Actuarial Report

Updating the Actuarial Report on the

Pension Plan for the Public Service of Canada

As at 31 March 2011

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

Canada

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28 January 2013

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

Dear Minister:

Pursuant to section 4 of the *Public Pensions Reporting Act*, which provides that an actuarial report shall be prepared by the Chief Actuary when an amendment which affects the cost of benefits or creates an initial unfunded liability is made to the pension plan established under the *Public Service Superannuation Act*, I am pleased to submit the report on the actuarial review as of the effective date of the amendment, that is 1 January 2013. This actuarial review is in respect of pension benefits and contributions which are defined by Parts I, III and IV of the *Public Service Superannuation Act*, the *Special Retirement Arrangements Act* and the *Pension Benefits Division Act*.

Yours sincerely,

Jean-Claude Ménard

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

This actuarial report on the pension plan for the Public Service of Canada has been prepared in compliance with section 4 of the *Public Pensions Reporting Act* (PPRA), which provides that:

"Where an amendment is made to a pension plan referred to in subsection 3(1) and the amendment affects the cost of benefits or creates an initial unfunded liability, the Minister shall cause the Chief Actuary to conduct an actuarial review of the plan as of the effective date of the amendment."

The most recent actuarial report was made as at 31 March 2011. The date of the next periodic review is scheduled to occur no later than 31 March 2014.

Bill C-45, *a second Act to implement certain provisions of the budget tabled in Parliament on March 29, 2012 and other measures*, was tabled in the House of Commons on 18 October 2012 and received Royal Assent on 14 December 2012. Division 23 of Part 4 of Bill C-45 amends the *Public Service Superannuation Act* by increasing the pensionable age by five years for contributors entering the plan on or after 1 January 2013, and by increasing the maximum share of the current service cost contribution for contributors from 40% to 50%.

A. Purpose of the Actuarial Report

The purpose of this actuarial report is to show the effect of Division 23 of Part 4 of the *Jobs and Growth Act, 2012*, on the cost of the pension plan.

B. Valuation Basis

This report has been prepared on the basis of the most recent actuarial report, which was made as at 31 March 2011 pursuant to section 3 of the PPRA, in respect of pension benefits and contributions defined by Parts I, III, and IV of the *Public Service Superannuation Act* (PSSA) and the *Special Retirement Arrangements Act*, which covers the Retirement Compensation Arrangement (RCA). The actuarial report was tabled in the House of Commons on 21 June 2012.

Division 23 of Part 4 of Bill C-45 amends the PSSA to provide that plan members pay no more than 50% of the current service cost of the pension plan. Member contribution rates under the RCA are equal to those under the PSSA. In addition, the normal and early pensionable ages are raised by 5 years in respect of members who start contributing to the plan on or after 1 January 2013. These new pension benefit provisions are summarized in Appendix 1.

The valuation was prepared using accepted actuarial practices in Canada. The valuation methodology, shown in Appendix 2 used to determine the current service costs is based on the methodology shown in Appendix 5 of the Actuarial Report as at 31 March 2011, with modifications to account for the two separate groups of members (pre-2013 and post-2012 members, hereinafter referred to as Group 1 and Group 2, respectively, as described in section III).

The valuation assumptions are those shown in Appendices 6 to 8 of the Actuarial Report as at 31 March 2011. Additional best-estimate demographic assumptions were required for Group 2 contributors to account for the deferral of the immediate pension by five years. The new Group 2 demographic assumptions, shown in Appendix 3 of this report, are individually reasonable for the purpose of the valuation at the date of this report.

C. Main Findings

The proposed revised amounts to be credited to the Pension Fund are shown on a calendar year basis in this section beginning with calendar year 2013, which corresponds to the first calendar year following the 1 January 2013 implementation date of the new plan provisions. Valuation results on a plan year[1] basis are shown in Section IV.

1. Financial Position - Superannuation Account, Pension Fund and RCA No. 1 and No. 2

The legislated changes of Division 23 of Part 4 of Bill C-45 have no impact on the accrued benefit earned as at 1 January 2013. Consequently, no balance sheet results for the Superannuation Account, the Pension Fund, or the RCA No.1 and No. 2 Accounts are required in this report.

2. Pension Fund Current Service Cost

The current service cost is borne jointly by the members and the government. With the implementation of the new plan provisions for the PSSA, member contribution rates will be increased gradually over the next five calendar years so that the 50:50 employee/government cost sharing ratio will be reached during calendar year 2017. The following table shows the new contribution rates as a percentage of salary for the next three calendar years.

Table 1 Member Contribution Rates

	Group 1 Contributors		Group 2 Contributors	
Calendar year	Below YMPE	Above YMPE	Below YMPE	Above YMPE
2013	6.85%	9.20%	6.27%	7.63%
2014	7.50%	9.80%	6.62%	7.89%
2015	8.15%	10.40%	7.05%	8.54%

The following table shows the projected current service cost of the amended pension plan, expressed as a percentage of the expected pensionable payroll and in millions of dollar for the three calendar years following the effective date of the plan amendment. The ratio of government current service cost to contributors current service cost is also shown.

[1] Any reference to a given plan year in this report should be taken as the 12-month period ending 31 March of the given year.

a) Group 1 Contributors

Table 2 Current Service Cost on a Calendar Year Basis (Group 1)

Calendar Year	Current Service Cost ($ millions)			Current Service Cost as a percentage of pensionable payroll			Ratio of Government to Contributors Current Service Cost
	Contributors	Government	Total	Contributors	Government	Total	
2013	1,587.6	2,608.7	4,196.3	7.60	12.49	20.09	1.64
2014	1,710.2	2,487.1	4,197.3	8.25	11.99	20.24	1.45
2015	1,832.3	2,347.9	4,180.2	8.90	11.41	20.31	1.28

b) Group 2 Contributors

Table 3 Current Service Cost on a Calendar Year Basis (Group 2)

Calendar Year	Current Service Cost ($ millions)			Current Service Cost as a percentage of pensionable payroll			Ratio of Government to Contributors Current Service Cost[1]
	Contributors	Government	Total	Contributors	Government	Total	
2013	6.6	10.3	16.9	6.69	10.53	17.22	1.56
2014	31.1	44.4	75.5	7.02	10.01	17.03	1.43
2015	86.7	111.1	197.8	7.46	9.56	17.02	1.28

3. RCA No. 1 Current Service Cost

The following table shows the projected current service cost of the amended plan, expressed as a percentage of the expected pensionable payroll and in millions of dollar for the three calendar years following the effective date of the plan amendments. The ratio of government current service cost to contributors current service cost is also shown.

Table 4 RCA No. 1 Current Service Cost on a Calendar Year Basis

Calendar Year	Current Service Cost ($ millions)			Current Service Cost as a percentage of pensionable payroll			Ratio of Government to Contributors Current Service Cost[1]
	Contributors	Government	Total	Contributors	Government	Total	
2013	8.3	66.7	75.0	0.04	0.32	0.36	8.00
2014	8.7	66.2	74.9	0.04	0.31	0.35	7.59
2015	9.4	67.4	76.8	0.04	0.31	0.35	7.13

[1] The ratio of government to contributors current service cost has been determined using the unrounded figures of both government and contributors in order to provide a better progression of the ratio between calendar year 2013 and 2015.

II. Introduction

This report has been prepared in compliance with section 4 of the *Public Pensions Reporting Act*, which provides that:

"Where an amendment is made to a pension plan referred to in subsection 3(1) and the amendment affects the cost of benefits or creates an initial unfunded liability, the Minister shall cause the Chief Actuary to conduct an actuarial review of the plan as of the effective date of the amendment."

