



**GOVERNMENT
SUPERANNUATION FUND
AUTHORITY**



GOVERNMENT SUPERANNUATION FUND
Te Pūtea Penihana Kāwanatanga

20

Actuarial
Valuation

22

as at 30 JUNE 2022



Table of Contents

Section 1 : Introduction	1
Section 2 : The Fund	2
Section 3 : Membership Data	3
Section 4 : Fund Accounts and Assets	5
Section 5 : Fund Experience	8
Section 6 : Valuation Methodology	10
Section 7 : Assumptions	13
Section 8 : Results	16
Section 9 : Material Risks	25
Section 10 : Statements and Certifications	27
Appendix A : Summary of membership data	31
Appendix B : Summary of actuarial assumptions	36
Appendix C : Summary of Entitlements	43

Section 1: Introduction

This Report has been prepared for the Government Superannuation Fund Authority (the **Authority**). Limitations relating to the use of this Report are set out in Section 10.

The previous actuarial report, as at 30 June 2021, was prepared by Matthew Burgess FNZSA, FIAA, of Towers Watson Australia Pty Ltd and dated 28 October 2021.

The requirement for actuarial valuations of the Government Superannuation Fund (the **Fund**) is set out under Section 94 of the Government Superannuation Fund Act 1956 (the **Act**). This states that the Authority must obtain an actuarial report that examines the financial position of the Fund as at dates determined by the Minister of Finance but no more than three years apart.

The report must show the financial position of the Fund as at the valuation date and the probable annual contributions required by the Fund to provide benefits falling due within the next three years without affecting or having recourse to the actuarial reserve appertaining to the contributors' contributions.

Under Section 95 of the Act the Authority must certify, after receiving advice from an actuary, as to the share of benefit payments to be met from the Fund assets. The Authority must also certify, after receiving advice from an actuary, the payments to be made to the Fund by employers whose employees are paid from money that is not public money (**funding employers**).

Therefore, the purpose of this Report is to:

1. evaluate the unfunded liability of the Fund in respect of past service as at 30 June 2022;
2. calculate the proportion of benefits payable from the Fund that is to be met from the Fund assets;
3. calculate the probable annual contributions required by the Crown to cover a proportion of the benefits payable over the next five years; and
4. make recommendations in respect of contributions to the Fund to be made by employers of contributors to the Fund with effect from 1 July 2023.

Our report also provides a summary of the data used to calculate the above results, details of the assumptions and methodology adopted and a summary of the benefit design for each of the schemes within the Fund.

Section 2: The Fund

The Fund is established under the Act, as amended from time to time, which governs a number of separate superannuation schemes. We used the version of the Act reprinted on 28 October 2021. In accordance with Section 19H of the Act, each of the schemes in the Fund must be treated as if it is registered on the register of managed investment schemes under the Financial Markets Conduct Act 2013 as a superannuation scheme, but Part 4 of that Act does not apply.

The schemes established under the Act are:

Scheme	Part of the Act
Government Service Superannuation (Old General)	Part 2
New Government Service Superannuation (New General)	Part 2A
Armed Forces	Part 3A
Judges and Solicitor-General	Part 5A
Parliamentary	Part 6
Police	Part 6A
Prisons Service	Part 6B

Members under Part 2 or Part 2A of the Act who are or were employed by the Public Services of the Cook Islands, Niue or Tokelau are valued separately and described as “Islands” in this report.

The Judges and Solicitor-General scheme and the Parliamentary scheme have no contributing members but there remain former members receiving pensions. The Judges and Solicitor-General scheme and the Parliamentary scheme are managed on a fully pay-as-you-go basis. The remainder of the schemes are managed on a partially funded basis. Contributions from members and funding employers (employers whose employees are paid from money which is not public money) are paid into the Fund and invested. For non-funding employers the employer contributions are paid to the Crown.

Benefits are paid partly from the assets of the Fund and partly by the Crown.

The level of employer contributions and the proportion of the benefits payable from the Fund assets are reviewed at each statutory valuation of the Fund.

The schemes have been closed to new members since 1 July 1992, apart from Islands members who were able to join up until 1995.

Section 3: Membership Data

The membership data required to produce our actuarial calculations was provided by the Fund Administrator, Datacom Connect Limited, and is effective as at 30 June 2022.

Where possible, we placed checks on the data to test for internal consistency between 30 June 2021 data and 30 June 2022 data. We also reconciled the movements in contributors and pensioners between 30 June 2021 and 30 June 2022.

At 30 June 2022 there were 1,856 contributors with total salaries of \$210.7 million. Additionally, at 30 June 2022, there were 42,688 current and suspended pensioners with total pensions of \$942.8 million per annum and 2,330 deferred pensioners.

We reconcile member movements but do not perform data checks in respect of the group of members commonly known as Inactives. More information on Inactive members is set out in Appendix A. These are members who have ceased contributing to the Fund, but have not yet received an entitlement. The impact on the overall liabilities of the Fund from this inactive group is modest in relative terms and therefore we are comfortable to make an approximation in the 30 June 2022 valuation. There were 1,754 Inactives members at 30 June 2022.

Movements in membership of the contributors and inactive group of the Fund by scheme are shown below.

Scheme	30 June 2021	Retirements	Withdrawals	Deaths	Refunds	Ill-Health	Transfer	Re-Enrolments	30 June 2022
Armed Forces	49	-	-	1	-	-	-	-	48
General (ex Islands)	3,437	363	-	10	9	2	1	1	3,053
Islands	385	12	-	2	3	-	-	-	368
Police	143	18	-	1	-	-	-	-	124
Prisons Service	18	1	-	-	-	-	-	-	17
Total	4,032	394	-	14	12	2	1	1	3,610

The movements in the contributor and inactives data for the 2021/22 year are summarised below.

	30 June 2021 category (From)	30 June 2022 category (To)		
		Contributor	Inactives	Exits
Contributor	2,226	1,854	15	357
Inactives	1,806	2	1,739	65
Re-Enrolments ¹	n/a	-	-	1
Total	4,032	1,856	1,754	423

¹ One member who had been exited from member data in prior years but for whom payment was processed through the year ending 30 June 2022.

Many of the exits shown in the above table will have commenced a pension or become entitled to a deferred pension. New pensions also commence from the previous pensioners, for example a reversionary pension may become payable on the death of a retirement pensioner.

The movements in the pensioner membership, including deferred pensioners, over the year were as follows.

Pensioners at 30 June 2021	46,042
<i>Less pensioners ceasing to receive pensions</i>	(2,124)
<i>Plus new pensioners commencing</i>	1,100
Pensioners at 30 June 2022	45,018

For former Armed Forces members with deferred pensions which have not yet commenced, the pension amount held on the administration system is the pension amount calculated at the date of deferral with indexation to the current date. When valuing the liability for these pensioners we then allow for indexation from 30 June 2022 to the date of commencement of the pension using the assumed future rates of Consumer Price Index (CPI) increase.

Key summary membership statistics are provided in Appendix A. Also, Appendix B includes a summary of circumstances where assumptions were necessary to complete our calculations because of the nature of the data.

In our opinion, the data we received was sufficient to carry out this valuation of the Fund.

Section 4: Fund Accounts and Assets

Assets

The net assets of the Fund had a market value of \$4,961.996 million at 30 June 2022. This figure was obtained from audited financial statements as at 30 June 2022, made available by the Authority. The information includes the market value of the Fund assets, contributions, benefit payments and expenses information over the period since 30 June 2021.

Values have been taken from the audited accounts included in the Annual Report of the Fund.

The transactions of the Fund for the year ending 30 June 2022 together with the prior year's figures for comparative purposes are summarised in the following table.

Year ending 30 June:	2021 \$M*	2022 \$M*
Opening balances	4,270	5,218
Plus:		
Member contributions	18	15
Funding employers	13	10
Government contributions	749	782
Investment income (pre-tax)	1,255	(120)
Less:		
Pensions paid	888	900
Commutations	16	20
Refunds and payments on death	7	2
Tax provision	109	(52)
Operating costs	67	74
Closing balances	5,218	4,962

**Total may not add up due to rounding*

The accuracy of our results is dependent upon the accuracy of the underlying data provided. We are confident of the sufficiency and reliability of the information provided for the purposes of this report. We consider that the use of the market value of assets is consistent with the assumptions used in determining the discount rate for valuing liabilities. There are no material contingent liabilities included in the asset value of which we are aware.

Investments

The Authority, under Section 15J(2) of the Government Superannuation Fund Act 1956, is responsible for investing the assets in a prudent, commercial basis. The Authority has set an Investment Objective which is to maximise the Fund's excess return relative to NZ Government Bonds (before New Zealand tax), without undue risk of under-performing NZ Government Bonds over rolling ten-year periods.

The Authority has determined that the long term strategic asset allocation (also known as the Target Portfolio) for the investments of the Fund is as shown in the table below. As at 30 June 2022 the Target Portfolio was as set out in the Statement of Investment Policies, Standards and Procedures dated 1 January 2022.

Asset Class	Proportion
New Zealand equities	10.0%
International equities	59.0%
Fixed interest	14.0%
Catastrophe risk assets	3.0%
Life settlement assets	3.0%
Global private equity	11.0%
Total	100.0%

At 30 June 2022 the financial statements showed the asset allocation of the Fund as set out in the table below, along with the 30 June 2021 allocation for comparison.

