2009	4.19	6.24	4.19
2010	4.37	6.61	4.38
2015	5.09	7.01	5.10
2020	5.57	7.30	5.57
2025	5.75	8.24	5.75
2030	5.81	8.32	5.81
2050	6.28	7.58	6.28
2075	6.88	7.78	6.88

3. Financial Status with a Legislated Contribution Rate of 9.90%

Tables 15 and 16 present the financial status of the amended Plan if the total legislated contribution rate is to remain at 9.90% for years 2007 and thereafter. Note that no additional contribution revenues would be generated under this approach since the total contribution rate would be equal to the current legislated contribution rate of the current Plan. This means that part of the financial manoeuvring room between the legislated contribution rate of 9.90% and the steady-state contribution rate of 9.77% of the current Plan is used to finance the amendment. This approach is equivalent to financing the current Plan on a steady-state funding basis with a contribution rate of 9.88% and financing the amendment to the contributory requirements for disability benefits on a full funding basis with a contribution rate of 0.02%.

The financial status of the amended Plan using a contribution rate of 9.90% would be as follows:

- By 2050, expenditures would be $520 million or 0.2% higher than projected under the 21st CPP Actuarial Report.
- By 2050, CPP assets would be $29 billion lower than projected under the 21st CPP Actuarial Report.
- By 2050, CPP the asset to expenditure ratio would be 6.2 or 0.1 lower than projected in the 21st CPP Actuarial Report.

Table 15: Financial Status – (amended Plan with 9.90% rate)

	Current Plan: Steady-State Funding				Amendment: Full Funding				Amended Plan	21st CPP Report
Year	Contri-bution Rate	Contri-butions	Expen-ditures	Assets at 31 Dec.	Contri-bution Rate	Contri-butions	Expen-ditures	Assets at 31 Dec.	Total Assets at 31 Dec.	Total Assets at 31 Dec.
	(%)	($ million)	($ million)	($ million)	(%)	($ million)	($ million)	($ million)	($ million)	($ million)
2007	9.88	31,823	27,412	109,131	0.02	64	5	62	109,193	109,198
2008	9.88	33,135	28,810	120,909	0.02	67	13	122	121,031	121,050
2009	9.88	34,536	30,292	133,330	0.02	70	21	181	133,511	133,553
2010	9.88	36,055	31,868	146,482	0.02	73	29	238	146,720	146,795
2015	9.88	45,487	42,022	225,885	0.02	92	67	526	226,411	226,815
2020	9.88	57,421	56,253	330,182	0.02	116	107	832	331,014	332,116
2025	9.88	71,002	74,887	451,129	0.02	143	145	1,178	452,307	454,613
2030	9.88	87,833	97,015	585,590	0.02	178	192	1,589	587,179	591,404
2050	9.88	207,235	236,858	1,521,039	0.02	420	520	3,851	1,524,890	1,553,781
2075	9.88	592,588	678,758	4,659,497	0.02	1,201	1,449	10,988	4,670,485	4,871,724

Table 16: Asset to Expenditure Ratios (amended Plan with 9.90% rate)

Year	Current Plan with a Contribution Rate of 9.88% for 2007+	Amendment on a Stand-Alone Basis with a Contribution Rate of 0.02% for 2007+	Amended Plan with a Contribution Rate of 9.90% for 2007+	21st CPP Report with a Contribution Rate of 9.90% for 2007+
2007	3.79	4.77	3.79	3.79
2008	3.99	5.81	3.99	4.00
2009	4.18	6.24	4.19	4.19
2010	4.36	6.61	4.37	4.37
2015	5.07	7.01	5.07	5.09
2020	5.54	7.30	5.54	5.57
2025	5.70	8.24	5.71	5.75
2030	5.75	8.32	5.76	5.81
2050	6.14	7.58	6.15	6.28
2075	6.58	7.78	6.58	6.88

IV. Sensitivity Tests

This actuarial report on the Canada Pension Plan is based on the projection of its revenues and expenditures over a long period of time. The information required by statute, which is presented in Section III of this report, has been derived using best-estimate assumptions regarding future demographic and economic trends. Both the length of the projection period and the number of assumptions required ensure that actual future experience will not develop precisely in accordance with the best-estimate assumptions. For this purpose, two sensitivity tests have been performed using alternative disability incidence rates assumptions.

