

CANADIAN FORCES SUPERANNUATION ACCOUNT

ACTUARIAL REPORT

AS AT DECEMBER 31, 1975

Department of Insurance
Ottawa K1A 0H2
Canada

Canadian Forces Superannuation Act - Part 1

Report on the Actuarial Examination of the
Canadian Forces Superannuation Account in the
Consolidated Revenue Fund as at December 31, 1975

Pursuant to section 27 of the Act we have made an actuarial examination of the account as at December 31, 1975, and have the honour to report thereon. The report is divided into the following sections:

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I. Introduction

The last examination of this Account was made as at December 31, 1970. Since that time a number of significant developments have taken place which have a direct or indirect bearing on this report.

A. Recent Amendments to the Canadian Force Superannuation Act

In 1975 significant changes were made in the Canadian Forces Superannuation Act, the most important of which are as follows:

1. The Act was amended to provide for equality of status for male and female contributors. One amendment resulted in an increase in the contribution rate for females from 5.0% of pay to 6.5% of pay (less Canada Pension Plan contributions), the rate for male contributors. Another amendment entitled the widower of a deceased female contributor who was a member of the regular force on or after December 20, 1975, the date that this amendment came into force, to the same benefits as the widow of a deceased male contributor.

2. Any contributor or beneficiary entitled to a return of contributions following the amendments became entitled, in addition, to receive interest on the accumulation of such contributions at the rate of 4% per annum after December 31, 1973.
3. Prior to the amendment, the Act provided for the payment upon the death of a contributor without eligible beneficiaries or the termination of all allowances to surviving beneficiaries, of any excess of the return of contributions benefit over the aggregate of all payments made to the contributor and/or his beneficiaries. By virtue of the amendment, the greater of the return of contributions benefit (including interest as described in (2) above) and five times the annuity to which the contributor was or would have been entitled at the time of his death was substituted for the return of contributions benefit in the calculation of the excess to be paid in respect of those contributors who were members of the regular force on or after the date that the amendment came into force.
4. The period of service in the forces necessary to render the surviving spouse and/or children of a contributor eligible to receive allowances upon his or her death was reduced from 10 years to 5 years.
5. The 1975 amendments introduced provisions for payment of benefits to contributors who retire immediately upon completion of the short or intermediate engagement periods or who retire during a period of indefinite engagement. These changes were required to permit the forces to introduce separate career programs for officers and other ranks consisting of three types of engagement periods - initial short engagements running for 3 to 5 years for other ranks and 9 years for officers, an intermediate engagement extending to the completion of 20 years of total service or attainment of age 40, whichever is later, and a final indefinite period of service ending at the compulsory retirement age of 55 for all ranks with the exception of senior specialist officers.

In the event of retirement immediately upon completion of the short engagement, a contributor with less than 10 years of service in the forces becomes entitled to a return of contributions, while a contributor with 10 years but less than 20 years, other than as a subordinate officer, has the option of either a return of contributions or a deferred annuity.

A contributor retiring immediately upon completion of an intermediate engagement and after having served in the regular force at least 20 years becomes entitled to an immediate annuity.

If a contributor who is serving an indefinite period of service after having completed an intermediate engagement retires before his compulsory retirement age, he becomes entitled to the immediate annuity to which he would have been entitled upon the completion of the intermediate engagement increased to such extent, not exceeding the immediate annuity to which he would be entitled if retiring on account of age or disability, as may be prescribed by regulations.

Previously a contributor retiring before his compulsory retirement age which varied by rank from 44 to 60 was only entitled to an immediate reduced annuity with the amount of reduction varying by age or service, and rank.

B. Supplementary Retirement Benefits Act

The Supplementary Retirement Benefits Act, enacted in 1970 and amended in 1973, provides supplementary benefits related to increases in the cost of living to persons in receipt of annuities or annual allowances under various government superannuation and other acts, including the Canadian Forces Superannuation Act. Although the provisions of the Supplementary Retirement Benefits Act do not affect the operation of the Canadian Forces Superannuation Account, it was considered desirable to include a description of them and to present certain alternative methods of financing these benefits in Appendix 2 to this report, in order to present a more complete picture of the total pension provisions for contributors to the Canadian Forces Superannuation Account.

C. Valuation Assumptions

In order to bring our practice into line with the generally preferred actuarial approach of choosing each assumption on its own merits and on as "realistic" a basis as may appear appropriate, some substantial changes in assumptions were made for purposes of this report. The various assumptions and their rationale are described in detail in Section III.

II. Membership Statistics

In the following tables are shown pertinent statistics concerning contributors to the Account during the five-year period from the date of the last valuation December 31, 1970, to the date of the current valuation, December 31, 1975. These figures were obtained from the computer tabulations supplied by the Department of National Defence.

A. Members of the Forces

Terminations during period Jan. 1/71-Dec. 31/75

<u>Class of Contributors</u>	<u>Contri- butors on Jan.1/71</u>	<u>New con- tributors Jan.1/71- Dec.31/75</u>	<u>Type of Benefit</u>	<u>Type of Termination</u>			<u>Total</u>	<u>Contri- butors on Dec.31/75</u>
				<u>Death</u>	<u>Dis- ability</u>	<u>Other**</u>		
<u>Males:</u>								
Officers	15,263	4,805	Annuity	85	76	3,359	3,520	13,330
			Lump Sum	<u>42</u>	<u>58</u>	<u>3,118</u>	<u>3,218</u>	
				127	134	6,477	6,738	
Other Ranks	73,730	30,227	Annuity	414	1,659	13,460	15,533	62,246
			Lump Sum	<u>261</u>	<u>626</u>	<u>25,291</u>	<u>26,178</u>	
				675	2,285	38,751	41,711	
Total	88,993	35,032	Annuity	499	1,735	16,819	19,053	75,576
			Lump Sum	<u>303</u>	<u>684</u>	<u>28,409</u>	<u>29,396</u>	
				802	2,419	45,228	48,449	
<u>Females:</u>								
Officers	259	456	Annuity	-	1	20	21	623
			Lump Sum	<u>1</u>	<u>1</u>	<u>69</u>	<u>71</u>	
				1	2	89	92	
Other Ranks	756	2,437	Annuity	-	1	13	14	2,707
			Lump Sum	<u>3</u>	<u>6</u>	<u>463</u>	<u>472</u>	
				3	7	476	486	
Total	1,015	2,893	Annuity	-	2	33	35	3,330
			Lump Sum	<u>4</u>	<u>7</u>	<u>532</u>	<u>543</u>	
				4	9	565	578	
Grand Total	90,008	37,925		806	2,428	45,793	49,027	78,906

* In this column, contributors who had other rank status on Jan. 1/71, and who attained officer status at some time during the 1971-75 period are shown as officers rather than other ranks.

** Compulsory retirements because of age, promotion of economy or efficiency, misconduct, together with all retirements for other reasons.

B. Persons Entitled to Annuities or Annual Allowances

Retired Contributors

	Entitled on <u>Jan.1/71</u>	New Entitlements Jan. 1/71 to <u>Dec. 31/75</u>	<u>Terminations Jan.1/71 to Dec. 31/75</u>		Entitled on <u>Dec.31/75</u>
			<u>Deaths</u>	<u>Other Term'ns*</u>	
<u>Males:</u>					
Retirement for reasons other than disability	22,901	16,820	1,432	45	38,244
Retirement because of disability	<u>4,682</u>	<u>1,735</u>	<u>423</u>	<u>3</u>	<u>5,991</u>
Total	27,583	18,555	1,855	48	44,235

Females:

Retirement for reasons other than disability	178	33	3	-	208
Retirement because of disability	<u>16</u>	<u>2</u>	<u>-</u>	<u>-</u>	<u>18</u>
Total	194	35	3	-	226

Surviving Spouses

Entitled on <u>Jan.1/71</u>	New Entitlements Jan. 1/71 to <u>Dec. 31/75</u>	<u>Terminations Jan. 1/71 to Dec. 31/75</u>			Entitled on <u>Dec.31/75</u>
		<u>Deaths</u>	<u>Remarriages</u>	<u>Total</u>	
2,225	2,138	78	178	256	4,107

Children (excluding students aged 18 to 25)

<u>Entitled on Jan. 1/71</u>	<u>Entitled on Dec.31/75</u>
2,513	2,789

* Re-enrollments in the forces and transfers to other superannuation plans.

III. Valuation Assumptions

A. General Comments

Separate computer tabulations were provided for four groups of contributors, namely, male officers, male other ranks, female officers and female other ranks. In this report, the term "classes of active contributors" refers to these four groups.

As for recent examinations of the Account, the data exhibited significant differences in both salary and termination experience for the four classes of contributors. It was therefore considered desirable to continue to treat each class separately for valuation purposes.

Continuing the practice used in previous valuation, studies were made of the actual experience during the period 1971-75 compared with the expected experience for salaries and terminations, based on the assumptions used in the 1970 valuation. Although the personnel and staffing policies of the forces continue to be subject to change, it was considered desirable for purposes of this valuation to use actuarial assumptions representative of actual experience. These assumptions are explained in detail under the respective headings.

It is generally recognized that actuarial estimates of the cost of funding pensions are heavily dependent on the assumptions underlying the calculations, and that the choice of the economic assumptions tends to be among the most difficult. For this valuation it was decided to abandon the 4% interest assumption used in preceding valuations as well as the assumption of no future general increases in salaries in order to bring our approach more in line with the generally more favoured actuarial approach of selecting assumptions that might be regarded as appropriate and reasonably "realistic" each on its own merits as well as when considered together.

The primary purpose of treating this plan in a manner consistent with the practice for industrial pension plans is not to provide security through funding, but to account for pension costs in an appropriate and reasonably comparable fashion. Before discussing the various assumptions under individual headings, the following general comments relating to economic assumptions may help in judging the appropriateness of the choice.

(1) Effect of explicit or implicit level of inflation determining the general level of economic assumptions

There are three aspects to the discussion under this heading:

- (a) To the extent that decisions by labour, business, government and other bodies as well as individuals are based on predictions regarding the behaviour of economic variables, the predictions will themselves influence these variables.

Actuaries in their attempt to choose "realistic" assumptions risk reinforcing inflationary expectations, and this may be particularly so when actuarial reports are public documents as in the case of pension plans operated by governments or when the reports deal with the plans of major financial or industrial enterprises whose policies have important economic repercussions. It would seem that the greater the agreement regarding appropriate levels of economic assumptions, the greater the influence of the assumptions on the variables and the greater the likelihood that the actual level of inflation and the resulting actual levels of increases in salaries and of interest rates will exceed assumptions and predictions. Perhaps it is inevitable that, with few exceptions, the actual level of inflation will exceed the anticipated level. If so, it would follow that the relative desirability of the scenario of assumptions should have at least some effect on its choice.

- (b) Some recent studies appear to show that the real rate of return (nominal rate less rate of inflation) decreases as the rate of inflation increases. However, this may be due not to any fundamental correlation but rather to the fact that, when the inflation rate is relatively close to its cyclical maximum, anticipated long-term inflation tends to be substantially below current actual inflation and longer term rates of return considered necessary by investors to compensate for such anticipated future rates of inflation are such as to depress current real interest rates substantially below their long term average. It certainly seems reasonable to assume that if the long term level of inflation in the future were to settle at a substantially higher level than has been experienced, say, over the past fifty years, then nominal interest rates would settle at a level which would produce real interest rates not substantially different from those experienced in the past. Real rates of return should also benefit from the gradually decreasing need for the expansionary policies that were necessary to accommodate the entry of the baby boom generation into the labour force and into the ranks of home owners and borrowers. A return to more conservative social, economic and political behaviour may be expected as this cohort approaches and passes age 40.
- (c) The level of inflation assumed or implicit in the economic assumptions can be critical when attempts are made to compare different types of pension plans or when modifications in a particular plan are being considered; and it is important to recognize that consistent assumptions are essential but not sufficient to ensure acceptable conclusions regarding relative costs.