Division 23 of Part 4 of Bill C-45 makes amendments to the pension plan with respect to the normal and early retirement age and the contribution rates as described in section III below.

III. Description of Division 23 of Part 4 of Bill C-45

Bill C-45, *a second Act to implement certain provisions of the budget tabled in Parliament on March 29, 2012 and other measures*, was tabled in the House of Commons on 18 October 2012 and received Royal Assent on 14 December, 2012. Division 23 of Part 4 of Bill C-45 amends the *Public Service Superannuation Act* by increasing the pensionable age by five years for contributors entering the plan on or after 1 January 2013, and by increasing the maximum share of the current service cost contribution for contributors from 40% to 50%.

In this report, Division 23 of Part 4 of Bill C-45 amends the *Public Service Superannuation Act* in respect of the following:

A. Group 1 vs. Group 2 Contributors

Several changes coming into effect as a result of Division 23 of Part 4 of Bill C-45 will result in different provisions for existing plan members and new plan members. Effective 1 January 2013, contributors will be classified as either Group 1or Group 2. Existing contributors who were required to contribute prior to 1 January 2013 will be classified as Group 1. New members required to contribute on or after 1 January 2013 will be classified as Group 2. However, employees of the Correctional Service of Canada (CSC), whom are members of the public service pension plan, will be required to pay the same contribution rates as Group 1 contributors whether they have been hired before or after 1 January 2013.

B. Retirement Age

The plan provisions in effect before 1 January 2013, as they relate to retirement age, remain unchanged for Group 1 contributors. The pensionable age for Group 2 contributors is five years older than for Group 1 contributors, so that a Group 2 contributor can opt for an immediate annuity at age 65, while a Group 1 contributor is eligible at age 60. The eligibility ages for all forms of retirement benefit are described in Appendix 1.

C. Contribution Rates

Effective 1 January 2013, member contribution rates will be determined separately for Group 1 and Group 2. Furthermore, the rates will be limited such that the total amount of contributions for each group does not exceed 50% of the current service cost of that group, with the objective that, over time, member contributions equal those of the government. The government is expecting that the 50:50 current service cost sharing ratio will be attained in calendar year 2017. The current service cost-sharing objective is increased from 40% to 50%.

IV. Results

This section presents the financial projections in respect of the current plan and the amended plan as at 1 January 2013. These estimates are based on those of the actuarial report as at 31 March 2011.

A. Financial Position - Superannuation Account, Pension Fund and RCA No. 1 and No. 2 Accounts

Since the plan amendments have no financial impact on the accrued benefit earned prior to the implementation date of the new plan provisions, there is no effect on the balance sheets of the Superannuation Account, the Pension Fund nor the RCA No. 1 and No. 2 Accounts. Consequently, the balance sheet of these accounts and fund are not reported.

B. PSSA – Pension Fund Current Service Cost

The Pension Fund projected current service cost of the existing and amended plans, expressed as a percentage of the expected pensionable payroll and in millions of dollars, is shown for the five plan years following the effective date of the plan amendments. The ratio of government current service cost to contributors current service cost is also shown.

1. Group 1 Contributors

Table 5 Current Service Cost on a Plan Year Basis - Existing Plan

Plan Year	Current Service Cost ($ millions)			Current Service Cost as a percentage of pensionable payroll			Ratio of Government to Contributors Current Service Cost
	Contributors	Government	Total	Contributors	Government	Total	
2014	1,549.2	2,684.5	4,233.7	7.37	12.77	20.14	1.73
2015	1,610.2	2,691.1	4,301.3	7.58	12.68	20.26	1.67
2016	1,664.8	2,779.9	4,444.7	7.60	12.68	20.28	1.67
2017	1,740.1	2,909.2	4,649.4	7.61	12.72	20.33	1.67
2018	1,821.1	3,062.7	4,883.8	7.61	12.80	20.41	1.68

Table 6 Current Service Cost on a Plan Year Basis (Group 1) -Amended Plan

Plan Year	Current Service Cost ($ millions)			Current Service Cost as a percentage of pensionable payroll			Ratio of Government to Contributors Current Service Cost
	Contributors	Government	Total	Contributors	Government	Total	
2014	1,620.9	2,587.2	4,208.0	7.76	12.38	20.14	1.60
2015	1,739.9	2,453.7	4,193.7	8.41	11.86	20.27	1.41
2016	1,863.2	2,312.7	4,175.8	9.07	11.25	20.32	1.24
2017	1,984.6	2,178.2	4,162.9	9.72	10.67	20.39	1.10
2018	2,076.6	2,086.9	4,163.5	10.23	10.29	20.52	1.00

Projected current service costs shown in Table 6 are based on member contribution rates shown in Appendix 1.

2. Group 2 Contributors

Since the pension plan provisions for Group 2 contributors come into effect on 1 January 2013, there is no comparison basis for the projected current service cost.

Table 7 Current Service Cost on a Plan Year Basis (Group 2) -Amended Plan

Plan Year	Current Service Cost ($ millions)			Current Service Cost as a percentage of pensionable payroll			Ratio of Government to Contributors Current Service Cost[1]
	Contributors	Government	Total	Contributors	Government	Total	
2014	8.7	13.7	22.5	6.69	10.53	17.22	1.57
2015	38.6	54.6	93.1	7.04	9.97	17.01	1.42
2016	102.7	129.9	232.6	7.51	9.50	17.01	1.26
2017	199.0	222.3	421.3	8.06	9.01	17.07	1.12
2018	312.3	312.2	624.5	8.60	8.59	17.19	1.00

C. RCA No. 1 Account

The following table shows the projected current service cost of the existing and amended plans, expressed as a percentage of the expected pensionable payroll and in millions of dollar for the five plan years following the implementation of the plan amendments. The ratio of government current service cost to contributors current service cost is also shown.

Table 8 RCA No. 1 Current Service Cost on a Plan Year Basis - Existing Plan

Plan Year	Current Service Cost ($ millions)			Current Service Cost as a percentage of pensionable payroll			Ratio of Government to Contributors Current Service Cost[1]
	Contributors	Government	Total	Contributors	Government	Total	
2014	7.9	66.9	74.8	0.04	0.32	0.36	8.49
2015	8.0	66.3	74.3	0.04	0.31	0.35	8.24
2016	8.3	67.9	76.2	0.04	0.31	0.35	8.20
2017	8.6	71.1	79.7	0.04	0.31	0.35	8.29
2018	8.9	74.7	83.6	0.04	0.31	0.35	8.42

[1] The ratio of government to contributors current service cost has been determined using the unrounded figures of both government and contributors in order to provide a better progression of the ratio between plan year 2014 and 2018.