Asset Class	Proportion of total assets at 30 June 2021	Proportion of total assets at 30 June 2022
New Zealand equities (including property)	8.0%	9.2%
International equities	56.8%	49.6%
Global private equity	9.8%	15.5%
Fixed interest	6.1%	9.7%
Insurance linked assets	6.4%	6.1%
Style premia fund	7.0%	0.0%
Short term investments and cash*	5.9%	10.0%
Total	100.0%	100.0%

** Also includes Derivatives, Prepayments, Receivables and Liabilities
Total may not add up due to rounding*

The investment policy allows the Authority to take temporary positions away from the Target Portfolio, within specified limits.

Market risk means that the investment returns could be volatile. The investment portfolio includes normal investment risks, but I am not aware of any other material risks posed by the assets.

In our opinion, given the circumstances of the Fund, in particular the long-term nature of the benefits and the partially funded status, the assets and the investment strategy are within the range of what is suitable for the purposes of the Fund.

Investment Return

The long term after tax investment return was assumed to be 5.0% p.a. for the purposes of the 30 June 2021 statutory valuation. The estimated return for the 2021/22 year was -1.31%. This has been estimated using the formula $2I/(A + B - I)$, where I is investment income less tax provisions, A is the opening balance and B is the closing balance. The estimate is after tax and before investment

costs so that it can be compared to the investment return assumed for the financial year to 30 June 2022.

The lower than expected investment return in 2021/22 means that the assets at 30 June 2022 are lower than expected in last year's actuarial investigation.

Estimated after tax returns for prior years, as reported in our previous valuation reports were:

Fund return (before investment fees and after tax)	
Year ended 30 June 2021	27.54%
Year ended 30 June 2020	-1.14%
Year ended 30 June 2019	3.6%

The Fund's annual report as at 30 June 2022 states that the investment return for the year was -3.70% before tax and after investment fees. The Fund switched to a before tax investment objective from 1 July 2014 and hence investment returns are now reported on a before tax basis.

Section 5: Fund Experience

Salary Increases

The average salary increases for the year for contributors at 30 June 2022 are shown in the table below, segregated by scheme. The expected increase based on last year's actuarial assumptions was 2.5% plus an assumed promotional salary increase based on a member's scheme and age. As General scheme members make up about 90% of the total salary roll for active members, the overall level of salary increases was approximately in line with expectations.

Scheme	Actual salary increase
Armed Forces	0.9%
General	2.6%
Islands	3.0%
Police	4.8%
Prisons Service	0.2%

Pension Increases

Most pensions increased by 5.95% in the 2021/22 year. This increase was based on the increase in the CPI over the year ended 31 December 2021. The overall pension increase was higher than the assumed rate of 1.88%, which has resulted in the value of the liabilities increasing by more than expected.

Pensioner mortality

A review was carried out of the pensioner mortality over the three year period to 30 June 2020 for last year's 30 June 2021 statutory valuation.

We reduced the previous mortality improvement assumptions from 2.5% p.a. at ages up to 75 and progressively smoothed to 1% p.a. at ages above 83, to 2.0% p.a. at ages up to 75 progressively smoothed to 0.5% p.a. at ages above 90.

For this valuation we have retained these assumptions.

Demographic

The demographic experience of the Fund over the three year period to 30 June 2021 was reviewed as part of the 30 June 2021 statutory valuation and changes were made to some assumptions used for that valuation. Based on the analysis the following changes were made to the actuarial assumptions:

- The retirement decrement assumption for the General Scheme of immediate retirement at age 69 and above has been pushed back to age 73, with a constant 30% retirement decrement rate assumed from age 69 to 72.
- The assumptions regarding the number of married pensioners at death have been revised at ages exceeding 75 to align with mortality assumptions.

For this report, we have retained these updated assumptions.

Next review of demographic experience

The next review of the demographic experience will be carried out as part of the 30 June 2024 statutory valuation, unless circumstances are such that an earlier review is required.

Employer Contributions

The employer contributions paid in the 2021/22 year were based on recommendations in the 30 June 2020 statutory valuation report, for non-funded employers, and separate advice provided in December 2020 for funding employers.

We are not in a position to check whether contributions were paid in accordance with the recommendations, particularly for non-funding employers, where the contributions are paid directly to Treasury. However, from the Fund's perspective the key funding mechanism is the Crown contribution, determined as described in Section 6. From the financial statements, we were able to confirm that the Crown contribution for 2021/22 was in accordance with recommendations.

In total the contributions received from funding employers in 2021/22 were of the order that we expected.

Administration expenses

The administration expenses of the Fund for the 2021/22 year were \$10.490 million, as set out in the financial statements. This represents 0.21% of the year end assets.

Section 6: Valuation Methodology

All members have been valued individually using WTW's proprietary software. Each member's age, gender, category of membership, salary, service, deferred pension, current pension, and/or contributions have been taken into consideration.

Valuing the Fund's liabilities involves projecting the benefits payable in future to members and their dependants. Benefits are payable on retirement, death, leaving service, ill health or on withdrawal from the Fund and are calculated using membership at the valuation date. The amount of the entitlement typically depends on the length of membership, the level of salary in the years leading up to the event and the pension increases subsequently given (in the case of the pension entitlements).

A summary of the main entitlements for each scheme is provided in Appendix C. This summary has been reviewed and agreed by the Authority.

Past Service Liabilities

The Past Service Liabilities for the Fund are calculated by projecting these payments, using assumptions about the likelihood of an entitlement becoming payable at any future date (the demographic assumptions) and about members' future salary growth and pension increases (the financial assumptions). The projected payments are discounted back to the valuation date using the assumed discount rate.

The benefits for contributors are apportioned to past service as follows:

- Retirement/Death/Medical Retirement: the benefit calculated only with service to the valuation date, with allowance for future salary increases to the assumed date of exit.
- Resignation: For deferred retiring allowances, the benefit calculated only with service to the valuation date, with allowance for future salary increases to the assumed date of exit and increased in line with CPI to date of payment; for immediate lump sums, the member contributions with interest to the date of payment assuming no further contributions.

For pensioners, inactive and deferred members the entire benefit relates to past service.

Unfunded Liabilities

The Unfunded Liabilities are then calculated as the difference between the Past Service Liabilities and the Fund assets.

Crown contribution

The Crown makes contributions (known as the Crown subsidy) to the Fund which are equal to:

- the benefit payments arising from members of the Judges and Solicitor-General scheme and the Parliamentary scheme, which are both funded on a pay-as-you-go basis, after deducting member contributions for the period;
- a proportion of the benefit payments arising from other members, with the amount determined by deducting from the total benefit payments in respect of the relevant members the amount received from funding employers and the Fund Share; and
- a proportion of the Fund's expenses, with the balance met by the funding employers.

Fund Share of Benefits

The Fund Share of Benefits is the proportion of benefits arising, excluding benefit payments from the Judges and Solicitor-General scheme and the Parliamentary scheme, which are paid from the Fund.

This proportion is calculated as the ratio of the Fund assets plus expected future member contributions to the total Fund liabilities in respect of past and expected future service. It is calculated using risk-free discount rates determined by Treasury, reduced for estimated investment tax. The Fund Share of Benefits is expected to be reasonably stable over time, but will vary from year to year based on changes to assumptions and experience. For example, a higher than expected investment return would be expected to increase the Fund Share of Benefits.

This calculation methodology has been used for many years and is one of a number of reasonable approaches that could be adopted. The Fund Share of Benefits is updated annually to reflect the actual experience of the Fund, which ensures that over time the Crown contributions are adjusted ensuring all benefit payments will be funded.

Employer Contribution Rates

Funding employers (employers whose employees are paid from money which is not public money) make employer contributions to the Fund. Non-funding employers do not make employer contributions to the Fund, but the Government requires employer contributions to be made to the Crown.

The method used for determining the employer contribution rates is to use the Standard Contribution Rates calculated using the Attained Age Method. This method calculates the employer contributions required to fund benefits accruing to contributory members over potential future service by:

- calculating the amount of all benefits expected to be paid in the future in respect of the current Fund members, based on potential future service, and allowing for all the contingencies under which benefits can be paid (retirement, death, ill health or resignation), the probabilities of these contingencies arising and for future salary increases;
- projecting future pension benefits allowing for increases arising from cost of living adjustments and for probabilities of survival;
- discounting the stream of expected future benefit and pension payments to determine the present value of future liabilities;
- similarly, discounting the projected stream of expected future member contributions to determine the present value of these contributions and then offsetting this amount from the present value of future liabilities above;
- dividing this net future liability by the present value of 1% of future members' salaries to derive the Standard Contribution Rate; and
- grossing up the calculated rate to allow for the relevant level of Employer Superannuation Contribution Tax (ESCT) for the schemes where the tax applies.

In fully funded superannuation schemes where this method is used, the Standard Contribution Rate is usually adjusted to allow for any difference between the scheme assets and past service liabilities. However, since 1 July 2008 employer contributions have been calculated using the Standard Contribution Rates without adjustment. This means that the Standard Contribution Rates are only adjusted for emerging experience to the extent future assumptions are updated. Crown contributions will reduce (or increase) to the extent that emerging experience is better (or worse) than expected.