- (i) The extent to which the required current service (or normal) contribution rate is affected by the level of economic assumptions depends on the type of pension plan under consideration. For a pension plan of the career-average type, where the rate of interest is normally the sole economic assumption, a relatively high level of interest produces a relatively low cost. For a final-average-pay plan, such as the Canadian Forces Superannuation Plan, where the effect of a relatively high assumed rate of interest tends to be offset by the effect of an accompanying relatively high level of assumed salary increases, the effect is considerably smaller. Finally, for a fully indexed final-average salary plan, such as the C.F.S.A. if it were combined with the applicable provisions of the Supplementary Retirement Benefits Act, which is considered in parts (a) and (b) of Appendix 2, the level of assumed inflation tends to have a very slight effect on costs if its relationship to assumed interest rates and general increases in salaries remains approximately the same. In other words, in this case, estimated costs are governed largely by the differentials between the different economic assumptions.
- (ii) Similar considerations apply to the value of accrued benefit liabilities. However, to the extent that benefits are funded by means of long term bonds, a relatively high assumed rate of interest will produce a relatively low value of the assets (if bonds are valued at the assumed rate). The net effect of assuming a relatively high rate of interest would tend to appear as an improved financial status in the case of an unindexed plan but a deterioration in the case of an indexed plan (assuming consistency of assumptions).

(2) Effect of differentials between economic assumptions

Where applicable, the three relevant economic assumptions are:

p = rate of inflation

s = rate of increase in level of salaries

i = rate of return on investments

Although, strictly speaking, pension funding costs are affected by ratios of the type $\frac{1+s}{1+i}$ and $\frac{1+p}{1+i}$ for practical purposes the effect may be measured by the differentials (i - s) and (i - p).

The differential $(i - p)$ is commonly referred to as the real rate of return and may be thought of as reflecting the share of production allocated to capital. The real rate of return affects directly the funding cost of indexed pensions, and indirectly, as shown below, the funding cost of pensions based on final-average salary.

The cost of final-average salary plans is affected by the differential $(i - s)$ which may be thought of as $(i - p) - (s - p)$. The differential $(s - p)$ is generally regarded as reflecting the rate of increase in productivity and may be referred to as the real rate of salary increases. Thus the cost of final-average salary plans may be said to be affected by the difference between the real rate of return and the real rate of salary increases.

(3) Effect of benefits beyond the terms of pension plans

As may be inferred from (1) and (2) above, when costs of different plans are being compared or amendments are being considered, it is important to bear in mind the level of the economic assumptions as well as the differentials between individual assumptions. However, there are considerations beyond these. For a growing number of plans, in some cases as a result of collective bargaining, employers have in recent years adopted the practice of (a) making periodic ad hoc adjustments to pensions in payment to compensate for some or all of the purchasing power lost through inflation, and (b) increasing the benefits accrued to active members of flat-benefit or career-average type pension plans in order to keep earned pensions in a reasonable relationship to current rates of pay. In the absence of explicit commitment under the terms of the plan, future adjustments will not be included in the calculations of normal contribution rates and accrued pension liabilities. It might be argued, especially when adjustments occur with regularity, that the employer has made a strong moral commitment to maintain pension values and that from an accounting point of view the costs are understated. It would be possible, of course, for the employer to make advance provision for future adjustments without contributing additional funds to the plan by setting up a special contingent liability in his balance sheet and including the additions to such contingent liability account with the current service contributions to the pension fund for purposes of assessing the total current service cost. Such practice might make for more valid comparison of the potential value of pensions under different plans and

more equitable allocation of costs between different generations of shareholders, consumers and taxpayers. However, setting up a contingent liability in the employer's balance sheet might well be interpreted as converting a moral commitment into a relatively firm undertaking, in which case the additional benefits should be considered part of the formal plan and funded in the same manner as basic benefits. For practical purposes, of course, this would eliminate the employer's option of updating benefits from time to time without commitment regarding future adjustments.

B. Salary Increases

Where used in this report, the term "salary scale" means the assumed pattern of future increases in pay and allowances from year to year as a member advances in age. Such a scale is needed for valuation purposes, because benefits and contributions that become payable in the future depend on the rates of pay that will be received in the future.

There are two main forces that tend to generate increases in rates of pay: First, a promotional force resulting from experience and training and increase in responsibility due to appointment to a higher rank; second, an economic force related, directly or indirectly, to such factors as collective bargaining, labour market conditions, inflation and general increases in productivity. Increases in pay resulting from this second force are herein referred to as "general" increases.

The pattern of average promotional increases in pay may be assumed to be fairly predictable on the basis of past experience, and provision for such increases was made in the 1970 valuation on the basis of a promotional salary scale constructed from data relating to the rates of pay for each of the four classes of active contributors as at December 31, 1970. This scale was considered to remain appropriate and was used for the current valuation.

With regard to general increases, on the other hand, the wide variations that have occurred in recent years as a result of varying economic and social pressures are indicative of the difficulty in predicting the level of future increases of this type, and in preceding valuations no explicit provision for such increases was made in determining the required contribution rate. (As mentioned in Section V, credits are made to the Account to cover increases in liabilities arising from general increases in pay as they occur to the extent that such increases are not provided for in the actuarial assumptions.) For purposes of this valuation, in combination with the assumption of an interest rate of 6.5%, we have assumed a level rate of general increases in pay of 5.5%.

The assumed rate of general increases of 5.5% may be thought of as being composed of a 3% inflation factor and a 2.5% factor for increases in productivity. Further comments are made in the discussion of interest rates which follows.

Appendix 3 shows the promotional salary scale and a salary scale incorporating both promotional and general increases.

C. Interest Rates

Until the quarter ending June 30, 1969, interest was credited to the Account on the last day of each quarter in the fiscal year at the rate of 1% of the balance to the credit of the Account on the last day of the preceding quarter. This is a rate equivalent to approximately 4% per annum which is the rate that has been assumed in preceding actuarial valuations.

The 1969 amendments to the Act made provision for crediting interest to the Account in excess of the rate used in the preceding actuarial valuation. The total rate at which interest is now credited changes every three months and is calculated as if the amounts not required for payment of benefits in each quarter pursuant to this Act and the Public Service and R.C.M.P. Superannuation Acts had been invested on a basis similar to the one used for the Canada Pension Plan, i.e., in 20-year bonds having a yield equivalent to the average yield on Government of Canada bonds with 20 or more years to maturity outstanding at that time.

For the quarter ending December 31, 1975, the total rate of interest credit was 1.7209% which is equivalent to 7.06% per annum. The total annual rate of interest credit has remained above 6.5% since that time and seems likely to continue above that level for a long time, even if allowance is made for a drop in anticipated inflation to substantially lower levels, given that rates of return on recent investments have been substantially above 9%.

As stated earlier, in previous valuations an assumed interest rate of 4% was used, but the effect of using an assumed rate of return substantially lower than might be expected was largely offset by including no explicit provision for general increases in salaries. Moreover, specific provision is made in the Act for the application of interest earnings in excess of

the valuation rate to the liquidation of various actuarial deficiencies, of which increases in liabilities arising out of general salary revisions have been by far the most important.

For purposes of this valuation it was decided to use an assumed rate of interest of 6.5% which, as noted above, is expected to be exceeded by actual interest credits for a long time. In the long term, the rate may be thought of as being composed of an inflation factor of 3% and a real rate of return of about 3.5.*

The real rate of return explicitly or implicitly assumed in recent actuarial valuations of private pension plans appears to fall usually between 3.5% and 4.5%, so that the assumption of a real rate of return of less than 3.5% at the present time would only add to the difficulties in comparing contribution rates with those of other plans.

If the method of crediting interest described above is retained and past experience can serve as a guide, it is possible that the real rate of return may fall short of the assumed rate by perhaps three quarters of one percentage point in the long term. The effect of this, however, would be at least partially offset if the productivity factor implicit in the salary scale turned out to be overstated by a similar margin, which is not at all improbable.

D. Rates of Retirement with return of contributions

The experience with regard to male contributors retiring during the period 1971-75 while entitled only to a return of contributions showed that, as compared to the rates assumed for the 1970 valuation, the rates for such retirements were higher for officers below age 31 and over age 46 and lower for those at ages between these two, and were higher for other ranks below age 22 and lower for those at higher ages. No significant differences were found in the rates for such retirements by female contributors.

The rates used for this valuation which gave substantial weight to recent experience are shown in Appendix 4.

E. Rates of Retirement with entitlement to an annuity or a cash termination allowance for reasons other than disability

As stated earlier, a retirement age of 55 has been prescribed by regulations made under the National Defence Act for all members serving under the new career programs. For those members enrolled prior to the introduction of the new programs who are not subject to their provisions, the previous retirement ages varying by rank as prescribed by the regulations continue to apply.

* The exact real rate of return would be equal to $\frac{1.065}{1.03} - 1$ or 3.398%

These latter retirement ages, effective February 1, 1968, for contributors who enrolled on or after that date, or those serving on that date who elected to have such ages apply to them are shown below. For those contributors serving on that date who did not elect to have these ages apply to them, the retirement ages are similar to those below but vary slightly by rank and by branch of the forces.

Officers

	<u>General Service</u>	<u>Specialist Service</u>	<u>Commissioned from Ranks</u>
Brigadier-General and above	55	60	55
Colonel	55	58	55
Lieutenant-Colonel	51	55	50
Major	47	55	50
Captain and Lieutenant	45	50	50

Other Ranks

Sergeant and above	50
Corporal and below	44

Notwithstanding the above prescribed ages for retirement, for purposes of voluntary retirement or compulsory retirement under certain conditions, the regulations prescribe that retirement age will be deemed to have been reached upon completion of the following periods of full-time, paid service in any of Her Majesty's Forces if the resulting date of retirement is earlier.

Years of Service

Officers

Colonel and above	30
Lieutenant-Colonel and below	28

Other Ranks

Sergeant and above	30
Corporal and below	25

The data on the contributors retiring for reasons other than disability with entitlement to a cash termination allowance or an annuity during the 1971-75 period indicates that rates of retirement for these reasons had varied significantly from those used in the 1970 valuation. New rates of retirement that make allowance for this experience were adopted for this valuation and are shown in Appendix 5.

As a result of the introduction of the new career programs with emphasis on retirement at either the completion of an intermediate engagement with 20 years service or age 40, if later, or at age 55 after serving an indefinite period of service, there should be some expected changes in the pattern of retirements. As there is still some personal decisions to be made in the choice of actual dates of retirement, it was considered appropriate to continue the use of the rates based on the recent experience until those members to whom the old regulations on retirement ages apply have retired and some pattern of retirements under the new programs evolves.

F. Rates of retirement with entitlement to an annuity or a cash termination allowance because of disability

During the 1971-75 period the number of members retiring because of disability and with entitlement to an annuity or a cash termination allowance was lower than the expected on the basis of the rates used in the 1970 valuation for male officers and higher than the expected for the male other ranks. The number of such retirements of female members was not sufficient to draw any conclusions.

The rates of retirement because of disability for male members were adjusted to reflect this experience. The rates used in the 1970 valuation for female members were considered appropriate and were used again for this valuation. The rates used for the four classes are shown in Appendix 6.

G. Rates of mortality and remarriage

For valuation purposes, mortality rates expected to be experienced in the future were required for the following groups:

- (i) the four classes of active contributors,
- (ii) contributors in receipt of annuities who were retired for reasons other than disability, males and females separately,
- (iii) contributors in receipt of annuities who were retired because of disability, males and females separately,
- (iv) widows of deceased male contributors,
- (v) widowers of deceased female contributors, and
- (vi) children of deceased contributors.

As allowances to spouses are suspended on remarriage, rates of remarriage expected to be experienced in the future were also required for valuation of these benefits.

The bases used in the valuation for each of the above groups are as described in the following paragraphs:

(i) Active contributors

Using the data for active contributors who died during the 1971-75 period, new mortality rates were developed for active male contributors, officers and other ranks, separately. The resulting rates for officers are generally lower than those used in the 1970 valuation. Those for other ranks vary with some being higher and some lower than those used in the 1970 valuation. These rates reflect the actual mortality experience of members of the forces and therefore vary somewhat from normal patterns. With insufficient data on female contributors, it was considered advisable to continue to use the same rates as those used in the 1970 valuation. All rates are shown in Appendix 7 to this report.

(ii) Contributors entitled to annuities who were retired for reasons other than disability

The experience of the 1971-75 period indicated that for contributors retired for reasons other than disability and entitled to an annuity the mortality rates used in the 1965 and 1970 valuations continue to be appropriate for those now entitled to an annuity and for those who would become entitled in the future. The rates are those of the a-1949 Table Projected 10 years.

The mortality rates from this table and annuity values based thereon are shown in Appendix 8 to this report.

(iii) Contributors entitled to annuities who were retired because of disability

For male contributors entitled to annuities because of disability, a comparison of actual deaths with the deaths expected in accordance with the assumptions used in the 1960, 1965 and 1970 valuations indicated these rates continue to be suitable for the valuation of benefits payable to those currently receiving them and those who may receive them in the future.