The best-estimate assumption in respect of disability incidence rates used in main financial projections of this report is the same as under the 21st CPP Actuarial Report. The sex-distinct disability incidence rates at any given age are the number of new disability beneficiaries divided by the total number of people eligible for the disability benefit. Based on the historical Plan experience, the ultimate overall incidence rates for years 2008 and thereafter for ages 50 to 64 have been assumed at 9.0 per thousand eligible for males and at 7.7 per thousand eligible for females.

Due to the uncertainty on how the proposed change to the disability contributory requirements may affect disability incidence rates, two sensitivity tests on this assumption have been prepared to show the possible range on the value of the incremental full funding rates presented in this report.

For the low-cost scenario, disability incidence rates for ages 50 to 64 experienced by the additional individuals becoming eligible due to the change in the disability contributory requirements are assumed to reach ultimate levels in 2008 of 6.2 per thousand for males and 5.5 per thousand for females.

For the high-cost scenario, disability incidence rates for ages 50 to 64 experienced by the additional individuals becoming eligible due to the change in the disability contributory requirements are assumed to reach ultimate levels in 2008 of 11.7 per thousand for males and 9.9 per thousand for females.

Table 17 presents the incremental full funding rates that result using these alternative disability incidence rates assumptions.

Table 17: Sensitivity Tests

Disability Incidence Rates Assumption	Ultimate Incidence Rates per Thousand New Eligible Aged 50 to 64		Temporary Full Funding Rate (2007-2021)	Permanent Full Funding Rate or "Normal Cost" (2007+)	Normal and Temporary Cost (2007-2021)
	Males	Females			
Low-Cost	6.2	5.5	0.0022%	0.0136%	0.0159%
Best-Estimate	9.0	7.7	0.0030%	0.0188%	0.0218%
High-Cost	11.7	9.9	0.0038%	0.0239%	0.0277%

V. Conclusion

The actuarial projections of the financial status of the Canada Pension Plan presented in this report reveal that if the Plan is amended as per Bill C-36, the minimum contribution rate required to financially sustain the current Plan would be 9.77% for years 2007 and thereafter while an additional contribution rate of 0.02% for years 2007 and thereafter would be required to fully fund the amendment according to the requirements of section 113.1(4)*(d)* of the *Canada Pension Plan*.

This report also confirms that if the current Plan is amended, a legislated contribution rate of 9.90% for years 2007 and thereafter would be sufficient to financially sustain the current Plan on a steady-state funding basis with a contribution rate of 9.88% and to fully fund the amendment to the contributory requirements for disability benefits with a contribution rate of 0.02%. Assets would accumulate to $147 billion (4.4 years of annual Plan expenditures) by 2010 and $1,525 billion by 2050. Keeping the legislated contribution rate unchanged at 9.90% results in part of the maneuvering room between the legislated contribution rate of 9.90% and the current Plan steady-state contribution rate of 9.77% being used to fully fund the amendment and as a result, total CPP assets would be $29 billion lower than projected under the 21st CPP Actuarial Report by 2050. By 2050, assets would cover 6.15 as opposed to 6.28 years of annual Plan expenditures.

VI. Acknowledgements

The following people assisted in the preparation of this report:

Yu Cheng
Monique Denner
Patrick Dontigny
Sari Harrel, A.S.A.
Michel Millette F.S.A., F.C.I.A.

VII. Actuarial Opinion

In our opinion, considering that this 22nd Actuarial Report was prepared pursuant to the *Canada Pension Plan*:

- the methodology employed is appropriate and consistent with sound actuarial principles;
- the data on which this report is based are sufficient and reliable; and
- the assumptions used, are in aggregate, reasonable and appropriate.

Based on the results of this valuation, we thereby certify that the incremental contribution rate required to fully fund the proposed amendment to the disability benefits contributory requirements in accordance with section 113.1(4)*(d)* of the *Canada Pension Plan* is 0.02% of contributory earnings for years 2007 and thereafter.

This report has been prepared, and our opinions given, in accordance with accepted actuarial practice.

Michel Montambeault

Jean-Claude Ménard

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

Ottawa, Canada
28 November 2006