Table 9 RCA No. 1 Current Service Cost on a Plan Year Basis - Amended Plan

Plan Year	Current Service Cost ($ millions)			Current Service Cost as a percentage of pensionable payroll			Ratio of Government to Contributors Current Service Cost[1]
	Contributors	Government	Total	Contributors	Government	Total	
2014	8.3	66.6	75.0	0.04	0.32	0.36	8.02
2015	8.9	66.0	74.9	0.04	0.31	0.35	7.45
2016	9.6	67.9	77.5	0.04	0.31	0.35	7.04
2017	10.5	71.7	82.2	0.05	0.31	0.36	6.81
2018	11.3	76.1	87.4	0.05	0.32	0.37	6.72

The progressive reduction in the ratio of government to contributors current service cost is less than that observed for the base plan (see Table 6). The new plan provisions will effectively provide a cost-sharing ratio of 50:50 for the base plan by plan year 2018, as compared to the cost-sharing ratio of 6.72:1 under the RCA No. 1 Account. The following three points, in combination, provide the rationale for a greater portion of the RCA No. 1 current service cost being borne by the government:

- The RCA No. 1 Account is used to fund member benefits earned on earnings in excess of the Maximum Pensionable Earnings (MPE), defined under the *Income Tax Act* (ITA), as well as the pension plan survivor allowance in excess of two-thirds of the associated member's life-time benefit as defined under the same Act. The survivor allowance, which represents approximately 26% of the RCA No. 1 current service cost, is not affected by the new plan provisions.
- In order to establish the current service cost under the RCA No. 1, the benefits earned on earnings in excess of the MPE are discounted using half the interest rate applicable under the Public Service Superannuation Account.
- Member contribution rates to the pension plan were developed for earnings up to the maximum covered by the Canada Pension Plan / Quebec Pension Plan (CPP/QPP), that is, the yearly maximum pensionable earnings (YMPE), and for earnings between the YMPE and the MPE. The contribution rates required by members to provide a 50:50 cost sharing ratio for the benefit earned on earnings below the MPE is applied to fund the portion of the benefit earned on earnings above the MPE.

D. Assumptions Related to Amendments

The plan amendments are intended to change the cost sharing arrangement between the pension plan contributors and the government as well as postponing the eligibility to an immediate pension by five years for Group 2 contributors. This impacts the future cost of the pension plan and as such, there is a need to consider the latest information available to provide the most up-to-date current service cost projection.

[1] The ratio of government to contributors current service cost has been determined using the unrounded figures of both government and contributors in order to provide a better progression of the ratio between plan year 2014 and 2018.

Accordingly, the current service cost of the 31 March 2011 actuarial report has been updated in order to reflect current membership data, and the latest population growth assumption used in the production of the 2012 Public Accounts pension results, as well as to provide an appropriate comparison basis. For the purpose of the financial projections contained in this report, with respect to Group 1 contributors, all other demographic and economic assumptions used are those of the latest actuarial report as at 31 March 2011. Because pension entitlements for Group 2 contributors are being deferred by five years, certain demographic assumptions require modifications with respect to those members.

This section describes the various assumptions, applicable to Group 2, that were modified to reflect the proposed amendments caused by Division 23 of Part 4 of Bill C-45. A sample of rates for each modified assumption is given in Appendix 3.

1. **Pensionable Retirement**

   Because the pensionable age for Group 2 contributors is older than for Group 1, the two groups are expected to have different retirement rate experience. The Group 1 assumption is that used in the actuarial report as at 31 March 2011. The Group 2 assumption reflects a general delay in retirement to account for the five year difference in pensionable age between the two groups.

2. **Disability Retirement**

   The disability incidence rate assumption has been extended to include ages 60 to 64 for Group 2 contributors to reflect the later pensionable age. For all ages below 60, the assumption for both Group 1 and Group 2 contributors is that used in the actuarial report as at 31 March 2011.

3. **Withdrawal**

   Withdrawal means ceasing to be employed for reasons other than death or retirement with an immediate annuity or an annual allowance. For Group 2 contributors, the assumed withdrawal rates have been modified and extended to include ages 49 to 54 to reflect the period over which a terminating member could opt for a deferred pension to age 65 or the equivalent commuted value. The new provision effectively pushes the age at which the accrued benefit is locked-in, that is from age 50 to age 55, when the contributor has a minimum of two years of pensionable service to his/her credit upon termination.

4. **Proportion Opting for a Deferred Annuity**

   Prior to age 50, a Group 1 contributor with more than two years of service at termination can opt for a deferred annuity payable at age 60 versus the commuted value of such pension. A Group 2 contributor with more than two years of service can elect, up to age 55, a deferred annuity payable at age 65. Thus, a modified assumption is needed for Group 2 contributors to account for the different provisions.

E. Current Service Cost Reconciliation (Group 2 - Existing versus Amended Plan)

As described in section III above, Division 23 of Part 4 of Bill C-45 amends the *Public Service Superannuation Act* for new contributors on or after 1 January 2013 by postponing their benefit entitlement by five years. These contributors will be entitled to an immediate annuity upon the attainment of age 65 with a minimum of two years of pensionable service, that is, five years later than Group 1 contributors. The annual allowance benefits are also postponed by five years. A Group 1 contributor is entitled to an annual allowance as early as age 50 with a minimum of two years of service, while a Group 2 contributor will need to be at least 55 years old to receive the same annual allowance benefit. Finally, a Group 1 contributor could opt for a deferred annuity payable at age 60, or its commuted value, if termination occurs prior to age 50, while a Group 2 contributor could opt for a deferred annuity payable at age 65, or its commuted value, if termination occurs prior to age 55.

Postponing retirement benefits by five years reduces the Group 2 contributor current service cost. A good proxy by which to measure the impact of the change in plan provisions is a comparison of the current service costs under the old and new plan provisions, using the current contributor population reported in the Actuarial Report as at 31 March 2011. In order to properly measure the effect of this change, the following will be used as a basis for comparison:

- plan year 2013 current service cost, which is based on the most up-to-date and verified membership information available;
- the ultimate economic assumptions of the Actuarial Report as at 31 March 2011, effectively removing the financial impact of the short-term economic assumptions (i.e. the select period);
- the current service cost under the old provisions, established on the basis of the demographic assumptions shown in the Actuarial Report as at 31 March 2011; and
- the current service cost under the new provisions, established on the basis of the demographic assumptions shown in the Actuarial Report as at 31 March 2011, except at ages when the entitlement to retirement benefits would be delayed. These new demographic assumptions are reported in Appendix 3.

The comparison of the resulting current service costs is as follows:

Table 10 Plan Year 2013 Current Service Cost
Ultimate economic assumptions

	Current Service Cost as a percentage of pensionable payroll
Old pension plan provisions	20.29
New pension plan provisions	17.90

Delaying the retirement benefit entitlement age by five years has the effect of reducing the plan year 2013 current service cost by 12%. This comparison gives an approximate measure of the effect of the new plan provisions by applying them to the current contributor population as at 31 March 2011.

For a member aged 60 as at 31 March 2013, the financial impact of postponing the retirement benefit by five years to age 65 could be expressed as the difference between the present value of the immediate annuity benefit and a five year deferred annuity. The financial impact is shown in the following table:

Financial impact of deferring an annuity benefit by 5 years (male aged 60 as at 31 March 2013)

Present Value of $2 of annual benefit at age 60 - Immediate annuity[1]	$24.13
Present Value of $2 of annual benefit at age 60 - Deferred annuity[1] payable from age 65	$15.13
Percentage reduction in the Present Value	37%

One might expect that the new plan provisions would similarly reduce the plan year 2013 current service cost by 37% rather than the 12% shown above. However, the change in plan provisions only causes the deferral of the pension by five years; there is no effect on the death and disability benefits. Additionally, depending on the member's age and service combination, the reduction in the present value of the retirement benefit can be less than 37%, such as in the case where a member is between 60 and 65, entitled under the new provisions to an annual allowance benefit as opposed to an immediate annuity. The current service cost also includes the early retirement benefit provided to Correctional Service members, which was not changed by Division 23 of Part 4 of Bill C-45. A summary reconciliation of the current service cost as a percentage of pensionable payroll, showing the effect of deferring retirement eligibility by five years, is provided hereafter.