The rates for male lives are multiples of 300% in the first year of disability, of 200% in the second year of disability, and 100% thereafter of the male rates in the Canadian Life Table 1950-52. As the number of females receiving annuities because of disability at December 31, 1975, was only eighteen and two deaths occurred in this group during the 1971-75 period, no study of the mortality experience was made. The rates of mortality used for the 1965 and 1970 valuations, varying multiples of rates from the Canadian Life Table 1950-52, were retained for this valuation.

The mortality rates used in the valuation and annuity values based thereon are shown in Appendix 9A and 9B to this report, respectively.

(iv) Widows

The mortality rates used for the valuation of both present and future widows' allowances were those used in the 1965 and 1970 valuations which were derived from the 1948-57 experience of widows receiving allowances under the Public Service Superannuation Plan. Experience during the 1971-75 period indicated that these rates continue to be appropriate.

The remarriage rates used were the select and ultimate remarriage rates derived from the 1940-57 experience of widows granted pensions under the Pension Act and previous government administrative orders from August 4, 1914 to December 31, 1957. While this table of remarriage rates was the most appropriate one available, recent experience has indicated that the select rates of the table at early durations are somewhat lower than corresponding actual rates for widows entitled to allowances under the Canadian Forces Superannuation Plan.

In Appendix 10A to this report are shown:

- (a) - select remarriage rates for quinquennial ages of commencement of widowhood 25 to 55 and specimen durations of widowhood
- (b) - ultimate remarriage rates and aggregate mortality rates for quinquennial ages commencing at age 39
- (c) - annuity values based on the probabilities of payments ceasing as a result of remarriage or death as stated in the same appendix and for the same specimen ages and durations.

(v) Widowers

As stated in Section I of this report, the Act was amended to provide for equality of status between male and female contributors. As a result of this amendment, the widowers of deceased contributors who were members of the forces on and after December 20, 1975 when this amendment became effective are entitled to annual allowances.

As at December 31, 1975, there were no widowers entitled to benefits and therefore no experience under the Canadian Forces Superannuation Plan on which to base remarriage and mortality rates for widowers of deceased contributors. The remarriage rates assumed for this valuation were the same as those used for purposes of the Canada Pension Plan. The mortality rates are those for male lives in the Life Tables 1970-72, Canada, as published by Statistics Canada.

In Appendix 10B to this report are shown:

- (a) - five year select remarriage rates for quinquennial ages of becoming a widower 25 to 55 and specimen durations since becoming a widower.
- (b) - ultimate remarriage rate and aggregate mortality rates for quinquennial ages commencing at age 30.
- (c) - annuity values based on the probabilities of payments ceasing as a result of remarriage or death as stated in the same appendix and for the same specimen ages and durations.

(iv) Children

Payments of allowances to children are payable up to age 18 in all circumstances and from age 18 up to age 25 if the child is unmarried and attending a school or university. As the mortality rates for children are quite low, it was considered suitable to ignore mortality amongst these annuitants.

H. Proportions of deceased contributors and annuitants married at death and average age of spouses corresponding to ages of contributors and annuitants at death.

To determine the value of future benefits payable on the death of contributors who are members of the forces or entitled to annuities at death, proportions married at death and average ages of spouses corresponding to ages of contributors and annuitants at death were required.

The proportions for males used in the three preceding valuations were based on the combined experience of all male lives, active and retired, during the 1956-60 period. These proportions were considered appropriate for the current valuation. There appears to be a slow trend towards a reduction in the differences between the ages of husbands and wives according to experience during the years 1961 to 1975. As the change is slight, however, the table of average ages of widows corresponding to ages of husbands at death used for the 1965 and 1970 valuations was retained.

In view of the lack of data on the proportion of female contributors and annuitants married at death, arbitrary rates were chosen. The average ages of widowers corresponding to ages of female contributors and annuitants at death were based on the corresponding table for male contributors.

The proportions and average ages used in the valuation are shown in Appendix 11 to this report.

I. Proportion of contributors whose pay is less than the Year's Maximum Pensionable Earnings (Y.M.P.E.) of the Canada Pension Plan and Ratios of the average pay of such contributors to the Y.M.P.E.

These proportions and ratios were required for the purpose of determining the effect that the integration of the Canadian Forces Superannuation Act with the Canada Pension Plan has on the present value of benefits and contributions and on the required rates of government credits to the Account.

The factors used were developed from the data submitted on salaries of contributors showing the number at each age earning less than the Y.M.P.E. and their average salary.

The factors used are shown in Appendix 12.

IV. Funding Method

The method used in preceding valuations, known as the "Entry Age Normal" cost method, was retained. This method contemplates a current service contribution rate expressed as a constant percentage of pay equal to a rate applicable to a representative cohort of new entrants during their contributory membership in the plan.

V. Rates of Contributions and Required Credits to the Account

As part of the review of the Account, the total rates of contribution and credits required to be made in respect of new contributors to provide for the benefits under the Act were calculated using the same assumptions concerning future salaries and other factors as were used for the valuation of benefits and contributions payable in the future in respect of contributors who were members of the forces on December 31, 1975.

The following table shows the estimated rates at which contributions are made and government credits are required in respect of new contributors for each of the four classes and for all classes combined. The distribution of members of the forces who became contributors during five years ending December 31, 1975 is shown in Appendix 13. However, the values in the table below are based only on contributors as at December 31, 1975 who became members of the forces during that year.

Average Rates of Contribution and Required Credits
(as percentages of total pay)

	<u>Contributions (net of C.P.P. contributions)</u>	<u>Required Government Credits</u>	<u>Ratio of Credits to Contributions (2)÷(1)</u>
	(1)	(2)	(3)
	%	%	
<u>Officers</u>			
Males	5.84	15.59	2.67
Females	5.62	6.93	1.23
<u>Other Ranks</u>			
Males	5.46	8.86	1.62
Females	5.15	(0.46)	(0.09)
<u>All Contributors</u>	5.55	10.76	1.94

The ratio of required government credits to contributions from contributors, estimated at 1.94 for all contributors combined, is only slightly greater than the ratio of 1.8 which has been in use since April 1, 1969. In view of the satisfactory state of the Account in relation to the existing provisions of the Act (see following section) as well as the possibility of substantive amendments, retention of the existing ratio of government credits appears indicated for the time being.

The new valuation assumptions include provision for 5.5% annual increases in the general level of pay. Under normal pension funding practices, liabilities arising out of increases in pay in excess of the assumed rate would be taken care of, along with other deficiencies after allowing for any gains, following receipt of periodic actuarial reports. The Canadian Forces Superannuation Act, however, provides for special credits to the Account following authorization of general pay increases. Accordingly, it has been estimated that special credits to the Account in respect of such pay increases should be made equal to 3.8 times the amount of increase in the effective annual payroll in excess of 5.5% per annum for officers, and 3.0 times such amount for other ranks. Under the existing provisions of the Act, such credits would be set up as a deferred charge to be amortized in five equal instalments. These instalments, together with instalments in respect of any actuarial deficiency reported as a result of quinquennial actuarial examinations, could be offset by interest earnings in excess of 6.5% per annum.

VI. Valuation Balance Sheet and Observations

Using the assumptions and the funding method described in Sections III and IV respectively, the results of the valuation are summarized and the status of the Account is shown in the following balance sheet.

Valuation Balance Sheet as at December 31, 1975

<u>Assets</u>		
Balance of Account (Par Value)*		\$ 6,388,368,000
Credits from Government outstanding at Dec. 31/75 and made in 1976		30,600,000
Outstanding contributions from contributors		5,612,000
Present value of future contributions from members of the forces		
Current Service	\$ 576,269,000	
Prior Service	<u>3,490,000</u>	579,759,000
Present value of future instalments from retired contributors		1,528,000
Present value of future credits from Government (assumed equal to 1.8 times the amount from contributors)		<u>1,046,317,000</u>
Total Assets		<u>\$ 8,052,184,000</u>

<u>Liabilities</u>		
Present value of prospective benefits to and in respect of contributors who are members of the forces		\$ 4,832,964,000
Present value of future benefits to persons entitled to an annuity or annual allowance		
Retired contributors	\$ 2,018,108,000	
Widows	64,638,000	
Children	<u>3,955,000</u>	\$ 2,086,701,000
Amounts due to retired contributors or to the dependants or estates of contributors		<u>799,000</u>
Total Liabilities		\$ 6,920,464,000
Contingency Reserve		<u>1,131,720,000</u>
		<u>\$ 8,052,184,000</u>

* The value of the Account as at Dec. 31, 1975, determined by discounting the notional investments at the assumed valuation interest rate of 6.5% was \$6,913,873,000. It was decided not to use such value, so as not to capitalize interest earnings in excess of the assumed rate without compensating provision for pay increases in excess of the assumed rate. Deferred charges totalling \$1,012,466,000 were in the process of amortization and would be considered an unfunded liability, if they were not included in the balance of the Account.

The foregoing balance sheet indicates an excess of assets over liabilities of about \$1,132 million. The main gains and losses which had a bearing on the development of this excess were as follows:-

A. Gains

1. Changes in the economic assumptions as reported earlier produced a decrease in actuarial liabilities of approximately \$1,603 million.

B. Losses

1. Estimates of special credits required in respect of general increases in pay during the years 1971-75 which amounted to about \$1,543 million appeared to have been short by amounts which, with accumulated interest came to about \$176 million.
2. An estimated \$37 million is due to differences between the actual and expected retirements.
3. An estimated \$24 million due to differences between the actual and expected other terminations.
4. Changes in the actuarial assumptions for rates of retirement, withdrawal etc as reported earlier resulted in an increase in actuarial liabilities of \$234 million.

As noted above, there is an excess of assets over liabilities of \$1,131,720,000 in the Account on the basis of the new actuarial assumptions adopted for this valuation of the liabilities in respect of benefits in payment as well as prospective benefits payable under the Canadian Forces Superannuation Act. In the valuation which produced the foregoing result no allowance was made for any possible changes in the method of financing the Supplementary Retirement Benefits which would affect the Canadian Forces Superannuation Account. Examples of the effect of such changes on the Account are reported in Appendix 2. Until the question of the financing of Supplementary Retirement Benefits has been resolved it would seem appropriate to retain the foregoing excess as a contingency reserve.

VII. Summary and Conclusion

1. The total contribution rate required from contributors and Government combined to provide all benefits in respect of current service is estimated to be 16.31% of pay. Allowing for coordination with the Canada Pension Plan, the effective rate of contribution to the Account from contributors is estimated to be 5.55% of pay. As a result, it is estimated that Government credits are required at 1.94 times the contributions of contributors. In view, however, of the existing state of the Account as well as the consideration being given to possible changes in the method of financing Supplementary Retirement Benefits which would affect the Canadian Forces Superannuation Account, it is recommended that the Government continue to make credits of 1.8 times the contributions from contributors until appropriate amendments to the Act are made.

2. The contribution rates mentioned above make allowance for general salary increases at the rate of 5.5% of pay per annum. Pursuant to subsection 26(2) of the Act, additional liabilities arising out of general increases in pay in excess of this rate are estimated to require Special Credits to the Account equal to 3.8 times the increase in the effective annual payroll in excess of 5.5% for officers and 3.0 times such increase for other ranks. Under the existing provisions of the Act, such credits would be set up as a deferred charge to be amortized in five equal annual instalments. These instalments, together with those in respect of existing deferred charges, could be offset by current interest earnings in excess of 6.5% per annum.

3. It appears appropriate to retain the estimated excess of assets over liabilities in the Account as at December 31, 1975, of \$1,131,720,000 as a contingency reserve, pending the resolution of the question of financing benefits pursuant to the Supplementary Retirement Benefits Act.

4. This report on the Canadian Forces Superannuation Account makes no allowance for contributions or benefits related to the Supplementary Retirement Benefits Act. These are discussed in Appendix 2.

In conclusion, we wish to acknowledge the co-operation of the various sections of the Department of National Defence which supplied us with the data on contributors and annuitants and processed them for us in a satisfactory manner.

Respectfully submitted,

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July 13, 1979

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APPENDIX 1

Summary of the Canadian Forces Superannuation Plan

A. Coverage

Persons covered by this plan comprise

- (a) every member of the regular forces of the Canadian Forces, hereinafter referred to as the "forces", who
 - (i) was a contributor under Part V of the former Act immediately before March 1, 1960, the date on which the Act came into force,
 - (ii) not having been a member of the forces immediately before March 1, 1960, became a member of the forces on or subsequent to that date,
 - (iii) having been a member of the forces on March 1, 1960, thereafter ceased to be a member and subsequently was re-enrolled in the forces,
 - (iv) having been a member of the forces but not a contributor under Part V of the former Act on March 1, 1960, elected to become a contributor under the Act within one year from that date, or
 - (v) having been entitled to a pension under any of Parts I to III of the former Act on March 1, 1960 elected to become a contributor under the Act within one year from that date;
- (b) former members of the forces who are entitled to annuities payable out of the Account; and
- (c) spouses and children who are entitled to annual allowances as dependants of contributors who died either while members of the forces or while entitled to annuities payable out of the Account.