Accordingly, given the ongoing support of the Crown, we have not assessed the strength of the covenant of funding employers in setting contribution rates.

Up until 30 June 2008 the Standard Contribution Rates were adjusted with reference to the surplus or deficit of the notional fund for each scheme, calculated commencing 1 July 1992, when the Fund was largely closed to new entrants. The significant reduction in the value of assets as a result of the global financial crisis, combined with the reduced number of contributors made it difficult for stable contribution rates to be maintained under this approach.

The exception to this is the Prisons Service scheme, which continues to have a high notional surplus and for which no contributions are currently necessary.

A consequence of the approach is that, for funding employers, there is likely to be a cross subsidy to or from the Crown because of differences between assumptions and experience. The Fund Share of Benefits will adjust over time to reflect the differences ensuring all benefits are funded. For the funding employers the Standard Contribution Rates are calculated based on only their own employees. The approach is intended to fully fund members' benefits by the time they leave employment.

The non-funding employer contribution rates are calculated based on all members of the relevant scheme. No allowance for expenses is included in the non-funding employer contribution rates.

Allowance for Employer Superannuation Contribution Tax

A legislative amendment of Section RD 67 of the Income Tax Act 2007 was made on 30 March 2022, to take effect from 1 April 2021 (the previous effective date of an increase in the ESCT from 33% to 39%), which determines a different level of ESCT to apply under various circumstances as:

- a. *the amount determined [based on the basic withholding rate for ESCT] under schedule 1, part D, clause 1 (Basic tax rates: income tax, ESCT, RSCT, RWT, and attributed fringe benefits), unless paragraph (b) or (c) applies;*
- b. *33% of the employer's superannuation cash contribution, if the contribution is made by a person for the benefit of 1 or more of their past employees and paragraph (c) does not apply; or*
- c. *39% of the employer's superannuation cash contribution, if an employer chooses 39% and the contribution is to a defined benefit fund.*

On agreement with the Authority, we have assumed the following rates of ESCT:

- In respect of Crown contributions, a rate of 33% ESCT for contributions made in respect of benefit payments to members under paragraph (b) of the legislation;
- In respect of funding employers, a rate based on the employer's choice of a flat rate of 39% ESCT or the relevant ESCT rate for each employee i.e. the choice of paragraph (c) and (a) above. To facilitate the administration of these contributions we will provide contributions for funding employers net of tax (to enable calculation of contribution rates under a) and grossed up for 39% ESCT; and
- In respect of non-funding employers, a rate of 33% ESCT. Non-funding employer contributions are made to the Crown rather than to the Fund. We understand that the Crown effectively receive and hold these contributions until the relevant employees cease service and have therefore applied an ESCT rate consistent with that paid by the Crown.
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Section 7: Assumptions

Financial assumptions

The key financial assumptions are the rate of return on assets, and the rates of salary growth and pension increases.

Discount Rate – Statutory Basis

The valuation of the Fund on the statutory basis provides a picture of the financial condition of the Fund and a determination of the employer contribution rates on an ongoing basis. Therefore, a discount rate based on a realistic best estimate assumption of the expected return on assets is required.

The expected return on assets is based on modelling carried out by the Authority. The modelling derives a set of expected real returns for each of the major asset classes in which the Fund invests and is combined with the price inflation assumption to develop nominal returns. The discount rate has allowed for the effects of taxation and is expressed net of New Zealand tax. No adjustments for investment expenses were made as they are met by the Crown and the funding employers. The discount rate is calculated based on the long-term strategic asset allocations and long-term expectations of investment returns net of taxation at the valuation date. The long-term strategic asset allocation for the Fund as at 30 June 2022 is set out in Section 4 of this report.

Based on this methodology the discount rate assumption is 5.25% p.a., net of tax. The discount rate assumption for the statutory valuation as at 30 June 2021 was 5.0% p.a., net of tax. This increase of 0.25% is driven primarily by increases in the expected asset class returns over the duration of the liabilities.

Discount Rate – Fund Share Basis

In accordance with established practice, the discount rates for the Fund Share basis are calculated by reference to market prices for Government bonds as at the valuation date but are reduced for estimated investment tax.

The discount rates for this valuation and the previous statutory valuation are set out in Appendix B. The rates for this valuation are greater than or equal to the rates used for the previous valuation at all durations.

Pension Increases

The pension increase assumption is linked to expected increases in the Consumer Price Index (**CPI**). For the purposes of certain accounting valuations Treasury publishes assumptions relating to CPI increases. In our opinion it is reasonable to also use these assumptions for this valuation. The CPI increase assumptions released in July 2022 relate to years ending 30 June. As at 30 June 2022, the assumed CPI increases based on the Treasury rates are assumed to be 3.87% p.a. initially, decreasing to 1.76% p.a. after 3 years, remaining at 1.76% p.a. for 15 years, before gradually increasing to 2.00% p.a. after 38 years.

For the 30 June 2021 statutory valuation, the assumed CPI increases were 1.88% p.a. for the first 20 years, then increasing to and remaining at 2.00% after 29 years.

The assumption of major significance in the valuation of the Fund's liabilities is the long-term difference (or 'gap') between the assumed discount rate and the assumed rate of future pension increases. These two assumptions offset each other in their financial effect, hence the difference between the rates is important rather than the absolute values ascribed to them. The greater the assumed gap, the lower the value placed on the liabilities.

The assumed 'gap' for this valuation is 1.38% for the year ending 30 June 2023, increasing to 3.49% after 3 years, remaining at 3.49% for 15 years, before gradually decreasing to 3.25% after 38 years. The gap for the 30 June 2021 statutory valuation was 3.12% for the year ending 30 June 2022, gradually decreasing to 3.0% p.a. from 1 July 2051 onwards.

The gap at 30 June 2022 is larger than that at 30 June 2021 for all but the first two years. In isolation, this means the value of the liabilities will be lower than under the 30 June 2021 basis.

Salary Growth

The salary inflation assumption is based on market expectations of price inflation and on consideration of Treasury's expected range for inflation, together with an allowance for the margin of salary inflation over price inflation. The salary assumption adopted is a flat salary increase of 2.5% p.a., which is the same as that used for the statutory valuation as at 30 June 2021. In addition, an age-based scale of promotional salary increases has been used, as set out in Appendix B, which is also the same as adopted for the 30 June 2021 statutory valuation.

Demographic Assumptions

The demographic assumptions used are the same as used in the statutory valuation as at 30 June 2021.

Expenses

The expenses of the administration and investment management of the Fund are currently met in part by the funding employers, with the balance paid by the Crown as provided by Section 15E of the Act. An allowance for future expenses has been made in the calculations of the contribution rates for funding employers.

Recommendations on the apportionment of expenses between Crown and funding employers for the year ending 30 June 2023 were made in our letter dated 27 October 2021. It was recommended that the Crown should meet 97% of the expenses of the Authority relating to investment management and administration, with the balance to be met by funding employers. In addition, it was recommended that the expenses to be met by funding employers are recouped through a loading of 2.0% of salaries in the recommended contribution rates (1.2% of salary for Islands members).

We have provided advice to the Authority on the apportionment of expenses for the year to 30 June 2024. Full details of our calculations and recommendations are set out in a separate letter dated 5 October 2022. In summary, our recommendations are that the share of expenses to be met by the Crown and by funding employers are 98% and 2% respectively and that the expenses to be met by funding employers are met by a loading of 1.3% on the net of ESCT recommended contribution rates, to be grossed up by ESCT at the rate applied to the contribution for each contributor by the relevant employer e.g. 2.1% where an ESCT of 39% applies (1.3% where ESCT does not apply, or a rate between 1.3% and 2.1% based on the contributor's ESCT).

The assumptions used are best estimate assumptions and do not include any margins for adverse deviations. Appendix B sets out a summary of the key financial and demographic assumptions adopted.

Section 8: Results

Total Service Liabilities

The valuation balance sheet at 30 June 2022 under each basis is set out below.

	Statutory valuation \$M*	Fund Share valuation \$M*
Total Service Liabilities		
Armed Forces	4	6
General (excluding Islands)	1,223	1,696
Islands	67	98
Police	125	174
Prisons Service	8	10
Current pensioners	10,380	12,746
Deferred pensioners	561	852
Total Liabilities	12,369	15,582
Assets		
Value of Fund Assets	4,962	4,962
Present value of future member contributions		
Armed Forces	0	0
General (excluding Islands)	42	45
Islands	2	3
Police	0	0
Prisons Service	0	0
Total Assets	5,007	5,010
Present value of amounts to be funded by Government contributions and funding employer contributions	7,363	10,571
Fund Share of Benefits		32.6%

* Total may not add up due to rounding

The Fund Share of Benefits is calculated as the ratio of the value of assets plus the value of future member contributions to the value of total liabilities. For this calculation the liabilities and contributions in respect of the Judges and Solicitor-General scheme and the Parliamentary scheme are excluded. The liabilities for these two schemes (including pensioner liabilities) are \$223 million and the value of contributions is nil as there are no active members remaining in either of these schemes.

The Fund Share of Benefits calculated at the 2021 valuation was 30.6%. The calculation above shows that the Fund Share of Benefits at 30 June 2022 has increased to 32.6%. This is primarily due to the increase in the real discount rates used to value the liabilities as at 30 June 2022 compared with those used at 30 June 2021, partially offset by lower Fund assets as a result of poor investment returns. The increase in real discount rates on the Fund share basis reflects the increase in bond yields over the year and results in a lower value being placed on the Fund's liabilities. Other changes will have had smaller impacts.