Initial current service cost under the old pension plan provisions	20.29%
Portion of the current service cost <u>not</u> affected by Division 23 of Part 4 of Bill C-45 • Return of contributions (termination with less than 2 years of pensionable service) • Death benefit (before and after retirement) • Disability benefit (before age 60) • Correctional Service early retirement benefit ("actual service") • Benefits of members already aged 65 • Benefits of members aged 60 with a minimum of 30 years of pensionable service (age and service combination to be entitled to an immediate unreduced annuity under the new plan provisions) • Administrative expenses (as a percentage of pensionable payroll)	8.46%
Portion of the current service cost affected by Division 23 of Part 4 of Bill C-45	11.83%

The remaining current service cost of 11.83% of pensionable payroll is further broken down into six specific age/service groups to show the impact of the new plan provisions. The current service costs before and after the implementation of Bill C-45 are shown in the following page:

[1] The annuity includes the corresponding Canada Pension Plan annuity offset payable from age 65.

	Before	After
Members terminating prior to age 50 will receive a deferred annuity at age 65 instead of age 60, or the equivalent commuted value. The approximate reduction in percentage of the current service cost is 31%.	0.82%	0.56%
Before the implementation of the new provisions, members aged 50 to 54 with less than 25 years of service were entitled to an annual allowance equivalent to an immediate annuity reduced by 5% for each year between the age at which the annuity became payable and the attainment of age 60. Members aged 50 to 54 with 25 years of service or more were entitled to an annual allowance equivalent to an immediate annuity reduced by 5% time the maximum of (55 minus the age at termination and 30 minus the years of service at termination). After the implementation of the new plan provisions, these members are now entitled to a deferred annuity at age 65. The resulting average reduction in the current service cost is 43%.	1.02%	0.59%
Before the implementation of the new provisions, members aged 55 to 59 with less than 25 years of service were entitled to an annual allowance equivalent to an immediate annuity reduced by 5% for each year between the age at which the annuity became payable and the attainment of age 60. After the implementation of the new plan provisions, these members will still be entitled to an immediate annuity reduced by 5% for each year between the age at which the annuity became payable and the attainment of age 65. The resulting average reduction in the current service cost is 34%.	0.76%	0.50%
Before the implementation of the new provisions, members aged 55 to 59 with between 25 and 29 years of service were entitled to an annual allowance equivalent to an immediate annuity reduced by 5% times the minimum of (60 minus the age at termination and 30 minus the years of service at termination). After the implementation of the new plan provisions, these members are still entitled to an annual allowance equivalent to an immediate annuity but reduced by 5% times the maximum of (60 minus the age at termination and 30 minus the years of service at termination). The resulting average reduction in the current service cost is 10%.	0.60%	0.54%
Before the implementation of the new provisions, members aged 55 to 59 with 30 or more years of pensionable service at retirement were entitled to an immediate annuity. After the implementation, these members are now entitled to an annual allowance that is equivalent to an immediate annuity reduced by 5% for each year between the age at which the annuity becomes payable and the attainment of age 65. The resulting average reduction in the current service cost is 18%.	4.90%	4.02%
Prior to the introduction of new plan provisions, members retiring at ages 60 to 64 (with a minimum of 2 years of service, but less than 30 years of service) were entitled to an immediate annuity. Under the new plan provisions, these members are entitled to an annual allowance that is equivalent to an immediate annuity reduced by 5% for each year between the age at which the annuity becomes payable and the attainment of age 65. The resulting average reduction in the current service cost is 18%, with the larger impact occurring at age 61, and diminishing as the member advances in age toward 65. Hence, the effect on the current service cost of postponing the benefit by five years has, on average, a lesser impact on members aged 60 to 64 than on younger members.	3.73%	3.05%
Total current service cost impacted by Division 23 of Part 4 of Bill C-45	11.83%	9.26%

Applying the new plan provisions to the total public service population as at 31 March 2011 would reduce the plan year 2013 current service cost from 20.29% of pensionable payroll to 17.72% of pensionable payroll, a 12.7% reduction. However, this new current service cost does not take into account the expected behavioural changes of the plan members, that is, a member will be less inclined to retire if their benefit is reduced due to a five-year deferral, equivalent to an approximate 25% reduction of benefits to be received from the pension plan. Members are therefore expected to delay their planned retirement until they will receive a benefit similar to what would have been provided prior to the changes.

The changes to the termination and retirement assumptions are based on the premise that currently observed rates between the ages of 45 and 59 would also be observed for Group 2 contributors, but they would be postponed by 5 years, that is, they would occur between the ages of 50 and 64. The rates were further modified, between the ages of 55 and 64, to account for the additional retirement rates, occurring between the ages of 60 and 64, with the lowest increase in rate expected at age 55, increasing with each additional year of age, and culminating with the highest increase in rate at age 64. The new termination and retirement rates are shown in

The new demographic assumptions have the financial impact of increasing the current service cost of 17.72% of the pensionable payroll, resulting from the implementation of the new plan provisions, to 17.90%. Given that the future retirement behaviour of Group 2 contributors is based on expectation rather than experience, an analysis of the sensitivity of the current service cost to changes in the retirement rates was performed. If the assumed retirement rates for Group 2 contributors were reduced by 25%, the current service cost would decrease from 17.90% of pensionable payroll to 17.58%, while if the rates were increased by 25%, the current service cost would increase from 17.90% to 18.11% of pensionable payroll. Given the marginal effect on the current service cost following a substantial change in the retirement rates, the newly developed retirement rate assumption is considered appropriate and reasonable in the determination of the current service cost of Group 2 contributors.

V. Actuarial Opinion

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

- the valuation input data on which the valuation is based are sufficient and reliable for the purposes of the valuation;
- the assumptions that have been used are, individually and in aggregate, appropriate for the purposes of the valuation;
- the methods employed 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 Practice – Specific Standards for Pension Plans) published by the Canadian Institute of Actuaries.

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Appendix 1 – Summary of Amended Pension Benefit Provisions

Pensions for members of the Public Service are provided primarily under the *Public Service Superannuation Act* (PSSA) as enacted in 1954 and modified thereafter. Benefits are also provided to public servants under the *Special Retirement Arrangements Act*. Benefits may be modified in accordance with the *Pension Benefits Division Act* if there is a breakdown of a spousal union.

Changes since the last valuation

The previous valuation report was based on the pension benefit provisions as they stood as at 31 March 2011. The amended plan provisions as a result of Division 23 of Part 4 of Bill C-45 are summarized in this Appendix, and replace those presented in the previous valuation report. All other provisions remain unchanged from the valuation report as at 31 March 2011. Division 23 of Part 4 of Bill C-45 amends the plan provisions in respect of the following:

- **Group 1 vs. Group 2 Contributors**

  Effective 1 January 2013, contributors will be classified as either Group 1 or Group 2. Existing members who were required to contribute prior to 1 January 2013 will be classified as Group 1. New members required to contribute on or after 1 January 2013 will be classified as Group 2. However, employees of the Correctional Service of Canada (CSC), whom are members of the public service pension plan, will be required to pay the same contribution rates as Group 1 contributors whether they have been hired before or after 1 January 2013.

- **Retirement Age**

  The pensionable age for Group 2 contributorscontibutors is five years older than for Group 1 contributors, so that a Group 2 contributor can opt for an immediate annuity at age 65, while a Group 1 contributor is eligible at age 60. The summary description of benefits below details the eligibility requirements for all forms of retirement benefits for Group 1 and Group 2 contributors.