B. Contributions and Credits to the Account

1. By Contributor

(a) Current Service

The rate of contribution for members of the forces covered by the Act is 6.5% of pay reduced by the amount that the contributor would be required to contribute under the Canada Pension Plan in respect of pay received by him as a member of the forces. (For example, in 1978 the reduction was 1.8% of pay between \$1,000 and \$10,400 per annum).

Contributions for current service cease when a contributor has to his credit 35 years of pensionable service.

(b) Prior Service

A contributor may elect to contribute in respect of any period of prior pensionable service as described on page 32.

In general, if the election to contribute for a period of prior pensionable service is made within one year of the member becoming a contributor, the amount that the member is required to contribute is equal to the total contributions that he would have had to make during that period of prior pensionable service if the contributions had been computed

1) for any period of service described in (a) and (b) of Note 2 of section D of this appendix according to the rate of pay applicable to the contributor on the most recent occasion on which he became a contributor under the Act, and

2) for other service, according to the rate of pay authorized to be paid to him during that period,

and at the rates of contribution applicable to the period. The rates which apply are for male members, 6.0% for service on or before March 31, 1976 and 6.5% for service after that date, and for female members 6.0% for service on or before Mar. 31/69, 5% for service from that date to Jan. 31/76, and 6.5% for service since that date. Contributions for any period of prior pensionable service after Dec. 31/65 are subject to adjustment for integration with the Canada Pension Plan. All contributions are increased by simple interest at the rate of 4% per annum from the middle of each fiscal year of prior service to the date of election.

There are a few minor exceptions to this general rule which it was considered unnecessary to give in detail in this report.

If a contributor fails to make an election in respect of a period of prior pensionable service within the prescribed time, he may make an election at any later time while he is still a member of the forces provided that he is in good health at date of election. However, the rate of pay used in determining the contributions for such prior service will be the rate of pay authorized to be paid to the contributor at the time he makes his election.

Contributions in respect of prior service may be paid in a lump sum, or by monthly instalments, payable for life, or for a period ceasing upon death or completion of a fixed number of years whichever is earlier. Monthly instalments are computed on the basis of the Canadian Life Table No. 2 (1941) Males or Females, as the case may be, and interest at 4% per annum.

2. By Government

The Government makes credits to the Account as follows:

- (a) in each quarter such multiple of the total amount paid into the said Account during the preceding quarter by way of contributions in respect of current services and past services rendered by contributors as is specified by the Minister of Finance. As of April 1, 1969, the amount was increased from $1 \frac{2}{3}$ to 1.8 times the amount of contributions by contributors;
- (b) in each fiscal year, an amount representing interest on the balance in the Account from time to time calculated at the interest rate assumed in the preceding actuarial valuation and at such "supplementary" rate as might be provided by regulations. Further details are given in Section III C of this report;
- (c) following authorization of any pay increase applicable to at least one per cent of the members of the forces, an amount representing, in the opinion of the Minister of Finance, the increase in the net liability for benefits resulting from that pay increase; The amount so credited is charged to the Consolidated Revenue Fund in five equal annual instalments commencing in the fiscal year in which the pay increase was authorized. In accordance with the recommendation in the report on the 1970 actuarial valuation, the amount credited, as a

multiple of the amount of increase in the annual payroll of the group receiving the increase, was 5.1 for officers and 3.0 for other ranks;

- (d) following the laying before Parliament of any actuarial report an amount, as in the opinion of the Minister of Finance is required, in addition to the amount then to the credit of the said Account, to meet the cost of the benefits payable from the Account. The amount so credited is charged to the Consolidated Revenue Fund in five equal annual instalments commencing in the fiscal year in which the report is laid before Parliament.

The Minister of Finance may apply the supplementary interest described in (b) above to reduce the instalments described in (c) and (d) above.

C. Summary of Benefits

(The explanatory notes referred to in the following summary are given in Section D of this Appendix.)

1. Contributors who are members of the forces

<u>Type of Termination</u>	<u>Service in the Forces (Note 3)</u>	<u>Benefit</u>
Retirement because of age (Note 6)	3 years or less	Return of contributions (Note 7)
	More than 3 years but less than 10 years	Return of contributions or cash termination allowance (Note 8), whichever is the greater
	10 years or more	Immediate annuity (Note 9)
Retirement on completion of short engagement (Note 4) (a contributor who has not reached retirement age, and is not serving on an intermediate engagement (Note 5) or for an indefinite period of service)	Less than 10 years	Return of contributions
	More than 10 years but less than 20 years	Officer contributors other than subordinate officers, at the option of the contributor, (1) return of contributions or (2) deferred annuity. Other contributors, return of contributions
	20 years or more	See retirement for other reasons
Retirement on completion of intermediate engagement (a contributor who has not reached retirement age and is not serving for an indefinite period of service)	Less than 20 years	See retirement for other reasons
	20 years or more	Immediate annuity
Retirement during an indefinite period of service after having completed an intermediate engagement and prior to reaching retirement age, for reasons other than disability, economy or efficiency, or misconduct.	Any length	Immediate annuity to which contributor was entitled upon completion of intermediate engagement increased to such extent, not exceeding the immediate annuity to which contributor would be entitled if retiring on account of age, as prescribed by regulation (Note 10)
Compulsory retirement because of disability	Less than 10 years	Return of contributions or cash termination allowance, whichever is the greater
	10 years or more	Immediate annuity

Type of Termination

Service in the Forces

Benefit

Compulsory retirement to promote economy or efficiency

3 years or less

Return of contributions

More than 3 years but less than 10 years

Return of contributions or cash termination allowance, whichever is the greater.

10 years or more but less than 20 years

At the option of the contributor
(1) return of contributions
(2) deferred annuity (Note 11), or
(3) with consent of the Minister an immediate reduced annuity (Note 12)

20 years or more

Immediate annuity

Compulsory retirement because of misconduct, as defined in the Act

Less than 10 years

Return of contributions

10 years or more

Return of contributions or with the consent of the Treasury Board, the whole or any part specified by the Treasury Board of the annuity to which the contributor would have been entitled, at the time of his retirement, if he had been compulsorily retired to promote economy or efficiency (Note 13)

Retirement for other reasons

Less than 10 years

Return of contributions

10 years or more but less than 20 years

At option of contributor
(1) return of contributions or
(2) deferred annuity

20 years or more but less than 25 years

Immediate reduced annuity

25 years or more

Officer contributor - immediate reduced annuity
Other than officer contributor - immediate annuity

Death leaving no spouse or eligible children under 25 (Note 14)

Any length

Return of contributions or five times the annuity to which the contributor would have been entitled at the time of his death, whichever is greater

<u>Type of Termination</u>	<u>Service in the Forces</u>	<u>Benefit</u>
Death leaving spouse and/or eligible children under age 25	Less than 5 years	Return of contributions or an amount equal to one month's pay of the deceased contributor for each year of pensionable service to his credit, whichever is the greater
	5 years or more	Annual allowances (Notes 14, 15 & 16)

2. Former Contributors who are receiving annuities or are entitled to deferred annuities

<u>Type of Termination</u>	<u>Benefit</u>
Death leaving no spouse or eligible children under age 25	Minimum benefit (Note 16)
Death leaving spouse and/or eligible children under age 25	Annual allowance

D. Explanatory Notes to Summary of Benefits in Section C of this Appendix

Note 1: Pay

The term "pay", as it applies to a contributor under this plan and as it is used throughout this report, means pay at the rates prescribed by the regulations made pursuant to the National Defence Act together with the allowances prescribed by the Canadian Forces Superannuation Regulations.

Note 2: Pensionable Service

The amount of any annuity, cash termination allowance or annual allowance to which a contributor or his dependants may become entitled under the Act depends upon the number of years of "pensionable service" to the credit of the contributor at the date he ceases to be a member of the forces.

"Pensionable service" is described in detail in the Act. In general, the pensionable service of a contributor includes any period of service in the forces for which he has contributed or has elected to contribute. It may also include, if the contributor elects to contribute therefor, any period of prior service

- (a) as a full-time, paid employee in the Public Service,
- (b) as a member of the Royal Canadian Mounted Police,
- (c) as a member
 - (i) on active service during time of war of the naval, army or air forces of Her Majesty raised by Canada,
 - (ii) of the Canadian Army Special Force established in 1950,
 - (iii) for three months or more of the Canadian Forces or of the naval, army or air forces of Her Majesty raised by Canada, other than the regular force, provided that such service was full-time and continuous,
 - (iv) of the naval, army or air forces of Her Majesty other than those raised by Canada, provided that such service was full-time service during time of war or otherwise in the permanent forces, and

one-fourth of any period of prior service in the Canadian Forces or in the naval, army or air forces of Her Majesty raised by Canada, other than the regular force, during which the contributor was liable to be called out for periodic training or duty otherwise than during an emergency.

Note 3: Service in the Forces

The length of a contributor's "service in the forces" together with circumstances of his termination of service govern the type of benefit payable to him or to his dependants.

For most purposes, "service in the forces" means service in the regular forces of the Canadian Forces excluding any service for which a contributor was paid a return of contributions or lump sum payment under this Act and for which he did not on subsequent enrolment elect to pay. However, for the purpose of computing the length of service in the forces of a contributor who dies leaving dependants entitled to benefit or who is compulsorily retired either because of disability or, in some circumstances, to promote economy or efficiency, certain types of elective service are prescribed by the Act as "service in the forces" in addition to service in the regular forces. Such additional "service in the forces" consists of any periods of elective pensionable service described in items (a), (b) and (c)(i), (ii) and (iii) of Note 2 with the provision that the service described in item (c)(iii) must have been in a theatre of active operations.

When calculating the length of service for purposes of determining the benefits payable upon voluntary retirement of a contributor with 10 or more years service in the regular forces, any period of active service during time of war in the naval, army or air forces of Her Majesty raised by Canada is included.

Note 4: Short Engagement

As defined in the Act, short engagement means a fixed period of service of a member of the regular force as an officer, other than as a subordinate officer, of such duration shorter than an intermediate engagement as is prescribed by regulation. A period of 9 years has been prescribed by regulation for a short engagement for officers. The period of initial basic engagement for other ranks is 3 to 5 years.

Note 5: Intermediate Engagement

As defined in the Act, intermediate engagement means a fixed period of service of a member of the regular force of such duration as is prescribed by regulation. A period of service to complete 20 years of total continuous service plus any additional time necessary to reach age 40 has been prescribed as an intermediate engagement for all members.

Note 6: Retirement because of Age

Retirement because of age in this report means ceasing to be a member of the forces at or after the retirement age prescribed for the rank of the contributor for any reason other than disability, misconduct, or death. The prescribed retirement ages are described in section III E of this Report.

Note 7: Return of Contributions

Return of contributions means the payment of an amount equal to the total current and prior service contributions paid by the contributor into the Canadian Forces Superannuation Account or paid into any other superannuation account or pension fund and transferred to the Account plus interest on all amounts at the rate of 4% per annum to December 31st of the year immediately preceding the year the contributor ceased to be a member of the forces. Interest is credited each December 31st (beginning in 1974) on the accumulated contributions with interest as at the prior December 31st.

Note 8: Cash Termination Allowance

Cash termination allowance means an amount equal to one month's pay at the rate authorized to be paid to the contributor at date of termination multiplied by the number of years of pensionable service to the credit of the contributor minus the total reduction in basic contributions as a result of integration of the Plan with the Canada Pension Plan.

Note 9: Immediate Annuity

Immediate annuity means an annuity that becomes payable immediately upon retirement. The annual amount of the annuity is equal to 2% of the contributor's average annual pay in respect of any selected six-year period of pensionable service multiplied by his number of years of pensionable service not exceeding 35. If a contributor has reached age 65 and ceased to be a member of the forces, or if he is entitled to a disability pension under the Canada Pension Plan, the amount of the annuity to which he is entitled under the Act is reduced by 0.7% of his average annual pay used in determining the amount of the annuity, not exceeding the "Average Maximum Pensionable Earnings" multiplied by the number of years of pensionable service after 1965 or after he attained age 18, whichever is later, but not exceeding 35 years. "Average Maximum Pensionable Earnings" is the average of the Year's Maximum

Pensionable Earnings, as defined in the Canada Pension Plan, during the contributor's last 3 years of service.