Past Service Liabilities

The valuation results at 30 June 2022 are:

Past Service Liabilities	Statutory valuation \$M*	Fund Share Valuation \$M*
Armed Forces	4	5
General	1,122	1,545
Islands	59	86
Police	125	173
Prisons Service	8	10
Total Contributors and Inactives	1,318	1,820
Current pensioners	10,380	12,746
Deferred pensioners	561	852
Total Pensioners	10,941	13,598
All Past Service Liabilities	12,259	15,418
Assets	4,962	4,962
Unfunded Past Service Liabilities	7,297	10,456

**Total may not add up due to rounding*

The change in the Past Service Liabilities (PSL) over the 2021/22 year is detailed below.

	\$M*	\$M*
PSL at 30 June 2021		12,214
Expected change		(304)
Service cost (including member contributions)	32	
Interest cost	589	
Benefit payments	(925)	
Experience (gains)/losses		452
Assumption changes		(103)
Financial (CPI assumption change)	182	
Financial (Discount rate change)	(285)	
Financial (Salary increase assumption)	-	
Demographic	-	
PSL at 30 June 2022		12,259

**Total may not add up due to rounding*

The corresponding movement in the assets over the year was:

	\$M*	\$M*
Assets at 30 June 2021		5,218
Expected change		69
Return on assets	256	
Contributions	738	
Benefit payments	(925)	
Experience gains/(losses)		
Investment		(323)
Other		(2)
Assets at 30 June 2022		4,962

**Total may not add up due to rounding*

The movement of the unfunded past service liability (actuarial deficit) over the year is, therefore:

	\$M*	\$M*
Unfunded PSL at 30 June 2021		6,996
Expected change		(373)
Service cost	32	
Interest cost	589	
Return on assets	(256)	
Contributions	(738)	
Experience (gains)/losses		777
Assets	325	
Liabilities	452	
Change in basis		(103)
Financial (CPI assumption change)	182	
Financial (Discount rate change)	(285)	
Financial (Salary increase assumption)	-	
Demographic	-	
Unfunded PSL at 30 June 2022		7,297

**Total may not add up due to rounding*

Vested Benefits

Vested benefits are calculated as the amount payable in the event that all contributors ceased membership as at the valuation date. For this purpose, I have assumed that:

- for all schemes other than Armed Forces, contributors with at least 10 years contributory service will receive a deferred retiring allowance commencing at age 50 if they are currently under age 50, otherwise an immediate pension,
- for all schemes other than Armed Forces, contributors with less than 10 years contributory service will receive an immediate withdrawal benefit (there are very few members in this situation),
- all contributors in the Armed Forces scheme have at least 20 years contributory service and receive an immediate retirement pension, and
- the pension benefits have been valued using the same assumptions about commutation as were used to value the past service liabilities, as set out in Appendix B.

The vested benefit values are shown in the following table. The ratio of vested benefits to past service liabilities is also shown.

Group	Vested Benefits \$M*	As a percentage of past service liability
Contributors and Inactives:		
Armed Forces	4	100%
General	1,281	114%
Islands	64	108%
Police	125	100%
Prisons Service	8	100%
Total Contributors and Inactives	1,483	113%
Pensioners:		
Current Pensioners	10,380	100%
Deferred Pensioners	561	100%
Total Pensioners	10,941	100%
Grand Total	12,424	101%
Less Assets	4,962	
Shortfall	7,462	

**Total may not add up due to rounding*

The relationship between the vested benefits and the assets is unlikely to change materially by the date of the next investigation.

The implications of the Fund winding up have not been considered in this report due to the nature of the Fund. Because the Crown funds benefits as they are paid, there is not sufficient assets in the Fund for pensions to be outsourced to a life insurance company that provides annuities.

Projected Subsidy

A projection of the amount of Government contributions under the Fund Share basis, before any offset for contributions by funding employers and excluding expenses, has been made for the next five years assuming that experience will match the valuation assumptions. The results of the projection are shown below.

Year ending 30 June	Projected subsidy \$M
2023	675
2024	665
2025	666
2026	662
2027	655

Employer Contributions – Funding Employers

The information produced by our valuation software enables us to carry out calculations on an employer by employer basis and calculate a Standard Contribution Rate based solely on the members employed by each employer.

The contribution rates for the funding employers for the year commencing 1 July 2022 are set out in the 30 June 2021 statutory valuation report dated 28 October 2021.

We have calculated the contribution rates for funding employers for the year commencing 1 July 2023 under the methodology and assumptions set out in sections 6 and 7, with contribution rates shown on both a net and gross of 39% ESCT basis.

To avoid small changes in contribution rates from year to year it has been the standard practice agreed with the Authority to leave an employer's contribution rate unchanged if the most recently calculated rate is within 0.3% of the existing rate. This approach has again been taken.

As set out in Section 6, funding employers have the option of selecting a flat 39% ESCT rate, or a rate based on the relevant ESCT tax rate of each employee. We understand that Datacom currently calculates a net rate from our contribution rates which are based on ESCT of 39%. Contribution rates will be provided both net and gross of 39% ESCT.

There are a small number of employers who have pre-existing arrangements whereby the Crown has provided that the contribution rates are capped at either 10% or 12% of salary. For employers with contributions capped at 10% or 12%, we will provide the capped rate, either 10% or 12%, as the gross of 39% ESCT contribution rate.

A sample of average contribution rates at selected ages is set out in the following table. In general, the contribution rate of a funding employer can be calculated by weighting together the contribution rates based on the age of their employees. Rates have been set out on a net of tax and a gross of ESCT at 39% basis.

Age nearest	Net of ESCT		Gross of 39% ESCT	
	Males	Females	Males	Females
55	10.6%	10.6%	17.3%	17.4%
57	10.8%	10.8%	17.7%	17.8%
59	10.9%	11.0%	17.9%	18.0%
61	11.0%	11.1%	18.0%	18.1%
63	10.9%	10.9%	17.8%	17.9%
65	10.0%	10.1%	16.4%	16.6%
67	9.5%	9.5%	15.6%	15.5%
69	9.2%	9.2%	15.0%	15.1%
71	9.1%	9.1%	14.9%	14.9%

The contribution rates (gross of 39% ESCT) have decreased by up to 1.2% from those applicable for the 2022/23 year primarily due to the increase in discount rate, partially offset due to increases in the CPI assumption.

At most ages there is only a small variation in contribution rates between employees of the same age. However, at ages above 65 the actual contribution rate for an individual at a particular age may differ from the average rate at that age, particularly if the individual has had a recent significant change in salary. In this case, if the number of employees of a funding employer is small the calculated contribution rate may differ from the rate that would be estimated based only on the average contribution rates.

Due to a change to the methodology for valuing future contributions in the 2016 valuation, the calculated contribution rates for 2017/18 were generally higher than the 2016/17 rates. In 2016 the Authority adopted a smoothing approach for the increase in contributions. The approach allows for the impact of the change in methodology to be phased in by way of a cumulative 0.5% of salary per year until the higher rates are attained. Ten funding employers continue to have contributions for 2023/24 calculated based on a smoothed rate.

Under this approach the contribution rates (gross of 39% ESCT) for funding employers for 2023/24 will lie in the range of 14.6% to 18.1% of salary.

Employer Contributions – Islands

The four employers of the Islands members are funding employers. We have continued the existing practice to treat the Islands members as a single group for the purposes of calculating the employer contribution rates.

Consistent with the previous actuarial investigation, an allowance for expenses has been included in the recommended contribution rate for the Islands group of members. The expense loading is 1.3% of salaries (net of ESCT) for the 2023/24 year and the calculated contribution rate is 16.6% for Islands members.

For comparison, the contribution rate for the 2022/23 year is 17.3% of salaries.

Employer Contributions – Non-funding Employers

The calculated Standard Contribution Rates for non-funding employers, inclusive of 33% ESCT, for the different schemes from 1 July 2023 are shown in the following table.

Scheme	Non-funding Employer contribution rates
Armed Forces	12.7%
General	13.9%
Police	8.6%
Prisons Service	Nil

For comparison the contribution rates for the 2022/23 year are 15.9% for the Armed Forces scheme, 16.4% for the General scheme, 15.0% for the Police scheme and nil for the Prisons scheme.

The contribution rates for the Armed Forces, General and Police schemes have reduced due to changing membership characteristics, the increased discount rate assumptions, and the change in the ESCT assumption, which has reduced from 39% to 33%.

The contribution rates may change from year to year depending on changes to assumptions and the emerging experience of each group of Fund members.

The Judges and Solicitor-General scheme and the Parliamentary scheme are both funded on a pay-as-you-go basis, and there are now no active members, so there are no recommended contribution rates for these schemes.

The notional fund in respect of the Prisons Service scheme continues to have a large surplus and no contributions are currently necessary.

Sensitivity of Results

As explained earlier in the report the value of the liabilities is highly influenced by the size of the gap between the discount rate and the assumed rate of future inflation, whether salary inflation or price inflation. To illustrate the impact of a change in the gap we have re-valued the past service liabilities using discount rates of 6.25% p.a. and 4.25% p.a., whilst keeping all other assumptions unchanged.