- **Contribution Rates**

  Effective 1 January 2013, member contribution rates will be determined separately for Group 1 and Group 2. These rates will be limited such that the total amount of contributions for each group does not exceed 50% (increased from 40% in effect at 31 March 2011) of the current service cost of that group. The expected contribution rates for calendar years 2012 to 2018 are given in the summary of pension benefit provisions below.

Summary of Pension Benefit Provisions

Summarized in this Appendix are the pension benefits, as amended by Division 23 of Part 4 of Bill C-45, provided under the PSSA registered provisions, which are in compliance with the *Income Tax Act*. The portion of the benefits in excess of the *Income Tax Act* limits for registered pension plans is provided under the retirement compensation arrangements described in the valuation report as at 31 March 2011.

The legislation shall prevail if there is a discrepancy between it and this summary.

A. Membership

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

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

The main groups of persons employed in the Public Service to which the Act does not apply are:

- part-time employees working less than 12 hours per week;
- persons locally engaged outside Canada;
- employees of some Crown corporations, boards or commissions covered by their own pension plans; and
- seasonal employees, and some others, unless designated as contributors by the President of the Treasury Board.

Since the previous valuation no entities have left the plan.

B. Contributions

1. Members

Contribution rates beyond 2012 have been changed from the actuarial report as at 31 March 2011. For calendar years 2013 onwards, separate rates will apply to Group 1 and Group 2 contributors. The expected rates are consistent with the government objective of moving to a 50:50 current service cost sharing ratio.

During the first 35 years of pensionable service, members contribute according to the rates shown in the following table.

Calendar Year	2012	2013	2014	2015	2016	2017	2018
Contribution rates on earnings **up to** the maximum covered by the CPP/QPP							
Group 1 Contributors	6.20%	6.85%	7.50%	8.15%	8.80%	9.47%	9.52%
Group 2 Contributors	n/a	6.27%	6.62%	7.05%	7.47%	8.11%	8.16%
Contribution rates on earnings **over** the maximum covered by the CPP/QPP							
Group 1 Contributors	8.60%	9.20%	9.80%	10.40%	11.00%	11.58%	11.65%
Group 2 Contributors	n/a	7.63%	7.89%	8.54%	9.29%	10.27%	10.37%

After 35 years of pensionable service, members contribute only 1% of pensionable earnings.

In order to keep their rights to an early retirement benefit, “deemed operational” members of Correctional Service Canada (CSC) contribute an additional 0.62% of total earnings during a calendar year in addition to the above contribution rates.

2. **Government**

a) **Current Service**
The government determines the normal monthly contribution as that amount which, when combined with the required contributions by members in respect of current service, is sufficient to cover the cost, as estimated by the President of the Treasury Board, of all future benefits that have accrued in respect of pensionable service during that month and the Fund administrative expenses incurred during that month. Effective 1 January 2013, this amount will be determined separately for Group 1 contributors and Group 2 contributors.

b) **Elected Prior Service**
The government matches member contributions made to the Superannuation Account for prior service elections; however, it makes no contributions if the member is paying the double rate.

Government credits to the Pension Fund in respect of elected prior service are as described for current service; however, the government contributes only 75% of the member contribution if the member is paying the double rate.

c) **Excess Notional Assets and Actuarial Surplus**
Bill C-78, which received Royal Assent on 14 September 1999, gives the government the authority to:

- debit the excess of the balance of the Superannuation Account over the actuarial liability subject to limitations, and
- deal with any actuarial surplus, subject to limitations, in the Pension Fund as they occur, either by reducing employee and/or employer contributions or by making withdrawals.

d) **Actuarial Deficit**
If an actuarial deficit is identified through a statutory actuarial report, the Superannuation Account and/or the Pension Fund are to be credited with such annual amounts that in the opinion of the President of the Treasury Board will fully amortize the actuarial deficit over a period not exceeding 15 years.

C. Summary Description of Benefits

The objective of the public service pension plan is to provide an employment earnings-related lifetime retirement pension to eligible members. Benefits to members in case of disability and to the spouse and children in case of death are also provided.

Subject to coordination with the pensions paid by the Canada Pension Plan (CPP) or the Québec Pension Plan (QPP), the initial rate of retirement pension is equal to 2% of the highest average of annual pensionable earnings over any period of five consecutive years, multiplied by the number of years of pensionable service not exceeding 35. Once in pay, the pension is indexed annually with the Consumer Price Index. Such indexation also applies to deferred pensions during the deferral period.

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

Contributor's Type of Termination	Benefit
With less than two years of service[1]	Return of contributions
Group 1 contributor with two or more years of service[1]**; and**	
▪ Disability	Immediate annuity
▪ Death leaving no surviving spouse or eligible children	Minimum benefit
▪ Death leaving surviving spouse and/or eligible children	Survivor allowance(s)
▪ Leaving prior to age 45, except for death or disability	
- Actual operational service between 20 and 25 years	Actual operational service annual allowance[2]
- Actual operational service 25 years or more	Immediate annuity
- Otherwise	Deferred annuity or transfer value
▪ Leaving at ages 45 to 49, except for death or disability, and	
- Deemed operational service 20 years or more	Deemed operational service annual allowance[3]
- Actual operational service between 20 and 25 years	Actual operational service annual allowance[2]
- Actual operational service 25 years or more	Immediate annuity
- Otherwise	Deferred annuity or transfer value
▪ Leaving at age 50 or over, except for death or disability, and	
- Deemed operational service between 20 and 25 years	Deemed operational service annual allowance[3]
- Deemed operational service 25 years or more	Immediate annuity
- Actual operational service between 20 and 25 years	Actual operational service annual allowance[2]
- Actual operational service 25 years or more	Immediate annuity
- Otherwise, but age 60 or over, or age 55 or over and service 30 years or more	Immediate annuity
- Otherwise	Deferred annuity or annual allowance

[1] Thresholds are determined using total pensionable service, including operational service.
[2] Based on actual operational service only. Additional non-operational and/or deemed operational service, if any, results in the applicable non-operational benefit and/or deemed operational benefit (see Note 10).
[3] Based on deemed operational service only. Additional non-operational service, if any, results in the applicable non-operational benefit (see Note 9).

Group 2 contributor with two or more years of service[1]; and	
▪ Disability	Immediate annuity
▪ Death leaving no surviving spouse or eligible children	Minimum benefit
▪ Death leaving surviving spouse and/or eligible children	Survivor allowance(s)
▪ Leaving prior to age 45, except for death or disability	
- Actual operational service between 20 and 25 years	Actual operational service annual allowance[2]
- Actual operational service 25 years or more	Immediate annuity
- Otherwise	Deferred annuity or transfer value
▪ Leaving at ages 45 to 49, except for death or disability, and	
- Deemed operational service 20 years or more	Deemed operational service annual allowance[3]
- Actual operational service between 20 and 25 years	Actual operational service annual allowance[2]
- Actual operational service 25 years or more	Immediate annuity
- Otherwise	Deferred annuity or transfer value
▪ Leaving at age 50 or over, except for death or disability, and	
- Deemed operational service between 20 and 25 years	Deemed operational service annual allowance[3]
- Deemed operational service 25 years or more	Immediate annuity
- Actual operational service between 20 and 25 years	Actual operational service annual allowance[2]
- Actual operational service 25 years or more	Immediate annuity
- Otherwise, but age 65 or over, or age 60 or over and service 30 years or more	Immediate annuity
- Otherwise	Deferred annuity or annual allowance

Deferred and Immediate Pensioner's Type of Termination	Benefit
▪ Group 1 disability before age 60 while entitled to a deferred annuity or an annual allowance	Immediate annuity
▪ Group 2 disability before age 65 while entitled to a deferred annuity or an annual allowance	Immediate annuity
▪ Death leaving no eligible survivor	Minimum benefit
▪ Death leaving eligible survivor(s)	Survivor allowance(s)

1 Thresholds are determined using total pensionable service, including operational service.

2 Based on actual operational service only. Additional non-operational and/or deemed operational service, if any, results in the applicable non-operational benefit and/or deemed operational benefit (see Note 10).