All annuities are normally payable in equal monthly instalments in arrears until the end of the month in which the contributor dies.

Note 10: Annuity payable upon Retirement during an Indefinite Period of Service

The amount of annuity prescribed by regulation to which a contributor who, not having reached retirement age, ceases to be a member of the regular force while on an indefinite period of service after completing an intermediate engagement for any reason other than disability, to promote economy or efficiency, or misconduct is entitled is equal to the greater of an immediate annuity based upon his pensionable service to date of completion of his intermediate engagement only and his six year average annual pay at date of retirement, and the immediate annuity based upon his total pensionable service to date of retirement and his six year average annual pay at that date reduced by 5% of such amount of annuity for each full year by which his age at date of retirement is less than the retirement age applicable to his rank.

Note 11: Deferred Annuity

Deferred annuity means an annuity that becomes payable upon attainment of age 60. The annual payment is determined on the same basis as for an immediate annuity.

If a former contributor under the age of 60 eligible for a deferred annuity under the Act becomes disabled and receives a pension under the terms of the Canada Pension Plan, his annuity is converted to an immediate annuity. If he later ceases to be entitled to a disability pension and has not reached age 60, his immediate annuity reverts to a deferred annuity.

Note 12: Immediate Reduced Annuity

Immediate reduced annuity means an immediate annuity where the annual amount of the annuity as determined in Note 9 is reduced as stated below.

If a contributor is compulsorily retired to promote economy or efficiency, and has ten or more years but less than twenty years of service, he may choose with the consent of the Minister of National Defence an immediate annuity reduced, until such time as he reaches age 65 but not thereafter, by 5% for each full year not exceeding six by which

- (A) the period of his service in the forces is less than 20 years, or
- (B) his age at the time of his retirement is less than the retirement age applicable to his rank,

whichever is the lesser.

A contributor who, not having reached retirement age, ceases to be a member of the forces for any reason other than disability, to promote economy or efficiency, misconduct, or while on an indefinite period of service is entitled

- 1) if he is an officer and has served in the forces for 20 years or more, to an immediate annuity reduced by 5% for each full year by which his age at the time of his retirement is less than the retirement age applicable to his rank
- 2) if he is other than an officer and has served in the forces for 20 years or more but less than 25 years, to an immediate annuity reduced by 5% for each full year by which
 - (A) the period of his service in the forces is less than 25 years, or
 - (B) his age at the time of his retirement is less than the retirement age applicable to his rank

whichever is the lesser.

Note 13: Retirement because of Misconduct

In the case of compulsory retirement because of misconduct, the contributor is entitled to a return of contributions, or if he has served in the forces for 10 or more years, with the consent of the Treasury Board, the whole or any part specified by the Treasury Board of any annuity to which he would have been entitled had he, at the time of his retirement, been compulsorily retired to promote economy or efficiency, except that in no case shall the capitalized value of any reduced benefit (based by Regulation on the a(f) and a(m) ultimate mortality table and an interest rate of 4%) be less than the return of contributions.

Note 14: Eligible Children

Eligible children under 25 includes all children of the contributor under age 18, and any child of the contributor over age 18 and under 25, unmarried, and 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 died, whichever occurred later.

Note 15: Annual Allowances*

Annual allowances to a widow and children of a contributor means annuities that become payable immediately upon the death of the contributor. The amount of the allowances are determined with references to a basic allowance and are ordinarily payable in equal monthly instalments.

The basic allowance is equal to 1% of the average annual pay of the deceased contributor in respect of any selected six-year period of his pensionable service multiplied by his number of years of pensionable service not exceeding 35.

A widow is entitled to an annual allowance equal to the basic allowance except under the following circumstances:

- (a) if the age of the contributor exceeded that of his widow by 20 or more years the allowance is reduced as prescribed by regulation,
- (b) if the contributor dies within one year after marriage, no allowance is payable to his widow if the Minister of National Defence is not satisfied that the contributor was at the time of his marriage in such a condition of health as to justify him in having an expectation of surviving for at least one year thereafter,
- (c) if a widow remarries, the payment of any allowance is suspended but is resumed in the event of dissolution or annulment of that marriage or death of her husband by that marriage. In lieu of any further claim to the payment of the allowance, an amount equal to the return of contributions less the total amount of benefit payments made to the contributor and to his widow and children may be paid to the widow at any time before the dissolution or annulment of that marriage or the death of her husband by that marriage, if there is no child of the contributor entitled to an allowance.
- (d) if a member of the forces marries after age 60, his widow is not entitled to any annual allowance, unless after marriage the member became or continued to be a contributor.

* In this Note, as in this whole report, to ensure equality of status of male and female contributors, terms importing a male person may be read to import a female person and vice-versa.

The annual allowance for an eligible child is equal to 20% of the basic allowance, or if the contributor died leaving no widow or the widow is dead, 40% of the basic allowance provided that the total amount of allowances to children shall not exceed 80% of the basic allowance, or if the contributor died without leaving a widow or the widow is dead, 160% of the basic allowance. Allowances are not payable to children of a widow who is not entitled to an allowance as the result of death of a contributor within one year of marriage under the circumstances stated in paragraph (b) of **this note**. Except as provided by regulation, allowances are not payable to a child who was born, adopted or became a stepchild of a member of the forces when he was over 60 years of age unless he became or continued to be a contributor after he was 60 years of age.

Note 16: Minimum Benefit

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

- (1) if the contributor was not a member of the regular force upon or after December 20, 1975, any amount by which the amount of return of contributions exceeds the aggregate of all amounts paid to those persons and to the contributor,
- (2) if the contributor was a member of the regular force upon or after December 20, 1975, any amount by which the greater of the amount of the return of contributions, and an amount equal to five times the immediate annuity to which the contributor was or would have been entitled at the time of his death exceeds the aggregate of all amounts paid to those persons and to the contributor, or
- (3) if the contributor was retired and entitled to an immediate annuity from which a deduction had been made as a result of integration with the Canada Pension Plan, any amount by which the cash termination allowance exceeds the aggregate of all amounts paid to those persons and to the contributor.

APPENDIX 2

Supplementary Retirement Benefits

In 1970, the Supplementary Retirement Benefits Act (SRBA) was passed to provide supplementary benefits related to increases in the cost of living for persons in receipt of pensions payable out of the Consolidated Revenue Fund. This Act applies to former contributors to the Canadian Forces Superannuation Account and their dependants who are entitled to annuities or annual allowances.

The supplementary benefit is calculated by multiplying the amount of the annuity or annual allowance to which the person is entitled from the Canadian Forces Superannuation Account by the ratio of the Benefit Index for the year of payment to the Benefit Index for the year in which the person to whom or in respect of whose service the pension is payable ceased to hold office, and subtracting the amount of the annuity or annual allowance. The Benefit Index for the years prior to 1971 is shown in a Schedule in the Act. The Benefit Index for any year after 1970 is equal to the Benefit Index for the preceding year multiplied by the average of the Consumer Price Index for Canada for the twelve-month period ending on September 30 of that preceding year and divided by the corresponding average for a period one year earlier. Prior to 1973, the increase in the Benefit Index was limited to a maximum of 2% in any year. An amendment to the Supplementary Retirement Benefits Act in 1973 removed that limit and provided that the increase payable in January 1974 would take into account increases in the cost of living above the 2% ceiling since 1970.

Under the terms of the original Act of 1970, the supplementary benefits were payable to all former contributors in receipt of annuities or annual allowances who had attained the age of 60, or, if less than that age, were disabled, and to all widows and children in receipt of annual allowances. The amendments effective January 1, 1973 provided for the payment of benefits to former contributors aged 55 to 59 and in receipt of annuities or annual allowances in cases where the total of service and age equals or exceeds 85.

The Canadian Forces Superannuation Act was amended in 1970, by the addition of Part III, to require that contributors pay 0.5% of their pay to the Supplementary Retirement Benefits Account in addition to their contributions to the Superannuation Account. By a further amendment in 1973, provision was made for an increase in this contribution rate from 0.5% to 1.0%, commencing January 1, 1977. Such contributions are payable until the member retires. The government makes credits to the Account equal to the contributions of the members. The liabilities of the Superannuation Account are not affected by these contributions to or the benefits payable from the Supplementary Retirement Benefits Account.

Interest is also credited to the Supplementary Retirement Benefits Account at the end of each quarter. The amount of the interest is calculated monthly on the minimum balance at a rate of interest representative of the yield on outstanding Government of Canada bonds having a term to maturity of 5 years, less 1/8% of 1%.

Prior to January 1, 1974, the Supplementary Retirement Benefits Act provided that all supplementary benefits would be charged to the Account. Since that date, those benefits paid in respect of a former contributor are charged to the Account only until their accumulated total equals the aggregate of all amounts credited to that Account in respect of that person, including interest. Supplementary benefits paid in excess of that aggregate are then charged to the Consolidated Revenue Fund. The Act also provides for a return of contributions paid by a member to the Supplementary Retirement Benefits Account, to the extent that such contributions exceed any benefit that has been or may be paid in respect of him.

The Supplementary Retirement Benefits Act applies to active members and former members of the Canadian Forces who are entitled to benefits under the Defence Services Pension Continuation Act as well as to those entitled to benefits under the Canadian Forces Superannuation Act. Contributions paid by both groups of members and other credits to the Account, and supplementary benefits paid to former members and their widows and children receiving basic benefits under either Act, and other charges to the Account during the fiscal years 1975-76, 1976-77 and 1977-78 are shown below.

Canadian Forces Supplementary Retirement Benefits

<u>Credits to Account</u>	<u>1975-76</u>	<u>1976-77</u>	<u>1977-78</u>
Contributions from members	\$ 5,082,393	\$ 7,066,231	\$12,016,621
Government credits	5,082,393	7,066,231	12,016,621
Interest	2,004,601	3,141,774	4,748,169
Transfers in	-	-	-
	<u>\$12,169,387</u>	<u>\$17,276,236</u>	<u>\$28,781,411</u>
<u>Charges to Account</u>			
Supplementary Benefits	\$ 224,207	\$ 194,429	\$ 234,554
Refunds on withdrawal	549,882	584,248	816,036
Transfers out	46,827	38,818	34,045
	<u>\$ 820,916</u>	<u>\$ 817,495</u>	<u>\$ 1,084,635</u>
<u>Balance in Account</u> (end of year)	\$31,367,922	\$47,826,664	\$75,523,441
<u>Charges to Consolidated Revenue Fund</u>			
Supplementary Benefits	\$24,549,717	\$37,025,409	\$50,616,739

Under the partially funded system of financing supplementary retirement benefits as it existed on December 31, 1975, a substantial balance will be accumulated in the Supplementary Retirement Benefits Account. However, on the basis of the assumptions used for purposes of Section V of this report on the Canadian Forces Superannuation Account and, for consistency with other assumptions, an assumed rate of increase in the Consumer Price Index of 3% per annum, it has been estimated that the supplementary benefits will likely always remain a direct charge on the Consolidated Revenue Fund, unless the total of contributions and credits to the Supplementary Retirement Benefits Account were increased from 2.0% to about 5.6% of payroll. Yet the contingency reserve in the Canadian Forces Superannuation Account would grow.

Other methods of financing supplementary retirement benefits are presented below.

- (a) Required Contributions and Credits to the Canadian Forces Superannuation Account, if benefits pursuant to the Supplementary Retirement Benefits Act as it existed in 1975 were considered superannuation benefits.

Using the above-noted assumptions, and methods analogous to those used for purposes of Section V of this report, the total required from the contributors and the Government combined to fund future superannuation benefits, increasing in accordance with the Consumer Price Index*, in respect of current service was calculated to be 21.9%** of payroll. After making allowance for coordination with contributions payable to the Canada Pension Plan, contributions from members of the forces, including 1% contributions to the Supplementary Retirement Benefits Account, are calculated to be equivalent to 6.6% of pay. It follows that credits on behalf of the Government in respect of the combined benefits would have to be equivalent to about 15.3%** of pay, or 2.3 times the contributions received from members of the forces.

In addition, a procedure analogous to the existing procedure could be adopted under which special credits would be made in respect of liabilities arising out of (i) general pay increases in excess of the assumed 5.5% per annum, and (ii) increases to annuities and allowances to former contributors and their dependants in excess of the assumed 3%, either or both of which could be offset by interest earnings on the Account in excess of the assumed 6.5%. With such a procedure, the only gains and losses attributable to variation of experience from the basic economic assumptions that would emerge at periodic actuarial examinations are (i) gains from general pay increases and increases to annuities and allowances below the assumed rates, and (ii) losses and unused gains from interest earnings below and above the assumed rate, respectively. Alternatively, the more common practice of letting all actuarial gains and losses accumulate until the following actuarial examination could be adopted.