The results are shown in the following table.

	Statutory basis (5.25% discount rate) \$M*	6.25% discount rate \$M*	4.25% discount rate \$M*
Contributors and Inactives	1,318	1,159	1,511
Current Pensioners	10,380	9,594	11,289
Deferred Pensioners	561	474	672
Total past service liabilities	12,259	11,227	13,473
Assets	4,962	4,962	4,962
Unfunded liability	7,297	6,265	8,511

* Total may not add up due to rounding

We have also carried out an analysis to show the impact of a 1% increase and a 1% decrease in the assumed CPI inflation rate, whilst keeping all other assumptions unchanged.

	Statutory basis \$M*	1% increase in assumed CPI rate \$M*	1% decrease in assumed CPI rate \$M*
Contributors and Inactives	1,318	1,475	1,181
Current Pensioners	10,380	11,262	9,605
Deferred Pensioners	561	672	472
Total past service liabilities	12,259	13,409	11,259
Assets	4,962	4,962	4,962
Unfunded liability	7,297	8,447	6,297

* Total may not add up due to rounding

We have also carried out an analysis to show the impact of a 10% increase and a 10% decrease in the assumed rate of mortality, whilst keeping all other assumptions unchanged.

	Statutory basis \$M*	10% increase in assumed mortality \$M*	10% decrease in assumed mortality \$M*
Contributors and Inactives	1,318	1,295	1,343
Current Pensioners	10,380	10,068	10,727
Deferred Pensioners	561	553	570
Total past service liabilities	12,259	11,916	12,640
Assets	4,962	4,962	4,962
Unfunded liability	7,297	6,954	7,678

*Total may not add up due to rounding

These sensitivity analyses are not intended to show the full range of possible outcomes, but are intended to demonstrate that outcomes are highly dependent on future experience.

Section 9: Material Risks

The purpose of this section of this report is to identify the material risks for the Fund which are associated with the actuarial assumptions or actuarial management of the Fund, of which we are aware as Actuary. We also comment on the way in which the identified financial risks are being managed by the Authority.

The material risks are:

Increasing Life Expectancy

The Fund's liabilities relate almost wholly to current and future pensioners. The assumptions regarding pensioner mortality that were used for this valuation allow for future improvements in mortality. However, a future breakthrough in medical diagnosis or treatment which leads to a significant increase in life expectancy could increase the Fund's liabilities and require increased employer and Crown contributions.

Mortality experience should continue to be monitored at least every three years, in conjunction with relevant population data, to assess whether the current assumptions remain valid.

Investment Risk

The risk faced by the Fund is that the investment returns earned on the assets will not be as high as expected over the long term. This means that the Crown's share of benefit payments might need to increase.

The Authority has set an Investment Objective which is to maximise the Fund's excess return relative to NZ Government Bonds (before New Zealand tax), without undue risk of underperforming NZ Government Bonds over rolling ten year periods.

The Fund has a strategy of using diversified investment vehicles and requires investment managers to themselves invest in a range of underlying securities. Given the level of diversification in the underlying investments, the Fund is unlikely to suffer any significant loss from underperformance by the failure of an individual underlying security.

The Authority has a comprehensive Statement of Investment Policies Standards and Procedures in place for the governance and management of the assets held by the Fund.

Inflation

The Fund's liabilities for active members are linked to salary and therefore a higher than expected rate of inflation could have a negative impact on the required contribution amounts. Salary increases should continue to be monitored at each valuation.

Similarly, pension liabilities are linked to the CPI and increases above those assumed could lead to an increase in Crown contributions.

Liquidity Risk

The majority of the Fund's liabilities relate to current and future pensions which we expect to be paid out over a very long time frame. As the benefit payments are largely covered by Crown and employer

contributions the amount of assets required to be redeemed to meet benefits is relatively small and is quite stable over time. Therefore, the Fund is unlikely to be faced with a need to redeem an unexpectedly large amount.

Furthermore, the Authority's Statement of Investment Policies Standards and Procedures includes a number of policies addressing liquidity risk.

In the very long term, as the Fund begins to decline in size, we would expect the assets to move gradually to a predominantly liquid position.

Self-Insurance

By self-insuring the death and ill health benefits, the Fund runs the risk of higher than expected claims occurring. However, given the high average age of current active members the value of death or ill health benefits are not materially different from the value of retirement benefits.

Furthermore, in the event of a pandemic affecting the general population the effect of an increase in deaths amongst active members is likely to be offset to some extent by deaths among the current pensioners.

Other

The Fund faces a variety of operational, legislative and other risks which may in some circumstances lead to cost increases. There are also benefit options able to be elected by retiring contributing members and current pensioners that can increase benefit payments.

We understand that the Authority monitors and takes action on such risks as part of the risk management framework.

Section 10: Statements and Certifications

Fund Share of Benefits

The results in Section 8, carried out using valuation discount rates derived from those used for valuations for Crown Account purposes, shows a Fund Share proportion of 32.6%. The 2021 valuation resulted in a proportion of 30.6%. As the valuation result is sensitive to the level of actual investment returns received and the assumed discount rates used, I consider the Fund Share of Benefits proportion should be increased to 32.6%.

In terms of Section 95(1) of the Act, I advise that the proportion of benefits calculated as being provided by member contributions into the Fund is 32.6% for the 2023/24 year.

Funding employer contribution rates

Contributions for the year commencing 1 July 2022 have been calculated on an employer by employer basis, based solely on the members employed by each employer.

In terms of Section 95(2) of the Act I advise that the Standard Contribution Rates, as from 1 July 2023, for those employers of contributors whose salaries are payable out of money that is not public money is:

- for contributors who are members under Part 2 or Part 2A of the Act and employed by the Public Services of the Cook Islands, Niue or Tokelau, 16.6% of contributor salaries, exclusive of ESCT; and
- for contributors who are members under Part 2 or Part 2A of the Act, excluding those employed by the Public Services of the Cook Islands, Niue or Tokelau, contributions calculated on an employer by employer basis based only on the contributors employed by that employer. Contribution rates include the relevant ESCT rate chosen by the employer and an allowance for expenses.

A sample of average contribution rates at selected ages is set out in the following table and for most employers the contribution rate can be calculated by weighting these rates based on the age of their employees who are contributory members. The rates in this table are both net and gross of ESCT at 39%.

Age nearest	Net of ESCT		Gross of 39% ESCT	
	Males	Females	Males	Females
55	10.6%	10.6%	17.3%	17.4%
57	10.8%	10.8%	17.7%	17.8%
59	10.9%	11.0%	17.9%	18.0%
61	11.0%	11.1%	18.0%	18.1%
63	10.9%	10.9%	17.8%	17.9%
65	10.0%	10.1%	16.4%	16.6%
67	9.5%	9.5%	15.6%	15.5%
69	9.2%	9.2%	15.0%	15.1%
71	9.1%	9.1%	14.9%	14.9%

My advice is that the Authority require the relevant employers to contribute at the Standard Contribution Rates for 2023/24, or alternatively adopt a smoothing approach to allow for the phasing in of the impact of the change in methodology noted earlier in the report. One smoothing approach, which the Authority adopted for the financial years from 2017/2018 to 2022/2023, is to allow for the impact of the change in methodology by way of a cumulative 0.5% of salary per year until the higher rates are attained. Under this approach the contribution rates for funding employers for 2023/24 would lie in the range of 14.6% to 18.1% of salary, grossed up for 39% ESCT.

Contribution rates for each employer will be provided on a net of ESCT and gross of 39% ESCT to enable employers to accurately calculate a gross of ESCT contribution rate where they chose to apply ESCT based on each employee's basic withholding rate for ESCT as defined in the Income Tax Act 2007.

Non-funding employer contribution rates

The non-funding employers are required to budget for the superannuation contributions as if such contributions were payable to the Fund. These employer contribution rates do not include an allowance for a share of expenses as this is paid directly.

The calculated Standard Contribution Rates for non-funding employers, inclusive of ESCT, for the different schemes from 1 July 2023 are shown in the following table.

Scheme	Non-funding Employer contribution rates
Armed Forces	12.7%
General	13.9%
Police	8.6%
Prisons Service	Nil

In accordance with my professional obligations as a Fellow of the New Zealand Society of Actuaries, I make the following statements:

- In carrying out this valuation as required by the Act, in my view I have no conflict with any other of my professional activities.

- I am not aware of any material developments to the Fund or any external events that have had a material effect on the results of the investigation.
- I am not aware of any material events subsequent to the date of the current investigation.
- The Fund has no arrangements for external insurance of the benefits payable on death or disability. Having regard to the size of the Fund, the employer sponsors of the Fund and the nature of the benefits payable on death or disability, it is my view that there is no need for the Fund to hold such insurance.
- In completing this report, I have had regard to Professional Standard No. 40 - Valuation of and Funding for Superannuation Schemes, issued by the New Zealand Society of Actuaries, and Professional Standard No. 90 General Actuarial Practice, issued by the New Zealand Society of Actuaries. The valuation method and the financial, economic and demographic assumptions have been determined in accordance with the professional judgement of the Actuary preparing the report.
- I am not aware of any discrepancy between the Act and subsequent Amendments and the practice of the Authority which would have a material bearing on the results of this investigation.
- The next valuation will be carried out as at 30 June 2023.