3 Based on deemed operational service only. Additional non-operational service, if any, results in the applicable non-operational benefit (see Note 9).

D. Explanatory Notes

1. Pensionable Earnings

Pensionable earnings mean the annual employment earnings (excluding overtime but including pensionable allowances such as bilingual bonuses) of a contributor.

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

2. Indexation

a) Level of Indexation Adjustments
All immediate and deferred annuities (pensions and allowances) are adjusted every January to the extent warranted by the increase, as at 30 September of the previous year, in the 12-month average Consumer Price Index relative to the corresponding figure one year earlier. If the indicated adjustment is negative, annuities are not decreased for that year; however, it is carried-forward and the next positive adjustment is diminished accordingly.

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

c) Commencement of Indexation Payments
The indexation portion of a retirement, disability or survivor pension normally starts being paid when the pension is put into pay. However, regarding an operational service retirement pension, indexation payments start only when the pensioner is either

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

3. Pensionable Service, Actual Operational Service and Deemed Operational Service

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

Actual operational service refers to CSC employees working in federal correctional facilities, parole offices, and community correctional centres. More specifically, operational service is defined as service by a person employed by CSC whose principal place of work is not: the national headquarters or a regional headquarters of CSC; the offices of the CSC Commissioner; or a regional CSC Staff College or any other institution that provides similar training to CSC employees.

Deemed operational service refers to CSC employees in operational service for one or more periods totalling at least 10 years, who then cease to be engaged in operational service but continue to be employed by CSC and elect to continue to accumulate operational service and contribute an additional 0.62% of earnings.

4. **Return of Contributions**

Return of contributions means the payment of an amount equal to the accumulated current and prior service contributions paid or transferred by the contributor into the plan. Interest is credited quarterly on returned contributions in accordance with the investment return on the Pension Fund.

5. **Immediate Annuity**

Immediate annuity means an unreduced pension that becomes payable immediately upon a pensionable retirement or pensionable disability. The annual amount is equal to 2% of the highest average of annual pensionable earnings of the contributor over any period of five[1] consecutive years, multiplied by the number of years of pensionable service not exceeding 35. For contributors with periods of part-time pensionable service, earnings used in the five-year average are based on a full 37.5-hour workweek but the resulting average is multiplied by the proportion of a full workweek averaged by the contributor over the entire period of pensionable service.

When a pensioner attains age 65 or becomes entitled to a disability pension from the CPP or the QPP, the annual pension amount is reduced by a percentage of the *indexed CPP annual pensionable earnings*[2] (or, if lesser, the indexed five-year[1] pensionable earnings average on which the immediate annuity is based), *multiplied by the years of CPP pensionable service*[3]. The applicable percentage (it was 0.7% before 1 January 2008) depends on the year the pensioner attains age 65 or becomes entitled to a disability pension. The following table shows the applicable percentage:

	Calendar Years				
	2008	2009	2010	2011	2012+
Coordination Percentage	0.685%	0.670%	0.655%	0.640%	0.625%

Annuities are payable at the end of month until the month in which the pensioner dies or until the disabled pensioner recovers from disability (the last payment would then be pro-rated). Upon the death of the pensioner, either a survivor allowance (Note 13) or a residual death benefit (Note 14) may be payable.

1 If the number of years of pensionable service is less than five, then the averaging is over the entire period of pensionable service.
2 *Indexed CPP annual pensionable earnings* means the average of the YMPE, as defined in the CPP, over the five calendar years leading up to and including the one in which pensionable service terminated, increased by indexation proportionate to that accrued in respect of the immediate annuity.
3 *Years of CPP pensionable service* mean the number of years of PSSA pensionable service after 1965 or after attaining age 18, whichever is later, but not exceeding 35.

6. Deferred Annuity

Deferred annuity means an annuity that normally becomes payable to a former Group 1 contributor who reaches age 60, or a former Group 2 contributor who reaches age 65. The annual payment is determined as for an immediate annuity (Note 5) but is also adjusted to reflect the indexation (Note 2) from the date of termination to the commencement of benefit payments.

The deferred annuity of a former Group 1 contributor becomes an immediate annuity during any period of disability beginning before age 60. If the disability ceases before age 60, the immediate annuity reverts to the original deferred annuity unless the pensioner elects an annual allowance (Notes 8, 9 and 10) that is the prescribed actuarial equivalent to the deferred annuity. Similarly, the deferred annuity of a former Group 2 contributor becomes an immediate annuity during any period of disability beginning before age 65, and reverts back to the original deferred annuity if the disability ceases before age 65, unless the pensioner elects an annual allowance as described above.

7. Transfer Value

A member who, at his date of termination of pensionable service, is under age 50 and a former Group 1 contributor, or under age 55 and a former Group 2 contributor, and is eligible for a deferred annuity may elect to transfer the commuted value of his benefit, determined in accordance with the regulations, to

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

8. Annual Allowance For Members

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

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

For a Group 2 member, the eligibility age is increased by 5 years, so that a*nnual allowance* means an annuity payable immediately on retirement or upon attaining age 55 if later. The amount of the allowance is equal to the amount of the deferred annuity to which the member would otherwise be entitled, reduced by 5% for each year between 65 and the age when the allowance becomes payable. However, if the member is at least

[1] For privatized members who elected not to transfer their PSSA benefits to their new employer's pension plan, service (including any operational) with the new employer is included.

55 years old at termination, and has at least 25 years of pensionable service[1], then the difference is reduced (subject to the above as a maximum) to the greater of

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

The Treasury Board can waive all or part of the reduction for Group 1 contributors who are involuntarily retired at ages 55 and over with at least ten years of Public Service employment, or for Group 2 contributors who are involuntarily retired at ages 60 and over with at least ten years of Public Service employment.

When a Group 1 member in receipt of an annual allowance becomes disabled before reaching age 60, or a Group 2 member in receipt of an annual allowance becomes disabled before reaching age 65, the annual allowance becomes an immediate annuity adjusted in accordance with regulations to take into account the amount of any annual allowance received prior to becoming disabled.

9. Deemed Operational Service - Immediate Annuity and Annual Allowance

A deemed operational service immediate annuity differs from an immediate annuity (Note 5) only in that it is available as early as age 50 with 25 years of pensionable service (which must include a minimum of 10 years of operational service).

A deemed operational service annual allowance differs from an annual allowance (Note 8) in two ways. Firstly it is available as early as age 45 with 20 years of pensionable service (which must include a minimum of 10 years of operational service). Secondly the reduction factor is 5% multiplied by the greater of

- 50 minus the age, and
- 25 minus the years of pensionable service

The foregoing operational service-related benefits are calculated in relation to both deemed and actual operational service only. Additional non-operational service results in the applicable non-operational benefit where any thresholds or reductions are based on total pensionable service, including operational service.

[1] For privatized members who elected not to transfer their PSSA benefits to their new employer's pension plan, service (including any operational) with the new employer is included.

10. Actual Operational Service - Immediate Annuity and Annual Allowance

An actual operational service immediate annuity differs from an immediate annuity (Note 5 and Note 9) only in that it is available when the member has accrued 25 years of actual operational service.