* Actual payment of adjustments depends on provision of SRBA.

** For simplicity, the cost of returns of contributions in respect of the 1% SRBA contributions was ignored.

(b) Valuation Balance Sheet combining Canadian Forces Superannuation and Supplementary Retirement Benefits including future adjustments to pensions in payment in accordance with assumed rate of inflation

This balance sheet differs from the balance sheet in Section VI of this report to the extent that (i) the assets include a share of the Supplementary Retirement Benefits Account, the present value of the 1% S.R.B.A. contributions, and total Government credits based on a factor of 2.3 times the amount from contributors, (ii) the value of prospective benefits to former contributors and their dependants includes the value of all supplementary benefits based on the Benefit Index for 1975 and makes provision for continued increases at the rate of 3% per annum,* and (iii) the value of prospective benefits to active contributors and their dependants includes provision for increases to annuities and allowances in payment at the rate of 3% per annum.* In other words, all the assumptions are consistent with those used for purposes of calculating the required contributions and credits in (a) above.

Assets

Balance of Canadian Forces Superannuation Account and share of Superannuation contributors in Supplementary Retirement Benefits Account	\$ 6,416,668,000
Credits from Government outstanding at December 31, 1975 and made in 1976	30,600,000
Outstanding contributions from contributors	5,612,000
Present value of future contributions from members of the forces	582,664,000
Present value of future instalments from retired contributors	1,528,000
Present value of future credits from the Government (assuming 2.3 times the amount from contributors)	<u>1,573,642,000</u>
Total Assets:	\$ 8,710,714,000
Deficit:	<u>1,564,280,000</u>
	<u>\$10,274,994,000</u>

Liabilities

Present value of prospective benefits to and in respect of active contributors who are members of the forces	\$ 6,649,895,000
Present value of future benefits to persons entitled to an annuity or annual allowance	3,624,300,000
Benefits to former contributors or dependants or estates due in 1975 and paid in 1976	<u>799,000</u>
Total Liabilities:	<u>\$10,274,994,000</u>

* subject to deferment, as may be provided by the SRBA.

(c) Valuation Balance Sheet for Canadian Forces Superannuation Account on assumption that interest in excess of 3.5% on the pensioner equity be used for financing Supplementary Retirement Benefits on a pay-as-you-go basis

It has been suggested from time to time that adjustments to pensions in payment might be financed on a current basis at least partially by using interest earnings in excess of what might be considered "real" interest or interest under non-inflationary conditions. If such a method of operation were implemented (and it was implicit in Bill C-12, Fourth Session, Thirtieth Parliament) then consistent with the implicit assumption of a 3% inflation component, the 6.5% interest rate assumed for purposes of the Canadian Forces Superannuation Account would have to be reduced to 3.5% in respect of periods after benefits become payable. This would be equivalent to assuming indexed benefits somewhat earlier than in (b) above and could be expected to provide a substantial margin over current requirements for supplementary benefits which could be applied against deficiency amortization requirements (as at present). The present balance sheet differs from the preceding one only to the extent that the value of prospective benefits to former contributors and their dependants assumes interest at 3.5% but does not include the value of supplementary benefits (since they would continue to be paid out of the Supplementary Retirement Benefits Account), the assets do not include a share of that account, and (since contributions from members of the forces would not include the 1% contributions payable to the Supplementary Retirement Benefits Account) required credits from the government would be equal to 3.1 times contributions received from members of the forces.

Assets

Balance of Canadian Forces Superannuation Account	\$6,388,368,000
Credits from Government outstanding at December 31, 1975 and made in 1976	30,600,000
Outstanding contributions from contributors	5,612,000
Present value of future contributions from members of the forces	579,759,000
Present value of future instalments from retired contributors	1,528,000
Present value of future credits from the Government (assuming 3.1 times the amount from contributors)	<u>1,801,990,000</u>
Total Assets:	\$8,807,857,000
Deficit:	<u>1,065,274,000</u>
	<u>\$9,873,131,000</u>

Liabilities

Present value of prospective benefits to and in respect of contributors who are members of the forces	\$6,928,932,000
Present value of benefits to former contributors and their dependants entitled to an annuity or annual allowance	2,943,400,000
Benefits to former contributors or dependants or estates due in 1975 and paid in 1976	<u>799,000</u>
Total Liabilities:	<u>\$9,873,131,000</u>

(d) Valuation Balance Sheet combining Canadian Forces Superannuation and Supplementary Retirement Benefits based on Benefit Index for 1975

This balance sheet presents the situation on a fully funded basis, if adjustments to pensions in payment were assumed to be granted annually or, in other words, if future increases were not considered to be guaranteed. It differs from the balance sheet in Section VI only to the extent that the Assets include a share of the Supplementary Retirement Benefits Account, the liabilities in respect of former contributors and their dependants include the value of all supplementary benefits based on the Benefit Index for 1975, and since contributions from members of the forces would include the 1% contributions to the Supplementary Retirement Benefits Account, credits from the government would be equal to 1.5 times contributions from members of the forces.

Assets

Balance of Canadian Forces Superannuation Account and share of Superannuation contributors in Supplementary Retirement Benefits Account	\$6,416,668,000
Credits from Government outstanding at December 31, 1975 and made in 1976	30,600,000
Outstanding contributions from contributors	5,612,000
Present value of future contributions from members of the forces	682,664,000
Present value of future instalments from retired contributors	1,528,000
Present value of future credits from the Government (assuming 1.5 times the amount from contributors)	<u>1,026,288,000</u>
Total Assets:	<u>\$ 8,163,360,000</u>

Liabilities

Present value of prospective benefits to and in respect of contributors who are members of the forces	\$4,832,964,000
Present value of benefits to former contributors and their dependants entitled to an annuity or annual allowance	\$2,557,719,000
Benefits to former contributors or dependants or estates due in 1975 and paid in 1976	<u>799,000</u>
Total Liabilities:	<u>\$7,391,482,000</u>
Contingency Reserve	<u>771,878,000</u>
	<u>\$8,163,360,000</u>

With this method of funding, the additional liability incurred by an annual increase to pensions (payable whenever a pensioner is eligible for adjustments under the SRBA) at the implicitly assumed annual rate of increase in the Consumer Price Index of 3% would be equivalent, currently, to 7.3% of pay.

Appendix 3

Salary Scales

<u>Age</u>	<u>Males</u>		<u>Females</u>	
	<u>Officers</u>	<u>Other Ranks</u>	<u>Officers</u>	<u>Other Ranks</u>
15	.156	.298	.394	.352
16	.156	.298	.394	.352
17	.156	.298	.394	.352
18	.156	.298	.394	.352
19	.161	.312	.398	.367
20	.167	.333	.403	.398
21	.180	.365	.411	.433
22	.214	.418	.420	.471
23	.356	.482	.431	.514
24	.473	.523	.445	.559
25	.529	.553	.462	.601
26	.564	.576	.485	.639
27	.591	.595	.515	.671
28	.613	.612	.552	.696
29	.633	.628	.590	.718
30	.649	.641	.623	.736
31	.666	.654	.651	.752
32	.681	.665	.675	.766
33	.695	.676	.696	.781
34	.707	.687	.714	.794
35	.719	.697	.730	.806
36	.730	.706	.744	.816
37	.741	.716	.758	.827
38	.751	.727	.771	.836
39	.761	.737	.784	.844
40	.772	.747	.796	.852
41	.781	.757	.809	.860
42	.791	.768	.822	.867
43	.801	.780	.835	.874
44	.811	.792	.849	.881
45	.822	.806	.864	.887
46	.834	.821	.883	.894
47	.848	.837	.901	.902
48	.867	.854	.917	.908
49	.891	.872	.930	.916
50	.917	.892	.942	.923
51	.936	.911	.952	.930
52	.950	.928	.961	.937
53	.961	.943	.971	.945
54	.970	.957	.977	.953
55	.978	.967	.984	.961
56	.984	.977	.989	.971
57	.990	.985	.993	.982
58	.993	.994	.996	.990
59	.997	.997	.998	.995
60	1.000	1.000	1.000	1.000
61	1.000	1.000	1.000	1.000

Appendix 4

Rates of Retirement assumed for contributors
with entitlement to a return of contributions

<u>Age at Retirement</u>	<u>Males</u>		<u>Females</u>	
	<u>Officers</u>	<u>Other Ranks</u>	<u>Officers</u>	<u>Other Ranks</u>
15	.2678	.2516	.0120	.0405
16	.2325	.2349	.0155	.0570
17	.2004	.2188	.0220	.0835
18	.1714	.2033	.0295	.1205
19	.1456	.1883	.0395	.1980
20	.1229	.1739	.0510	.2720
21	.1034	.1600	.0650	.2975
22	.0870	.1466	.0825	.3075
23	.0751	.1338	.1045	.3080
24	.0677	.1216	.1275	.3020
25	.0628	.1099	.1495	.2945
26	.0584	.0989	.1640	.2860
27	.0524	.0884	.1700	.2765
28	.0444	.0785	.1670	.2660
29	.0356	.0691	.1580	.2550
30	.0270	.0604	.1440	.2430
31	.0194	.0525	.1275	.2310
32	.0136	.0458	.1110	.2185
33	.0100	.0403	.0975	.2065
34	.0080	.0361	.0870	.1945
35	.0071	.0327	.0780	.1825
36	.0066	.0297	.0705	.1705
37	.0059	.0267	.0630	.1580
38	.0051	.0235	.0565	.1460
39	.0045	.0205	.0510	.1335
40	.0042	.0177	.0460	.1215
41	.0038	.0153	.0410	.1090
42	.0035	.0134	.0360	.0965
43	.0031	.0119	.0315	.0840
44	.0028	.0108	.0270	.0720
45	.0025	.0100	.0225	.0600
46	.0021	.0096	.0180	.0480
47	.0019	.0096	.0135	.0350
48	.0016	.0100	.0090	.0230
49	.0015	.0110	.0040	.0120
50	.0000	.0000	.0000	.0000

Appendix 5

Rates of Retirement assumed for contributors with entitlement to an annuity or cash termination allowance for reasons other than disability

<u>Age at Retirement</u>	<u>Males</u>		<u>Females</u>	
	<u>Officers</u>	<u>Other Ranks</u>	<u>Officers</u>	<u>Other Ranks</u>
25	.00275	.00084	.00541	.02570
26	.00321	.00104	.00820	.02870
27	.00342	.00128	.00595	.03100
28	.00325	.00154	.00477	.03260
29	.00282	.00183	.00390	.03350
30	.00229	.00215	.00325	.03400
31	.00185	.00250	.00277	.03410
32	.00166	.00288	.00242	.03380
33	.00172	.00328	.00217	.03290
34	.00192	.00372	.00202	.03140
35	.00225	.00102	.00198	.02900
36	.00272	.01463	.00203	.02530
37	.00332	.02694	.00218	.01970
38	.00405	.03793	.00241	.01340
39	.00492	.04764	.00273	.00770
40	.00100	.05607	.00314	.00470
41	.02015	.06322	.00380	.00510
42	.04184	.06909	.00420	.00560
43	.06608	.06332	.00470	.00610
44	.09287	.04596	.00520	.00660
45	.12222	.03253	.10000	.00720
46	.15411	.03850	.10000	.00780
47	.18865	.07932	.20000	.00840
48	.23337	.17034	.20000	.00910
49	.28862	.30150	.40000	.01000
50	.34226	.44829	.40000	.70000
51	.38369	.58893	.50000	.60000
52	.40057	.70277	.50000	.50000
53	.39360	.78523	.50000	.50000
54	.36973	.85529	.50000	.50000
55	.33050	.91477	1.00000	1.00000
56	.27270	.95524		
57	.19852	.98354		
58	.10817	.99773		
59	.00101	.99932		
60	1.00000	1.00000		

Appendix 6

Rates of Retirement assumed for contributors with entitlement to an annuity or cash termination allowance because of disability