Reliances and Limitations

This report was prepared for you in the context of actuarial requirements under the Act, under the terms of our agreement with you dated 23 March 2017, as extended by the agreement dated 7 August 2020. It may not be suitable for use in any other context or for any other purpose and we accept no responsibility for any such use.

This report was prepared solely for the use of the Authority on the basis agreed with you. It was not prepared for use by any other party and may not address their needs, concerns or objectives. We note that the report will be available publicly on the Authority's web site. We do not assume any responsibility, or accept any duty of care or liability to any third party who may obtain a copy of this report and any reliance placed by such party on it is entirely at their own risk.

In preparing this report we have relied on information and data provided to us verbally, electronically and/or in writing by the Fund Administrator and the Authority. We have relied on all the data and information provided, including Fund provisions, membership data and asset information, as being complete and accurate. We have not independently verified the accuracy or completeness of the data or information provided, but we have performed limited checks for consistency.

The content and accuracy of this report are dependent on the completeness and accuracy of the information provided to us. Although independent verification of this information was not undertaken, we have reviewed the information for reasonableness and consistency with our knowledge of the Fund.

In our opinion, all calculations are in accordance with applicable legislative requirements, and the procedures followed and the results presented conform with applicable actuarial standards of practice.

If further explanation of the matters covered in this report or supplementary information is required, please contact the Actuary to the Fund at the address below.

Matthew Burgess

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This report has been peer reviewed in accordance with WTW Excellence procedures.

Louise Campbell

Louise Campbell FNZSA, FIAA
Head of Retirement, Australasia, WTW

24 October 2022

Appendix A: Summary of membership data

The following tables summarise the membership data as at 30 June 2022 received from the Fund Administrator.

Contributors

A summary of the membership data in respect of contributors split by scheme is as follows:

Scheme	Gender	Age Group	Number of Members	Average Age	Average Membership	Average FTE ¹ Salary (\$)
Armed Forces			3	58.5	40.8	154,994
	Female		1	*	*	*
	Female	55 to 64	1	*	*	*
	Male		2	*	*	*
	Male	55 to 64	2	*	*	*
General			1,582	62.3	34.4	121,869
	Female		673	62.1	32.4	113,765
	Female	45 to 54	61	52.8	24.9	113,709
	Female	55 to 64	437	60.7	32.5	111,261
	Female	65 to 74	162	68.3	34.9	123,038
	Female	75 and over	13	77.0	34.2	82,635
	Male		909	62.4	35.9	127,868
	Male	45 to 54	51	53.1	29.6	117,422
	Male	55 to 64	635	61.1	36.0	126,794
	Male	65 to 74	216	68.0	37.2	133,273
	Male	75 and over	7	75.9	38.9	134,672
Islands			198	54.7	33.0	40,136
	Female		105	54.5	32.8	37,431
	Female	45 to 54	63	51.3	30.9	38,803
	Female	55 to 64	37	58.4	35.2	35,624
	Female	65 to 74	5	67.1	37.6	33,525
	Male		93	54.9	33.2	43,189
	Male	35 to 44	1	*	*	*
	Male	45 to 54	44	51.3	30.6	41,668
	Male	55 to 64	47	58.2	35.6	43,266
	Male	65 to 74	1	*	*	*

Scheme	Gender	Age Group	Number of Members	Average Age	Average Membership	Average FTE ¹ Salary (\$)
Police			62	56.1	32.5	138,059
	Female		13	55.1	32.0	161,307
	Female	45 to 54	7	52.8	30.8	144,758
	Female	55 to 64	6	57.8	33.4	180,616
	Male		49	56.4	32.6	131,891
	Male	45 to 54	23	53.1	31.6	136,590
	Male	55 to 64	25	59.0	33.5	128,791
	Male	65 to 74	1	*	*	*
Prison Services			11	64.6	33.5	85,461
	Female		2	*	*	*
	Female	55 to 64	1	*	*	*
	Female	65 to 74	1	*	*	*
	Male		9	64.4	33.5	78,766
	Male	55 to 64	5	60.0	28.7	76,986
	Male	65 to 74	3	68.0	36.2	85,547
	Male	75 and over	1	*	*	*
Judges and Solicitor-General			-	-	-	-
Parliamentary			-	-	-	-
All Schemes			1,856	61.3	34.2	113,528

¹ Full-Time Equivalent

Note: In the above table, * signifies that there were only one or two members in the age band and the statistics are not shown for privacy reasons.

Inactives

Inactives are members who have ceased contributing to the Fund, but have not yet received an entitlement. These members are split into two groups according to the data available to calculate entitlements:

- Inactive members with less than 10 years membership, or with a salary of nil or \$1, who are entitled to a withdrawal benefit.

- Inactive members with at least 10 years membership and a salary, who are entitled to a deferred retiring allowance.

A summary of the Inactives membership data as at 30 June 2022 is as follows:

Inactives (Withdrawal Benefit)	Number of Members	Average Age	Average Membership	Average Withdrawal Benefit (\$)
Armed Forces	44	62.7	1.7	621
General	1,201	65.3	2.3	1,382
Islands	150	56.9	2.6	724
Police	4	67.0	4.1	3,318
Prison Service	3	70.3	9.1	610
Grand Total	1,402	64.3	2.3	1,291

Inactives (Deferred Retiring Allowance)	Number of Members	Average Age	Average Membership	Average Deferred Retiring Allowance (\$pa)
Armed Forces	1	*	*	*
General	270	61.9	19.2	12,220
Islands	20	56.9	17.4	5,492
Police	58	61.4	32.1	36,786

Inactives (Deferred Retiring Allowance)	Number of Members	Average Age	Average Membership	Average Deferred Retiring Allowance (\$pa)
Prison Service	3	66.9	35.0	29,963
Grand Total	352	61.6	21.4	16,039

Pensioners

A summary of the pensioner membership data as at 30 June 2022 is as follows:

	Deferred pensions			Retirement pensions		
	Number	Average Age	Average Pension 1 (\$p.a.)	Number	Average Age	Average Pension (\$pa)
Females	260	54.3	14,795	6,808	75.5	21,306
Age 25 to 49	25	49.2	13,982	1	*	*
Age 50 to 59	235	54.8	14,881	170	57.3	16,420
Age 60 to 69	-	-	-	1,540	66.1	24,946
Age 70 to 79	-	-	-	3,193	75.0	21,511
Age 80 to 89	-	-	-	1,549	83.9	18,600
Age 90 to 99	-	-	-	341	93.4	17,686
Age 100 and over	-	-	-	14	100.9	21,003
Males	2,070	54.8	15,404	23,653	75.9	27,581
Age 25 to 49	165	49.1	14,431	3	49.2	7,716
Age 50 to 59	1,905	55.3	15,488	289	57.3	22,004
Age 60 to 69	-	-	-	5,950	65.6	24,847
Age 70 to 79	-	-	-	9,650	75.1	29,468
Age 80 to 89	-	-	-	6,356	84.0	27,480
Age 90 to 99	-	-	-	1,372	92.9	27,803

Age 100 and over	-	-	-	33	101.4	29,831
Grand Total	2,330	54.8	15,336	30,461	75.9	26,179

¹ Pension amounts disclosed for Armed Forces include indexation from the date of deferral to 30 June 2022 based on the actual increase in the CPI for the relevant period.

Note: In the above table, * signifies that there were only one or two members in the age band and the statistics are not shown for privacy reasons.

	Spousal and dependant pensions		
	Number	Average Age	Average Pension (\$p.a.)
Females	11,789	81.4	12,045
Under age 25	24	14.2	3,519
Age 25 to 49	33	44.2	5,227
Age 50 to 59	199	57.0	8,426
Age 60 to 69	1,097	66.1	10,773
Age 70 to 79	3,281	75.6	11,533
Age 80 to 89	4,969	84.7	12,509
Age 90 to 99	2,093	93.4	12,970
Age 100 and over	93	101.6	11,910
Males	438	75.1	7,716
Under age 25	10	14.1	3,764
Age 25 to 49	20	42.8	4,529
Age 50 to 59	24	55.8	7,441
Age 60 to 69	53	66.0	7,050
Age 70 to 79	146	75.4	8,469
Age 80 to 89	138	84.4	7,508
Age 90 to 99	43	93.1	8,858
Age 100 and over	4	102.2	11,459
Grand Total	12,227	81.2	11,890

Appendix B: Summary of actuarial assumptions

Financial Assumptions

The financial assumptions which we have adopted are shown below.

Discount rates (Fund Share):

Year ended 30 June	Discount rate p.a. Fund Share 2022	Discount rate p.a. Fund Share 2021
2023	2.40%	0.58%
2024	2.66%	0.85%
2025	2.71%	1.10%
2026	2.77%	1.32%
2027	2.83%	1.53%
2028	2.89%	1.71%
2029	2.95%	1.87%
2030	3.01%	2.01%
2031	3.06%	2.15%
2032	3.10%	2.26%
2033	3.14%	2.37%
2034	3.17%	2.47%
2035	3.19%	2.56%
2036	3.20%	2.63%
2037	3.21%	2.69%
2038	3.22%	2.74%
2039	3.22%	2.78%
2040	3.22%	2.81%
2041	3.22%	2.83%
2042	3.22%	2.85%
2043	3.22%	2.87%
2044	3.22%	2.90%
2045	3.22%	2.93%
2046	3.22%	2.95%
2047	3.22%	2.98%
2048	3.22%	3.01%
2049	3.22%	3.03%
2050	3.22%	3.06%
2051	3.22%	3.09%

Year ended 30 June	Discount rate p.a. Fund Share 2022	Discount rate p.a. Fund Share 2021
2052	3.20%	3.10%
2053	3.20%	3.10%
2054	3.18%	3.10%
2055	3.18%	3.10%
2056	3.16%	3.10%
2057	3.15%	3.10%
2058	3.14%	3.10%
2059	3.12%	3.10%
2060	3.11%	3.10%
2061 onwards	3.10%	3.10%

Discount rate (Statutory): 5.25% p.a.