An actual operational service annual allowance differs from other annual allowances (Note 8 and Note 9)) in two ways. Firstly it is available as soon as 20 years of actual operational service is accrued. Secondly the reduction factor is 5% multiplied by

- 25 minus the years of actual operational service.

The foregoing operational service-related benefits are calculated in relation to actual operational service only. Additional non-operational service results in the applicable non-operational benefit where any thresholds or reductions are based on total pensionable service, including operational service. Also, additional deemed operational service results in the applicable deemed operational benefit where any thresholds or reductions are based on operational pensionable service.

11. Eligible Surviving Spouse

Eligible surviving spouse means the surviving spouse (includes a common-law or same-sex partner recognized under the plan) of a contributor or pensioner except if:

- the contributor or pensioner died within one year of commencement of the spousal union, unless the Treasury Board is satisfied that the health of the contributor or pensioner at the time of such commencement justified an expectation of surviving for at least one year; or
- the pensioner married after ceasing to be a contributor, unless after such marriage the pensioner either:
  - became a contributor again, or
  - made an optional survivor benefit election within 12 months following marriage to accept a reduced pension so that the new spouse would be eligible for a survivor benefit. This reduction is reversed if and when the new spouse predeceases the pensioner or the spousal union is terminated for reason other than death.

12. Eligible Surviving Children

Eligible surviving children includes all children of the contributor or pensioner who are under age 18, and any child of the contributor or pensioner who is age 18 or over but under 25, in full-time attendance at a school or university, having been in such attendance substantially without interruption since he or she reached age 18 or the contributor or pensioner died, whichever occurred later.

13. Annual Allowance for Eligible Survivor(s)

Annual allowance means, for the eligible surviving spouse and children of a contributor or pensioner, an annuity that becomes payable immediately upon the death of that individual. The amount of the allowance is determined with reference to a basic allowance that is equal to 1% of the highest average of annual pensionable earnings of the contributor over five consecutive years, multiplied by the number of years of pensionable service not exceeding 35.

The annual allowance for a spouse is equal to the basic allowance unless the spouse became eligible as a result of an optional survivor benefit election, in which case it is equal to the percentage of the basic allowance specified by the pensioner making the election.

The annual allowance for an eligible surviving child is equal to 20% of the basic allowance, subject to a reduction if there are more than four eligible surviving children in the same family. The allowance otherwise payable to an eligible surviving child is doubled if the child is an orphan.

Survivor annual allowances are not integrated with the CPP or the QPP and are payable in equal monthly instalments in arrears until the end of the month in which the survivor dies or otherwise loses eligibility. If applicable, a residual benefit (Note 14) is payable to the estate upon the death of the last survivor.

14. Minimum and Residual Death Benefits

If a contributor or a pensioner dies leaving no eligible survivor, the lump sum normally paid is the excess of five times the annual amount of the immediate annuity to which the contributor would have been entitled, or the pensioner was entitled, at the time of death, less any pension payments already received. Indexation adjustments are excluded from these calculations.

The same formula is used to determine the residual death benefit, which is the lump sum payable upon the death of an eligible survivor but also subtracting all amounts (excluding indexation adjustments) already paid to the survivor.

15. Division of Pension with Former Spouse

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

Appendix 2 – PSSA Valuation Methodology

A. Actuarial Cost Method (Current Service Costs)

As benefits earned in respect of current service will not be payable for many years, the purpose of an actuarial cost method is to assign costs over the working lifetime of the members.

The projected accrued benefit actuarial cost method (also known as the projected unit credit cost method) was used to determine the current service cost. Consistent with this cost method, pensionable earnings are projected up to retirement using the assumed annual increases in average pensionable earnings (including seniority and promotional increases). The yearly maximum salary cap and other benefit limits under the *Income Tax Act* described in Appendix 2 of the Actuarial Report on the Pension Plan for the Public Service of Canada as at 31 March 2011 were taken into account to determine the benefits payable under the PSSA and those payable under the RCA No. 1.

Under the projected unit credit cost method, the current service cost computed in respect of a given year is the sum of the value, discounted in accordance with the actuarial assumptions for the Pension Fund, of all future payable benefits considered to accrue in respect of that year of service. The Pension Fund administrative expenses are also included in the total current service cost.

Using the projected unit credit cost method, the member/government cost sharing ratio is based on the current service cost of the total population. One fundamental of this cost method is that the current service cost of an individual member will increase each year as the member approaches retirement. However, all other things being equal, the current service cost of the total population, expressed as a percentage of total pensionable payroll, can be expected to remain stable as long as the average age and service of the total population remain constant. This is true to the extent that the population is mature and stable. Starting on 1 January 2013, the Public Service population will be divided between pre-2013 members and post-2012 members (Group 1 and Group 2 contributors).

In general and once determined, the contribution required by members will constitute a higher or a lower portion of the actual current service cost of each member based on the age of the member. For a mature and stable population, a younger member will pay a higher proportion of their actual current service cost while a member close to retirement will pay a lesser portion of their actual current service cost. This creates a subsidy from the younger to the older members.

With the coming into force of Division 23 of Part 4 of Bill C-45, the average current service cost for Group 2 will be lower than the corresponding average current service cost for Group 1 by reason that the pension entitlement for Group 2 will be postponed by five years, that is, the immediate annuity will be available at age 65 instead of age 60. However, based on the definition of the projected unit credit cost method, there is still the need to have younger members (Group 2) subsidizing older members in order to properly fund the accrual of benefits, even though the benefits accruing for each group are different. Consequently, the determination of the current service cost for each group is still based on the projected unit credit cost method, with a small variant that will respect the spirit of the projected unit credit cost method.

The following steps were used to determine the current service cost for Group 1 and Group 2:

i) Determine the current service cost and member contribution percentage for Group 1 on the basis of the combined Group 1 and Group 2 population (total Public Service population) and the associated benefits available to Group 1 contributors. The result effectively levels the current service cost of Group 1 contributors since members of Group 2 are treated as though they are entitled to pre-2013 retirement benefits. Determining the cost in this fashion avoids too large an increase in the average cost of Group 1 contributors since the average age of Group 1 contributors is expected to increase by reason that there will be no new entrants to the Group 1 population.

ii) Determine for Group 1 contributors the amount equal to the actual current service cost in excess of the average current service cost of the combined Group 1 and Group 2 population previously determined in i).

iii) Transfer the excess in the current service cost previously determined in ii) to the determination of the current service cost and member contribution percentage for Group 2 on the basis of the Group 2 population and the associated benefits available to Group 2 contributors. This increases the actual current service cost of Group 2 contributors and effectively provides the subsidy from younger to older members embedded in the projected unit credit cost method.

This modified cost method respects the fundamental attributes of the projected unit credit cost method and provides a proper allocation of the cost between Group 1 and Group 2 contributors.

For a given year, the government current service cost is the total current service cost reduced by the members' contributions during the year.

B. Membership Data

For valuation purposes, individual data on each member were used.

The member data are those reported and shown in Appendices 4 and 12 of the Actuarial Report on the Pension Plan for the Public Service of Canada as at 31 March 2011. This valuation is based on the membership data as at 31 March 2011, projected with the population projection assumption used in the production of the 2012 Public Accounts, and represents the most up-to-date and appropriate information for the determination of the updated current service cost following the implementation of Division 23 of Part 4 of Bill C-45.