<u>Age at Retirement</u>	<u>Males</u>		<u>Females</u>	
	<u>Officers</u>	<u>Other Ranks</u>	<u>Officers</u>	<u>Other Ranks</u>
15	.0039	.0057	.0012	.0000
16	.0038	.0058	.0012	.0000
17	.0037	.0058	.0013	.0005
18	.0035	.0058	.0013	.0022
19	.0034	.0057	.0014	.0039
20	.0032	.0055	.0015	.0048
21	.0030	.0053	.0015	.0054
22	.0029	.0050	.0016	.0057
23	.0027	.0046	.0017	.0058
24	.0024	.0041	.0018	.0056
25	.0022	.0035	.0019	.0053
26	.0020	.0030	.0020	.0049
27	.0017	.0028	.0021	.0041
28	.0015	.0028	.0022	.0035
29	.0013	.0030	.0023	.0032
30	.0011	.0033	.0024	.0031
31	.0009	.0036	.0025	.0030
32	.0008	.0039	.0027	.0031
33	.0008	.0041	.0029	.0031
34	.0008	.0043	.0031	.0032
35	.0008	.0045	.0033	.0034
36	.0009	.0048	.0035	.0035
37	.0010	.0052	.0037	.0037
38	.0011	.0059	.0039	.0039
39	.0013	.0067	.0041	.0041
40	.0015	.0076	.0044	.0044
41	.0017	.0082	.0047	.0047
42	.0018	.0086	.0050	.0050
43	.0018	.0083	.0054	.0054
44	.0017	.0077	.0058	.0058
45	.0017	.0068	.0062	.0062
46	.0017	.0060	.0067	.0067
47	.0022	.0056	.0073	.0073
48	.0028	.0057	.0079	.0079
49	.0044	.0063	.0085	.0085
50	.0053	.0098	.0092	.0092
51	.0068	.0077	.0100	.0100
52	.0070	.0099	.0108	.0108
53	.0080	.0080	.0117	.0117
54	.0081	.0081	.0126	.0126
55	.0118	.0126	-	-

Appendix 7

Rates of Mortality assumed for active contributors

<u>Age</u>	<u>Males</u>		<u>Females</u>
	<u>Officers</u>	<u>Other Ranks</u>	<u>(Officers and Other Ranks)</u>
15	.00116	.00154	.00025
16	.00119	.00162	.00026
17	.00124	.00168	.00028
18	.00131	.00172	.00030
19	.00139	.00174	.00031
20	.00149	.00174	.00033
21	.00160	.00173	.00035
22	.00173	.00169	.00037
23	.00191	.00162	.00039
24	.00216	.00152	.00042
25	.00240	.00141	.00044
26	.00257	.00132	.00047
27	.00260	.00128	.00050
28	.00244	.00130	.00053
29	.00212	.00136	.00056
30	.00175	.00145	.00060
31	.00141	.00153	.00064
32	.00120	.00158	.00068
33	.00114	.00159	.00073
34	.00117	.00157	.00078
35	.00125	.00155	.00083
36	.00135	.00155	.00089
37	.00143	.00159	.00096
38	.00150	.00172	.00103
39	.00159	.00192	.00111
40	.00168	.00213	.00120
41	.00178	.00230	.00129
42	.00189	.00240	.00140
43	.00197	.00233	.00151
44	.00203	.00213	.00164
45	.00215	.00189	.00178
46	.00227	.00176	.00194
47	.00276	.00187	.00211
48	.00306	.00234	.00230
49	.00420	.00318	.00251
50	.00461	.00580	.00274
51	.00562	.00497	.00296
52	.00585	.00663	.00321
53	.00704	.00524	.00349
54	.00761	.00512	.00380
55	.01207	.00733	
56	.01108	.00501	
57	.01031	.00383	
58	.01196	.00235	
59	.01391	.00122	

Appendix 8

Rates of Mortality assumed for contributors retired for
reasons other than disability
and Annuity Values based thereon

Age	Mortality Rates		Annuity Values (Males)		Annuity Values (Females)	
	Males	Females	Interest Rate at 6.5% p.a.	Interest Rate at 3.5%*p.a.	Interest Rate at 6.5% p.a.	Interest Rate at 3.5%*p.a.
45	.00320	.00178	12.950	18.599	13.735	20.305
46	.00363	.00194	12.802	18.274	13.621	20.014
47	.00411	.00211	12.649	17.945	13.501	19.716
48	.00463	.00230	12.492	17.612	13.375	19.411
49	.00519	.00251	12.331	17.276	13.243	19.099
50	.00578	.00274	12.166	16.936	13.106	18.779
51	.00642	.00296	11.997	16.594	12.962	18.452
52	.00709	.00321	11.823	16.248	12.812	18.118
53	.00780	.00349	11.645	15.899	12.654	17.775
54	.00854	.00380	11.463	15.548	12.489	17.424
55	.00932	.00415	11.276	15.193	12.317	17.066
56	.01013	.00454	11.084	14.835	12.138	16.701
57	.01099	.00497	10.887	14.474	11.951	16.328
58	.01188	.00546	10.686	14.109	11.756	15.947
59	.01282	.00601	10.478	13.741	11.554	15.560
60	.01383	.00662	10.265	13.369	11.343	15.166
61	.01493	.00732	10.045	12.993	11.125	14.765
62	.01615	.00811	9.820	12.613	10.899	14.358
63	.01750	.00899	9.588	12.230	10.666	13.946
64	.01899	.00998	9.351	11.845	10.425	13.529
65	.02065	.01110	9.109	11.457	10.176	13.108
66	.02248	.01235	8.862	11.068	9.921	12.683
67	.02451	.01376	8.611	10.679	9.659	12.254
68	.02676	.01534	8.355	10.289	9.390	11.823
69	.02924	.01712	8.095	9.900	9.115	11.391
70	.03199	.01911	7.833	9.512	8.835	10.957
71	.03503	.02135	7.567	9.126	8.550	10.523
72	.03840	.02386	7.300	8.743	8.260	10.089
73	.04211	.02667	7.031	8.364	7.967	9.658
74	.04621	.02983	6.762	7.988	7.670	9.228
75	.05074	.03336	6.492	7.618	7.371	8.802
76	.05574	.03732	6.222	7.253	7.070	8.381
77	.06126	.04176	5.954	6.895	6.768	7.964
78	.06734	.04672	5.688	6.544	6.466	7.554
79	.07404	.05227	5.424	6.200	6.166	7.152
80	.08141	.05847	5.163	5.865	5.867	6.757
81	.08952	.06540	4.906	5.539	5.571	6.371
82	.09843	.07313	4.654	5.223	5.278	5.996
83	.10821	.08175	4.407	4.916	4.990	5.631
84	.11893	.09134	4.166	4.621	4.708	5.277
85	.13068	.10202	3.931	4.336	4.432	4.936
86	.14352	.11387	3.703	4.062	4.163	4.608
87	.15755	.12701	3.483	3.800	3.902	4.293
88	.17282	.14153	3.271	3.551	3.650	3.993
89	.18936	.15751	3.067	3.313	3.408	3.707
90	.20721	.17502	2.873	3.089	3.176	3.436

* Actual rate is 3.5/1.03 or 3.398%

Appendix 9 A

Rates of Mortality assumed for contributors retired because of disability

<u>AGE</u>	<u>MALES</u>		<u>FEMALES</u>
	<u>Applicable during 1st year after retirement</u>	<u>Applicable after at least 2 years have elapsed from date of retirement</u>	
25	.00546	.00182	.00583
26	.00537	.00179	.00589
27	.00534	.00178	.00594
28	.00543	.00181	.00608
29	.00552	.00184	.00627
30	.00567	.00189	.00645
31	.00588	.00196	.00666
32	.00609	.00203	.00691
33	.00630	.00210	.00724
34	.00654	.00218	.00759
35	.00681	.00227	.00797
36	.00720	.00240	.00836
37	.00768	.00256	.00882
38	.00831	.00277	.00928
39	.00900	.00300	.00976
40	.00984	.00328	.01028
41	.01077	.00359	.01084
42	.01182	.00394	.01144
43	.01302	.00434	.01210
44	.01431	.00477	.01282
45	.01572	.00524	.01355
46	.01734	.00578	.01428
47	.01914	.00638	.01498
48	.02112	.00704	.01562
49	.02325	.00775	.01621
50	.02559	.00853	.01680
51	.02814	.00938	.01746
52	.03093	.01031	.01823
53	.03390	.01130	.01909
54	.03705	.01235	.01994
55	.04044	.01348	.02085
60		.02071	.02616
65		.03004	.03060
70		.04435	.03308
75		.06938	.05567
80		.10846	.09222
85		.16353	.14637
90		.23667	.22183

Appendix 9 B

Values of annuity of \$1.00 per annum for contributors
retired because of disability

Age	<u>MALES</u>				<u>FEMALES</u>	
	<u>At Date of Retirement</u>		<u>At second or later anniversaries of Retirement</u>		<u>Int. Rate at 6.5% p.a.</u>	<u>Int. Rate at 3.5%* p.a.</u>
	<u>Int. Rate at 6.5% p.a.</u>	<u>Int. Rate at 3.5%* p.a.</u>	<u>Int. Rate at 6.5% p.a.</u>	<u>Int. Rate at 3.5%* p.a.</u>		
25	14.435	22.604	14.509	22.724	13.555	20.723
26	14.375	22.404	14.447	22.522	13.484	20.533
27	14.308	22.193	14.380	22.311	13.410	20.336
28	14.237	21.975	14.309	22.092	13.332	20.133
29	14.159	21.747	14.233	21.866	13.250	19.924
30	14.077	21.512	14.153	21.633	13.163	19.710
31	13.990	21.270	14.068	21.393	13.074	19.492
32	13.898	21.019	13.978	21.145	12.981	19.269
33	13.800	20.760	13.883	20.890	12.885	19.042
34	13.698	20.495	13.783	20.627	12.786	18.812
35	13.590	20.219	13.677	20.356	12.685	18.579
36	13.473	19.935	13.566	20.078	12.581	18.343
37	13.349	19.640	13.449	19.791	12.475	18.105
38	13.219	19.337	13.326	19.498	12.366	17.865
39	13.083	19.027	13.197	19.199	12.256	17.623
40	12.939	18.707	13.063	18.892	12.143	17.379
41	12.790	18.381	12.924	18.580	12.028	17.133
42	12.634	18.047	12.779	18.261	11.912	16.887
43	12.471	17.706	12.629	17.938	11.795	16.640
44	12.303	17.358	12.474	17.609	11.677	16.394
45	12.127	17.006	12.313	17.275	11.558	16.147
46	11.944	16.646	12.148	16.936	11.438	15.901
47	11.756	16.280	11.977	16.594	11.318	15.654
48	11.561	15.909	11.801	16.247	11.196	15.408
49	11.362	15.534	11.621	15.898	11.072	15.160
50	11.156	15.155	11.436	15.546	10.945	14.907
51	10.944	14.771	11.248	15.191	10.814	14.651
52	10.728	14.385	11.054	14.834	10.679	14.392
53	10.506	13.997	10.858	14.475	10.542	14.131
54	10.281	13.605	10.657	14.115	10.403	13.868
55	10.050	13.212	10.452	13.754	10.261	13.604
60			9.379	11.941	9.521	12.262
65			8.234	10.138	8.691	10.843
70			6.986	8.321	7.582	9.138
75			5.704	6.583	6.178	7.196
80			4.516	5.065	4.858	5.485
85			3.496	3.825	3.710	4.076
90			2.663	2.853	2.769	2.973

*Actual rate is 3.5/1.03 or 3.398%

Appendix 10A

Rates of Remarriage and Mortality assumed
for widows and Annuity Values based thereon

Age at Widow- hood	Remarriage Rates					Attained	Mortality	Attained	Mortality
	<u>Year of Widowhood</u>					Age	Rates	Age	Rates
	<u>1st yr.</u>	<u>3rd yr.</u>	<u>5th yr.</u>	<u>10th yr.</u>	<u>Ultimate</u>				
25	.050	.148	.132	.060	.028	39	.0022	74	.0367
30	.029	.086	.076	.035	.016	44	.0026	79	.0559
35	.018	.048	.042	.019	.009	49	.0033	84	.0822
40	.011	.027	.023	.010	.004	54	.0050	89	.1180
45	.006	.015	.012	.005	.002	59	.0083		
50	.004	.008	.006	.002	.001	64	.0141		
55	.002	.004	.003	.001	0	69	.0232		