CPI: The assumed CPI increases based on the Treasury rates are assumed to be 3.87% p.a. initially, decreasing to 1.76% p.a. after 3 years, remaining at 1.76% p.a. for 15 years, before gradually increasing to 2.00% p.a. after 38 years.

Salary increases: 2.5% p.a.

Armed Forces deferred pensioners

For former Armed Forces members with deferred pensions which have not yet commenced, the pension amount held on the administration system is the pension amount calculated at the date of deferral, with indexation to the current date. When valuing the liability for these pensioners we then allow for indexation from 30 June 2022 to the date of commencement of the pension using the assumed future rates of CPI increase.

Demographic Assumptions

Promotional salary increases

In addition to salary increases from general salary inflation, age related promotional increases have been assumed. Specimen rates are as follows:

Age	Salary increases at each age				
	General schemes	Islands	Armed Forces	Police	Prisons Service
30	1.50%	1.00%	1.500%	2.250%	3.50%
35	1.25%	1.00%	1.125%	2.188%	2.60%
40	1.00%	1.00%	0.750%	2.125%	2.00%
45	0.75%	1.00%	0.375%	2.063%	0.50%
50	0.50%	-	-	2.000%	-
55	-	-	-	-	-

In-service decrements

Specimen rates for the **General** schemes are as follows:

Number out of 10,000 members aged X at the beginning of the year assumed to leave the Fund during the year for the following modes of exit					
Age	Male Death	Female Death	Resignation	Age Retirement	Ill-health Retirement
35	4	2	700	-	4
40	5	3	400	-	4
45	7	5	300	-	23
50	10	7	200	300	41
55	17	12	-	325	60
60	28	20	-	650	-
65	48	31	-	4,550	-
70	80	47	-	3,000	-
73	-	-	-	10,000	-

Specimen rates for the **Islands** are as follows:

Number out of 10,000 members aged X at the beginning of the year assumed to leave the Fund during the year for the following modes of exit					
Age	Male Death	Female Death	Resignation	Age Retirement	Ill-health Retirement
35	13	7	400	-	5
40	16	9	430	-	10
45	22	16	280	-	20
50	34	25	100	500	45
55	56	40	-	800	85
60	94	65	-	3,000	-
65	-	-	-	10,000	-

Specimen rates (which include age and membership based rates) for the **Armed Forces** scheme are as follows:

Number out of 10,000 members aged X at the beginning of the year assumed to leave the Fund during the year for the following modes of exit			
Age	Male Death	Female Death	Ill-health Retirement
35	5	3	5
40	6	4	0
45	9	6	0
50	14	10	0
55	22	16	0
60	38	26	0

Number out of 10,000 members with membership X at the beginning of the year assumed to leave the Fund during the year for the following modes of exit		
Membership	Resignation	Age Retirement
15	100	-
20	-	6,000
25	-	5,125
30	-	4,250
35	-	3,375
40	-	2,500

Specimen rates for the **Police** scheme are as follows:

Number out of 10,000 members aged X at the beginning of the year assumed to leave the Fund during the year for the following modes of exit					
Age	Male Death	Female Death	Resignation	Age Retirement	Ill-health Retirement
35	5	3	20	-	600
40	6	4	-	-	600
45	9	6	-	-	600
50	14	10	-	250	300
55	-	-	-	10,000	-

Specimen rates for the **Prisons Service** scheme are as follows:

Number out of 10,000 members aged X at the beginning of the year assumed to leave the Fund during the year for the following modes of exit					
Age	Male Death	Female Death	Resignation	Age Retirement	Ill-health Retirement
35	5	3	2,000	-	5
40	6	4	1,400	-	10
45	9	6	800	-	50
50	14	10	450	300	100
55	22	16	200	500	150
60	-	-	-	10,000	-

There are no active members remaining in the Parliamentary Scheme or the Judges and Solicitor-General Scheme. In-service decrement assumptions are no longer required.

Pensioner mortality

The underlying mortality for pensioners is based on experience over the period from 1 July 2017 to 30 June 2020, as set out in the report dated 28 May 2021. Specimen rates effect 30 June 2019 are as follows:

Number assumed to die out of 10,000 at each age		
Age	Males	Females
65	63	46
70	107	68
75	184	119
80	410	279
85	773	554
90	1,531	1,265

In addition, we have made the following adjustments for mortality improvement:

- An allowance for past improvements (from 1 July 2019 to 30 June 2021) at the rate of 2.0% per annum at ages up to 75 and progressively smoothed to 0.5% per annum at ages including and above 90.
- An allowance for future improvements (from 30 June 2021 onwards) at the rate of 2.0% per annum at ages up to 75 and progressively smoothed to 0.5% per annum at ages including and above 90.

Proportion of members with a spouse or partner

It was assumed that the percentage of members with a spouse or partner gradually reduces as members age. Specimen rates are as follows:

% of members with a spouse or partner at each age		
Age	Male	Female
35	68	69
40	72	71
45	75	72
50	76	72
55	78	71
60	77	68
65	76	63
70	74	54
75	71	42
80	67	33

Expenses

The administration and investment expenses of the Fund are currently met in part by the funding employers, with the balance paid by the Crown as provided by Section 15E of the Act. An allowance

for future expenses was incorporated in the employer contributions recommended for funding employers in this report.

The expenses for the financial year ended 30 June 2023 have been estimated by the Authority and beyond that date have been assumed to remain proportional to the value of assets.

Age difference and length of relationship between pensioners and their spouses or partners

It has been assumed that male pensioners were three years older than their spouse or partner while, for female pensioners, it was assumed they were three years younger than their spouse or partner.

It was assumed the length of the relationship between pensioners and their spouses or partners was such that 50% of the pension reverts to the spouse or partner upon the pensioner’s death.

Assumed mix of lump sums/pensions

Members were assumed to take their entitlements as a combination of lump sum and pension as follows:

	General schemes	Islands	Armed Forces	Police	Prisons Service
Retirement	95%	80%	100%	100%	80%
Death (spouse pension)	100%	100%	100%	100%	100%
Invalidity	88%	75%	75%	88%	75%

Upon resignation, the percentage of members assumed to elect to receive a deferred retiring allowance is as follows:

Scheme	Percentage of resigned members assumed to elect to receive a deferred retiring allowance
General	75%
Islands	50%
Armed Forces ¹	100%
Police	20%
Prisons Service	20%

¹ eligible after 20 years of service

Other Assumptions

- Where a member has a part time fraction recorded in the 30 June 2022 data file that fraction is assumed to apply to all future service.
- The impact of past periods of part time service is summarised in the average part time factor supplied in the member data.
- For members who have ceased contributions for a period and then re-commenced contributing, we have been advised that the date of commencement of service provided in the data has already been adjusted by the administrator to reflect the alterations to contributory service required under Section 61R of the Government Superannuation Fund Act 1956.

Assumptions used for Inactive Contributors

The Inactives group is in respect of contributors who have ceased to be members and have not received an entitlement from the Fund, but for whom salary or contribution information is available. We have valued these members assuming they receive either an immediate refund of contributions (if less than 10 years membership, or with a salary of nil or \$1) or are entitled to a deferred retiring allowance (if more than 10 years membership and have a salary). The liability in respect of the members entitled to a deferred retiring allowance has been valued assuming commencement of the retiring allowance from the later of current age and age 50, with no mortality in deferment.

When valuing the liability for these deferred retiring allowances we have increased the salary amount provided in the administration data file to allow for indexation from the date of suspension of membership to 30 June 2022, based on the actual increase in the CPI for the relevant period. We then allow for indexation from 30 June 2022 to the date of commencement of the pension using the assumed future rates of CPI increase.

The assumption that all inactive members with less than 10 years membership receive an immediate lump sum has the effect of bringing forward benefits that will, in practice, not be paid until later years and leads to a spike in the projected benefit payment amount for the 2022/23 year. Similarly, those inactive members with more than 10 years membership who are over the eligibility age to receive an immediate retiring allowance, are assumed to begin receiving the allowance immediately.

Suspended pensioners

There are a number of pensioners who have a suspended pension – indicated by a suspension code in the data file. This excludes former Armed Forces members who have a deferred pension. For the majority of the suspended pensions it is possible that the pension could be reinstated in the future. We have taken a conservative approach and assumed that all suspended pensions are reinstated immediately, and have valued the liabilities accordingly.

For some types of suspension the pensioner (or his or her dependant) would be entitled to back payment of past pension amounts if the pension is reinstated. We have not allowed for these payments, but consider these are likely to be more than offset by the conservative approach described above.