Appendix 3 – Demographic Assumptions Related to Plan Amendment

As described in Appendix 1, the implementation of Division 23 of Part 4 of Bill C-45 will result in different plan provisions for new contributors after 1 January 2013 (Group 2 contributors) than for existing contributors (Group 1 contributors), in particular, those provisions concerning retirement age. For Group 1 contributors, the plan provisions remain unchanged, and so the assumptions also remain unchanged from those used in the previous actuarial report. Group 2 contributors are expected to behave differently in accordance with the new provisions, and certain assumptions have been changed to reflect this.

The new Group 2 contributor demographic assumptions affected by Division 23 of Part 4 of Bill C-45 are described below.

A. Withdrawal

Withdrawal means ceasing to be employed for reasons other than death or retirement with an immediate annuity or an annual allowance.

For Group 2 contributors, the withdrawal rate assumptions are unchanged from the actuarial valuation as at 31 March 2011 up to age 43. Withdrawal rates at ages 44 to 48 were pushed back by 5 years on the basis that the same member behaviour should be observed during the five years prior to the lock-in of the pension benefit. The lock-in age is defined as the age at which the accrued pension can no longer be commuted, that is the transfer value of the accrued pension is no longer an available option to members upon termination. Prior to the implementation of Division 23 of Part 4 of Bill C-45, the lock-in occurred at the attainment of age 50, whereas it now occurs at age 55. Withdrawal rates at ages 44 to 48 were replaced with the rates observed at age 43.

The following tables provide a sample of the assumed rates of withdrawal. Only the sample rates of withdrawal that differ from those of Group 1 are shown.

Table 11 Sample of Assumed Rates of Withdrawal - Main Group 2 - Male
(Per 1,000 individuals)

	Completed Years of Pensionable Service						
Age[1]	0	1	5	10	20	25	30
44	88	68	19	12	5	4	0
45	93	68	19	12	5	4	3
46	98	68	19	12	5	4	3
47	103	68	19	12	5	4	3
48	107	68	19	12	5	4	3
49	112	67	17	14	5	4	3
50	125	68	17	13	5	4	2
51	134	68	16	13	5	4	5
52	134	71	18	13	6	4	6
53	131	72	17	14	7	4	5

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

Table 12 Sample of Assumed Rates of Withdrawal - Main Group 2 - Female
(Per 1,000 individuals)

	Completed Years of Pensionable Service						
Age[1]	0	1	5	10	20	25	30
44	109	83	21	16	6	5	0
45	111	83	21	16	6	5	6
46	115	83	21	16	6	5	6
47	117	83	21	16	6	5	6
48	128	83	21	16	6	5	6
49	149	83	21	16	6	5	6
50	159	87	22	15	6	5	6
51	160	87	22	14	6	4	4
52	161	94	22	15	7	5	4
53	166	94	24	17	8	7	4

B. Proportions of Terminating Contributors Opting for a Deferred Annuity

A Group 1 contributor with at least two years of service and less than 50 years of age upon termination can opt for a deferred annuity payable at age 60 or for the commuted value of the deferred annuity to age 60. A Group 2 contributor with at least two years of service, who is less than 55 years of age on retirement, can opt for a deferred annuity payable at age 65 or for the commuted value of the deferred annuity to age 65. The Group 2 proportions electing a deferred annuity upon termination were changed using the same approach as with the withdrawal assumption.

The following tables provide a sample of the proportions of terminating contributors opting for a deferred annuity. Only the sample rates of proportions of terminating contributors opting for a deferred annuity that differ from those of Group 1 are shown.

Table 13 Sample of Proportions Opting for a Deferred Annuity - Main Group 2 - Male
(Per 100 individuals)

	Completed Years of Pensionable Service						
Age[1]	1	5	10	15	20	25	30
44	16	44	55	41	41	35	0
45	16	43	56	40	42	38	0
46	16	42	57	39	44	40	23
47	16	41	58	38	46	42	21
48	15	50	55	36	36	30	11
49	15	40	59	37	48	44	0
50	15	45	55	41	50	46	0
51	15	42	54	40	46	47	21
52	16	48	53	36	40	33	10
53	15	50	55	36	36	30	11

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

Table 14 Sample of Proportions Opting for a Deferred Annuity - Main Group 2 - Female
(Per 100 individuals)

	Completed Years of Pensionable Service						
Age[1]	1	5	10	15	20	25	30
44	21	48	48	41	42	41	2
45	20	49	48	42	42	41	3
46	19	50	48	42	42	41	5
47	17	51	48	43	42	41	6
48	16	53	48	43	42	41	8
49	15	54	48	43	42	41	9
50	18	61	47	43	41	37	11
51	19	55	47	43	40	34	29
52	16	53	46	42	38	33	30
53	21	58	46	42	39	32	30

C. Pensionable Retirement

For Group 1 contributors and the operational service group, the assumed rates of pensionable retirement used in the valuation as at 31 March 2011 remain unchanged.

For Group 2 contributors below age 65, a new retirement assumption was developed to reflect the fact that retirement eligibility ages are older for those members. Retirement rates between the ages of 49 and 53 were replaced by the withdrawal rates for the corresponding ages previously defined for Group 1 contributors, since the annual allowance benefit is no longer available before age 55. The Group 1 retirement rates between the ages of 49 and 59 were used as the basis for the Group 2 retirement rates between the ages of 54 and 64. These retirement rates were further increased to account for the additional retirement rates between the ages of 59 and 64 for Group 2, with the objective of having equal probability of survival as an active contributor to age 65, for a contributor age 54 from either Group 1 or Group 2.

The following tables provide sample rates of pensionable retirement.

Table 15 Sample of Assumed Rates of Retirement - Main Group 2 - Male
(Per 1,000 individuals)

	Completed Years of Pensionable Service						
Age[1]	1	2	10	20	29	30	35
54	51	45	32	12	10	18	0
55	54	49	26	20	9	12	52
56	57	53	31	27	12	13	83
57	62	56	37	34	16	18	117
58	70	64	43	45	83	103	415
59	77	68	53	55	213	249	645
60	90	81	59	64	233	182	478
61	94	96	62	75	255	181	457
62	108	111	65	85	266	189	432
63	128	125	66	88	282	210	422
64	175	185	150	235	381	323	479

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

Table 16 Sample of Assumed Rates of Retirement - Main Group 2 - Female
(Per 1,000 individuals)

	Completed Years of Pensionable Service						
Age[1]	1	2	10	20	29	30	35
54	65	66	29	22	13	16	18
55	58	64	34	34	13	16	20
56	60	66	43	44	17	20	60
57	65	74	51	57	24	31	109
58	76	81	60	71	67	79	235
59	99	104	75	90	266	294	587
60	113	115	84	110	287	223	400
61	122	134	91	121	310	214	371
62	128	146	94	130	329	243	340
63	159	167	94	136	379	282	329
64	227	213	196	334	460	401	367

D. Disability Retirement

The disability incidence rate assumptions are unchanged from the actuarial valuation as at 31 March 2011 for all contributors below age 60. By age 60, a Group 1 contributor is eligible to receive a fully unreduced annuity hence disability rates are no more required. A Group 2 contributor, however, can potentially take a disability retirement until age 65. Thus the disability rate assumption has been extended to include ages 59 to 63 for Group 2 contributors.

It is assumed that 75% of future new disability pensioners will receive a C/QPP disability pension at the onset of disability. This is unchanged from the previous valuation. The following table shows the disability rates for the extended ages 59 to 63 for both male and female contributors.

Table 17 Sample of Assumed Rates of Pensionable Disability - Group 2
(Per 1,000 individuals)

Age[1]	Male	Female
59	6.35	9.70
60	7.87	10.95
61	9.75	12.20
62	11.82	13.34
63	13.74	14.20

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

Appendix 4 – Acknowledgements

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