Value of Annuity of \$1.00 per annum payable
to remarriage or death of widow

Age at Widow- hood	<u>Year of Widowhood</u>				Attained	<u>Ultimate</u>	Attained	<u>Ultimate</u>
	<u>1st yr.</u>	<u>3rd yr.</u>	<u>5th yr.</u>	<u>10th yr.</u>	Age		Age	
<u>Interest at 6.5% per annum</u>								
25	6.563	6.638	7.823	10.781	39	12.077	74	7.702
30	8.974	9.118	10.034	11.911	44	12.515	79	6.521
35	10.906	10.991	11.537	12.445	49	12.420	84	5.408
40	12.030	12.018	12.258	12.408	54	11.930	89	4.378
45	12.468	12.330	12.316	11.919	59	11.104	94	3.447
50	12.316	12.077	11.870	11.104	64	10.068	99	2.628
55	11.768	11.420	11.076	10.068	69	8.908	104	1.821
<u>Interest at 3.5%* per annum</u>								
25	9.034	9.408	11.380	16.108	39	17.967	74	9.384
30	13.052	13.422	14.902	17.711	44	18.308	79	7.708
35	16.179	16.321	17.115	18.203	49	17.732	84	6.214
40	17.791	17.679	17.913	17.714	54	16.545	89	4.899
45	18.133	17.771	17.575	16.528	59	14.917	94	3.767
50	17.475	16.942	16.457	14.917	64	13.088	99	2.808
55	16.212	15.537	14.878	13.088	69	11.205	104	1.902

* Actual rate is 3.5/1.03 or 3.398%

Appendix 10 B

Rates of Remarriage and Mortality assumed for widowers
and Annuity Values based thereon

<u>Age at becoming widower</u>	<u>Remarriage Rates</u>				<u>Attained Age</u>	<u>Mortality Rates</u>	<u>Attained Age</u>	<u>Mortality Rates</u>
	<u>Year of being a widower</u>							
	<u>1st yr</u>	<u>3rd yr</u>	<u>5th yr</u>	<u>Ultimate</u>				
25	.071	.258	.258	.198	30	.0015	65	.0296
30	.065	.215	.198	.139	35	.0019	70	.0444
35	.047	.130	.116	.094	40	.0029	75	.0655
40	.031	.078	.069	.059	45	.0046	80	.0970
45	.019	.048	.040	.027	50	.0076	85	.1436
50	.013	.028	.022	.014	55	.0121	90	.2098
55	.008	.014	.011	.009	60	.0192	95	.3003

Value of Annuity of \$1.00 per annum payable
to remarriage or death of widower

<u>Age at becoming widower</u>	<u>Year of being a widower</u>			<u>Attained Age</u>	<u>Ultimate</u>	<u>Attained Age</u>	<u>Ultimate</u>
	<u>1st yr</u>	<u>3rd yr</u>	<u>5th yr</u>				
<u>Interest at 6.5% per annum</u>							
25	3.824	3.308	3.961	30	4.475	65	8.349
30	4.722	4.526	5.537	35	6.201	70	7.171
35	6.724	6.706	7.560	40	8.027	75	5.996
40	8.634	8.632	9.250	45	9.551	80	4.858
45	9.913	9.832	10.159	50	10.290	85	3.814
50	10.273	10.093	10.104	55	10.076	90	2.911
55	10.083	9.785	9.553	60	9.422	95	2.167
<u>Interest at 3.5%* per annum</u>							
25	4.401	3.895	4.833	30	5.547	65	10.344
30	5.793	5.717	7.213	35	8.170	70	8.607
35	8.853	8.970	10.253	40	10.938	75	6.981
40	11.778	11.820	12.689	45	13.094	80	5.496
45	13.586	13.419	13.783	50	13.906	85	4.205
50	13.866	13.506	13.391	55	13.282	90	3.137
55	13.287	12.749	12.299	60	12.056	95	2.290

* Actual rate is 3.5/1.03 or 3.398%

Appendix 11

Proportions of Deceased Contributors and Annuitants
 Married at Death and Average Age
 of Spouse corresponding to Age of Contributor
 or Annuitant at time of Death

<u>Age at Death</u>	<u>Proportion Married at Death</u>		<u>Average Age of Spouse of</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
25 1/2	.439	.530	25.0	26.2
26 1/2	.542	.550	25.9	27.3
27 1/2	.648	.570	26.8	28.4
28 1/2	.721	.580	27.7	29.4
29 1/2	.773	.590	28.6	30.5
30 1/2	.811	.600	29.5	31.6
31 1/2	.842	.610	30.4	37.7
32 1/2	.867	.620	31.3	33.8
33 1/2	.888	.620	32.2	34.9
34 1/2	.905	.620	33.1	36.0
35 1/2	.919	.630	34.0	37.1
36 1/2	.931	.630	34.9	38.2
37 1/2	.942	.630	35.8	39.3
38 1/2	.952	.630	36.7	40.4
39 1/2	.960	.630	37.6	41.5
40 1/2	.967	.630	38.5	42.6
41 1/2	.972	.630	39.4	43.7
42 1/2	.976	.630	40.3	44.8
43 1/2	.979	.630	41.2	45.9
44 1/2	.981	.620	42.1	47.0
45 1/2	.983	.620	43.0	48.1
46 1/2	.984	.610	43.9	49.2
47 1/2	.984	.600	44.7	50.3
48 1/2	.983	.600	45.6	51.4
49 1/2	.982	.590	46.5	52.6
50 1/2	.980	.570	47.4	53.7
51 1/2	.977	.550	48.3	54.8
52 1/2	.972	.530	49.2	55.9
53 1/2	.967	.510	50.1	57.0
54 1/2	.961	.490	51.0	58.2
55 1/2	.954	.470	51.8	59.3
60 1/2	.907	.360	56.2	64.9
65 1/2	.840	.310	60.5	70.7
70 1/2	.751	.260	64.7	76.6
75 1/2	.640	.210	68.7	83.3
80 1/2	.513	.160	72.6	93.0
85 1/2	.379	-	76.1	-
90 1/2	.250	-	78.8	-

Appendix 12

A

Proportion of Contributors
whose pay is below
the year's maximum
Pensionable Earnings (Y.M.P.E.)
of the Canada Pension Plan

B

Ratio of Average Pay of
Contributors in (A) to
the Y.M.P.E.

Age	<u>MALES</u>		<u>FEMALES</u>		<u>MALES</u>		<u>FEMALES</u>	
	<u>Officers</u>	<u>Other Ranks</u>	<u>Officers</u>	<u>Other Ranks</u>	<u>Officers</u>	<u>Other Ranks</u>	<u>Officers</u>	<u>Other Ranks</u>
15	1.000	1.000	1.000	1.000	.505	.667	.504	.663
16	1.000	1.000	1.000	1.000	.506	.669	.504	.664
17	1.000	1.000	1.000	1.000	.507	.673	.505	.665
18	1.000	1.000	1.000	1.000	.516	.704	.508	.691
19	1.000	.984	1.000	1.000	.530	.747	.517	.731
20	.995	.883	.977	.991	.548	.788	.530	.775
21	.872	.713	.808	.915	.570	.813	.548	.809
22	.645	.512	.518	.781	.601	.820	.563	.823
23	.371	.327	.226	.618	.646	.820	.565	.824
24	.144	.187	.042	.456	.696	.822	.570	.827
25	.020	.096	.021	.309	.732	.825	.583	.833
26	.012	.042	.013	.190	.751	.838	.692	.850
27	.009	.014	.010	.106	.766	.846	.857	.888
28	.008	.002	.009	.054	.805	.852	.983	.923
29	.007	.001	.008	.034	.878	.889	.999	.944
30	0	0	0	.033	1.000	1.000	1.000	.956
31	0	0	0	.028	1.000	1.000	1.000	.971
32 & up	0	0	0	0	1.000	1.000	1.000	1.000

Appendix 13

Age distribution of members of the forces who became contributors during the period from January 1, 1970 to December 31, 1975

Age at Becoming a Contributor	<u>Males</u>		<u>Females</u>	
	<u>Officers</u>	<u>Other Ranks</u>	<u>Officers</u>	<u>Other Ranks</u>
15	0	1	0	0
16	29	7	0	0
17	399	5116	9	111
18	1186	8812	41	606
19	873	6385	33	617
20	320	3953	14	420
21	239	2232	16	262
22	280	1265	44	155
23	308	804	63	97
24	318	512	65	64
25	235	326	39	49
26	168	117	32	20
27	95	84	15	10
28	71	81	16	8
29	74	82	14	1
30	35	64	13	3
31	33	48	9	2
32	28	26	9	2
33	26	25	2	1
34	12	10	7	3
35	11	7	2	0
36	11	2	1	0
37	8	1	4	0
38	7	4	1	0
39	6	3	0	0
40	4	1	1	0
41	6	0	3	0
42	5	0	1	0
43	1	2	1	0
44	4	0	0	0
45	0	0	0	0
46	1	0	0	0
47	0	0	0	0
48	1	4	0	0
49	2	2	0	0
50	0	1	1	0
51	1	0	0	0
52	0	0	0	0
53	0	0	0	0
54	0	0	0	0
55	0	1	0	0
56	0	0	0	0
57	0	0	0	0
58	0	0	0	0
59	0	0	0	0
60	0	0	0	0
Total	<u>4,797</u>	<u>29,978</u>	<u>456</u>	<u>2,431</u>
Average Age	<u>21.1</u>	<u>19.2</u>	<u>24.2</u>	<u>19.8</u>

Appendix 14

Age Distribution of Contributors
December 31, 1975

Age	Males		Females	
	Officers	Other Ranks	Officers	Other Ranks
16	0	0	0	0
17	54	342	2	8
18	203	1934	12	158
19	332	2644	20	363
20	353	2716	18	345
21	361	2527	24	349
22	365	2125	19	289
23	391	2022	30	215
24	415	2053	43	162
25	368	1977	48	141
26	397	2073	51	112
27	437	2152	38	144
28	501	2183	36	101
29	537	2239	33	59
30	444	1752	31	33
31	427	1638	17	15
32	507	1928	20	14
33	526	2024	12	24
34	500	1874	15	20
35	472	2037	9	21
36	363	2035	12	19
37	361	2117	7	15
38	371	2112	4	13
39	429	1977	11	8
40	412	1925	10	10
41	404	1931	9	8
42	357	1800	9	8
43	459	1809	5	8
44	478	1536	6	11
45	464	1229	13	4
46	395	1117	5	5
47	316	870	13	3
48	239	861	10	1
49	197	721	11	2
50	134	573	10	4
51	92	189	4	1
52	84	114	1	1
53	78	54	1	0
54	57	44	3	0
55	30	42	0	0
56	6	8	1	0
57	1	1	0	0
58	0	0	0	0
59	2	0	0	0
60	1	0	0	0
61	0	1	0	0
Total:	<u>13,320</u>	<u>61,306</u>	<u>623</u>	<u>2,694</u>
Average Age:	<u>34.0</u>	<u>31.9</u>	<u>30.2</u>	<u>23.5</u>

Appendix 15

Age Distribution of Monthly Pay and Allowances
of Contributors Dec. 31, 1975

Age	Males		Females	
	Officers	Other Ranks	Officers	Other Ranks
	\$	\$	\$	\$
16	-	-	-	-
17	18861	157878	698	3672
18	72357	929306	4203	74672
19	122013	1360121	7940	182467
20	137617	1542059	6442	185080
21	151309	1589608	8781	201087
22	209350	1480435	12571	179486
23	310490	1619820	27020	146516
24	404130	1835226	41558	118596
25	400103	1905736	47992	115430
26	485179	2133043	55889	103748
27	593885	2301224	45932	140971
28	744334	2378729	44674	104808
29	848872	2473260	42702	61961
30	739288	1959439	39679	34151
31	749454	1838857	22733	15383
32	910674	2182518	28865	15490
33	959563	2305151	20574	26636
34	933664	2164584	20130	22527
35	886601	2379903	13966	23226
36	684046	2409451	19518	21181
37	693305	2524179	11908	17397
38	709765	2533581	6626	14636
39	833213	2404720	19664	8975
40	820627	2358513	17330	10955
41	824987	2386852	15636	9045
42	717568	2250305	16166	9106
43	942142	2286080	9070	9848
44	987360	1951426	11639	13483
45	956393	1582669	23807	4590
46	832451	1440898	9710	5885
47	674810	1126826	24242	3945
48	512272	1113951	18720	1205
49	420471	944261	20614	2456
50	297624	748515	19140	4726
51	207417	277357	7336	1205
52	205630	178962	2529	1326
53	187147	87814	2154	-
54	139239	74456	6782	-
55	80830	70599	-	-
56	15941	12923	2599	-
57	2634	1205	-	-
58	-	-	-	-
59	6109	-	-	-
60	3725	-	-	-
61	-	1614	-	-
Total:	\$ <u>21,433,450</u>	\$ <u>63,304,054</u>	\$ <u>757,539</u>	\$ <u>1,895,871</u>
Average:	\$ <u>1,609</u>	\$ <u>1,033</u>	\$ <u>1,216</u>	\$ <u>704</u>