Pension elections

Pensioners have various options available in respect of structuring the terms of their pension or assigning part of their pension to another person. These options are implemented using sets of actuarial factors which are intended to result in no change to the Fund's liabilities. However, over time, actual experience will be different to expected so the emerging liability will also be different from that assumed. No allowance has been made for any selection that may occur where members who exercise certain options do so based on their individual circumstances. To the extent that pensioners have already exercised these options, and they are not included in the membership data, they will not be reflected in our calculations.

Appendix C: Summary of entitlements

A summary of the entitlements of the seven schemes is set out below:

Membership	Part 2 / Old GS	Employees in Government service electing to join before 30 April 1985
	Part 2A / New GS	Employees in Government service electing to join before 30 June 1992 (1995 for Islands)
	Part 3A / AF	Members of the Armed Forces joining prior to 30 June 1992
	Part 5A and 5B / Judges	Judges and Associate Judges appointed prior to 30 June 1992
	Part 6 / MPs	Members of Parliament initially elected prior to 30 June 1992
	Part 6A / Police	Members of the Police joining prior to 30 June 1992
	Part 6B / PS	Members of the Prisons Service joining prior to 30 June 1992

Member Contributions	Old GS	6% if < 30 at date of joining 7% if 30-34 8% if 35-39 9% if 40-44 10% if 45-49 11% if >50 Some members may have elected, prior to 1 March 1970, to contribute at 1% less than the rates above. All members can elect to contribute at 6% for an entitlement reduced in the same proportion that 6% bears to the standard rate.
	New GS	6.5%
	AF	7.6%
	Judges	8%, until reach 16 years of service, then 0%.
	MPs	11%, until reach 20 years of service, then 8%
	Police	7.5%
	PS	8.5% (may cease contributing after 32 years)

Contributory Service	Old and New GS	Actual contributory service for all members
	AF	Actual contributory service plus any accrued leave at date of discharge or release
	Judges	Aggregate of all periods of contributory service as a Judge, temporary Judge or Associate Judge
	MPs	Actual contributory service as a member of Parliament
	Police	For members who joined before 1 May 1985 and 55 or over at retirement, then service is calculated as potential service up to age 60, further increased by 1/7th, to a maximum of 40 years. For all other members, 125% of actual contributory service as a member of the Police, to a maximum of 40 years If actual contributory service is greater than 40 years, actual contributory service applies.
	PS	125% of actual contributory service as a member of the Prison Service, to a maximum of 40 years If actual contributory service is greater than 40 years, actual contributory service applies.
Final Salary	All except Old GS, Judges and MPs	The lesser of salary in the last 12 months and the average of the last 5 years' salary, adjusted for CPI to date of exit.
	Old GS	Average of the last 5 years' salary
	Judges	Salary at date of resignation or date of retirement
	MPs	Salary payable to a backbencher at the date on which the retiring allowance first becomes payable.
Retirement Entitlement Eligibility	Old GS	Age 65, or age 60 and 40 years of service, or age 50 and 20 years of service with employer consent (other requirements apply to members of NZ Railways Corp or the Police, and certain females)
	New GS	Age 60 or age 50 with 10 years of service and employer consent
	AF	20 years of service, with at least 10 years in AF
	Judges	68 years or over 50 with 10 years of service
	MPs	Over 50 with at least 9 years of service
	Police	over 50 with 10 years of service with employer consent
	PS	58 years or 50 years with 8 years of service and employer consent

Retirement Allowance Multiple	Old GS	70% of 1/60 th per year of service up to 40 years plus 120 th per year of service after 40 years. For members of the Island Schemes, the 70% factor is not applied.
	New GS	1.05% per year of service adjusted for retirement before or after age 60 (add 0.0168% per year between age 60 and 65, subtract 0.0336% per year between age 55 and 60, subtract 0.0168% per year below 55). For members of the Island Schemes, all accrual rates are divided by 70%.
	AF	1.05% per year of service
	Judges	70% of 1/24 th (less 1/750 th per year if age under 55) per year of service, to a maximum of 70% of 2/3rds.
	MPs	70% of (1/30 th per year of service up to 20 plus 1/120 th per year of service over 20)
	Police	1.05% per year of service adjusted for retirement before age 55 (subtract 0.0336% per year between age 50 and 55)
	PS	1.05% per year of service adjusted for retirement before age 58 (subtract 0.0168% per year before age 53, subtract 0.0336% per year between age 53 and 58)
Retirement Entitlement	All parts except AF and MPs	Retirement allowance pension calculated at date of exit as Final Salary times Retirement Allowance Multiple. Pensions in payment are increased annually with CPI in April each year. Commutation of up to 25% of the pension is optional.
	AF and MPs	Retirement allowance pension calculated at date of exit as Final Salary times Retirement Allowance Multiple. Pensions in payment are increased annually with CPI. Commutation of up to 25% of the pension is optional. Members may defer their pension to age 55 or 60 for an additional lump sum.
Medical Retirement Entitlement	All except MPs	Retirement allowance calculated as per normal retirement at date of medical retirement.
	MPs	No special entitlement is payable on medical retirement

Death while Active with spouse	All parts except Old GS and MPs	<p>Either:</p> <ul style="list-style-type: none"> A. The greater of: <ul style="list-style-type: none"> a. One year's salary at date of death b. Refund of member contributions with interest B. 50% of the retirement allowance received if member had medically retired (option to commute part of members pension)
	Old GS	<p>Either:</p> <ul style="list-style-type: none"> A. The greater of: <ul style="list-style-type: none"> a. 50% of the retirement allowance received if member had retired on date of death b. \$390 pa B. Refund of member contributions
	MPs	<p>Before 9 years of service, refund of two times member contributions without interest.</p> <p>With 9 or more years of service, either:</p> <ul style="list-style-type: none"> A. The greater of: <ul style="list-style-type: none"> a. One year's salary at date of death b. Refund of two times member contributions without interest B. 50% of the retirement allowance received if member was eligible to retire at date of death (option to commute part of the member's pension)
Death without spouse	All parts except Old GS and MPs	Return of member contributions with interest, less any pension payments already paid
	Old GS	Refund of member contributions without interest, less any pension payments already paid and any child allowance payments paid or payable.
	MPs	Return of two times member contributions without interest, less any pension payments already paid.

Death as Pensioner with spouse	All parts except Old GS and MPs	<p>Either:</p> <ul style="list-style-type: none"> A. Up to 50% of the pension reverts to an eligible spouse dependant on the length of the relationship. B. Return of member contributions with interest, less any pension payments already paid
	Old GS	<p>Either:</p> <ul style="list-style-type: none"> A. The greater of: <ul style="list-style-type: none"> a. Up to 50% of pension reverts to an eligible spouse dependant on the length of the relationship. b. \$390 pa if married before beginning pension, otherwise \$0. B. Refund of member contributions, less any pension payments received
	MPs	<p>Either:</p> <ul style="list-style-type: none"> A. Up to 50% of the pension reverts to an eligible spouse dependant on the length of the relationship. B. Return of two times member contributions without interest, less any pension payments already paid
Death – Child Allowance	All parts	<p>Any member who dies leaving a child or children under 16 years (or are otherwise dependent on the deceased), each child receives an annual allowance of \$1,000 increased with CPI since 1982 until they reach age 16 or 18 if in full time education.</p> <p>Child allowances are paid in addition to any other death entitlements, except for Old GS where child allowances are deducted from the return of contributions on death without spouse, but are paid in addition to other death entitlements.</p>
Resignation	All parts except MPs, and Old scheme	<ul style="list-style-type: none"> A. Refund of member contributions with interest; or B. With 10 or more years of service (8 years if PS), deferred retiring allowance payable from age 50 or later (this option is not available to AF), or C. With 10 or more years of service (8 years if PS), transfer value rolled into other superannuation fund equal to: Refund of member contributions with interest x (100%+10% per year of service from 10 to 20)
	MPs	<p>Refund of two times member contributions without interest</p> <p>If have more than 9 years of service and less than 50 on resignation, then entitled to a deferred pension payable from age 50 based on an ordinary MPs salary at that age and also commute some to a lump sum to be taken immediately.</p>
Withdrawal	All parts	<ul style="list-style-type: none"> A. Refund of member contributions without interest (not available to MPs, AF, Police and Judges); or B. If join another employer subsidised scheme and have sufficient service, entitled to a deferred pension from age 50.

Death after resignation or withdrawal with spouse	All parts except MPs	A. Refund of member contributions with interest; or B. 50% pension, where pension is calculated using Final Salary at date of exit/withdrawal, then increased with CPI to date of death.
	MPs	Two times member contributions without interest If ceased before age 50 and has more than 9 years of service, then entitlement of 50% spouse pension is payable from death if die before age 50 or from pension commencement age if chose to defer pension to 55 or 60.

Death after resignation or withdrawal without spouse	All parts except MPs	Refund of member contributions with interest to date of death
	MPs	Two times member contributions without interest

Additional Entitlements

Some Parts have entitlements on leave of absence without pay and temporary cessation of contributions. Entitlements are discounted per year of suspended service.

Members can surrender up to 50% of their retirement allowance to provide a pension for another person (the assignee). The value of the entitlement is actuarially determined so that the value of the entitlement is unchanged. The assignee's pension also increases with CPI and ceases on the assignee's death.

Actuarial Valuation

AV 2022

